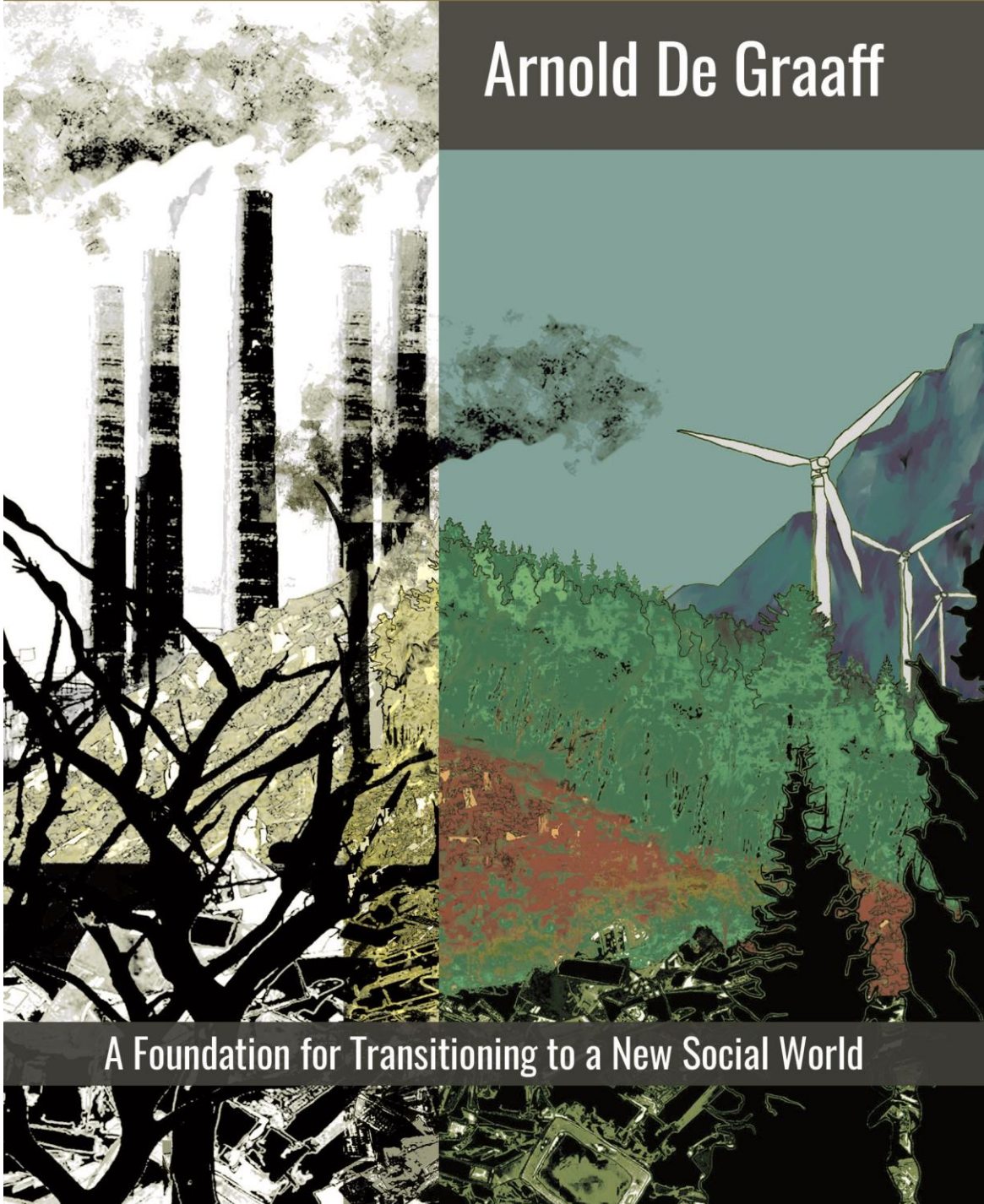


The Gods in Whom They Trusted

The Disintegrative Effects of Capitalism

Arnold De Graaff



A Foundation for Transitioning to a New Social World

**THE GODS IN WHOM THEY TRUSTED:
THE DISINTEGRATIVE EFFECTS OF CAPITALISM;
A FOUNDATION FOR TRANSITIONING TO A NEW SOCIAL WORLD**

Acknowledgements

This book has gone through a long process of development in which several major factors have played a crucial role. The most formative influence on my intellectual life has been the exposure to the Amsterdam school of philosophy while at the Free University in Amsterdam for graduate studies. During that time I also absorbed the rich heritage of the Dutch and European phenomenological movement in anthropology, psychiatry, psychology, education and the phenomenology of religion. In the last decade my interest in these core issues have been re-awakened by Lambert Zuidervaart's two publications, *Artistic Truth; Aesthetics, Discourse, and Imaginative Disclosure*, (2004) and *Social Philosophy after Adorno*, (2007). The chapters on an alternative view of knowledge, human nature, ecology, economics, and normativity (epistemology, anthropology, cosmology and phenomenological ethics) reflect this philosophical background.

Leaving the academic field after fourteen years of teaching philosophical anthropology and psychology at the undergraduate and graduate level I retrained as a psychotherapist. In our joint-practice my partner and I have been strongly influenced by humanistic psychology and psychotherapy. As non-traditionalist therapists we have been exposed to a wide range of human difficulties, struggles, perplexities and at times, heart wrenching situations. Being a therapist gives one an x-ray of our present society with its many distorting and unjust situations, including every kind of home and work condition. This book reflects these sensitivities and experiences, always reminding us of peoples' actual situations and suffering. Rather than a purely academic study, this book is based on extensive empirical evidence (see the references at the end of each section) even though I have consulted numerous academic studies (see bibliograpy).

During the last decade I have valued the long conversations with my friend, researcher, teacher and writer, Robert Smith. We have mutually inspired and challenged each other to think through many core issues. He has helped me to appreciate and understand the sometimes difficult writings of Camus and Sartre, and he has appreciated the exposure to J.H. van den Berg's views of phenomenological psychotherapy and Zuidervaart's understanding of Adorno and 'societal principles'.

Having been brought up in an orthodox protestant home and schools, the chapters on ethics and religion reflect my journey from religious orthodoxy to the phenomenology of religion and the development of a touchstone for religious convictions. My intensive study of the exegesis and interpretation of the Hebrew scriptures has been an exciting and rewarding part of this journey thanks to a number of outstanding Dutch biblical scholars like Talstra, Becking, Noort, Dijkstra, Sprong, and many others. Although I differ with their ultimate faith interpretation, they have helped me to make the transition from the traditional faith of my upbringing to a new vision of life. That vision and way of life echoes the witness of the ancient prophets: do not serve the idols, that is, do not deify any aspect of life because that will lead to distortion and disintegration. Hence the title of this book, *The Gods in Whom They Trusted; The Disintegrative Effects of Capitalism; A Foundation for Transitioning to a New Social Order*. Over against any one-sided approaches stands the *multi-dimensional unity of life that wants to do justice to all aspects of life and not elevate one dimension at the expense*

of all others. This basic touchstone has served as the guideline for the development and evaluation of all systemic changes: do they do justice to the integral unity and diversity of life.

In the practice of psychotherapy we, Rita Reitsma my wife and I, have worked as a team, mutually supporting each other and learning from one another. Within the limits of disintegrative and challenging social conditions, we have been able to engage in 'critical social work' and 'radical psychotherapy'. From the beginning to the end, Rita has shared in the development of this book, spending long hours at university libraries both in Amsterdam and Toronto, finding sources, photocopying materials, and proof reading different versions. Writing this book has been a joint project. She has traveled the same spiritual journey and we share a mutual cultural background. We both wish for another world in which healing, growth and well-being can be a normal part of daily life for both young and old. This book is dedicated to her companionship, care, commitment and partnership for over three decades.

This book is also dedicated to my grandchildren and all the children of the world. Although there have been some limited changes and recommendations after the Paris Agreement on Climate Change in 2015, there is no international commitment to structural changes. Business solutions are the order of the day. For decades to come it will be business-as-usual with neo-liberal, global capitalism leading the way, including in Canada. In this respect the future looks dark for our children, this in spite of the fact that all the alternatives for radical social change are ready at hand. See my 'Postscript to the Paris Climate Agreement' at the end, "It will be up to the children, young people, students and young adults of the world to free humanity from a system of deep injustice and take up the cause of all those who suffer – to seek justice for crimes against humanity and create a liveable and reconciled world. They need all of us to stand by and prepare the way".

I want to thank the Mono Mulum Citizens Coalition (MC²) for encouraging my involvement and providing a practical outlet for conserving and protecting our local area from disintegrative developments and promoting healthy community initiatives. MC² along with many other local grassroots initiatives and national organizations like Canada's National Farmers Union are the real governors of Canada and hope for the future.

There are a number of adults and young people that have read parts of the manuscript; I want to thank them for their feedback and encouragement. A special thanks to Alana Nalli for deciphering and correcting all the references; to Tim Hawkins for his careful editing and a very special thanks to Heathwood Press for providing the opportunity to publish this work in an increasingly pressured and competitive publishing world.

With gratitude,
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Dedication

For Rita, my partner and companion, and care-giver to all

*And for all the children of the world and their future, especially those who are
suffering under unbearable circumstances without hope*

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Preface and Overview

a. Time for a radical change

There is near universal agreement, other than by the corporate and government leadership, that our present way of producing energy, our use of water for industry and irrigation, our use of arable land, our present agricultural practices, our intensive way of fishing in the oceans and inland waters, our use of global forests, our systems of transportation, our mega cities and ways of building and our patterns of consumption are all ecologically and socially unsustainable.

There are countless detailed studies on any of these areas that describe what needs to change to make for a viable way of managing our resources, our systems of manufacturing and our ways of growing food. People in developing countries are under strong pressure to catch up with our destructive ways of living. They are the new consumers or the consumers in waiting that the global economy depends on. Our planet cannot sustain the lifestyle of the developed world let alone all the peoples of the world. It is ecologically and socially unsustainable. *We need to stop and transform almost all of our major ways of doing things.*

Many people and organizations have *spelled out what that means* for the next five years and beyond. They recommend adopting an *alternative program of systemic change*. This is not about following a utopian dream or idealistic program, but *the essential measures* that we need to take if we are to avoid the further disintegration of our environment and not jeopardize the very foundation of life on earth. Many have highlighted that burning more and more fossil fuels will put increasing amounts of CO₂ in the atmosphere leading to more global warming. The same is true with regard to factory farming, fishing and most other economic activities. They are unsustainable. Increasingly our production and consumption practices damage the environment and create social injustice and suffering. We urgently need to spell out a radically different alternative way of living and act upon it. More international conferences and agreements won't do. No technological solutions will suffice to avoid a collapse.

The economic policies of neoliberal capitalism have not only brought us to the brink of ecological disaster but also to social decline both in the global North and the South. Economic development has brought with it widespread social injustice, suffering and dispossession for countless peoples. Over a billion people suffer from hunger and extreme poverty and millions of children are undernourished resulting in stunted growth. Bonded workers, both men and women, and child labourers are enslaved throughout the world, many for life. The gap between the rich and the poor continues to grow. Capitalism has run its destructive course; it cannot be fixed. The neoliberal belief system has failed us. We need a radical alternative way of living and a new vision to inspire and motivate us, a *Third Alternative*. Such an alternative way of life will neither be capitalist, nor state-directed communism or socialism.

The actual way of bringing about such a Third Alternative will differ for each nation and each region and locality. When we look at any particular developing nation or region, it is astounding how many radical grass-root movements and organizations already exist. This is true for any area on the globe. For Canada the initiatives and support will come from many citizens and non-profit groups, like the *David Suzuki Foundation*, *Maude Barlow* and the *Council of Canadians*, *Green Peace*, the *Friends of the Earth*, the *First Nations*, *Mining Watch Canada*, *Canadian Network on Corporate Responsibility*, *Democracy Watch*, *Eco Justice*, *Conservation Authorities*, the *National Farmers Union*, *Kairos* and other *faith-based organizations*, *Labour Unions*, the lonely voice of *Elizabeth May* of the *Green Party*, *Fair Vote Canada*, the *Canadian Centre for Policy Alternatives*, *Transition Communities*, and literally *hundreds* of other alternative organizations, as well as Internet protest and action groups like *Avaaz*, *SumOfUs*, and others. Internationally, there is the support of the *Peoples' Summit for Social and Ecological Justice*, the *World Social Forum*, the *Transnational Institute*, the *Transnational Agrarian Movements (TAM)*, *Via Campesina International*, *International Labour Movement*, *Indigenous World Association*, *Cultural Survival*, *Waterkeeper Alliance*, *Worldwatch Institute*, *Amnesty International*, *Community Environmental Legal Defense Fund*, and *countless* other international organizations. This is just a sampling to inspire us. Imagine if the members and supporters of all these organizations that are already aware and motivated could join hands and support an alternative *structural program* of change, the world would be a different place by 2050.

We are not alone; world-wide all the people of these alternative movements are allies in the struggle for change. Reading many of their personal stories, their courage, their perseverance often in very threatening or desperate situations, can only move and inspire us. Many in the developing world are faced by the onslaught of the global economy on their already fragile existence. They are opposing the dispossession of their lands, the pollution of their rivers, the destruction of their forests, the decline of their fisheries and the disintegration of their local way of life – the result of neo-colonialism. For those of us in the developed world it can inspire us to disengage ourselves from our unsustainable way of life and join hands with all like-minded people world-wide. Together we constitute the great majority and will be *silent no more*. For many of us it is a matter of re-capturing *our sense of empowerment and community* that we have lost along the way.

What will motivate more people to support and join a radical program of action? There are several *crucial elements that help people change*. *Education or public opinion forming* is the number one. Knowledge is power. We all need to experience a *sense of empowerment*. We especially need the *power of joint action*. Such joint action leads to a *sense of togetherness and community*. Finally we need *an over-arching perspective, a vision* of a radical alternative way of living. All are essential. Awareness by itself makes many people feel scared, overwhelmed and hopeless. Without a sense of empowerment and togetherness, we soon feel alone and futile about our actions. What difference are my actions going to make? Without perspective and basic direction we soon lose track of what we are doing and why. Awareness, empowerment, joint action, community, a vision, all are essential for bringing about a fundamental change in our society.

That brings us to our children and grandchildren. Can we find the courage and the commitment to ourselves, to our children and to all children of the world, to face these issues and make and support these drastic changes? Do we dare join mass actions for radical change? Think of how old our children and their children will be in 2020, which is only a few years away, will we have made enough of a fundamental change and stop the present trend? How old will they be in 2030 and 2040? Will we have been able to stop the destruction of the environment and the present rate of climate change and will there be greater justice? My own children will be between 65 and 75 by that time and my grandchildren between 30 and 40. If by that time we have not been able to stop and reverse the present trend then there is little hope for their future. An increase of more than 2 to 4 degrees Celsius will make life in many parts of the world unbearable if not impossible. Countless water, food, weather and war refugees will flood the still habitable world. Border clashes and wars will erupt and nations and communities will try to protect and isolate themselves, which is already becoming evident in the flood of refugees finding their way to Europe. At that point global trade and financing will collapse. These are not catastrophic scenarios, but *the inevitable result of the present direction of business-as-usual*.

b. Overview

In *Chapter 2 and 3* we will focus on the *extent of the environmental degradation* that has been brought about by our global economic practices. We will look at what has happened to the atmosphere, the weather, the changing seasons, the water, the glaciers, the rivers, the Arctic and Antarctica, Greenland, the tundra's, the soil, the land, the forests, the oceans, coral reefs, sea level, health impacts, and the biodiversity of all living creatures. They represent part of the 'externalities' that are seldom taken into account. *Chapter 3* will consider how energy extraction, factory farming, forestry, and fishing have devastating impacts on the environment; as well as the effects of water scarcity, invasive species, chemical pollution, migration, dispossession, imprisonment, violence, rape and killing. Present economic practices do not take the environmental and social justice issues into account. Without considering these 'externalities' business practices will continue to create havoc in the environment and gross violations of human rights and social injustice.

Chapter 4 and 5 deal with the *structure of the present economic global system* and the *driving force* behind this system. It will clarify why we need a radical *structural change* and why the present system cannot be fixed. The changes that are needed to avoid environmental collapse and bring about social justice are all-encompassing. It is a system that is driven by greed and power for the few and poverty and suffering for the great majority of people. These chapters will highlight how the present government and corporate leaders are trapped in their ideology and the structure of the system they have created. That is why some of the signs of the protest groups in Warsaw read, '*structure change, not climate*

change'. It will explain in some detail the nature of the driving force or power of ideologies and all ultimate convictions. All people hold to some ultimate conviction about life, whether for good or evil.

Chapter 6 outlines the *fundamental structure of an alternative economy*; an integrated economy that is open to all the dimensions of life, that is ecologically founded and socially just, that serves all of life and all peoples. Such an economy will not be Capitalist, or Marxist, or Socialist. It will be a 'no-name-brand', A *Third Alternative* way of organizing economic activities. There are certain key words that can describe such a third way, like *egalitarian, participatory, cooperative, horizontal structure and leadership, fair, inclusive, sufficient, ecologically sustainable, promoting health and emotional wellbeing, serving life in all its dimensions, and so on*. There are countless small examples of providing for our needs in that way in many parts of the world, as we will see in the last chapter.

Chapter 7 presents a fundamentally different view of science, technology and governing, the three pillars on which neoliberal capitalism is built. Scientism, technicism, and non-democratic, technocratic ways of governing are fundamental to the neoliberal ideology. Liberal views of human reason, science, technology, democracy, freedom and the rule of law have a long tradition in the ideals of the Enlightenment. A radically alternative way of living requires a very different foundation for human reason, technology, equality, community and the ecological embeddedness of all of life to flourish. Without such an alternative foundation we cannot break through the all-encompassing and invasive existing system. The Cree First Nation, as an example, give us a vision of what a holistic way of life can be like; not for us to imitate or idealize but to actualize those same fundamental guidelines in our own situation. Their view of experiential knowledge, learning from experience, flexible and open practices, their ability to change and their guiding vision are exemplary.

Chapter 8 describes the *existential anxiety* we all face and the temptation to find our security in one dimension of life after another. There is a different way. We do not need to absolutize any aspect of life and make that into our modern idol. Hence the title, *The Gods In Whom They Trusted*. The old gods are indeed dead; they have been found wanting in every colony appropriated by the West and finally at Auschwitz and beyond. There is no voice from heaven, but there are fundamental guidelines that reveal themselves in our experience that we can trust. We are not without basic directives in a meaningless and empty universe. These guideposts given in our experience are the basis for our *existential trust*. They direct us to what makes life flourish and what is life-destroying. These guideposts represent a *phenomenological ethics*, an ethics built-into our experience. Together they provide an alternative vision of life that stands in radical opposition to the neoliberal worldview.

Chapter 9 provides an *experiential guideline for evaluating ultimate convictions*. Radical convictions can be for good or evil as both past and recent history illustrates. Fanaticism, fascism, imperialism, wars, oppression in the name of an ideal or a god are never far away. In this context the radical vision of the Hebrew prophets makes a unique contribution to what makes ultimate convictions life-enhancing and not life-destroying. *The ecological and social crisis is basically a crisis of values, of ultimate commitments*. In this struggle of what makes life worth living, each religion and each alternative non-religious group make their specific contribution to our understanding of a guideline for ultimate convictions. No religion or radical alternative movement has a corner on the 'truth', or the 'right' way for fostering and enhancing life. Even though many of these core human directives need to be retrieved from endless religious wars and debates, philosophical and moral abstractions, historical struggles and political conflicts, it is possible to re-discover and articulate a guideline for alternative visions and ways of life. Such a guideline can serve as a criterion by which to evaluate all ultimate convictions. Most important of all, a radical alternative vision is presently being lived by countless communities and peoples. They inspire and challenge us to actualize those same guidelines in our own situation and our own area.

Chapter 10 summarizes the *radical witness* of the different faith communities to the neoliberal ideology. Together they present a powerful counter vision of social justice, ecological sustainability and an economy that serves all of life and all people. In spite of the many failures of the world religions, they have preserved different ways of living and worldviews. Neoliberalism has desperately tried to replace these more integral ways by a materialistic, consumer way of life. During the last decade all the major religions have made a commitment together to restore and preserve the environment by means of planting millions of trees and other conservation measures, starting with their own mosques, temples, synagogues, and churches. Since the various religions represent two-thirds of the world's population, they can become a powerful force for change, along with the hundreds of thousands of non-religious alternative organizations and communities. Pope Francis, the Dalai Lama, Archbishop Desmond Tutu are part of a large chorus of activists and witnesses. Together they can re-enforce a life-enhancing vision of life.

Finally, *Chapter 11* summarizes the foundation that we can build on and the many guideposts that can give us a direction to go in. In each area of Life, they point to a healing and restorative way. There are an astounding number of alternative ways of doing things with regard to every aspect of life. This last chapter presents a summary of the key areas that are the counterparts of the destructive policies and actions presented in Chapter 2. They set out basic alternative directions for stabilizing global warming and alternative ways for the development of energy, conserving water, alternative agricultural, forestry and fishery practices, transportation systems, ways of building, and so on, along with specific examples. It provides the basis for massive protests, demanding radical changes and doing things differently on a local, communal and regional level.

This completes the overview of the eleven chapters of this book. They form a consecutive whole, but each section has its own inner coherence and meaning. Together they cover a broad perspective from the environment, to economics, social justice, ideology, experiential knowledge, an alternative view of scientific knowledge, technology and governing, existential trust, a phenomenological ethics, a prophetic witness and actions, and an alternative way of living.

A comment about sources is in order. In exploring the literature, *from a non-academic point of view* there seem to be three large groups of information. One crucial source is the actual scientific literature, which often takes some deciphering for a non-scientist. Thankfully there are enough summaries and explanations by the scientists themselves and scientific research institutions. Generally they have been able to clarify the difficult and complex global physical and organic systems and interactions. They seem eager and concerned to keep the public informed, hoping that their message will be heard and acted upon. Most of the material of the first section of Chapter 1 is based on this kind of scientific information and 'translation'. *The most important thing for us is to understand the meaning and implications of this information for our lives and our future, the 'externalities' that can no longer be ignored.*

The second group of information is couched in what I would call 'pseudo-scientific' language. The studies, reports, and proceedings of conferences by international organizations, work groups, institutions, and academic articles, they are often written in the 'objective' language of 'pseudo' concepts. They tend to use words and phrases like: 'strategic basis', 'process-based conceptualizations', 'operational concepts', 'science based knowledge', 'discourse', 'procedures', 'effective mechanisms', 'instruments', 'measurements', 'variables', 'models', 'outcomes', 'framework', 'policies', 'regulations', 'best practices', 'governance structure', 'transparency', 'stakeholders', 'community participation', 'human capital', 'sources of funding', and a host of other words. Sometimes it is hard to find the *real content* hidden in these kinds of descriptions that tend to obscure what is really happening. The descriptions often give no indication of the larger social and political context, which borders on naiveté. The closest these studies come to *the often stark reality of any particular situation* are phrases like, 'these are worrisome trends' or, 'changes will be slow and may take many decades', or, 'there are many formidable obstacles to overcome', or, 'any significant change will require a new

governance structure, new funding and new international policies', and so on. The demand for 'objectivity' does not allow for any 'subjective', or better, *engaged responses*, and certainly not for any *value judgements*.

The third group of information comes from countless articles by investigative journalists, reports and evaluations of alternative organizations, documentaries, YouTube videos, alternative journals and studies that represent different radical points of view. Almost all of this material is available on line and it has become acceptable to quote from these sources, even in more academic or general studies. Their main purpose is to inform and educate and generally they are not afraid to state their 'bias', or their point of view. They are doing what journalism, the media, and evaluative writings ought to be about, *public opinion forming*, so that we can make informed choices. Most of the summaries and reflections in chapters 2, 3, 10, and 11 come from these critical, evaluative sources. Even then the various sections are only summaries and examples of all the data available. There are countless more detailed descriptions of almost any particular situation. Each week and each month more information is added and each source leads to others. All of this material is invaluable for any informed protest movement and for alternative practices.

From many institutes and watchdog organizations there is a wealth of material, annual reports, studies, articles, news items on each aspect of the food industry, for example. These semi-popular sources give a more direct, experiential account of what is happening in many areas of farming and food production than the formal, often abstract academic studies. Too often scholarly studies and formal reports stay once removed from the actual reality and refrain from any in-depth evaluation. The current articles and news reports from many different angles present a more accurate, realistic, 'on-the-ground' picture of the actual state of affairs. Unless we keep in mind the dairy farmer in England choking up because he has to sell his dairy herd and family farm as a result of 'free market' policies, we cannot really fathom the depth of the changes and the havoc that have been brought about by the corporate dairy industry. Unless we have looked in the faces of the child slaves and indebted women, we cannot begin to grasp what the estimated statistics really mean about bonded and forced laborers, and so on. In our descriptions we need to stay very close to the actual reality of peoples' lives and their environment.

The point is that we need to let these direct sources, eyewitness accounts and descriptions challenge us not to distance ourselves from their experiences. As much as we are able to, we need to stay in touch with what is happening to people everywhere. The commodification and control of the news has penetrated deeply and molded our consciousness, but the actual reality and course of events keep leaking out sideways everywhere and find their way in many academic reports, news items and web sites. Every week and each month more important information on each of the key topics becomes available and is reported and commented upon by any number of watchdog organizations, including references to original sources. Often one reference leads to many others. Almost every day we can find new agencies and organizations together with their web sites and reports that make important contributions and alert us to new aspects of situations and events. *It underscores that reality and experience is first and reflection is second.* To be meaningful and relevant our analyses and evaluations need to stay in touch with and interact constantly with these events and experiences. We *do* bring our own foundational perspective and interpretation to what is happening, which challenges us to give a clear account of our startingpoint. In chapter 4-9 I give a detailed account of my own basic viewpoint that I bring to this study.

CHAPTER 1: INTRODUCTION

- a. The urgency of our situation
- b. The climate change deniers
- c. The environmental and social 'externalities'

a. The urgency of our situation

There is overwhelming evidence that we have only a few decades to create a liveable world for ourselves, our children and grandchildren. A couple of decades is not a long time to stop and stabilize the ongoing degradation of our environment. The time is short to bring about a fundamental change in all human activities that threaten the very basis of life on this planet. CO₂ emissions, the gas that is primarily responsible for climate change continues to increase in spite of the official commitments by many governments to cut emissions. We are well on the way to an increase of 2 degrees Celsius, which will make life very difficult if not unbearable for millions of people. If we continue on our present path of business-as-usual then by 2050 we may reach the 3 or 4 degrees Celsius mark in certain regions, which will make life impossible in those parts of the earth. This is not a prediction but the inevitable outcome of our present course of action. The question is not if but when and how quickly.

The different targets that were set at the last international climate meeting of the UN Framework Convention on Climate Change (UNFCCC) in Copenhagen in 2009, which most nations agreed to, will not be met by 2020. Even Germany which stood out with its target of a reduction of 40% by 2020 and 80% by 2050 will not meet its goal. All the targets were voluntary and not binding. The preparatory meeting in Warsaw in 2013 did not produce any tangible, significant results either. In fact hundreds of representatives (about 800) walked out in protest against the presence of many corporate lobbyists and the obstruction by Australia, Japan and Poland. All eyes are now focused on the next climate conference in Paris in 2015. No one is very optimistic that significant progress will be made. We can only hope that there will be massive demonstrations and protest actions. Though some significant gains have been made in many countries and in different areas, overall none of them are sufficient to off-set the expected rise in CO₂ in 2020 and beyond.

Not only is the rise in CO₂ disconcerting, but the entire degradation of the environment, from the decline in topsoil, water shortages, acidification of the ocean, decline in fish stocks, rapid deforestation, massive loss of species, to air pollution, etc. There is a constant interaction between the surface of the earth, the oceans and the atmosphere. The air and ocean currents, water cycle, land, forests, biodiversity, and so on, are all affected by the change in climate and the warming of the atmosphere. In turn, these changes in each part of the environment compound the changes in climate and global warming. In Chapter 1 we will explore these complex interactions between the atmosphere and life on earth. We not only need to stop and reduce the amount of CO₂ we add to the atmosphere every year, but simultaneously we need to preserve and restore the topsoil, limit our use of water, protect our groundwater, replenish our aquifers, stop our global deforestation and overfishing, reduce our waste and chemical pollution, etc. One cannot happen without all of the others. The amount of greenhouse gasses we produce is the result of the disintegration of all the eco systems together and not just the burning of fossil fuels.

Meanwhile the fifth preliminary climate report of the *Intergovernmental Panel on Climate Change (IPCC)* was published in 2013. The report underscores in stronger terms than ever before the conclusions of all the previous reports with some minor corrections. The scientific evidence is clear and undeniable. We have a short window of opportunity to change things around. Even if we manage to stabilize and reduce the green house gas emissions (GHG) by 2030 or 2050 we will still hand down a very damaged earth to our children and grandchildren. These damages will linger for centuries to come. What will we say to those future generations and how will they cope?

One thing deserves mentioning, scientific evidence, like all knowledge, is always provisional and open-ended. There are always more data to be collected and interpreted, more models to be refined, more experiments to be conducted and

more theories to be tested against reality. In our search for ultimate certainty we would like it to be different, but that kind of certainty is not given us humans (see Chapter 6 and 7). No one can oversee and take into account all the givens, our knowledge is always partial and open to correction and change. The history of scientific understanding is instructive in this regard. In view of these limitations the ICPP reports use words like 'very likely' (90%), 'extremely likely' (95%) and 'virtually certain' (99%) to express trends and projections. These predictions are approximations on the basis of our current knowledge, of what we can expect if no other, perhaps unexpected, factors enter the picture. Instead of making the most of the information that is available, the climate change deniers exploit this limit of our knowledge. We know enough to act upon the evidence we have and radically change our direction. If we continue with 'business-as-usual' we can be 'virtually certain' that we are headed for a 4 degrees Celsius increase in the average global temperature during the course of this century.

Already in 1992 a statement was published written by the former chair person of the *Union of Concerned Scientists (UCS)* and signed by some 1700 leading scientists. It is entitled *World Scientists' Warning to Humanity*, (1992). In keeping with their warning, the *International Energy Agency (IEA)* warned in 2011 that in five years it will become near impossible to hold global warming to safe levels because of the building of ever more fossil-fuel power stations, energy-guzzling factories and inefficient buildings. The *IEA's* data are regarded as the gold standard in emissions and energy. It is also regarded as the most conservative in outlook, which makes its warning all the starker. These few references are only a sampling of all the organizations involved in tracking climate change. They underscore the unanimous consent and concern about global warming. It also highlights the maliciousness and corruptness of the so-called climate change 'deniers', which is different from the honest debates and questions that have been raised.

b. The climate change 'deniers'

The evidence for climate change is overwhelming and incontrovertible. The climate change deniers, especially in the US, have been exposed for what they are, imposters. By now it is well documented that they have received millions of dollars from many of the major corporations in a deliberate attempt to throw doubt on the accumulated evidence. The *Koch Industries* contributed about 25 million dollars within just a few years from 2005-2008 to thirty-five different front groups and individual spokespersons. By 2011 the amount had risen to 79 million dollars. *ExxonMobil* has contributed about 7 million dollars to various groups to run disinformation campaigns, manufacture uncertainty, launder information, and shift the focus away from action and regulations. *Shell, Texaco, Ford, General Motors, American Petroleum Institute* and others have all followed suit. Together they have hired a large group of lobbyists and financed many right-wing, conservative think tanks. The number of climate related lobbyists in the US grew from 525 in 2003 to 2349 in 2009 and the same trend is true for Canada, Australia, Great Britain, the EU and many other developed countries. In Quebec there are more lobbyists representing the coal industry than there are members of the provincial parliament. When the European Union put a partial two-year ban on the use of a group of pesticides that are part of the threat to the bee population, an army of lobbyists descended on Ottawa to prevent a similar ban. The same is true for any area of the economy as soon as it appears that some new regulation will be introduced. Presently, the partial ban of the European Union is under renewed attack.

The think tanks, like the *Heartland Institute*, the *Heritage Foundation*, *Americans for Prosperity*, the *Cato Institute*, the *Manhattan Institute*, the *Foundation for Research on Economics and the Environment*, the *American Council on Science and Health*, the *Institute for Humane Studies*, and many other groups in different countries, are all dedicated to promoting neoliberal 'free market principles' and influencing government policies, the media and public opinion. See the *Centre for Media and Democracy's SourceWatch* for detailed information on each of these front groups, their funding and their key executives along with their salaries. Up to the present they continue to issue pseudo-scientific reports and

news releases. The peer-reviewed studies of countless scientists from many scientific organizations are dismissed, disqualified or considered irrelevant. With regard to climate change they tend to favor 'technological solutions' and 'market based mechanisms'. 'Freedom' in the mission statements of these front groups becomes the right to freely pollute the environment. 'Democracy' is the freedom to subvert the democratic process. The 'free market' is the freedom to exploit resources and workers in the developing countries. 'Property rights' is the freedom to take over the lands and waters held in common by local and indigenous people.

These front organizations follow the same tactics as the tobacco industry did before and, presently, the food industry with regard to high salt, sugar and fat content of almost all food products. They deny, subvert, present false evidence, create doubt, launder information, harass and defame reputable scientists, and oppose all regulations that may limit 'free' enterprise. The same happened to Rachel Carson when she published *Silent Spring* in 1962. The chemical industries spent hundreds of thousands of dollars to vilify and disqualify her. In the end the US banned the use of DDT but not for export overseas, exposing many farm workers unable to read the instructions and without adequate protection to the health hazards of this chemical. Today another dangerous and deadly group of pesticides, the neonicotinoids and glyphosates, that play a crucial role in the decline and death of the honey bees and other insects, have become a new battleground. The chemical companies that manufacture these pesticides like Bayer, Monsanto, Syngenta and others vigorously deny any such connections and dangers. They all advertise themselves as responsible global citizens that promote environmentally sustainable practices and products.

Imagine what it may be like to knowingly throw doubt on or falsify evidence. Some may truly believe that regulating greenhouse gas emissions or introducing a carbon tax will be a danger to the economy. For others it may just be a well-paying job. Regardless, you have to lie and distort the evidence. Money can make liars out of anyone, even some scientists. Whatever the case may be it involves a high degree of rationalization, denial, distortion and corruption. In the end they are engaged in a corrupt business, corrupt because of what is at stake. They have been able to confuse and create doubt in many peoples' minds about the seriousness of the climate change evidence. The main media have dutifully followed suit, including the CBC in Canada, making sure they give equal time and coverage to climate change deniers, all in the name of 'objective', 'balanced' reporting.

The climate change deniers are the extreme representatives of all those that deny, minimize, ignore or avoid facing the urgency of climate change like the majority of corporate and government leaders and many citizens. The irony is that instead of being too extreme, unfounded or exaggerated, several prominent scientists consider the projected timelines of the previous ICPP reports too conservative because they do not sufficiently take into account possible feedback loops that may accelerate climate changes.

Atkin, E. (March 9, 2015). Florida's not the only state where officials censored the term 'climate change', *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/03/09/3631465/not-just-florida-censoring-climate-change-talk/>
Cousins, F. (June 19, 2015). Republican presidential candidates attack Pope's climate change encyclical, *Desmog*. Retrieved from <http://www.desmogblog.com/2015/06/19/republican-presidential-candidates-attack-pope-s-climate-encyclical>
David Suzuki Foundation, (April 9, 2015). Oiling the machinery of climate change denial and transit opposition. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2015/04/oiling-the-machinery-of-climate-change-denial-and-transit-opposition/>
David Suzuki Foundation, (March 8, 2012). Climate change denial isn't about science, or even skepticism. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2012/03/climate-change-denial-isnt-about-science-or-even-skepticism/>
Davies, K. (August 5, 2014). PR industry climate change survey, *Climate Investigations Center*. Retrieved from http://www.climateinvestigations.org/pr_industry_climate_change_survey
Goldenberg, S. and Bengtsson, H. (June 9, 2015). Secretive donors gave US climate denial groups \$125m over three years, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/jun/09/secretive-donors-gave-us-climate-denial-groups-125m-over-three-years>
Greenpeace, (2014). Publications on industry lobbying against climate action and climate science. Retrieved from <http://www.greenpeace.org/international/Global/international/briefings/climate/2014/climate-denialism/Annex-A.pdf>
Greenpeace, (March, 2010). Koch industries: secretly funding the climate denial machine. Retrieved from <http://www.greenpeace.org/usa/global-warming/climate-deniers/koch-industries/>
<http://www.greenpeace.org/international/Global/international/briefings/climate/2014/climate-denialism/Annex-A.pdf>

Mandel, K. (July 6, 2015). Exclusive: Koch industries lobbying Europe on environment, energy, and free trade, *DesmogUK*. Retrieved from <http://www.desmog.uk/2015/07/06/exclusive-koch-industries-lobbying-europe-environment-energy-and-free-trade>

May, E. MP, (June 27, 2013). The latest attempt to deny climate science, *Island Tides*. Retrieved from <http://elizabethmaymp.ca/publications/island-tides/2013/06/20/the-latest-attempt-to-deny-climate-science/>

Montague, B. (June 17, 2015). How an ExxonMobil-funded think tank took over a scientific journal, *DesmogUK*. Retrieved from <https://www.google.ca/search?q=Brendan+Montague%2C+%E2%80%9CHow+an+ExxonMobil-funded+think+tank+took+over+a+scientific+journal%E2%80%9D%2C+DesmogUK%2C+June+17%2C+2015%3B&oq>

Negin, E. (July 9, 2015). Internal documents expose fossil fuel industry's decades of deception on climate change, *EcoWatch*. Retrieved from <http://ecowatch.com/2015/07/09/fossil-fuel-industry-climate-change/>

New Internationalist, (May 2011). Climate change denial – Busting the myths. Retrieved from <http://newint.org/issues/2011/05/01/>

Nuccitelli, D. (September 22, 2014). The Wall Street Journal downplays global warming risks once again, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2014/sep/22/wall-street-journal-downplays-global-warming-risks>

Pantsios, A. (March 11, 2015). Heartland Institute attacks senators for questioning funding of climate deniers, calling it a 'witch hunt', *EcoWatch*. Retrieved from <http://ecowatch.com/2015/03/11/heartland-institute-attacks-senators/>

Pantsios, A. (September 3, 2014). Top 20 'dirty deniers' who accept big bucks from big polluters, *EcoWatch*. Retrieved from <http://ecowatch.com/2014/09/03/climate-change-deniers-candidates/>

SourceWatch, (August 20, 2015). Climate change deniers. Retrieved from http://www.sourcewatch.org/index.php/Climate_Change_Deniers

Transition Culture, (February 1, 2010). A review of 'Climate Cover-Up' by James Hoggan. Retrieved from <http://transitionculture.org/2010/02/01/a-review-of-climate-cover-up-by-james-hoggan/>

Whitehouse, S. Senator, (February 26, 2014). Time to wake up to the climate denial beast, *The Ecologist*. Retrieved from http://www.theecologist.org/blogs_and_comments/commentators/2296045/time_to_wake_up_to_the_climate_denial_beast.html

WWF. (November 3, 2014). How the IPCC quieted climate sceptics with its new report. Retrieved from <http://climate-energy.blogs.panda.org/2014/11/03/ipcc/>

c. The environmental and social 'externalities'

There are two broad areas of life that are consistently treated as 'externalities', that is, environmental considerations and social justice issues. These so-called 'externalities' are not seriously taken into account in economic planning and production, except to avoid social unrest or total environmental collapse. Small adjustments are made when absolutely necessary; otherwise these issues of eco-justice and social justice are payed lip-service to or ignored. The basic assumption is that economic life can function more or less in isolation from the rest of life.

One attempt to deal with these 'externalities' from within this one-dimensional economic framework is to put a monetary value on eco services and social well-being. So far that attempt has not been very successful. The present economic system can only survive by excluding both of these areas of life from their considerations.

With regard to the *environment* the picture is clear. There is overwhelming scientific evidence and consensus from literally thousands of sources that if we continue on our present course of economic development, we will do irreversible damage to our planet. We need only look at the effects of global warming like the changes in unpredictable and severe weather patterns, or the acidification and decline of our oceans with its many dead zones, debris and plastic particles, or the diminishing and near extinction of the major fish species, or the rising sea levels, or the rate of deforestation, the decreasing supply of fresh water, the decline and degradation of topsoil, the pollution of the air, the increase of desert like, barren areas, the destruction of countless ecosystems, the accelerating extinction of many plant and animal species, the rate of the melting of the world's glaciers and permafrost, the diminishing Arctic and Antarctica snow and ice cover as well as Greenland's ice shield. Wherever we look, things are in decline or at a crisis point. If we continue with business-as-usual we will do irreversible damage to the earth, our health and our very existence. If we take radical social and economic action now there is perhaps still time to stabilize things in the two decades to come.

There will be new reports each year about the increase in global warming and its effect on our environment and on people. There will be more and more articles on the increase of forest fires, droughts and floods and rising sea levels. The series of articles in the Guardian about Miami, Florida is an instructive example: "*Miami, the great world city, is drowning while the powers that be look away*", (July 11, 2014); "*The people of Miami know about climate change. We're living it*", (May 17, 2014); "*Climate study predicts a watery future for New York, Boston and Miami*", (July 30, 2014); and some of the responses in the U.S.: ClimateProgress, "*Drowning doesn't look like drowning*", (July 14, 2014); "*Ten*

scientists want a meeting with Florida's governor to explain climate change", (July 16, 2014). The reports and reactions by the politicians would be funny if it weren't so tragic. In spite of these reports and actual flooding, new condominiums and houses continue to be built along the coast in Miami. In 2014 Oregon and Washington had to declare a state of emergency to deal with the spread of wildfires and California had to impose restrictions in the use of water because of severe drought. Likewise here in Canada, people had to deal with wildfires in British Columbia and the North West Territories and floods in Saskatchewan and Manitoba in 2014 and more extensive wildfires in 2015. These severe weather events will continue to increase worldwide.

With regard to the *social dimensions* of life, the picture may not be as clear to many. But to put it starkly, the present economy could not survive without forced child labour and bonded and forced adult labour, by both males and females. Plus there are the long hours of work by millions of others that can barely survive on their wages and live in extreme poverty. Without this exploitation of workers, the economy would collapse. Older civilizations have flourished and survived by means of slavery. Ours is in essence no different, except it is global and scattered over many countries, which makes it less visible. There are no slave markets, but human trafficking in forced laborers is not much different. The reports on both child and adult forced labour are extensive and so are the documentaries that show us the faces of these enslaved or bonded girls and boys and women and men. Even many workers that are 'free' could just as well be slaves because of their living conditions. The large corporations all deny any responsibility for the working conditions of the workers that make their products, often in dangerous workplaces and/or exposure to toxic chemicals. By a system of sub-contractors and middlemen they avoid any responsibility unless they are shamed into making some limited changes and even then only because it will hurt their bottom line. Regardless of any new regulations and demands sub-sub-contractors soon find a way around them or exploit a new loophole.

The social 'externalities' are not only about labour conditions, but also about the lack of adequate housing, poverty, access to clean drinking water, sanitation, health care, education, justice, protection, transportation, finances, recreation, the media and much more. The social dimension involves all the aspects of a society and its communities. Free enterprise economics takes no responsibility for the social conditions in any particular country. The 'welfare state' is seen as an aberration that needs to be dismantled as soon as possible wherever its remnants are still found. It has been labeled the 'nanny' state with the implication that it keeps people dependent, locked into poverty and irresponsible. Corporations, via the World Bank, International Monetary Fund, World Trade Organization and other lending organizations, have demanded that social services be cut back or privatized. Social welfare costs that are for the well-being of citizens cut into a nation's budget. That money should go toward infra-structure, subsidies, tax cuts, or privatized services. Such favorable conditions along with low royalties, land and water concessions, minimal environmental regulations, self-monitoring, allow large companies to exploit a country's resources, use up its land, water and forests, pollute its environment, displace its indigenous people, exploit its workers, repatriate their profits and move on to another country if it is no longer profitable. Investors are rewarded by high interests on their foreign loans for decades to come and shareholders with generous dividends.

My basic premise is that given the present economic context, corporations cannot operate in a socially just and ecologically sustainable way. The market does not allow it. In Chapters 4 and 5 we will explore in some detail the reasons for this inability. The majority of the large companies each year add more CO₂ and other gasses to the environment, pollute water and soil and exploit their workers. Even in the developed countries the gap between the wealthy and the rest of the population continues to grow. Family income has been declining for decades and family debt has become a growing concern, so much so that raising interest rates has become a precarious measure. Any corporation that uses steel is working with steel that was mined, transported, processed, milled to specification, transported again and manufactured into a final product with many other steps in between. One only has to follow the

source of the iron ore all the way to the manufacturing plant to see what happens along the way. Then there is the marketing and the final delivery of the product. When a new car finally rolls off the assembly line and is on display in a local showroom, it leaves behind a trail of environmental pollution and exploitation of workers (from iron ore mining, manufacturing of steel, plastic, leather, cloth, paints, chemicals, and machinery, to transportation at each stage of the process, advertising, financing, and much more. Within the present economic system very few of those stages in production are done in an ecologically sustainable and socially just way. *If the environmental and social costs were taken into account*, prices for most products would have to rise tenfold or more. Gasoline would have to be 15 dollars a litre or more and the cost of a new car would be out of range for most people.

Neoliberal economic policies and actions function like a dominant religion that has circled the globe. Over against this *religious force* that is primarily for the benefit of the 1%, we need to place *another force* that is life-healing and life-promoting for all people and all creatures. In this context we will use 'ultimate' words; it is a critique of ultimate convictions. On this level of the *basic direction in life*, there is a clear choice, a choice of two sets of values. We cannot hold to two ultimate choices; we either follow the one or the other. When it comes to a more *structural critique* of economic life there are many aspects that we need to honour, retrieve and transform within a very different frame of reference. With regards to a structural change nothing is absolute, we all search and stumble and find our direction again, *but in that search for alternatives it is the direction that counts and on that basis, the structural changes we seek to bring about*. That is why some of the signs of the protest groups in Warsaw read, 'structure change, not climate change'. In that context 'structural change' usually means a radical change in direction for our economic practices and as a result for our total way of life.

Given the ecological crisis, we will first look at the evidence of the global threat to our environment more closely (Chapter 2). When we see how all the different aspects of the environment and the economy work together, then it will be clear why the need for change is so urgent. It is not just about global warming and climate change. It is about how all the aspects of nature are affected and reinforce each other and how economic practices affect each aspect of the environment and of society. The present global economy does not take these ecological dynamics into account. If they did most of them would be out of business. In the following chapter (Chapter 3) we will consider in some detail and by way of examples from different countries the effects of neoliberal policies and practices on the lives of people and their environments. Present economic practices do not take these 'externalities' into account. As a result business practices will continue to create havoc in the environment and bring about gross violations of human rights and social injustice.

CHAPTER 2: ENVIRONMENTAL DEGRADATION AND THE GLOBAL ECONOMY

- a. An integral ecological approach
- b. Ecological decline and disintegration; summary of key areas
 - 1) Climate change and global warming
 - 2) The changing air and ocean currents; unpredictable weather patterns
 - 3) Changes in the temperature and the seasons
 - 4) The changing oceans
 - 5) The global water supply
 - 6) The decline of the soil and the land
 - 7) The loss and decline of the global forests
 - 8) The loss and decline of species

a. An integral ecological approach

To gain an understanding of the environmental decline it is not sufficient to focus on one aspect or another or even a few aspects like global warming and climate change. All the ecological systems and subsystems are interlinked and work in tandem. What happens to the air, affects the water, the oceans, the land, the soil, biodiversity, and vice versa. At some point there is the danger of the 'tipping points' where even two or three relatively minor changes can set off a chain reaction that is irreversible. Too often discussions in the media are limited to one aspect or another and not the total picture. For example, if the rate of change in climate is somewhat 'slower' for a number of years than before it tends to be presented as if it is not quite that serious, rather than that it does not change the basic picture. Nor are all the other aspects of the ecosystem taken into account in such discussions. Variations and some temporary 'slowdowns' are primarily related to oscillations in atmospheric and ocean currents. They do not change what is happening to the soil, or the fish stocks in the oceans or the decline and pollution of fresh water, or how long some glaciers will take to disappear.

It is our human activities that have brought us to this crisis point, our major agricultural practices, our global fisheries, forestry, mining, ways of manufacturing and building, transportation systems, the growth of the mega-cities with their slums, arms production, politicized justice systems, the numbing effect of the entertainment industry, the distortions and half-truths of the mass media, the deficient health care system and the neoliberal corporate educational systems have us all brought us here. They mutually reinforce each other and create ecological damage and social injustice. *To look at each of these major aspects is a tall order and can be overwhelming*, but it will help to see that we need to make a radical change in direction and not just some adjustments to the present system. Proposing a complete turn-about in our economic direction, affecting every area of life is not a small thing. Considering the ecological decline of our planet in some detail will help us to support and make such a fundamental change. It will help us to adopt an economy that takes the whole range of ecological factors into account. *It will help us to embrace a different direction in life and adopt a program of systemic change. It is a direction and a program that is near us to do and not an utopian dream.*

A consistent ecological approach is in contrast to many (older) environmental studies and actions. For example, many people did not understand in the late eighties and nineties why protecting the Spotted Owl along the West coast of North America was so important. It was easy to think, what is one particular species of owl compared to the thousands of logging jobs that would otherwise be lost? Aren't there enough other owl species left and haven't different species always come and gone? However, the issue at stake was not just the preservation of one species of owls, but the virtually unrestricted clear cutting of the old growth forests with all its consequences for the environment. The Spotted Owl was a barometer for the integrity and health of the old growth forests. Right now there are only about six pairs of the Spotted Owl left in British Columbia (if that many) since logging of their habitat has continued unabated both officially and covertly, in spite of 'integrated and managed' forestry practices. For a long time, the BC government did not endorse and enforce Canada's *Species at Risk Act* in order to give virtual free reign to the forest companies. The result is rapidly decreasing diversity of species with very fragmented forests that are criss-crossed by countless logging roads. Each species has its own worth and integrity that deserves protection. It helps our understanding when we become aware of the crucial role each species plays in the whole of the ecological system.

Even today environmental groups - on behalf of all of us - in each province in Canada have to remain alert that the Act is not weakened or bypassed. It is a sad commentary on our government and our society that at any moment some corporate interest can take precedence over the legally binding regulations that are there to guarantee the protection and integrity of our environment. A few years ago a threatened species of songbirds, the *Bobolink*, became a symbol of protest in Southern Ontario against the development of a mega quarry. If it had not been stopped by massive protest, it

would have done irreversible damage to the environment, the water table, the roads and the rural and cultural life of many communities. It took local citizens' groups to oppose corporate interests and government complicity.

In 2013 *Ontario Nature* with the help of *Ecojustice* based in Ottawa had no other recourse than to sue the Ontario government for gutting the *Species at Risk Act*. The initial cost of the law suit was fifty thousand dollars paid by members and supporters. Concerned citizens have to pay to have the government enforce its own laws. For those who are not able to engage in legal action, as in many developing countries, their only recourse is massive protest, often at the risk of their lives. In 2014 two Canadian federal ministers of the environment and fisheries were convicted by a Federal Court judge for failing to uphold the *Species at Risk Act*. There were no consequences; instead there were more of the predictable double talk by representatives of the departments. As we will see in the next chapter, year after year these kinds of failures by the different government departments are highlighted by the office of the *Auditor General of Canada* and the *Commissioner of the Environment and Sustainable Development*. The Canadian government, like many other governments, has developed a whole arsenal of tactics to stall the implementation of their commitments and obstruct regulations or fail to enforce them. Cut-backs limiting funds to various departments under the guise of the need for austerity measures, restricting and firing scientists, cutting back on the number of inspectors, procrastinating on implementing environmental commitments, auditing and harassing environmental organizations, and so on. These are just some of their tactics. Given corporate and government priorities these deliberate ways of obstructing ecological concerns are not surprising. At the same time they violate any sense of moral integrity.

The importance of enforcing this act is not just about preserving one particular species of birds, animals, or plants, or even about protecting biodiversity in general, even though that is a serious issue in itself. It is about maintaining the integrity and ecological sustainability of nature as a whole, including the human species. It is only one example, but it means that we cannot think about the ocean, the air, the global wind and ocean currents, the fresh water supply, the soil, the land, the forests, or any particular species of animals, birds, fish, insects, plants, micro-organisms or any other creature apart from the function they have in the total ecological system. There are many sub-systems and feedback loops that interact with each other. Drastically reducing one species of fish by overfishing or the decline of one kind of seagrass can mean the collapse or decline of an entire fishery, like the oyster fishery in New England or the fisheries in the Mediterranean Sea. Fishing the top predators in the ocean to near extinction has drastic consequences for all the other species down the food chain. It is like the game Jenga where each player in turn takes out one little block. The last one to pull out the block that makes the whole precarious structure collapse loses the game. In the global ecological game we are playing the consequences are deadly serious. It means the survival of the human species or its extinction. When we destroy, exploit, or pollute one ecological system or region, or one particular species, we often have no idea what the consequences will be until much later, when it may be too late.

The central question is; What effect does providing for our physical and social needs have on the total ecological system and the ecological balance? Can the many ecological sub-systems, including the human system, be maintained and kept in balance? 'Sustainability' would be a good criterion if it is used in this sense of sustaining the interdependent life systems of the earth. In many instances the word sustainability has been co-opted to describe 'sustainable development', which usually means that some very limited or piece-meal environmental safeguards have been put in place without changing the basic approach to development. Sometimes it is just a claim to reassure or mislead us. It is like the 'greening of the economy', or 'environmentally friendly' products, and a host of other phrases that are co-opted. 'Ecological sustainability' would avoid such misunderstanding, at least for a time. In this sense most industrial farming, forestry, and fishing practices, fossil fuel extraction, mineral mining, the production and use of many chemicals, and so on, is unsustainable ecologically. In time there will be more disintegration, extinction, pollution, poisoning, devastating shortages, and a host of other consequences, not to mention erratic and violent weather, decline of the topsoil,

depletion of fresh water, climate and food refugees, 'overpopulation' and much more. This is the legacy of our un-economic practices. There is no 'natural world' in distinction from the 'human world'. There is only one integrated ecological system of which we are an inseparable part. *Our human activities take place within and as a part of a total inter-related system and we bear the responsibility for its well-being.*

Bell, A. and Plotkin, R. (March 9, 2015). Why Canada is failing to Protect Species at Risk", *Alternative Journal, Canada's Environmental Journal*. Retrieved from <http://www.alternativesjournal.ca/community/blogs/current-events/why-canada-failing-protect-species-risk>

Coste, T. (February 4, 2015). Raw log exports: a made-in-BC problem that's only getting worse, *The Tyee*. Retrieved from <http://thetyee.ca/Opinion/2015/02/04/BC-Raw-Log-Exports/>

Coste, T. (June 13, 2015). Logging plans could rekindle BC's war in the woods, *The Tyee*. Retrieved from <http://thetyee.ca/Opinion/2015/06/13/Logging-Plans-Could-Rekindle-BC-War-Woods/>

Davis, R.J. et.al., (2011). Status and Trends of Northern Spotted Owl, *USDA, Forest Service*. Retrieved from <http://protectolympicpeninsula.org/wp-content/uploads/2014/12/SpottedOwls.compressed-min1.pdf>

Defenders of Wildlife, (n.d.). Basic facts about Northern Spotted Owl. Retrieved from <http://www.defenders.org/northern-spotted-owl/basic-facts>

Ecojustice, (January 13, 2010). Logging discovered near nest of BC's most famous pair of Spotted Owl. Retrieved from <http://www.ecojustice.ca/pressrelease/logging-discovered-near-nest-of-bcs-most-famous-pair-of-spotted-owls/>

Environmental Commissioner of Ontario, Gord Miller, (November, 2013), Laying siege to the last line of defense: a review of Ontario weakened Protections for Species at Risk, *Environment Canada*, Species at Risk Act. Retrieved from <http://eco.on.ca/wp-content/uploads/2015/03/2013-Laying-Siege-to-ESA.pdf>

Forest Ethics, (May 9, 2014). BC Supreme Court confirms forests can be logged to extinction. Retrieved from <http://www.forestethics.org/news/bc-supreme-court-confirms-forests-can-be-logged-extinction>

Ontario Nature, (September 10, 2013). Environmental groups sue Ontario government over decision to gut species at risk legislation. Retrieved from http://www.ontarionature.org/media/news_template.php?n_code=619

Payton, B. (May/June, 2006). Last call for the Spotted Owl, *Canadian Geographic*. Retrieved from http://www.canadiangeographic.ca/magazine/mj06/spotted_owl.asp

Retrieved from <http://www.ecojustice.ca/defending-ontarios-endangered-species-act-and-the-species-it-protects/>

Tessaro, L. (November 26, 2014). Defending Ontario's Endangered Species Act and the species it protects, *Ecojustice*.

US Forest Service History, (January 7, 2010). The Northern Spotted Owl. Retrieved from http://www.foresthistory.org/ASPNET/Policy/northern_spotted_owl/index.aspx

Western Canada Wilderness Committee & Sierra Legal Defence Fund, (December 2005). In defence of Canada's Spotted Owl. Retrieved from https://www.wildernesscommittee.org/sites/all/files/publications/In%20defense%20of%20Spotted_owl_report.pdf

Western Canada Wilderness Committee, Sierra Legal Defence Fund, Forest Watch of British Columbia, (2002). Logging to extinction: the last stand of the Spotted Owl in Canada. Retrieved from https://www.wildernesscommittee.org/sites/all/files/publications/so-logging_to_extinction.pdf

b. Ecological decline and disintegration; summary of key areas

- 1) Climate change and global warming
- 2) The changing air and ocean currents; unpredictable weather patterns
- 3) Changes in the temperature and the seasons
- 4) The changing oceans
- 5) The global water supply
- 6) The decline of the soil and the land
- 7) The loss and decline of the global forests
- 8) The loss and decline of species

1) Climate Change and global warming

In 1988 the *UN World Meteorological Organization* and the *UN Environmental Programme (UNEP)* set up the *Intergovernmental Panel on Climate Change (IPCC)*. The IPCC's First Assessment Report was published in 1990 and in 2013 the fifth preliminary climate report came out. With each publication the conclusions became more detailed and definite: the average global temperature is increasing. The evidence for climate change is based on the data collected at over 17,000 weather stations and from 10 weather satellites. These observations and many other detailed investigations have been processed by a panel of thousands of scientists from research centres all over the world in 190 countries. Each of these institutions use somewhat different methods and models to process the mountains of data. During the course of the past twenty years as more and more data became available, the models have been refined and modified and minor mistakes were corrected. With the passing of the years the models have been tested against the real world

data. In spite of differences in processing the data and the use of different models to estimate future trends, they have come to very similar results and observed the same long-term warming trends.

In their research they looked at the natural variations in temperature that occur over time. They considered the effect of volcanic activity, changes in solar activity, urban heat effects and other possible causes of climate change. The scientists also know a lot more about the paleoclimate, the changes in climate many centuries and millennia ago, which has become a discipline in itself. The records of the atmospheric gases trapped in ice cores, fossils, deep sea sediments have accumulated. The rise and fall of CO₂ in the atmosphere has been traced during the different ice ages and the warm interglacial periods in between. There have been five mass extinctions during the past 500 million years that were accompanied by rapid changes in the atmospheric gases. Unless we drastically change our ways many fear we are on the way to the sixth mass extinction, but this time because of human-made causes, the rapid increase in greenhouse gasses.

It is instructive to take note of some of the organizations involved in the study of climate change: The *Goddard Institute for Space Studies (GISS)* at NASA, the *National Oceanic and Atmospheric Administration (NOAA)*, the *UK Meteorological Office* in cooperation with the *Climate Research Unit (CRU)*, the *Massachusetts Institute of Technology*, the *US National Climate Assessment* (its 2013 draft), the *UN World Meteorological Organisation (WMO)*, and many other institutions. Besides these organizations with their teams of scientists, there are many other reports like that of the *World Bank*, *Turn Down the Heat*, (2012); the *Living Planet Report*, (2012); the two well-known studies by N. Stern, *The Economics of Climate Change*, (2006) and *A Blueprint for a Safer Planet*, (2009). There two reports by the *Organization for Economic Co-operation and Development (OECD)*, *Environmental Outlook to 2030* and *Environmental Outlook to 2050*, three reports for the Club of Rome, *The limits to Growth*, (1972), *Beyond the Limits*, (1982), *Limits to Growth, the 30 Year Update*, (2004). The documentary series, *Tipping Points* (2014), shows various well-known scientists at work in the Arctic, the Amazon, the oceans and other critical places. It gives their reports a human face as they collect samples and set up experiments. All of them expressed their personal concern about the future and what will happen to their children and grandchildren. Every week and every month more articles and more reports are published that underscore the urgency of our situation.

Within the total ecological decline, global warming and climate change play a pivotal role. They are the hub that reinforces and overlaps with all the other systems. We could picture it as the centre of a large circle with the circumference made up of many smaller circles. Each of the systems on the periphery, like the air currents, water cycle, oceans, soil, forests, biodiversity, and so on, are affected by the change in climate and the warming of the atmosphere and in turn, these changes in each part of the environment add to the change in climate and global warming. There is a constant interaction between the surface of the earth, the oceans and the atmosphere.

Each of these systems - the atmospheric, the oceanic, the biological and the geological - are complex systems in themselves. Summaries of the *scientific account* of these intricate systems and their interaction are readily available. They can be found in many of the climate change reports and in detailed scientific studies. *The important thing for us, however, is to be able to get a concrete picture of what these scientific data actually mean within the total ecological and social context.* It is one thing to know that the carbon dioxide particles in the air since the *industrial revolution* have increased from approximately 280 particles per million (ppm) to 400 ppm in 2015. What does that mean? It seems like such a small amount and what if it does go up to 500 or 600 ppm? Why is that catastrophic?

Most of us have some vague sense that these kinds of changes are causing erratic weather patterns in different parts of the world. But unless it touches us directly, like a devastating flood, a massive landslide, a destructive hurricane, an extreme heat wave or a prolonged and intense cold spell, we tend not to worry. We see the images on TV and we may

feel concern or make a donation to an emergency aid fund. Even when we see a list of the ‘natural disasters’ of the last decade or so, most of us find it hard to connect those events in any concrete way to the issue of global warming. The scientific community keeps warning us that we are headed for disaster if the average global temperature rises above 2 degrees Celsius during this century or even in the next few decades. These continual and persistent warnings mostly tend to scare us and make us feel helpless and overwhelmed. What we need first of all is a *concrete picture* that helps us to connect the dots and see what all these scientific data mean for our lives and our future, and the future of our children. *When we see the changes that need to be made and why, it may be one factor that will motivate us to support a radical program of change and actively participate with many others to bring about such changes.*

Carrington, D. (April 13, 2014). IPCC climate change report: averting catastrophe is eminently affordable, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/apr/13/averting-climate-change-catastrophe-is-affordable-says-ipcc-report-un>

Carrington, D. (June 17, 2016). “Shattered records show climate change is an emergency today, scientists warn”, *The Guardian*. Retrieved from, <https://www.theguardian.com/environment/2016/jun/17/shattered-records-climate-change-emergency-today-scientists-warn>

Chow, L. (June 23, 2015). “6 devastating heat waves hitting the planet”, *EcoWatch*. Retrieved from, <https://www.transcend.org/tms/2015/06/6-devastating-heat-waves-hitting-the-planet/>

ClimateProgress. Retrieved from <http://thinkprogress.org/climate/2015/03/12/3632373/carbon-sinks-climate-action/>

EcoWatch. Retrieved from <http://ecowatch.com/2014/12/03/ocean-warming-drives-record-temperatures/>

IEA. (May 2014). Global greenhouse gas emissions. Retrieved from http://www3.epa.gov/climatechange/pdfs/globalghgemissions_documentation.pdf

IPCC, *Climate Change* (2013). The Physical Science Basis, Summary for Policy Makers. Retrieved from https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SummaryVolume_FINAL.pdf

IPCC, *Climate Change* (2014), Impacts, Adaptation, and Vulnerability, Summary for Policy Makers. Retrieved from https://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf

IPCC, *Climate Change* (2014), Mitigation of Climate Change. Retrieved from https://ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf

IPCC, *Climate Change* (2014). Synthesis Report. Retrieved from https://ipcc.ch/pdf/assessmentreport/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf

Kirby, A. (December 3, 2014). Scientists warn leaders at Lima climate talks: ocean warming drives record temperatures,

Lenton, T.M. et al., (November 21, 2007). Tipping elements in the earth’s climate system, *Proceedings of the National Academy of Sciences*, Vol. 105, No. 6, 1786-1793. doi: 10.1073/pnas.0705414105

May, E. (March 14, 2013). Missing the Copenhagen target, *Island Tides*. Retrieved from <http://www.greenparty.ca/en/blogs/7/2013-03-15/missing-copenhagen-target>

NASA GISS. (January 20, 2016). Global surface temperature. Retrieved from <http://data.giss.nasa.gov/gistemp/>

Neslen, A. (June 13, 2016). “Carbon dioxide levels in atmosphere forecast to shatter milestone”, *The Guardian*. Retrieved from, <https://www.theguardian.com/environment/2016/jun/13/carbon-dioxide-levels-in-atmosphere-forecast-to-shatter-milestone>

Nuccitelli, D. (July 21, 2014). Climate models accurately predicted global warming when reflecting natural ocean cycles, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97percent/2014/jul/21/realistic-climate-models-accurately-predicted-global-warming>

Nuccitelli, D. (July 31, 2015). Climate models are even more accurate than you thought, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2015/jul/31/climate-models-are-even-more-accurate-than-you-thought>

OECD. (March 2012). OECD Environmental Outlook to 2050, the Consequences of Inaction. Retrieved from [outlooks/oecdenvironmentaloutlookto2050theconsequencesofinaction.htm](http://outlooks.oecdenvironmentaloutlookto2050theconsequencesofinaction.htm)

Pantsios, A (December 9, 2014). Goal to end fossil fuels by 2050 proposed at Lima climate talks”, *EcoWatch*. Retrieved from <http://ecowatch.com/2014/12/09/end-fossil-fuels-2050-lima-climate-talks/>

Romm, J. (December 2, 2012). IPCC’s planned obsolescence: Fifth Assessment Report will ignore crucial permafrost carbon feedback, *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2012/12/02/1253931/ipccs-planned-obsolescence-fifth-assessment-report-will-ignore-crucial-permafrost-carbon-feedback/>

Romm, J. (March 12, 2015). Bombshell: land, ocean carbon sinks are weakening, making climate action more urgent,

Romm, J. (November 2, 2014). World’s scientists warn we have ‘high confidence’ in the ‘irreversible impacts of climate inaction. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/11/02/3587485/climate-panel-final-plea/>

Romm, J. (September 7, 2013). Alarming IPCC prognosis: 9°F warming for US, faster sea rise, more extreme weather, permafrost collapse, *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2013/09/27/2691471/ipcc-report-warming-extreme-weather/>

Schmidt, G. (October 2010). Taking the measure of the greenhouse effect, *NASA GISS*. Retrieved from http://www.giss.nasa.gov/research/briefs/schmidt_05/

Schwartz, G.M. (March 13, 2016). “Science and politics clash as humanity nears climate change tipping point”, *EcoWatch*. Retrieved from, <http://www.ecowatch.com/science-and-politics-clash-as-humanity-nears-climate-change-tipping-po-1882189194.html>

Smith, T. (August 3, 2015). “Heat index in Iran hits 164 degrees: among hottest urban temperatures ever endured by mankind”, *EcoWatch*. Retrieved from, <http://www.ecowatch.com/heat-index-in-iran-hits-164-degrees-among-hottest-urban-temperatures-e-1882081130.html>

Spear, S. (November 2, 2014). IPCC report: fossil fuels should be ‘phased out by 2100, *EcoWatch*. Retrieved from <http://ecowatch.com/2014/11/02/ipcc-climate-change-report/>

UNEP News Center, (November 27, 2012). Thawing of permafrost expected to cause significant warming, not yet accounted for in climate predictions. Retrieved from <http://www.unep.org/newscentre/default.aspx?DocumentID=2698&ArticleID=9338>

UNEP Yearbook (2014). Emerging issues in our global environment. Retrieved from [file:///C:/Users/arnold/Downloads/UNEP%20Year%20Book%202014%20emerging%20issues%20in%20our%20global%20environment%20UNEP%20YearBook%202014%20\(1\).pdf](file:///C:/Users/arnold/Downloads/UNEP%20Year%20Book%202014%20emerging%20issues%20in%20our%20global%20environment%20UNEP%20YearBook%202014%20(1).pdf)

UNEP Yearbook, (2011). Emerging issues in our global environment. Retrieved from http://www.unep.org/yearbook/2011/pdfs/UNEP_YEARBOOK_Fullreport.pdf

Union of Concerned Scientists, (1992). World scientists’ warning to humanity. Retrieved from <http://www.ucsusa.org/about/1992-world-scientists.html#.VtsXpKriZ8>

Watts, B. (January 15, 2015). On Tibetan Plateau, permafrost melt worse than glacial melt, *Glacier Hub*, Retrieved from <http://glacierhub.org/2015/01/14/permafrost-melt-poses-a-greater-threat-than-glacial-melt-in-the-tibetan-plateau/>

The industrial revolution

Even the words '*since the industrial revolution*' can be just a phrase without context and little meaning. We probably all have some approximate idea what it means. Starting in Europe, somewhere between 1760 and 1905, Western society went from an agricultural economy and cottage industry, based on manual and animal labour, to a *steam powered economy, fueled primarily by coal*. Organic sources of fuel like wood, charcoal and water power began to be replaced by *coal*; *coal* to power the steam engines to power the factories, steamboats and locomotives. Coal powered steam engines were used to pump water out of the coalmines, allowing for deeper mining. Steam engines were used to drive the machines in textile mills and *coal* was used to produce the high temperatures required for smelting iron ore. Newly dug canals and railway lines complete with bridges made for better and faster transportation. But along with these new promising developments in manufacturing, there were many negative social impacts and changes, like rapid urbanisation, pollution, child labour, cramped housing, squalor, exploitation of laborers and poverty.

The new spirit of the Renaissance and the Enlightenment, together with many new inventions, scholarship, art, music, colonial expansion, the slave trade, banking, new wealth, and investment money, paved the way during the previous centuries for this technical, cultural and economic revolution. A new age of freedom and enlightened rationality seemed to be dawning (see Chapter 4). The industrial revolution was the logical outcome of this new spirit. Adam Smith wrote his *Wealth of Nations* (1776), largely underwriting this new economic development. But all was not well. It came at a big price of social inequality and injustice, of oppression and suffering. It was the time of Charles Dickens' many novels of social criticism and his unforgettable characters depicting the squalor and unbearable suffering of his days, especially of women and children. It was the time of the French Revolution (1789-1799) and the writings of Engels (1820-1895), Marx (1818-1883) and Lenin (1870-1924), leading to upheavals and revolution in Russia.

Economically it was a time of imperialism and annexation. It is estimated that Britain produced over 65% of the world's coal, 50% of the cotton cloth and iron and 40% of the hardware. In this process of imperial expansion the British empire came to control the opium trade after the war with China (1839-1842), destroyed India's own textile industry and the village industry in Latin America. Everywhere empire and the interests of industry and trade went hand in hand. Cheap labour had to be acquired. Markets had to be created at home and abroad and resources secured. Advertising and grooming consumers had its start. All the aspects of modern capitalism had manifested themselves. The images are different from today but we recognise the similarity. The industrial revolution is seen at times as humanity's greatest advance since the domestication of animals and grains, but capitalism's dark side dampens any such enthusiasm.

Next to the social and economic consequences, little did people recognise what *environmental effects* these developments would have. Claude Monet (1840-1926), the great French impressionist painter could still idealise the new inventions. His landscape paintings celebrate steamboats, trains, bridges and railroad stations complete with steaming and hissing locomotives. But at some point he had to move from his place in the country close to the Seine River because of the stench and pollution. In the end he retreated to his own private gardens with lily pads. All was not well with the industrial revolution and the environment. The massive mining and burning of dirty coal for manufacturing and transportation had started to take its toll. From then on the amount of CO₂ in the environment started to increase and build up, slowly at first and very rapidly during the last four decades. The atmospheric, oceanic and land systems could not absorb the extra CO₂ and other greenhouse gasses, which resulted in a slow increase in global warming.

Until then the amount of CO₂ and other gasses (methane, sulphur dioxide, nitrous oxide, fluorinated gases, etc.) in the atmosphere had been relatively stable for about the last 12,000 years. The *Holocene Epoch* or human era as it has been called is our present relatively warm period between ice ages. Given that the earth is about four and a half billion years old 12.000 years is not a very long time span. During all those aeons before there were 5 mass extinctions. The last one,

with which we are most familiar (the death of the dinosaurs), happened some 65 million years ago. Compared to those millions of years our present epoch is still very short, 10,000 years BCE (Before the Common Era) plus 2,000 years CE (Common Era). During all those years the human imprint on the global environment has been relatively small and the changes very gradual allowing many organisms to adapt. The climate remained mostly stable. It is only during the last 250 years that the climate has begun to change more rapidly and particularly during the last 40 years and even more so during the last 10 years. There has been an accelerating change in climate and global warming. *Climate change is a 250-year old ecological debt of humanity* that is finally demanding payment including interest.

Life's narrow range

One crucial aspect of climate fluctuations is the narrow range within which life on earth is possible. A mere three to five degrees difference from the average global temperature can bring on another ice age or, the opposite, turn Canada's north including the North Pole into a giant tropical swamp complete with crocodiles. We can have some appreciation of that narrow range within which life flourishes from our own bodies. Even a slight rise in temperature of 1 degree can make us feel feverish and sick. A drop in temperature on the other hand, can chill us to the bone and if it continues put us into thermal shock and cause death from exposure. In either case, when the temperature changes too much all systems in our bodies begin to shut down. Animals and plants, each in their own way, have their limited range within which they can survive and flourish. That narrow range of temperature and level of acidity, for example, is becoming evident in the decline of many coral reefs. It does not take much for them to begin to bleach and die off. It is also evident in the slow northward movement of birds, insects, fish, animals, trees and plants to find the range within which they can survive. If the changes come too fast they can't adapt and die off.

In the same way the global climate system is very delicate. It counts closely. Any long-term change can have disastrous consequences one way or the other. The range within which life on this earth, including human life, is possible is very narrow. Within that range the climate remains essentially stable, unless there are extraordinary events to disturb it like a massive volcanic outburst, extensive bush fires, an increase in sun spots radiating more heat, a slow change in the tilt and the orbit of the Earth, or a meteor striking the Earth. These more radical changes seem to have brought on the various ice ages. A fall of 3 degrees Celsius may not seem much but it brought on the last ice age. Today's average rise of nearly 1 degree (0.84) in global temperature is comparable to a change in our bodies that triggers a fever. The ecosystem can only adapt to a maximum of 1 degree over a century; it takes all organisms that long to adapt to the change and even then some will not manage.

The present relatively small gain in global temperature of nearly 1 degree means that there is no room for any further rises during this century. Yet there is almost unanimous agreement among the world's scientists that there is no way to escape a rise of 2 degrees by the end of the century, or earlier. Even if, starting today, we were able to stop all further emissions of CO₂ into the atmosphere we can no longer prevent such a rise of 2 degrees or more. There are very few indications, if any, that radical changes are being made or even planned; instead it is business-as-usual. Stopping all emissions of CO₂ does not make the problem go away; it only stops the problem from getting worse. Even with a 2 degree increase certain ecosystems will begin to collapse. This is a part of what makes our situation so urgent.

The atmosphere that envelops our planet serves like an insulating blanket or as a gigantic greenhouse roof. It traps enough of the sunlight's heat to make life possible and comfortable on earth. Unlike Mars which is extremely cold or Venus which is very hot, our planet maintains an extra-ordinary balance in temperature with just enough warmth and oxygen to keep us alive. Even though carbon dioxide represents only a very small amount of the atmospheric gasses, about 0.04%, it plays a crucial role. The CO₂ particles are opaque to heat and reflect it back. Some of the heat is reflected back out to space and a part is reflected downward, warming the earth. So even a small increase in the total amount of

CO₂ can trap more heat and lead to the warming of the atmosphere. The CO₂ particles regulate the absorption and retention of energy and maintain the balance that makes life possible.

The carbon element is the essential building block of all that lives. It is our living planet's breathing and energy-exchange system. Carbon can bond with many other elements to form solids, liquids and gasses, like carbon and hydrogen to form carbohydrates (starches and sugars). Carbon in its various combinations is essential to all living beings and is continually recycled. Plants get their energy directly from the sun through photosynthesis. Animals, including humans, require abundant energy; they eat plants or other animals down the food chain. Plants, trees, soil and the ocean floor all store carbon. Dead organisms from hundreds of millions of years ago under intense pressure become carbon fossils. The global carbon cycle is crucial for all creatures; it provides the range within which human life is possible. The rate of accumulation and circulation of carbon is fine-tuned in exactly the right balance and that balance has been relatively stable for millions of years.

Carbon dioxide is the key regulator because it stays in the atmosphere for a long time compared to other gasses. When 'extra' CO₂ is released that is, extra beyond what the total ecosystem can re-cycle or absorb, some part of that increase remains in the atmosphere for centuries. The higher the concentration of CO₂ particles the more heat is trapped in the earth's atmosphere. That increase in heat will continue to give rise to warmer global temperatures, especially when *fossil* carbon is released into the atmosphere by mining and burning fossil fuels, by cutting down forests which store carbon and through melting permafrost which then releases carbon. Much of it is there forever. When we burn fossil carbon, we return carbon that was buried in the earth for millions of years back to the atmosphere. It is no surprise we are disrupting the carbon cycle.

The world's biological system cannot absorb all these 'extra' emissions. CO₂ does not break down; it must be absorbed, which is a long process potentially taking a century or more to reach a new equilibrium. Climate changes that are literally in store for us will take place for centuries to come, because of the inertia in the total climate system. There is a considerable delay for all the climate effects to take place and be noticed. The oceans will continue to absorb CO₂ (for a time) and will keep warming and expanding. Ice sheets and glaciers melt gradually and sea levels rise slowly. Year after year our carbon emissions accumulate and heat up the atmosphere. In this way we are storing up damage for the future, for the next generations. What we don't know is if there are feed-back mechanisms that will speed up these processes, like the potential loss of the Greenland ice sheet. Some estimate that we have already crossed two out of potentially nine 'tipping points'.

The carbon budget

It is the total amount of CO₂ ever emitted that is important, the total *carbon budget*. At this point in our history of more intensive use of carbon, the earth's absorption of CO₂ has reached a saturation point. Every tonne of carbon we add to the atmosphere translates almost directly into higher temperatures. To limit the warming of the atmosphere to 2 degrees Celsius will require that the total emissions accumulated over the years stays around or below 1000 Gt (or 1 trillion tonnes). During the past 250 years, since the industrial revolution, we have already used up half of that amount, most of it since the 1970's. This means that we should not add any more than 500 Gt during the rest of this century. Currently we are adding around 50 billion tonnes each year, which means that within 10 years or by 2020 we will have reached the 1000 mark. That is why the total accumulation of carbon in the atmosphere from year to year is a more important consideration than any future commitments to cuts in emissions. A year to year cut in global emissions now will have more effect than a drastic cut by 2030 or 2050. Few nations have taken this factor into account in making their future pledges. Canada for one keeps adding GHG to the atmosphere each year and will most certainly not meet its

commitments by 2020 along with many other nations. The longer cut-backs are postponed, the harder it will be to keep the temperature from rising above 2 degrees Celsius.

Much of the remaining 500 Gt budget has already been spoken for by present economic practices, by the burning of fossil fuels to generate electricity, by the on-going mining and extraction of minerals, by the transportation system, by industry, agriculture, forestry, making cement, building projects, and so on. That is why many scientists and analysts consider a rise beyond 1000 Gt inevitable, which will lead to a 3 or 4 degree Celsius increase in temperature. Such a rise is considered extremely dangerous for the survival of millions of people and many ecosystems. Emissions are still going up each year and there is little indication that there will be a radical change in economic direction. So far it seems it will be business-as-usual with whatever limited adjustments or hopes for technological solutions. In view of all the available data, such an approach seems sheer lunacy and with regard to humanity, some would say, barbaric. In Chapter 3 we will look more closely at how the unshakable belief in the free market and economic progress can lead to such blindness, ignoring all the evidence. In the face of ideology, facts and reality do not matter. The climate change deniers are an extreme example of such ideological blindness.

Atkin, E. (September 9, 2014). UN scientists see largest CO₂ increase in 30 years: 'we are running out of time', *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/09/09/3564900/wmo-climate-change-co2-report/>

Beers, D. (June 8, 2015). Mel Hurtig tags Stephen Harper: 'The Arrogant Autocrat', *The Tyee*, Retrieved from <http://thetyee.ca/Culture/2015/06/08/Arrogant-Autocrat-Stephen-Harper/>

Biesheuvel, T. (January 7, 2015). Fossil fuels must stay in ground to stop warming, scientists say, *Bloomberg*. Retrieved from <http://www.bloomberg.com/news/articles/2015-01-07/fossil-fuels-must-stay-in-ground-to-stop-warming-scientists-say>

Cleetus, R. (October 21, 2014). US carbon emissions rise despite efforts to combat climate change, *EcoWatch*. Retrieved from <http://ecowatch.com/2014/10/21/greenhouse-gas-emissions-rise/>

CNBC, (September 21, 2014). China drives world carbon emissions to record high. Retrieved from <http://www.cnbc.com/2014/09/21/china-drives-world-carbon-emissions-to-record-high.html>

EPA, (2013). Overview of greenhouse gasses. Retrieved from <http://www3.epa.gov/climatechange/ghgemissions/gases.html>

Harvey, F. (May 4, 2015). Current carbon pledges won't stop dangerous global warming, says Lord Stern, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/may/04/current-carbon-pledges-wont-stop-dangerous-global-warming-says-lord-stern>

Harvey, F. (September 27, 2013). IPCC: 30 years to climate calamity if we carry on blowing the carbon budget, *The Guardian*, Retrieved from <http://www.theguardian.com/environment/2013/sep/27/ipcc-world-dangerous-climate-change>

Harvey, F. (September 29, 2013). 'Carbon budget' talks urgent, warns Lord Stern. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2013/sep/29/carbon-budget-talks-urgent-ipcc-lord-stern>

IEA, (November 12, 2014). World Energy Outlook, Executive Summary. Retrieved from <http://www.iea.org/textbase/npsum/weo2014sum.pdf>

IPCC Press release, (April 13, 2014). IPCC: greenhouse gas emissions accelerate despite reduction efforts, many pathways to substantial emissions are available. Retrieved from https://www.ipcc.ch/pdf/ar5/pr_wg3/20140413_pr_pc_wg3_en.pdf

Lahey, S. (January 14, 2014). Canada's carbon emissions projected to soar by 2030, *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/jan/14/canada-carbon-emissions-2030-tar-sands>

Levin, K. (September 9, 2013). World's carbon budget to be spent in three decades, *CleanTechnica*. Retrieved from <http://www.wri.org/blog/2013/09/world%E2%80%99s-carbon-budget-be-spent-three-decades>

May, E. (January 21, 2013). Why a two degree Celsius increase in the global temperature is a big deal, *The Hill Times*. Retrieved from <http://www.greenparty.ca/en/blogs/7/2013-01-21/why-two-degree-celsius-increase-global-average-temperature-big-deal>

McCarrity, J. (March 12, 2014). Germany's carbon targets in doubt as emissions rise in 2013, *RTCC*. Retrieved from <http://www.climatechangenews.com/2014/03/10/germanys-carbon-targets-in-doubt-as-emissions-rise-in-2013/>

McCarthy, S. (December 9, 2014). Harper calls climate regulations on oil and gas sector 'crazy economic policy', *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/politics/harper-it-would-be-crazy-to-impose-climate-regulations-on-oil-industry/article22014508/>

McGlade, C. and Ekins, P. (January 8, 2015). The geographical distribution of fossil fuels unused when limiting global warming to 2° C, *Nature*, 517, 187-190, doi:10.1038/nature14016, Retrieved from <http://www.nature.com/nature/journal/v517/n7533/abs/nature14016.html>

McSweeney, R. (August 3, 2016). NOAA: 'Earthe's fever rises' as climate records shattered worldwide. *EcoWatch*, Retrieved from, <http://www.ecowatch.com/noaa-climate-records-shattered-worldwide-1957283930.html>

Pantsios, A. (January 29, 2015). UN climate chief: carbon bubble is now a reality, *EcoWatch*. Retrieved from <http://ecowatch.com/2015/01/20/carbon-bubble-is-reality/>

Phillips, A. (May 6, 2015). Global carbon dioxide levels just hit a disturbing new threshold, *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/05/06/3655775/carbon-dioxide-new-threshold/>

Pidcock, R. (January 7, 2015). Meeting two degree climate target means 80 percent of world's coal is 'unburnable', study says, *The Carbon Brief*. Retrieved from <http://www.carbonbrief.org/meeting-two-degree-climate-target-means-80-per-cent-of-worlds-coal-is-unburnable-study-says>

Spross, J. (November 7, 2014). At this rate, the world will have to cease all carbon emissions in 2040 to stay under 2° C, *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/11/17/3593093/iea-report-carbon-budget-2040/>

Trans, P. (July 24, 2006). If carbon dioxide makes up only a minute portion of the atmosphere, how can global warming be traced to it? And how can such a tiny amount of change produce such large effects?, *Scientific American*. Retrieved from <http://www.scientificamerican.com/article/if-carbon-dioxide-makes-u/>

World Meteorological Organization (WMO), (September 9, 2014). Carbon dioxide concentration surges. Retrieved from https://www.wmo.int/pages/mediacentre/press_releases/pr_1002_en.html

One dimensional economics and 'externalities'

The picture that has emerged is becoming clearer. *What we are facing today is really a 250-year old problem.* It has only become more extreme and threatening during the last decades. Ever since the rapid increase in burning dirty coal (fossil fuel) the CO₂ content of the atmosphere has begun to increase, absorbing more heat and starting the process of global warming. *From the beginning of the industrial revolution the 'externalities' were excluded from economic considerations.* Both the social and the environmental costs were ignored. The capitalist absolutization of the economic sphere of life had its start. There is hardly any feature of the neoliberal form of capitalism that was not already present at that time, even its global aspect (colonization), a flexible labour force (slavery) and the speculative financial sector (the new banks and lending institutions). With the further development of oil and natural gas the process only accelerated. The first commercial oil well was drilled in Pennsylvania in 1859. Then, at the end of the 1970's the process of global economic development really took off, aided by instant electronic communication and financial speculation. As a result of this process we face both environmental and social decline, unless we change and develop an integral form of economic life. Life in some form will no doubt continue but not human life. Global capitalism has come to its end (see Chapter 2, 3 and 4). At the same time another type of economy is beckoning that promotes and protects life in all its dimensions and interconnectedness (see Chapter 6).

The consequences of climate change and global warming are many. The next sections will describe the major effects on the changing air, ocean currents and the seasons. They will summarize and describe in enough detail to give us a meaningful picture of what is happening to the oceans, the global water supply, the soil, the forests, and the loss of species. Again, we will focus primarily on the meaning of these changes for us and not on the complex scientific details. The change in climate and global warming is the hub that affects and exacerbates every other part of the ecosystem. It overlaps with and reinforces these changes. In turn the changes in the ocean and on land affect the warming of the atmosphere and the global climate. There is a constant interaction. As we look at each aspect separately we will find ourselves looking back and forward to all the other sub-systems. By the end we will have a more concrete picture of what climate change and global warming actually involves. Melting glaciers and drying up rivers are not just some phenomena by themselves, but they have a strong effect on the further warming of the atmosphere and changes in climate. Together these changes have a profound effect on the lives of millions of people and their livelihoods.

Abraham, J. and Nuccitelli, D. (July 24, 2014). The dark snow team investigates the source of soot that's accelerating Greenland ice melt. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2014/jul/24/dark-snow-soot-accelerating-greenland-ice-melt>

American Institute of Physics, (2015). The Discovery of Global Warming; Impacts of climate change. Retrieved from <https://www.aip.org/history/climate/impacts.htm>

Atkin, E. (April 21, 2015). Big insurance companies are warning the US to prepare for climate change, *Climate Progress*. Retrieved from <http://thinkprogress.org/climate/2015/04/21/3649244/insurance-climate-change-disaster-relief/>

Baptiste, N. (April 22, 2014). Climate change comes to the Caribbean. *Foreign Policy in Focus*. Retrieved from <http://fpif.org/climate-change-comes-caribbean/>

Bauer, S. and Beckman, M. (March 9, 2015). The climate is starting to change faster, *Pacific Northwest National Laboratory*. Retrieved from <http://www.pnnl.gov/news/release.aspx?id=4186>

Briggs, H. (June 24, 2015). Climate change: is the Dutch court ruling 'a game changer'? *BBC*. Retrieved from <http://www.bbc.com/news/science-environment-33261474>

Christian Aid, *Time for Climate Justice* (October 2, 2013). Loss and damage: protecting the most vulnerable. Retrieved from <https://www.christianaid.org.uk/images/time-for-climate-justice-11.pdf>

David Suzuki Foundation, (July 10, 2014). Addressing global warming is an economic necessity. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2014/07/addressing-global-warming-is-an-economic-necessity/>

EPA. Future climate change. Retrieved from <http://www3.epa.gov/climatechange/science/future.html>

Global Climate Change, (2014). The current and future consequences of global change. Retrieved from <http://climate.nasa.gov/effects/>

Nuccitelli, D. (April 30, 2015). Overlooked evidence – global warming may proceed faster than expected. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2015/apr/30/overlooked-evidence-global-warming-may-proceed-faster-than-expected>

Pantsios, A. (February 25, 2015). Huge new methane blowholes in Siberia have scientists worried climate change is to blame. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/02/25/new-methane-blowholes-climate-change/>

Peterson, R. (July 2, 2015). Beyond climate change in the Caribbean. *Caribbean Journal*. Retrieved from <http://caribjournal.com/2015/07/02/beyond-climate-change-in-the-caribbean/>

Radford, T. (September 1, 2014). New satellite maps show world's major ice caps melting at unprecedented rate. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/09/01/greenland-antarctic-melting-climate-change/>

Reeves, J. (February 18, 2015). The right to sustainable development: what the post-2015 agenda declaration should say – but won't. *IIED*. Retrieved from <http://www.iied.org/right-sustainable-development-what-post-2015-agenda-declaration-should-say-wont>

Romm, J. (March 10, 2015). Rate of climate change to soar by 2020s, with arctic warming 1°F per decade, *Climate Progress*. Retrieved from <http://thinkprogress.org/climate/2015/03/10/3631632/climate-change-rate/>

Sanders, R. (January 4, 2015). 2015 begins with urgency to save the Caribbean from climate change. *Jamaica Observer*. Retrieved from http://www.jamaicaobserver.com/columns/2015-begins-with-urgency-to-save-the-Caribbean-from-climate-change_18166824

Shah, A. (January 8, 2012). Climate justice and equity, *Global Issues*. Retrieved from <http://www.globalissues.org/article/231/climate-justice-and-equity>

Smith, S. J. et al., (March 9, 2015). Near-term acceleration in the rate of temperature change. *Nature Climate Change*. Retrieved from http://www.nature.com/nclimate/journal/v5/n4/full/nclimate2552.html?WT.ec_id=NCLIMATE-201504

Stockholm Resilience Centre. (January 22, 2015). The nine planetary boundaries. Retrieved from <http://www.stockholmresilience.org/21/research/research-programmes/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html>

Stockholm Resilience Centre, (June 22, 2015). Planetary boundaries: addressing some key misconceptions. Retrieved from <http://www.stockholmresilience.org/21/research/research-news/7-2-2012-addressing-some-key-misconceptions.html>

The World Bank, (August 19, 2013). Which coastal cities are at highest risk of damaging floods? New study crunches the numbers. Retrieved from <http://www.worldbank.org/en/news/feature/2013/08/19/coastal-cities-at-highest-risk-floods>

Thompson, A. (January 2, 2015). Climate change's evolving role in extreme weather, *Climate Central*. Retrieved from <http://www.climatecentral.org/news/climate-change-evolving-role-in-extreme-weather-18501>

Upton, J. (February 22, 2015). Looming warming spurt could reshape climate debate, *Climate Central*. Retrieved from <http://www.climatecentral.org/news/warming-spurt-looms-will-it-change-minds-on-climate-change-18716>

Upton, J. (December 22, 2014). Clues in coral hint at looming temperature spike, *Climate Central*. Retrieved from <http://www.climatecentral.org/news/corals-secrets-of-warming-18468>

Wasserman, H. (April 10, 2015). Randy Hayes: 9 planetary boundaries to ensure a healthy planet. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/04/10/randy-hayes-foundation-earth/>

2) Changing air and ocean currents; unpredictable weather patterns

There are two very basic systems that will increasingly affect the global climate and weather; one is the changing pattern of the global air currents, and the other the changing global ocean currents. Both are very complex interacting systems that are being monitored by climatologists, oceanographers and other scientists in many parts of the world. These changing interactions can have a profound effect on local and regional weather systems. The warming of the atmosphere alters patterns of wind, cloud cover and rainfall as well as the currents of the oceans. The air and oceans are in constant motion and interaction. They are dynamic systems that move in large currents through the atmosphere and seas, encircling the globe.

Global air currents

Most of weather phenomena happen in the lower parts of the atmosphere, the so-called *troposphere*, which is separated from the higher layer, the *stratosphere*. These large scale weather patterns move the heat from the sun and moisture around the globe. The troposphere is higher at the equator and lower at the poles, because warmer air expands and colder, dry air compresses. As a result of this difference in 'height' of the troposphere, the air flows 'downhill' from the equator to the poles. In the middle latitudes the air flows from west to east, and the opposite, from east to west in the tropical and polar regions. It transports warmer air to the poles and cold air to the equator. Along with the flow of the warm tropical air, the water vapor plays a crucial role as well in regulating air temperature. Cold, dry air in polar regions contain only very small amounts of moisture in contrast to tropical regions. The sun evaporates large amounts of water from the earth's and the ocean's surface and transports the clouds of moisture to other regions by the wind. This differential in heat and moisture creates a strong flow of air around the globe.

Jet streams

Between these warmer and colder air masses, where the two meet, strong bands of high speed winds are created, the *jet streams*. The two most important ones are the polar jet streams and the subtropical or mid-latitude jet streams. They form a near boundary between the two air masses. These jet streams can vary and be thousands of kilometers in length, hundreds of kilometers in width and a kilometer in depth. From day to day the position of any jet stream can vary and flow more south or north and be interrupted and develop north-to-south and south-to-north loops. Especially the polar

jet stream can take strong north-to-south swings. These fast flowing narrow bands of strong winds are like rivers of air that push the weather patterns forward around the world.

Atkin, E. (July 14, 2014). The point everyone is missing about the return of the 'Polar Vortex'. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/07/14/3459809/polar-vortex-missed-the-point/>

Carrington, D. et.al., (June 11, 2014). How El Nino will change the world's weather in 2014. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/jun/11/-sp-el-nino-weather-2014>

ClimateSight (December 19, 2012). Climate change and the jet stream. Retrieved from <http://climatesight.org/2012/12/19/climate-change-and-the-jet-stream/>

Francis, J. (March 25, 2015). Weird winter weather plot thickens as arctic swiftly warms. *Scientific American*. Retrieved from <https://www.google.ca/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=+Weird+winter+weather+plot+thickens+as+arctic+swiftly+warms%2C+Scientific+American>

Mason, J. (May 22, 2013). A rough guide to the jet stream: what is it, how it works and how it is responding to enhanced arctic warming. *Skeptical Science*. Retrieved from <http://skepticalscience.com/jetstream-guide.html>

Masters, J. (2015). The science of abrupt climate change: should we be worried? *WU*. Retrieved from <https://www.wunderground.com/resources/climate/abruptclimate.asp>

Mellino, M. (March 25, 2015). Global warming is slowing ocean currents causing dire consequences, warns climate expert Michael Mann. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/03/25/global-warming-slowing-ocean-currents-michael-mann/>

Oskin, B. (May 28, 2015). Jet stream steers Atlantic currents, *Live Science*. Retrieved from <http://www.livescience.com/50998-jet-stream-controls-atlantic-climate-cycles.html>

PISCO, (January 25, 2010). Ocean currents and climate change: the changing jet stream, delayed upwelling, and disrupted food webs. Retrieved from <http://www.piscoweb.org/research/science-by-discipline/coastal-oceanography/ocean-currents>

Romm, J. (January 26, 2015). The climate science behind New England's historic blizzard, *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/01/26/3615330/blizzards-climate-scientists/>

Thompson, D.M. et.al.(December 22, 2014). Early twentieth-century warming linked to tropical Pacific wind strength, *Nature Geoscience*, 8, 117-121, doi:10.1038/ngeo2321. Retrieved from <http://www.nature.com/ngео/journal/v8/n2/full/ngео2321.html>

UCSB, Physics, Earth's Atmosphere, (n.d.). The troposphere. Retrieved from <http://web.physics.ucsb.edu/~lgrace/chem123/troposphere.htm>

Changing weather patterns

This basic, simplified picture is important because it helps us to understand what is happening to global weather. The air currents that swirl around the globe are changing because of the increase in temperature at the poles, which are rising twice as fast as elsewhere. This means that the temperature difference between the poles and the equator is not as great. As a result the jet streams are slowing down. They tend to widen and meander like a river that slows when it reaches the coast. These larger waves or lobes can bring warmer weather further north and colder weather much further south than usual and for longer periods of time. This slowing and widening of the jet streams with their meandering lobes can stall and become stuck leading to long periods of unchanging and extreme weather.

Low pressure systems can develop in the bottom of these large waves or troughs and create inward flowing masses of air with storms, heavy rains and flooding. High pressure systems can form at the top of the loops and ridges and develop outward flowing masses of air bringing hot and dry weather. Depending on the size of the lobes, the western half of a continent may experience heat waves and forest fires while the eastern part may be drenched in rain and experience one storm after another. A weakened jet stream can cause longer lasting droughts, bigger floods and spring snow storms as in the U.S., U.K. and eastern China. This widening and stalling of jet streams may be responsible for the heat wave in Europe in 2003, the floods in Russia and Pakistan in 2010 and the heat wave in the U.S. in 2011 and following. Weather systems are complex and there may be other or additional reasons for all these changes. Only time and the on-going plotting of trends will tell if these weather patterns become the order of the day.

Atkin, E. (February 12, 2015). As Boston's crazy snow keeps falling, scientists weigh in on climate impact. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/02/12/3622201/brrrrrrrrrrrrrrrrrrrrrr/>

Atkin, E. (August 1, 2014). California is now experiencing its most severe drought ever recorded. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/08/01/3466597/california-severe-drought/>

Bruce, J.P., Cohen, S. J. Coward, H. and Weaver, A.J. (2004). Impacts of climate change in Canada. *Hard Choices: Climate Change in Canada*. Retrieved from http://bookworkpiw.ca/images_book_pdfs/coward_weaver.pdf

Burke, J. (May 29, 2015). No relief from India heat wave as death toll reaches 20-year high. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/may/29/no-relief-from-india-heatwave-as-death-toll-reaches-20-year-high>

CBC News, (July 7, 2015). Smoke from wildfires in Western Canada reaches Toronto. Retrieved from <http://www.cbc.ca/news/canada/toronto/smoke-from-wildfires-in-western-canada-reaches-toronto-1.3141027>

Chow, L. (August 6, 2016). Nature's 2016 resource budget used up at quickest rate ever. *Phys.org*. Retrieved from, <http://phys.org/news/2016-08-nature-resource.html>

Chrisafis, A. (June 30, 2015). Concern on continent as heatwave set to drive temperatures beyond 40 C. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/jun/30/heatwave-temperature-continent-40-spain-portugal-france>

Geiling, N. (July 1, 2015). The West is literally on fire, and the impacts could be widespread. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/07/01/3675710/western-wildfires-impacts/>

Gramling, C. (March 26, 2015). Antarctica is rapidly losing its edge. *Science*. Retrieved from <http://www.sciencemag.org/news/2015/03/antarctica-rapidly-losing-its-edge>

Koronowski, R. (August 13, 2014). Long Island town gets over a foot of rain as downpours hit the East coast. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/08/13/3470759/flooding-downpours-climate/>

Mellino, C. (March 19, 2015). Drought-stricken California has one year left of water, NASA scientist warns, *EcoWatch*. Retrieved from <http://ecowatch.com/2015/03/19/nasa-california-drought-one-year-left-water/>

Mellino, C. (March 10, 2015). Epic drought spurs California to build largest desalination plant in western hemisphere. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/03/10/drought-california-desalination-plant/>

Office of the Auditor General. (2012). 2012 Spring Report of the Commissioner of the Environment and Sustainable Development, Chapter 2, Meeting Canada's 2020 climate change commitments. Retrieved from http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201205_02_e_36774.html

Pantsios, A. (February 12, 2015). NASA scientists: future megadroughts could last 30+ years 'thanks to human-induced climate change', *EcoWatch*. Retrieved from <http://ecowatch.com/2015/02/13/nasa-megadroughts-human-induced-climate-change/>

Phillips, A. (March 2, 2015). China's surprising reaction to an online video exposing the country's extreme pollution problem. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/03/02/3628458/chinese-air-pollution-documentary-clears-the-haze/>

Rasmussen, C. (January 13, 2015). NASA mountaintop sensor finds high methane over LA. *Global Climate Change*. Retrieved from <http://www.jpl.nasa.gov/news/news.php?feature=4440>

Rasmussen, C. (January 26, 2015). Global is the new local: pollution changes clouds, climate downstream. *Global Climate Change*. Retrieved from <http://climate.nasa.gov/news/2218/>

Romm, J. (March 26, 2015). Arctic death spiral: sea ice extent hits record winter low as thickness collapses. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/03/26/3633019/arctic-death-spiral-sea-ice/>

Saul, B. et.al. (2012). *Climate Change and Australia: warming to the global challenge*. Retrieved from <https://www.federationpress.com.au/bookstore/book.asp?isbn=9781862878723>

Stueck, W. (July 5, 2015). Thousands flee wildfires raging across Western Canada. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/thousands-flee-wildfires-raging-across-western-canada/article25311489/>

Suzuki, D. (April 15, 2015). Toxic smog puts cancer as leading cause of death in China. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/04/15/china-toxic-smog-cancer/>

Valentine, K. (October 27, 2014). Spring heat wave in Australia breaks records across the country. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/10/27/3584781/australia-spring-heatwave/>

Vidal, J. and Sethna, R. (June 14, 2013). Pakistan can expect worse heat waves to come, meteorologists warn. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2013/jun/14/pakistan-heatwave-meteorologist>

White, A. (January 3, 2014). Australia swelters under a sham climate change policy after hottest year on record. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/southern-crossroads/2014/jan/03/hottest-year-ever-confirmed-2013-australia-tony-abbott-climate-change>

Wu, H. (June 27, 2015). How Pakistan and India can prevent future heat wave fatalities. *Mashable*. Retrieved from <http://mashable.com/2015/06/27/india-pakistan-heat-wave-prevention/>

Weaver, A. (2008) *Keeping our Cool: Canada in a warming world*. Victoria, BC. Penguin Canada.

Union of Concerned Scientists, Is global warming linked to severe weather? Retrieved from http://www.ucsusa.org/global_warming/science_and_impacts/impacts/global-warming-rain-snow-tornadoes.html#.Vt2kpcXvaRM

Global ocean currents

A similar phenomenon has developed in the oceans. The oceans too have an interconnected global circulation system powered by wind, tides, Earth's rotation, sun, bottom topography, and water density differences. The surface currents are primarily wind driven; the deep water currents are driven by density differences. Cold, saltier water is denser, and the greater the density and temperature difference, the greater the circulation. The surface currents carry the less dense warmer water away from the equator towards the poles. The deep ocean currents carry the cold, denser, saltier water away from the poles to the equator. Together, the surface layer and the deeper layer, which is below 300 metres, constitute the ocean's 'global conveyer belt' (the *Thermohaline* circulation). The oceans cover 71% of the planet and hold 97% of its water; they are a key factor in the storage and transfer of heat energy across the globe. Disruption of these currents can lead to dramatic changes in the earth's climate.

The warm water at the equator flows 'downhill' to the north and the south and curves westwards in the northern hemisphere and eastwards in the southern hemisphere (the Coriolis Effect). As a result of this westward and eastward pressure the currents tend to flow in curves which can close in on themselves and form gyres. The seawater flows in five

great surface circuits between the continents. These five major gyres are the source of most of the surface ocean currents in the world. Many organisms in the sea follow these currents in the ocean to spawning and mating grounds and different sources of food. The Antarctic Circumpolar Current is the sixth and largest circuit but it is not a gyre since it does not flow around the periphery of an ocean basin. It flows endlessly eastward around Antarctica. There are many major and minor interconnected warm and cold ocean currents that are responsible for moving the water around the globe.

The Gulf Stream

One familiar current is the Gulf Stream that brings fast-moving warm water from the Gulf of Mexico into the Atlantic Ocean and follows the eastern coastline of the US and Newfoundland. Then it flows north-east toward Europe. Along with similar warm air currents it carries heat from the Caribbean far into the northern latitudes and is responsible for the mild, wet winters in France, Great Britain, Norway and the other Scandinavian countries. Without the influence of the Gulf Stream and air currents, northern Europe would be a lot colder with shore ice along most of its coasts.

Thermohaline circulation

As part of the global thermohaline circulation (the *Meridional Overturning Circulation, MOC*) there are three great downwelling and upwelling areas or exchanges in the oceans, two in the north and one in the south. In these areas there is a continuous exchange between the deeper and surface layers of the ocean. The two in the north are on either side of Greenland where the warm Gulf Stream waters cool and sink and are replaced by the deeper, nutrient rich water of the lower layer, which flows back to the equator and Antarctica. This sinking and rising triggers and feeds deep water circulation. Nutrients from the deep rise to the surface and oxygen from the surface oxygenates the deeper waters. It seems that this global circulation system is in danger of slowing down because of the warming of the Arctic air and the melting of sea ice and glaciers. More stratified and slower ocean currents will have drastic consequences for all marine life.

If enough fresh water flows into these key areas this will lower the salinity and hence the density of the surface waters so that they will no longer sink. When the surface waters do not cool as much and do not sink, the total circulation of ocean currents slows down or comes to an abrupt stop. Such a slowing down would have a dramatic effect on the global climate. The amount of heat in the North Atlantic and the heat carried northward by the Gulf Stream would diminish and lead to much lower temperatures in eastern North America, England and northern Europe. Winter storms and winds would strengthen, while the average temperatures in many areas in the southern hemisphere would increase leading to droughts and water shortages. There seems little doubt that the meridional overturning circulation will slow during this century, but it is not known by how much and when. It is estimated that the Atlantic overturning circulation has slowed down by 30% since 1957. There are many other upwellings that have their own significance, especially along the western coasts of the continents.

England, M.H.et.al., (February 14, 2014). Recent intensification of wind-driven circulation in the Pacific and the ongoing hiatus. *Nature Climate Change, Volume 4*, pp 222-227, doi: 10.1038/nclimate2106

Upton, J. (October 5, 2014). Oceans getting hotter than anybody realized. *Climate Central*. Retrieved from <http://www.climatecentral.org/news/oceans-getting-hotter-than-anybody-realized-18139>

Thompson, A. (October 10, 2014). Warm ocean water boosting typhoons, record heat. *Climate Central*. Retrieved from <http://www.climatecentral.org/news/record-ocean-heat-typhoons-18427>

Conclusion

The average warming of the atmosphere, which changes the global air and ocean currents and their interaction, will increasingly affect the climate and weather systems. There will be more heat waves, more droughts, more wild fires,

more intense storms, more sudden and longer lasting down pours, more floods and landslides. During the last two decades 'natural' disasters have doubled globally. We soon tend to forget these extreme weather and disasters unless it hits our own area. Even if we manage to stabilize the average global warming at 2 degrees Celsius within the next two decades, which is more and more doubtful, life will still be very uncomfortable and unpredictable in our moderate climate and near disastrous for millions of people in the sub-tropical and tropical zones which will give rise to many climate refugees, border clashes and regional wars. Many of us still have the images engraved in our brains of the Ethiopian refugees stumbling along in the heat without much food or water followed by the hyenas ready to pounce on their dying or dead children left behind. There will be unstable and unpredictable weather patterns. These are not far-off effects or dooms-day predictions; they are noticeable now. Generally, climate change will increasingly give rise to unpredictable weather patterns. A new hydrological weather system is emerging.

3) Changes in the seasons and migration of many creatures

Along with climate change, global warming, changing jet streams and ocean currents there is a noticeable change in the onset of the seasons. Already earlier springs are giving rise to changes in migratory patterns and disruptions in the breeding season. These changes in seasonal timing will affect many creatures from birds and insects to animals and fish. To give just one example, Nova Scotia lobster fisherman are finding that lobsters are moulting or shedding several weeks earlier than before. Moulting also seems to occur not only in late spring but throughout the season from June to December. This makes harvesting more difficult and unpredictable. Lobsters are most marketable before they moult when their shells are hard and full of meat. 'Shedders' are more fragile, are worth less and can't be shipped long distances. The same is true for fishing in general. Different species are moving north while southern species are taking their place. Everywhere life is on the move on land and in the oceans. Some species are moving to higher elevations. Spring is arriving several weeks earlier in some countries, while autumn is delayed. Pests can survive during warmer winters and spread more easily to new regions. Insects like malaria-bearing mosquitoes are invading areas that were free of malaria before. Many types of human and animal diseases like cholera, diarrhea and malaria are increasing as a result of changing weather patterns. Allergy season can become more prolonged and intense, especially with regard to ragweed. Snow cover and river ice are melting earlier affecting entire ecosystems. In many areas the winter sport season, especially skiing is shortened. It illustrates how narrow the comfort range is for many creatures, including humans. For species that already live at their thermal limits, even a small rise in temperature will be fatal. Adaptation to changing environmental conditions happens slowly requiring a century or more. The concern is not so much that changes are taking place but the rate of change. Many creatures will not be able to adapt that quickly and will go extinct.

The more unpredictable the weather in terms of early or late spring or prolonged dry spells and heavy rains, the harder it is for farmers to plan what to grow and when to plant. Warmer temperatures will require more irrigation, which in turn will require more energy use. Earth's water systems are thrown off balance. Changes in the seasonal monsoons in Asia and Africa and the variations in rainfall makes farming more unpredictable. In many areas there will be a reduction in crop yields. Rising temperatures and early snowmelts can increase the number and spread of forest fires. All of this does not take into account the suffering of millions of people that results from higher temperatures, droughts and less rainfall in subtropical areas like the sub-Saharan regions in Africa, nor deaths as the result of intense flash rains, floods and mud slides in other areas.

Atkin, E. (October 21, 2014). As planet warms, scientists predict changes for autumn leaf season. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/10/21/3582328/climate-change-autumn-leaves/>

Berwyn, B. (November 3, 2014). Global warming takes bite out of our Colorado ski season. *Colorado Independent*. Retrieved from <http://www.coloradoindependent.com/150106/global-warming-takes-bite-out-of-colorado-ski-season>

Centre for Ecology & Hydrology. (November 6, 2014). Shifting seasons, climate change and ecosystem consequences. Retrieved from <http://www.ceh.ac.uk/our-science/projects/shifting-seasons-climate-change-ecosystem-consequences>

Collins, N. (October 16, 2011). Animals 'shrinking' due to climate change: polar bears are shrinking because of the impact of climate change on their natural habitats, along with other animals and plants, researchers say. *The Telegraph*. Retrieved from <http://www.telegraph.co.uk/news/earth/environment/climatechange/8830023/Animals-shrinking-due-to-climate-change.html>

EDF, Climate change impacts: a warming atmosphere leaves little unscathed. Retrieved from <https://www.edf.org/climate/climate-change-impacts>

EPA, Climate change: agriculture and food supply. Retrieved from <http://www3.epa.gov/climatechange/impacts/agriculture.html>

Foster, J.M. (July 7, 2014). The Asian Longhorned Beetle is back, putting thousands of trees at risk. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/07/07/3457015/asain-longhorned-beetle/>

Gray, R. (September 18, 2011). Common fungi spreading as climate changes. *The Telegraph*. Retrieved by <http://www.telegraph.co.uk/news/earth/earthnews/8770625/Common-fungi-spreading-as-climate-changes.html>

Iacurci, J. (October 9, 2014). Could climate change mean the end of the seasons? *Nature World News*. Retrieved from <http://www.natureworldnews.com/articles/9491/20141009/admin-natureworldnews-com-is-undefined-in-site-array.htm>

Loo, Y. Y. et al., (March 21, 2014). Effect of climate change on seasonal monsoon in Asia and its impact on the variability of monsoon rainfall in Southeast Asia. *Geoscience Frontiers*, Volume 6 (6), pp 817-823. doi:10.1016/j.gsf.2014.02.009

Media, University of Cape Town. Climate change in southern Africa and the associated impacts. Retrieved from http://media.csag.uct.ac.za/faq/qa_3impacts.html

Parry, W. (April 13, 2012). Climate change throws nature's timing out of whack. *Live Science*. Retrieved from <http://www.livescience.com/19679-climate-change-seasons-shift-mismatch.html>

Planck, M. (October 8, 2014). Climate change alters the ecological impacts of seasons. *Max Planck Institute*. Retrieved from https://www.mpg.de/8691609/climate-change_seasons

ScienceDaily. (February 22, 2011). Links between longer ragweed season and climate change confirmed. Retrieved from <http://www.ars.usda.gov/is/pr/2011/110222.htm>

ScienceDaily. (October 10, 2012). Climate change to lengthen growing season. Retrieved from <http://www.sciencedaily.com/releases/2012/10/121010084156.htm>

Union of Concerned Scientists. Early spring's domino effect. Retrieved from http://www.ucsusa.org/global_warming/science_and_impacts/impacts/springs-domino-effect.html#.Vt28QsXvaRM

Union of Concerned Scientists. Early warning signs of global warming: plant and animal range shift. Retrieved from http://www.ucsusa.org/global_warming/science_and_impacts/impacts/early-warning-signs-of-global-7.html#.Vt28hMXvaRM

Valentine, K. (October 14, 2015). "Climate change will have big effects on spring and winter", *Climate Progress*. Retrieved from, <http://thinkprogress.org/climate/2015/10/14/3712149/early-springs-study/>

Walther, G-R. et.al., (March 28, 2002). Ecological responses to recent climate change. *Nature*, vol. 416, <http://eebweb.arizona.edu/courses/Ecol206/Walther%20et%20a%20Nature%202002.pdf>

Wick, J. Y. (April 9, 2012). Global warming: climate change impacts allergy season. *Pharmacy Times*. Retrieved from <http://www.pharmacytimes.com/publications/issue/2012/april2012/global-warming-climate-change-impacts-allergy-season>

4) The decline of the oceans

It is hard to imagine any other change that has such a profound effect on the total ecological system as the decline of the oceans. Together the oceans cover 71% of the earth's surface. It is the largest of our ecosystems and forms one interconnected circulation system that is powered by wind, tides, the force of the earth's rotation, the sun and water densities. The oceans are a vital part of the planet's circulatory system. They transport heat, particles and organisms around the world. The constant interaction between ocean and air currents determines and regulates our climate. Through the process of evaporation and precipitation the ocean supplies most of the planet's fresh water. All lakes, watersheds, and rivers in turn drain to the ocean in a never-ending water cycle. The oceans are also the largest reservoir of rapidly cycling carbon and provide the majority of the earth's oxygen. The oceans are like a sponge, absorbing about a quarter of the CO₂ that is released into the air.

Phytoplankton and other micro-organisms: the basis of the marine food web

The oceans are the cradle of life. Phytoplankton organisms or microalgae in the oceans form the basis of the marine food web. They are the primary producers and provide food for the smallest microscopic zooplankton organisms, for small fish and invertebrates and for the largest marine animals, the whales. Populations of phytoplankton are declining across the globe, even though within this general trend populations rise and diminish in various regions. They decline during cool periods and increase during warm periods. It is estimated that on average there is a 1% decline in the phytoplankton population a year. If this trend is confirmed and continues, the slow overall decrease will have a profound effect on the marine food web. We too are dependent on this food chain, since the oceans provide food for a large part of the world's population. The oceans are a crucial part of what makes life possible on our planet, including human life.

Floating in the top layer of the sunlit ocean these photosynthesizing organisms absorb carbon dioxide from the atmosphere and emit oxygen. These millions and millions of microorganisms, through the process of photosynthesis create a large part of the oxygen we breathe and absorb more than one third of the extra CO₂ we produce. Together the oceans are a giant carbon sink or heat bucket. They contain fifty times more carbon than the atmosphere. A slow decline in the global photosynthesis of phytoplankton will eventually limit their uptake of carbon from the atmosphere. Many aspects of these micro-organisms and their interactions are being investigated including the effect of global warming. These studies will continue to provide important clues to changes in the intricate ocean ecosystems in the tropics and northern regions.

The oceans do not only have geophysical, bio-chemical, climatic and economic significance. They also have a profound cultural, aesthetic and spiritual meaning for millions of people. Just like fresh water cannot be limited or defined by the chemical formula H₂O so the oceans cannot be limited or reduced to their geophysical properties and economic value or utility. For millions of people life on the seas and fishing are an integral social, cultural and spiritual way of life, a way of life that is increasingly threatened. In the previous sections we have looked at the changing global ocean and air currents, the slowing down of the circulation between the upper and deeper layers of the ocean and the northward migration of many species in the Atlantic Ocean. There are at least half a dozen other fundamental changes that increasingly effect the functioning and health of the oceans: *the warming of the oceans, acidification, loss of coral reefs and shell fish, rising sea levels, loss of ocean biodiversity, dead zones, and chemical, plastic and sound pollution.*

- Card, A. (June 3, 2015). Marine microbes boost algae growth, revealing complexities of ocean ecology. *Environmental Monitor*. Retrieved from <http://www.fondriest.com/news/marine-microbes-boost-algae-growth-revealing-complexities-of-ocean-ecology.htm>
- Chavance, Y. (April 17, 2012). Floating laboratory follows plankton around the world in 938 days. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2012/apr/17/tara-oceans-plankton-research-expedition>
- Earth Observatory, NASA. Global Maps: Chlorophyll. Retrieved from http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=MY1DMM_CHLORA
- EurekAlert. (May 27, 2015) Invisible helpers of the sea: marine bacteria boost growth of tiny ocean algae. Retrieved from http://www.eurekalert.org/pub_releases/2015-05/uow-ih052615.php
- Fischetti, M. (August 8, 2013). Sweeping change in phytoplankton populations could remake oceans. *Scientific American*. Retrieved from <http://www.scientificamerican.com/article/sweeping-change-in-phytoplankton/>
- Freeman, N. M., and N. S. Lovenduski (2015), Decreased calcification in the Southern Ocean over the satellite record. *Geophys. Res. Lett.*, 42, 1834–1840. doi: 10.1002/2014GL062769.
- Gutierrez, D. (April 2, 2011). Phytoplankton in decline across world's oceans. *Natural News*. Retrieved from http://www.naturalnews.com/031925_phytoplankton_oceans.html
- Hall, J. (September 12, 2011). The most important organism? *Ecology Global Network*. Retrieved from <http://www.ecology.com/2011/09/12/important-organism/>
- Harley, C. D. G. et al., (July 17, 2012). Effects of climate change on global seaweed communities. *Journal of Phycology*. Vol. 48 (5), pp. 1064-1078 doi: 10.1111/j.1529-8817.2012.01224.x
- Keith, S. A. (May 2014). Global diversity of marine macroalgae: environmental conditions explain less variation in the tropics. *Global Ecology and Biogeography*, Vol. 23 (5), pp. 517-529.
- Lindsey, R. and Scott, M. (July 13, 2010). What are phytoplankton? *NASA, Earth Observatory*. Retrieved from <http://earthobservatory.nasa.gov/Features/Phytoplankton/>
- Lomas, M.W. et al. (2014). Impact of ocean phytoplankton diversity on phosphate uptake. *Proceedings of the National Academy of Sciences*. doi: 10.1073/pnas.1420760111
- Martin, R. and Quigg, A. (June 1, 2013). The plants that once ruled the seas. *Scientific American*. Retrieved from <http://www.scientificamerican.com/article/tiny-plants-that-once-ruled-the-sea/>
- McQuatters-Gollop, A. et al. Is there a decline in marine phytoplankton? *Nature*, 2011, April 14, 472 (7342). *Nature* 472, pp 6–E7 doi:10.1038/nature09950
- National Ocean Service. (April 29, 2014). What are phytoplankton? Retrieved from <http://oceanservice.noaa.gov/facts/phyto.html>
- NWFSC. (April 29, 2014). Phytoplankton – what are they? Retrieved from http://www.nwfsc.noaa.gov/hab/habs_toxins/phytoplankton/
- Vidal, J. (June 6, 2015). The microscopic magic of plankton. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/jun/06/microscopic-magic-of-plankton>
- Water Encyclopedia*. Algal blooms in the ocean. Retrieved from <http://www.waterencyclopedia.com/A-Bi/Algal-Blooms-in-the-Ocean.html>

The warming of the oceans; the Arctic, Greenland and Antarctica

As the oceans absorb more of the extra CO₂, the temperature of the water increases. Earlier it was thought that as the oceans continue to absorb more heat the difference in temperature and salinity between the equatorial and polar waters would diminish. As a result of this equalizing the ocean circulation would slow down. It is becoming more apparent that the dynamics of CO₂ absorption are more complex. During the last thirty years oceanographers have been

able to measure the changes in temperature both in the deeper and the surface layers of the oceans. It seems that there is a natural variability in temperature over decades caused by the El Nino/La Nina oscillations (Pacific Decadal Oscillation or PDO) and the North Atlantic Oscillation (NAO). As they are able to integrate these givens gathered over many years of sampling in many parts of the oceans, a more complex picture of the oceans' uptake of CO₂ is becoming evident.

When the global surface warming is reduced during a cooler period, more heat is transferred to the deeper layers of the ocean. During those times stronger trade winds stir up the oceans and bring more of the deeper unsaturated waters to the surface, which allows the heat to be transferred to the deeper layers and increase the rate of CO₂ absorption. When the winds change and calm and the warm waters flow further north in the Atlantic there is less mixing between the layers of the ocean and more stratification which slows the carbon uptake. In this interplay between oscillating ocean currents and the increase in atmospheric CO₂ it seems that the carbon balance remains the same for a time. As the atmosphere heats up as a result of increased carbon emissions, the oceans absorb more CO₂, either in the surface or deeper layers. In spite of these variations, the warming of the atmosphere and the oceans as a whole continues unabated. Sixty percent of the net energy increase is stored in the upper layer of the ocean and 30% in the deeper (below 700 meters) layer. The oceans remain a giant sink for the extra heat we produce with whatever consequences for their health.

One devastating effect of the average warming of the atmosphere and the oceans is the reduction and melting of glaciers, snow cover, permafrost and shrinking sea ice in the Arctic regions and Greenland. The temperature in the Arctic has been rising twice as fast as elsewhere on the globe; it has risen 1.5° C. These changing conditions in the Arctic play a crucial role in climate change. The warming will lead to an ice-free Arctic ocean in the years to come, opening up the Arctic to shipping, fishing and oil and gas exploration. The warming of the atmosphere and the ocean in the Arctic and the changing air and ocean currents seem to be of only relative importance in any discussion about Arctic developments. Nor is the fate of the over 4 million Inuit and indigenous people taken into account and provided for. The importance of the Arctic regions for global warming can hardly be overestimated, especially the melting of permafrost and the release of methane gasses.

The sea ice in the Arctic has been thinning during the last decades, resulting in a reduction in the total sea ice volume. The sea ice plays a crucial role in the interaction between the atmosphere and the ocean and the circulation of the deep-sea ocean current from the Arctic back to the equator. As described earlier, the cold salty water sinks to the ocean floor and warmer, nutrient-rich water rises, creating important feeding grounds for countless species. The sea ice serves as an insulating layer which prevents evaporation and heat loss to the atmosphere. The ice surface reflects sunlight back into the atmosphere, instead of absorbing more CO₂ and adding to warming of the ocean. The sea ice cover also restricts wind and water motion, lessening coastal erosion. The ice surface itself provides a habitat for polar animals like seals, arctic foxes, polar bears, and seabirds. All of these interactions will be compromised and change as a result of large-scale warming and melting.

The greatest change will come about as result of the melting of the Greenland ice sheets and the melting of the permafrost. The permafrost plays an important role in the ecology of the Arctic. It covers about 24% of the land in the Northern Hemisphere. The frozen ground holds moisture up near the surface. With large-scale melting significant amounts of greenhouse gasses will be released, including methane. Methane emissions warm the atmosphere 20 to 25 times more than carbon dioxide emissions. These changes will come about gradually, year after year, or they may happen quite suddenly when they have reached a critical point. Researchers are finding more evidence of thawing permafrost with increases of methane emerging in some places at a much faster rate than originally estimated.

Abraham, J. and Nuccitelli, D. (April 28, 2013). Global warming and oceans: what are the known unknowns? *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2013/aug/28/global-warming-oceans-known-unknowns>

Abraham, J. and Nuccitelli, D. (September 3, 2013). The Pacific Ocean fills in another piece of the global warming puzzle. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2013/sep/03/global-warming-pacific-ocean-puzzle-piece>

Brian, M. (June 12, 2013). NASA warns arctic thaw could have huge impact on global warming. *The Verge*. Retrieved from <http://www.theverge.com/2013/6/12/4422078/nasa-arctic-permafrosts-carbon-emissions>

Emerson, C. (2010). *The Future History of the Arctic*. Public Affairs.

Figueres, J. M. (September 19, 2013). Climate science's stark ocean truths. *Huffington Post*. Retrieved from http://www.huffingtonpost.com/jose-maria-figueres/climate-sciences-stark-ocean-truths_b_3956779.html

Foster, J.M. (July 11, 2014). Tropical fish are taking over temperate oceans, causing underwater deforestation. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/07/11/3458771/tropical-fish-deforesting-temperate-waters/>

Galloway, G. (June 23, 2014). Report warns world's fragile oceans pushed to point of collapse. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/report-warns-worlds-fragile-oceans-pushed-to-point-of-collapse/article19304650/>

Goldenberg, S. (September 18, 2013). Arctic sea ice shrinks to sixth-lowest extent on record. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2013/sep/18/arctic-sea-ice-shrinks-record-low>

Government of Canada, Fisheries and Ocean Canada. Canada's state of the oceans report, 2012. Retrieved from <http://dfo-mpo.gc.ca/science/coe-cde/soto/report-rapport-2012/index-eng.asp>

International Programme on the State of the Ocean (October 3, 2013). Latest review of science reveals ocean in critical state from cumulative impacts. *Press Release*. Retrieved from <http://www.iucn.org/?13784/Latest-review-of-science-reveals-ocean-in-critical-state>

Kirby, A. (February 2, 2015). New satellite data reveals dramatic shrinkage of arctic ice cap. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/02/02/shrinkage-of-arctic-ice-cap/>

Lemonick, M. D. (March 27, 2013). Why the globe hasn't warmed much for the past decade. *Climate Central*. Retrieved from <http://www.climatecentral.org/news/why-the-globe-hasnt-warmed-much-for-the-past-decade-15788>

Lemonick, M. D. (October 8, 2012). Scientists close in on the cause of arctic methane leaks. *Climate Central*. Retrieved from <http://www.climatecentral.org/news/scientists-close-in-on-the-cause-of-arctic-methane-leaks-15090>

Montaigne, F. (February 10, 2015). Why ocean health is better and worse than you think. *Yale Environment 360*. Retrieved from http://e360.yale.edu/feature/why_ocean_health_is_better_and_worse_than_you_think/2848/

Neeley, A. (April 24, 2014). The Pacific or 'Peaceful' ocean. *Earth Observatory, NASA*. Retrieved from <http://earthobservatory.nasa.gov/blogs/fromthefield/2014/04/24/the-pacific-or-peaceful-ocean/>

Noone, K. & Sumaila, R. & J. Díaz, R.J., eds. (2012). "Valuing the ocean; extended executive summary", Stockholm: SEI. Retrieved from, <https://www.sei-international.org/mediamanager/documents/Publications/SEI-Report-ValuingTheOcean-ExtendedSummaryReport-2012.pdf>

Novak, A. (November 4, 2013). "New report examines complex threats facing our oceans", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/new-report-examines-complex-threats-facing-our-oceans-1881809693.html>

Pantsios, A. (October 3, 2014). Ocean health gets 'D' grade in new Global Index. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/10/03/ocean-health-d-report-card/>

Radford, T. (March 25, 2015). Deep concerns as climate impacts on Gulf Stream flow. *Climate News Network*. Retrieved from <http://climatenewsnetwork.net/deep-concerns-as-climate-impacts-on-gulf-stream-flow/>

RealClimate. (September 25, 2013). What ocean heating reveals about global warming. Retrieved from <http://www.realclimate.org/index.php/archives/2013/09/what-ocean-heating-reveals-about-global-warming/>

Riebeek, N. (June 30, 2008). The ocean carbon balance. *Earth Observatory, NASA*. Retrieved from <http://www.realclimate.org/index.php/archives/2013/09/what-ocean-heating-reveals-about-global-warming/>

Romm, J. (November 30 2012). Science stunner: Greenland ice melt up nearly five-fold since mid-1990s, Antarctica's ice loss up 50% in past decade. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2012/11/30/1260591/science-stunner-greenland-ice-melt-up-nearly-five-fold-since-mid-1990s-antarcticas-ice-loss-up-50-in-past-decade/>

Sanford, R. W. (2012). *Cold Matters, the State and Fate of Canada's Fresh Water*. Rocky Mountain Books Ltd.

ScienceDaily. (June 18, 2012). Increasing levels of carbon dioxide in arctic coastal seas. Retrieved from <http://www.sciencedaily.com/releases/2012/06/120618153743.htm>

ScienceDaily. (July 12, 2010). Melting tundra creating vast river of waste into arctic ocean. Retrieved from <http://www.sciencedaily.com/releases/2010/01/100111102536.htm>

ScienceDaily. (October 25, 2009). Arctic has potential to alter earth's climate: arctic land and seas account for up to 28 percent of world's carbon sink. Retrieved from <http://www.sciencedaily.com/releases/2009/10/091014144729.htm>

Struzik, E. (2011). *The Big Thaw, Adventures in the Vanishing Arctic*. Wiley.

Valentine, K. (October 6, 2014). The ocean's surface layer has been warming much faster than previously thought. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/10/06/3576234/ocean-surface-warming-faster/>

Acidification and loss of coral reefs

One of the consequences of absorbing more CO₂ is that it makes the water of the oceans more acidic. When carbon dioxide enters seawater it dissolves and is converted into carbonic acid. It is estimated that there has been a 30% increase in ocean acidification since the industrial revolution and that this increase will rise to 50% by 2050. The pH value of the ocean water has slowly moved from 8.2 to 8.1 on the pH scale, which is still slightly alkaline. But even a small change can have a large effect and transform life in the oceans. From our knowledge of the soil in our gardens or from trying to balance the pH of the water in an aquarium, we know how closely this counts. A small deviation makes it hard for certain plants and crops to grow and flourish or for some fish and marine organisms to survive. The pH level of

the oceans has not been below 8.1 during the past two million years. At the present rate it could decrease to 8.0 units and lower, making the sea water increasingly acidic. Many organisms cannot adapt quickly enough to this rate of change.

All micro-organisms and creatures with calcium carbonate skeletons and shells will be affected when the oceans become more acidic. Phytoplankton or microscopic algae build calcium carbonate shells to protect themselves. Many forms of phytoplankton with chalky skeletons, as well as mollusks, snails, crabs, lobsters, shrimps, clams, mussels, sea urchins and corals will all decline. Their skeletons and shells will thin until they can no longer procreate and survive. Acidification affects all aspects of growth, behaviour and reproduction of ocean organisms and fish. Corals need the cement of coralline algae (seaweed) which are particularly vulnerable to rising CO₂ levels. Coral reefs are the nurseries of countless fish and other marine organisms. They provide a habitat for 25% of marine species. Millions of marine species depend on coral reefs to feed, reproduce and provide shelter from predators. Particularly the larvae of different organisms need the protection of the reefs. The present decline, bleaching and death of coral reefs is perhaps the most dramatic result of acidification. If current trends of carbon dioxide emissions continue most corals will not survive during the course of this century. If the rates reach 560 ppm carbon dioxide (double the pre-industrial level) coral reefs all across the globe will stop growing and begin to erode.

With increasing acidity corals will produce less robust skeletons. Others will cease to grow. Tropical coral reefs that are in 'shallow' water (less than 300 feet) are more quickly affected by increasing acidity. In the Indian Ocean 70 to 90% of all corals have died, including the Galapagos Islands corals. Skeletons of the corals in the Great Barrier Reefs of Australia have weakened and show a decrease of 14% since 1990. Left unchecked ocean acidification could destroy all coral reefs by 2050 and disrupt other ecosystems, fisheries and habitats. It is estimated that of the approximate 10,000 coral reefs one is destroyed each day. If CO₂ levels increase by 20% over present levels which could happen in the next two decades, that would reduce the ability of corals to build their skeletons and some would become extinct. Generally, cold water reef-forming corals are particularly vulnerable species to increases in CO₂. Many deep sea organisms depend on these coral reefs.

Acidification is particularly threatening to calcifying micro organisms in the Arctic waters. Colder waters absorb higher levels of CO₂ than warmer waters making the polar seas more acidic. The Arctic food webs are simple in the sense that there are few steps from small organisms, the base of the food web, to large predators. Pteropods, tiny snails, at the base of the food web are especially vulnerable to acidification. Some whales, salmon, cod, pollock, and other fish all feed on these tiny creatures. The decline of the micro organisms would pose a serious threat to the whole ecosystem. In Antarctica the shells of marine snails are already becoming corroded.

Bittel, J. (April 18, 2016). "The silence of the shrimps: how carbon pollution could put the sea on mute", NRCD. Retrieved from,

<https://www.nrdc.org/onearth/silence-shrimps-how-carbon-pollution-could-put-sea-mute>

CBC News. (July 6, 2015). Ocean acidification needs more focus at climate talks, scientists say. Retrieved from <http://www.cbc.ca/news/technology/ocean-acidification-needs-more-focus-at-climate-talks-scientists-say-1.3139960>

CBC News. (July 9, 2012). Rising acidity of oceans a major threat to coral reefs. Retrieved from <http://www.cbc.ca/news/technology/rising-acidity-of-oceans-a-major-threat-to-coral-reefs-1.1148565>

Cooke, K. (August 6, 2014). Marine economy sinks as ocean acidity rises. *Climate News Network*. Retrieved from <http://climatenewsnetwork.net/marine-economy-sinks-as-ocean-acidity-rises/>

Cooke, K. (August 6, 2014). NOAA: Ocean acidification rises, marine economy sinks. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/08/06/noaa-ocean-acidification-marine-economy/>

Gattuso, J. P. et.al. (July 3, 2015). Contrasting futures for ocean and society from different anthropogenic CO₂ emissions scenarios. *Science*. Vol. 349 No. 6243. doi: [10.1126/science.aac4722](https://doi.org/10.1126/science.aac4722)

Government of Canada, Fisheries and Oceans Canada. Ocean acidification. Retrieved from <http://www.dfo-mpo.gc.ca/science/oceanography-oceanographie/impacts/acidification-eng.html>

Kirby, A. (September 9, 2014). World Meteorological Organization: ocean acidification and greenhouse gas emissions hit record levels. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/09/09/ocean-acidification-greenhouse-emissions/>

Logan, C. A. (2010). A review of ocean acidification and America's response. *BioScience*, Vol. 60, No. 7. doi: [10.1525/bio.2010.60.10.8](https://doi.org/10.1525/bio.2010.60.10.8)

NOAA, *Habitat Conservation*, (2014). Deep-Sea Coral Research & Technology Program report to congress. http://www.habitat.noaa.gov/pdf/FINAL_DSCRtC_4_17_2014_Interactive.pdf

Nuccitelli, D. (July 2, 2015). New study warns of dangerous climate change risks to the earth's oceans. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2015/jul/02/new-study-warns-of-dangerous-climate-change-risks-to-the-earths-oceans>

Pantsios, A. (October 9, 2014). Ocean acidification from climate change could cost \$1 trillion. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/10/09/ocean-acidification-climate-change/>

Pantsios, A. (November 11, 2014). Groundbreaking maps detail acidity of the earth's oceans. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/11/11/ocean-acidification-maps-climate-change/>

Philpott, T. (March 7, 2016). "Corals are in the middle of a 'global bleaching event', here is what that means". *Grist*. Retrieved from, <http://grist.org/climate-energy/corals-are-in-the-middle-of-a-global-bleaching-event-heres-what-that-means/>

PMEL, NOAA, Ocean acidification: the other carbon dioxide problem. Retrieved from <http://www.pmel.noaa.gov/co2/story/Ocean+Acidification>

ScienceDaily. (January 15, 2014). Acidification, predators pose double threat to oysters. Retrieved from <https://www.sciencedaily.com/releases/2014/01/140115132748.htm>

ScienceDaily. (February 5, 2010). Oceans reveal further impacts of climate change. Retrieved from <https://www.sciencedaily.com/releases/2010/02/100204144811.htm>

ScienceDaily. (April 13, 2012). Ocean acidification linked with larval oyster failure in hatcheries. Retrieved from <https://www.sciencedaily.com/releases/2012/04/120411132219.htm>

ScienceDaily. (June 28, 2013). Major changes needed for coral reef survival. Retrieved from <https://www.sciencedaily.com/releases/2013/06/130628131023.htm>

ScienceDaily. (July 1, 2013). Rate of temperature change along world's coastlines changed dramatically over past three decades. Retrieved from <https://www.sciencedaily.com/releases/2013/07/130701100558.htm>

ScienceDaily. (July 19, 2010). Rising carbon dioxide and 'acidified' waters found in Puget Sound, off Seattle, US. Retrieved from <https://www.sciencedaily.com/releases/2010/07/100718234139.htm>

ScienceDaily. (September 12, 2013). Unprecedented rate and scale of ocean acidification found in the arctic. Retrieved from <https://www.sciencedaily.com/releases/2013/09/130912132130.htm>

ScienceDaily. (November 26, 2012). First evidence of ocean acidification affecting live marine creatures in the Southern Ocean. Retrieved from <https://www.sciencedaily.com/releases/2012/11/121126110933.htm>

Smithsonian Ocean Portal. Ocean acidification. Retrieved from <http://ocean.si.edu/ocean-acidification>

Spear, S. (April 21, 2014). Ocean acidification threatens economies and cultures around the world. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/08/21/ocean-acidification-threatens-economies-cultures/>

Srinivas, S. (February 22, 2015). Oysters, clams and scallops face high risk from ocean acidification, new study finds. *The Guardian*. Retrieved from <http://www.theguardian.com/sustainable-business/2015/feb/23/climate-change-pollution-shellfish-ocean-acidification>

Thurton, D. (June 18, 2015). Beaufort Sea fish population at risk due to acidification: study. *CBC News*. Retrieved from <http://www.cbc.ca/news/canada/north/beaufort-sea-s-fish-population-at-risk-due-to-acidification-study-1.3118246>

Valentine, K. (February 6, 2015). Maine report warns of 'urgent' need to address ocean acidification. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/02/06/3619987/maine-ocean-acidification-report/>

Rising sea levels

Water expands as it gets warmer, which causes sea levels to rise. Since 1875 the sea level has been rising 1.7 mm per year. In total the sea level has risen between 10 to 20 centimeters during the past century. Since 1993 the yearly increase has almost doubled to 3 mm, which amounts to 3 cm in a decade. This rate is expected to increase as the Arctic ice and snow cover continue to melt. The shrinking land ice, glaciers, ice caps and ice sheets all add water to the oceans, contributing to further rises in sea level. Especially if the Greenland glaciers melt and lose mass more rapidly, sea levels will rise dramatically during this century. A rise of 1 or 2 meters would displace hundreds of millions of people especially in the mega cities of the coastal areas. It would inundate large sections of low lying land.

The cities that would be most directly affected are the Asian coastal megacities: *Karachi* (11.8 million), *Mumbai* (20), *Chennai* (7.8), *Calcutta* (15.), *Dhaka* (14.8), *Chittagong* (5), *Bangkok* (8.9), *Jakarta* (9.7), *Manila* (16.3), *Guangzhou* (18.3). Many of the slums surrounding these cities are in the lower parts of river deltas. At the same time some of these cities are sinking a few centimeters a year, primarily because of the many skyscrapers. They pump up copious amounts of groundwater for their water supply. Jakarta is especially vulnerable to this sinking of the land. It is estimated that in a decade or so many people will have to move from Jakarta. These cities have minimal protection against rising sea levels. Millions of people live within 5 meters of the current sea level and one billion within 25 meters.

There are many other cities and coastal areas in Japan, China, Nigeria, Egypt, Great Britain, Italy, Belgium, the Netherlands and others that will be endangered by rising sea levels. Large parts of Bangladesh, Vietnam, Philippines, as well as dozens of small island nations, including the Maldives Islands, will all be in danger of being flooded. According to

the *Union of Concerned Scientists* (April 15, 2013), the US east coast, (Miami, New York) and the Gulf of Mexico (New Orleans) are also very vulnerable to rising sea levels. Due to local and regional factors their levels are rising faster than other areas. More than a 100 million people live in low lying coastal areas in the US and are particularly at risk from rising sea levels and storm surges.

All coastal areas can expect coastland erosion and degradation, loss of property, permanent flooding, saltwater intrusion from the groundwater, and stronger storm surges. Seawalls, levees, sand barriers, restoring tidal wetlands and mangroves and elevating and flood-proofing buildings can help to protect against rising sea levels, that is, for those countries that can afford the billions of dollars that will require. Even a few centimeters increase in sea level will result in several meters of the tide line moving inland, as many local people can affirm. It is expected that by 2050 the sea level in Australia will rise between 20 to 50 centimeters above the 1995 level. That is only about 35 years from now and will affect the present children in Australia as they grow up. The fundamental cause is the on-going rise in CO₂ emissions and there are no indications that significant reductions will be made in the coming decade. The paleoclimatic record shows that a few meters rise or fall per century is not unusual. This is the inheritance of all the grandchildren around the globe, especially of those without seawall or mangrove protection.

Even a small rise in sea level will result in coastal flooding, eroding shorelines, saltwater contamination of fresh water, flooding of coastal wetlands and barrier islands, and an increase in the salinity of estuaries. Beaches, freshwater supplies, coastal rice fields and farmlands, fisheries, coral reefs and other habitats are all at risk. Some areas will be more affected than other ones, because of differences in ocean circulation and wind pressures. Many people are already experiencing these changes. Their fate gives 'rising sea levels' a human face. In the Bay of Bengal, the island of *Kutubdia*, one of Bangladesh's many islands, is shrinking dramatically. It is experiencing rapid erosion and the fastest rise in sea level in the world. *Kutubdia* has already lost half of its land during the last 20 years which has reduced the island to about 100 square kilometers. Six villages have been inundated since 1991 and about 40,000 people have had to flee, mostly to the mainland. The 80,000 people left on the island all expect to follow the others. At the current rate of erosion all of *Kutubdia* will be covered by sea water within 30 years, by 2045. The same fate awaits dozens of the other coastal islands. As one of the displaced villagers' said, "We have nowhere left to go. All we can do is fish. We cannot protect ourselves. So we stay. Our life is with the sea." (*The Guardian*, February 15, 2013). One can hope the social justice organization, the *Coastal Association for Social Transformation Trust (COAST)* will come to their aid.

It is only one example of many other threatened islands and coastal peoples. Sadly Bangladesh is following the western model of development buying up land from local island people against their wishes (*Maheshkhali Island*), for building coal-fired electric power plants, developing a deep sea harbour for importing coal, a liquefied natural gas terminal (*Sonadia Island*, a biodiversity hotspot), industries, hotels, and so on. Business and government officials are determined to turn Bangladesh into a developed country by 2041, which is about the time many areas and islands will be flooded. Until then it can expect more flooding, more erosion, more cyclones, more rising sea levels, more loss of land, more climate refugees and more suffering. It is expected that by 2050 one million of its five million coastal people will become climate refugees as a result of climate change brought about by development. No military force or missionaries were needed to induce this collective blindness, only the neoliberal ideology and loans from the WB, IMF, other lending institutions and WTO orchestrated trade agreements. It is called neo-colonialism.

Bashar, R. (March 3, 2014). Maheshkhali residents fear losing livelihood. *BDNews24*. Retrieved from <http://bdnews24.com/bangladesh/2014/03/26/maheshkhali-residents-fear-losing-livelihood>

Brammer, H. (2014). Bangladesh's dynamic coastal regions and sea-level rise. *Climate Risk Management*. Vol. 1, pp. 51-62. doi:10.1016/j.crm.2013.10.001
Climate Institute, Oceans and sea level rise. Retrieved from <http://www.climate.org/topics/sea-level/>

Daigle, K. (February 18, 2015). Millions at risk from rapid sea rise in swampy Sundarbans. *CNBC*. Retrieved from <http://www.cnbc.com/2015/02/18/millions-at-risk-from-rapid-sea-rise-in-swampy-sundarbans.html>

Greenpeace International. (July 4, 2012). Sea level rise. Retrieved from http://www.greenpeace.org/international/en/campaigns/climate-change/impacts/sea_level_rise/

Harris, G. (March 28, 2014). Borrowed time on disappearing land: facing rising seas, Bangladesh confronts the consequences of climate change. *The New York Times*. Retrieved from http://www.nytimes.com/2014/03/29/world/asia/facing-rising-seas-bangladesh-confronts-the-consequences-of-climate-change.html?_r=0

McGeown, K. (November 24, 2009). Rising sea levels: a tale of two cities. *BBC News*. Retrieved from <http://news.bbc.co.uk/2/hi/science/nature/8369236.stm>

McStravick, A. (November 14, 2013). Islands at risk: sea level rise threatens island ecosystem. *RedOrbit*, Retrieved from <http://www.redorbit.com/news/science/1113003045/sea-level-rise-threatens-islands-111413/>

Nuccitelli, D. (February 18, 2014). Vision Prize: scientists are worried the IPCC is underestimating sea level rise. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2014/feb/18/scientists-worried-ippc-underestimate-sea-level-rise>

Phillips, A. (July 10, 2015). Study: we're already in the 'worst case scenario' for sea level rise. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/07/10/3678948/ice-sheets-could-add-20-feet-to-sea-level-with-current-temperature-increase/>

Phys.org. (August 10, 2016). Climate change already accelerating sea level rise, study finds. Retrieved from, <http://phys.org/news/2016-08-climate-sea.html>

Pilkey, O.H. and Young, R. (February 22, 2011). *The Rising Sea*. *Island Press*.

Queally, J. (July 21, 2015). "James Hansen: 'Emergency cooperation among nations' is needed to prevent catastrophic sea level rise", *EcoWatch*. Retrieved from, <http://climatechangeapsychology.blogspot.ca/2015/07/james-hansen-emergency-cooperation.html>

Romm, J. (November 28, 2012). Study: sea levels rising 60% faster than projected, planet keeps warming as expected. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2012/11/28/1249391/study-sea-levels-rising-60-faster-than-projected-planet-keeps-warming-as-expected/>

Union of Concerned Scientists. (April 15, 2013). Causes of sea level rise – what the science tells us. Retrieved from http://www.ucsusa.org/global_warming/science_and_impacts/impacts/causes-of-sea-level-rise.html#.Vt4RncXvaRM

Valentine, K. (October 22, 2014). South Florida city votes to secede in last-ditch effort to avoid being swallowed by the sea. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/10/22/3582766/florida-city-secession-sea-level-rise/>

Vidal, J. (January 29, 2013). Sea change: the Bay of Bengal's vanishing islands. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2013/jan/29/sea-change-bay-bengal-vanishing-islands>

World Bank. (June 19, 2013). What climate change means for Africa, Asia and the coastal poor. <http://www.worldbank.org/en/news/feature/2013/06/19/what-climate-change-means-africa-asia-coastal-poor>

Williams, W. C. L. (September 8, 2014). Liberia's poor and the rising sea. *AllAfrica*. Retrieved from <http://allafrica.com/stories/201406251378.html>

Zamble, F. (September 30, 2011). Rising seas gnawing at west Africa's coastline. *IPS*. Retrieved from <http://www.ipsnews.net/2011/09/rising-seas-gnawing-at-west-africas-quos-coastline/>

Loss of ocean biodiversity;

The loss of biodiversity affects every ecosystem and community, whether the soil, land masses, oceans, forests, as well as the creatures living in each of these habitats, including micro-organisms, amphibians, fish, reptiles, birds and mammals. The loss of biodiversity is becoming more and more of a threat, particularly to oceanic life. The ocean and coastal ecosystems require a great diversity of marine creatures to maintain themselves. Ordinarily there is a delicate balance between the number, richness, evenness in species abundance, functional and habitat diversity. Usually changes in species' numbers and make-up happen slowly over decades or centuries. This balance has been disrupted during the last decades. Global warming, destruction of habitats, bottom trawling, off-shore and ocean pollution, eutrophication (too many nutrients leading to excess plant growth) have all contributed to this decline in marine biodiversity. Especially the potential threat to phytoplankton is critical since it produces plant biomass from sunlight and nutrients for all the organisms that feed on them. Kelp forests, seagrass meadows and coral reefs all provide habitats and shelter for numerous other marine species. Any abrupt or longer-lasting changes in these organisms at the base of the foodweb will have a profound effect on the richness and diversity of entire marine communities.

Nearly all coastal areas have undergone fundamental changes from invading or alien species. Warmer waters, saltier or less salty waters may favor the establishment of immigrating species, replacing or competing with original species. When stresses on the marine environment multiply, become too strong, or are longer lasting, many species will not be able to survive or adapt.

Changes in coastal currents, the food chain, pH level, warmer temperatures, invading species, overfishing, bottom trawling, pollution will all continue to have a devastating effect on ocean biodiversity and the decline of marine habitats. We will come back to this crucial issue at the end of this chapter and throughout chapter 2. Ecologically, the loss of biodiversity in all biomes needs to be seen on the same level of significance as global warming, the decline of the oceans and deforestation.

Heip, C. (2014). Marine biodiversity. *The encyclopedia of earth*. Retrieved from <http://www.eoearth.org/view/article/154465>

Hilborn, R. (April 12, 2014). Protecting marine biodiversity with 'new' conservation, *The Nature Conservancy*. Retrieved from <http://www.snap.is/magazine/protect-marine-biodiversity-new-conservation-hilborn/>

Jessen, S. and Patton, S. (2008). Protecting marine biodiversity in Canada: adaptation options in the face of climate change", *Biodiversity*, 9: 3 &4. doi: 10.1080/14888386.2008.9712907

Marchese, C. (January 2015). Biodiversity hotspots: a shortcut for a more complicated concept. *Global Ecology and Conservation*, Volume 1, pp.297-309. doi:10.1016/j.gecco.2014.12.008

Pew Charitable Trusts. (January 28, 2015). One step closer to conserving high seas biodiversity: UN will begin negotiating new treaty to protect marine life beyond national jurisdiction. Retrieved from <http://www.pewtrusts.org/en/research-and-analysis/analysis/2015/01/28/one-step-closer-to-conserving-biodiversity>

Pew Environment Group. (April 2013). Conserving marine biodiversity: addressing existing commitments and designing next steps for action. Retrieved from http://www.un.org/depts/los/biodiversityworkinggroup/documents/Marine%20Biodiversity%20Conservation_Pew.pdf

Royal Society of Canada. (February, 2012). Sustaining Canadian marine biodiversity. Retrieved from https://rsc-src.ca/sites/default/files/pdf/RSCMarineBiodiversity2012_ENFINAL.pdf

SAHFOS. (June 3, 2015). A new study published on nature climate change. Retrieved from http://log.univ-littoral.fr/IMG/pdf/article_global_marine_biodiversity_gregory_beaugrand.pdf

Sala, E. and Knowlton, N. (July 26, 2012). Global marine biodiversity trends. *EOEARTH*. Retrieved from <http://www.eoearth.org/view/article/153033/>

ScienceDaily. (November 28, 2011) Marine biodiversity loss due to global warming and predation, study predicts. Retrieved from <https://www.sciencedaily.com/releases/2011/11/111128115645.htm>

SeaWeb. *Ocean Issue Briefs*. Loss of marine biodiversity. Retrieved from <http://www.seaweb.org/resources/briefings/marinebio.php>

SeaWeb. (November 2, 2006). Accelerating loss of ocean species threatens human well-being. Retrieved from http://www.seaweb.org/documents/PR_2006.11.2.pdf

Selig, E.R. et al., (April 11, 2013). Assessing global marine biodiversity status within a coupled socio-ecological perspective, *PLOS ONE*. 8(4), e60284. <http://doi.org/10.1371/journal.pone.0060284>

Shah, A. (January 19, 2014). Climate change affects biodiversity. *Global Issues*. Retrieved from <http://www.globalissues.org/article/172/climate-change-affects-biodiversity>

Stuart H.M. Butchart, et al. (2010). Global biodiversity: indicators of recent declines. *Science*, Vol. 328, pp. 1164-1168, May 28.

UNESCO, Facts and figures on marine biodiversity. Retrieved from <http://www.unesco.org/new/en/natural-sciences/ioc-oceans/priority-areas/rio-20-ocean/blueprint-for-the-future-we-want/marine-biodiversity/facts-and-figures-on-marine-biodiversity/>

Worm, B. et al., (November 3, 2006). Impacts of biodiversity loss on ocean ecosystem services. *Science*. Vol. 314, No. 5800, pp. 787-790. doi: [10.1126/science.1132294](http://doi.org/10.1126/science.1132294)

WWF, Marine problems: climate change. Retrieved from http://wwf.panda.org/about_our_earth/blue_planet/problems/climate_change/

Pollution; dead zones; chemical, plastic and sound pollution

The global seas are becoming more and more hostile to life. Only during the last decades has it become apparent how our activities are reshaping the oceans. In his well-known and challenging book, *The Ocean of Life; the Fate of Man and the Sea* (2012), Callum Roberts devotes seven chapters out of twenty-one to various kinds of pollution. The most common types of pollution are trash and untreated or partially treated sewage, plastic garbage, industrial waste, toxic chemicals, radioactive waste, oil and chemical run-offs, marine litter and disposal, sewage and waste from cruise liners, deep sea mining, bycatch from fishing ships, sound pollution, and more. About 80% of the total ocean pollution is the result of human activities on land and only 20% is from ocean based activities. The oceans have been reduced to dumping grounds. It wasn't until the 1970's and beyond that international agreements were reached about dumping waste and toxic materials directly into the oceans. Even then there was only a partial ban. Illegal dumping of wastes and toxins continue to the present. For many centuries the oceans have been a convenient dumping ground for waste generated on land.

According to the *National Oceanic and Atmospheric Administration (NOAA)* approximately 1.4 billion lbs of trash are still dumped in the oceans every year. Most of that litter ends up on the seabed and the rest keeps floating around in the ocean or washes ashore on beaches. Over half a million volunteers may collect as much as 9 million lbs of trash from various sites across the world a year. These figures give us some idea of the magnitude of the problem. Much of the garbage is plastic, whether plastic bottles, bags, packaging, toys, wrapping, etc., which slowly disintegrates to small particles. Some plastics seem to disintegrate faster, which is not necessarily good since it releases potentially toxic chemicals like *bisphenol A*, *styrene*, *phthalates*, and *flame retardants* to the seas. Some of these compounds have endocrine disrupting properties. These tiny particles suspended in the upper microlayer of the oceanwater are ingested by the smallest organisms and all along the food chain to the largest fish, birds and marine mammals. The higher up the food chain the more contaminants tend to accumulate in their bodies and organs. The ocean water has become like a plastic soup. The particles are driven by the ocean currents to all parts of the world and concentrate at the ocean gyres,

the so-called 'garbage patches'. About half of the particles are heavier than water and sink to the bottom, contaminating the seabed.

The largest part of ocean pollution comes from land-based activities like untreated or partially treated human sewage and industrial waste. In several countries and areas much of the sewage and waste is discharged directly into rivers, lakes, harbours, bays, estuaries and the seas. As the local *River Keepers* everywhere know, they have to be constantly on alert to violations of existing regulations. They are part of the worldwide *Waterkeeper Alliance*. Although dumped in coastal waters, waste and toxins can spread far and wide by ocean currents. Generally governments do not sufficiently enforce their own laws and regulations, if they have them at all, by limiting inspectors, allowing loopholes, corruption and other ways. They are part of the 'externalities'. It is the volunteers that are the real watchdogs and the citizens that pay for clean-ups with their own health.

Along with garbage, plastics, human waste and toxins, surface run-offs from farming and urban centres carry significant amounts of nitrogen, phosphorous, pesticides, trace chemicals and oil particles to coastal waters. There they can give rise to algae blooms, which exhausts the water's dissolved oxygen and suffocates other marine life creating dead zones. Some of these plankton blooms can be toxic. Industrial pollutants can discharge many other toxic chemicals as well that affect micro organisms, plants, corals, fishes, marine animals and birds. These chemicals along with other heavy metals like mercury, lead, nickel, arsenic, cadmium and many others all become part of the food chain, affecting marine life as well as human health. The highest levels of toxins are found among the Inuit people in Greenland. A small percentage of contamination comes from radioactive waste materials. Oil spills can cause tremendous damage in the marine environment. Tankers loading and unloading, discharging, ballasting, and so on, all add to oil contamination. Off-shore oil platforms, drilling rigs and deep sea mining, each add pollutants and toxic substances to the oceans. In spite of all these sources of contamination and environmental damage, more of the oil and toxic substances entering the seas each year comes from urban and industrial run-offs and waste.

There is an additional problem of atmospheric pollution that enters the oceans. Dust particles blown across continents by air currents can be deposited in far-off places and seas. During periods of drought these dust storms become worse. Nitrogen compounds from fertilizers and burning fossil fuels can also be carried by winds and deposited into the oceans. Although these particles can remove carbon dioxide from the air, they can be re-processed into nitrous oxide and released back into the atmosphere. Nitrous oxide is a powerful greenhouse gas in itself. These are complex processes, but as nitrogen deposits increase this may become an important negative factor in climate change.

Finally there is the growing noise pollution in the deep seas with the increase of ocean traffic, sonar blasts and air guns used in oil and gas exploration and the noise from wind farms at sea. Sound waves travel faster and longer distances in water than over land. These loud booming sounds can profoundly affect whales and dolphins that communicate by sound over long distances. Many creatures use sound to orientate themselves, to find mates, or to become aware of danger and strong sounds may interrupt their feeding. The loudest sounds come from the propellers of the tens of thousands of ships that criss-cross the oceans.

Garbage, plastic, waste, toxins, run-offs, noise all add to the increasing pollution of the oceans that have a profound impact on marine life on all levels. It is only in the last decades that some of the most disturbing effects are becoming apparent. Many developing countries are under tremendous pressure to open up their lands to agricultural, forestry, mining, dams and hydro-electric developments, which all produce large amounts of waste and toxic materials. At the same time they lack the resources to deal with and dispose of these wastes in an ecological responsible way. Many already struggle with lack of sanitation and fresh drinking water. Now they also have to deal with dangerous and toxic materials, the 'externalities', and suffer the consequences. They are external to the agribusinesses, forestry and mining

companies but not to nearby local populations and the people living downstream. Developing countries may think they have outsourced a significant part of their pollution, but in the end it all comes back carried by air and ocean currents with devastating effects on the total ecological system.

Barry, C. (August 20, 2009). Plastic breaks down in ocean, after all – and fast. *National Geographic*. Retrieved from <http://news.nationalgeographic.com/news/2009/08/090820-plastic-decomposes-oceans-seas.html>

Buzzle. (2013). Ocean pollution facts. Retrieved from <http://www.buzzle.com/articles/ocean-pollution-facts.html>

Dooling, E. T (2012). The need for comprehensive action to abate ocean pollution by flame retardants. *Ocean and Coastal Law Journal*, Volume 17: 2. Retrieved from <http://oclj.maine.gov/vol-17-no-2/ocean-pollution-flame-retardants/>

EcoWatch, (September 17, 2015). “Banning microbeads offers simple solution to protect our oceans”. Retrieved from, <http://www.ecowatch.com/banning-microbeads-offers-simple-solution-to-protect-our-oceans-1882096103.html>

Gesamp Reports & Studies No. 90, (2015). Sources, fate and effects of microplastics in the marine environment, a global assessment. Retrieved from http://www.gesamp.org/data/gesamp/files/media/Publications/Reports_and_studies_90/gallery_2230/object_2500_large.pdf

MarineBio, Alien species. Retrieved from <http://marinebio.org/oceans/alien-species/>

MarineBio, Ocean pollution. Retrieved from <http://marinebio.org/oceans/ocean-dumping/>

NOAA. (August, 2011) Ocean pollution. Retrieved from http://www.education.noaa.gov/Ocean_and_Coasts/Ocean_Pollution.html

NOAA. (April, 2009). Flame retardants found in US coastal ecosystems nationwide. Retrieved from <http://oceanservice.noaa.gov/news/weeklynews/apr09/pbde.html>

NOAA. (April 1, 2009). Making Waves: Episode 22. Interview with Dr. Gunnar Lauenstein. Retrieved from <http://oceanservice.noaa.gov/podcast/apr09/mw40109transcript.html>

Pantsios, A. (August 26, 2014). Industry tries to block bill that would protect US waters from plastic microbeads. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/08/26/ban-plastic-microbeads-california/>

Prom, S. (March 30, 2015). 4 States working to ban microbeads. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/03/30/states-microbead-ban-bills/>

ScienceDaily. (May 14, 2008). Atmosphere threatened by nitrogen pollutants entering ocean. Retrieved from <https://www.sciencedaily.com/releases/2008/05/080515145350.htm>

ScienceDaily. (September 18, 2012). Carbon dioxide from water pollution, as well as air pollution, may adversely impact oceans. Retrieved from <https://www.sciencedaily.com/releases/2012/09/120919125604.htm>

The 5 Gyres Institute. (2015). Fighting plastic pollution with research expeditions. Retrieved from <https://www.sciencedaily.com/releases/2012/09/120919125604.htm>

Valerie Flynn scientists call for action on marine microplastics. (April 29, 2015). *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/apr/29/un-scientists-call-for-action-on-marine-microplastics>

Switchboard. (April 29, 2015). New York Assembly passes strong microbeads bill to reduce plastic pollution. Retrieved from http://switchboard.nrdc.org/blogs/achase/new_york_assembly_passes_stron.html

University of California, Davis, (September 30, 2015). “25% of fish sold at markets contain plastic or man-made debris”, *EcoWatch*. Retrieved from, <http://www.ecowatch.com/25-of-fish-sold-at-markets-contain-plastic-or-man-made-debris-1882105614.html>

WWF, Over 80% of marine pollution comes from land-based activities. Retrieved from http://www.panda.org/about_our_earth/blue_planet/problems/pollution/

Conclusion

The oceans are in decline and their health and functioning is increasingly threatened and compromised. After decades of pollution, degradation of ocean habitats, overfishing, climate change, the oceans are in danger. Only now after decades of more intensive research and observation scientists are beginning to understand the complexity of the way the oceans function. Slowly on, the enormous consequences of climate change for the functioning of the oceans are becoming apparent. All of life depends on the health of the oceans: the global water and carbon cycle, global ocean and air currents, weather patterns, ocean biodiversity, the maintenance of fish stocks, the health of coral reefs, the rise of sea levels, and much more. A decline in the health and productivity of the oceans also threatens the food supply of millions of people. It leads to the impoverishment and suffering of countless coastal fishing communities around the globe as well as the Inuit peoples in the north. Because of the crucial role the oceans play in maintaining life, it is hard to grasp that current economic policies and practices are wantonly destroying the oceans and with it life itself. Whenever we talk about climate change and global warming, we need to add, and the decline of the oceans, as more and more people are beginning to do.

5) The global water supply

For those of us living in areas with an abundance of water it is hard to imagine how limited the global fresh water supply is. Over 97% of water on our planet is salt water, which leaves less than 3% fresh water. Most of that fresh water is snow and ice and much of the rest is groundwater, a part of which lies in deep aquifers. That means that only a very small

percentage, about half a percentage of that 3% of fresh water is available for human use. This is the water of the world's lakes, rivers and shallower aquifers. Under normal circumstances this fresh water supply is replenished regularly by rain and snowfall. The hydrological or water cycle circulates the water from the atmosphere to the earth and the oceans and back again in an endless cycle that on average is kept in balance. In this respect there is a finite amount of water that is recycled over and over again.

Global warming is changing the precipitation patterns. With rising temperatures the atmosphere holds more water, which leads to an increase in heavier rainfalls when the air cools. As a result some areas get too much water in a short period of time from severe rain storms, creating flash floods. Most of that water runs off quickly and ends up in the ocean. Other areas have less rainfall than before and experience more intense droughts. These changes in climate are altering the global weather patterns making them more unpredictable. Snowfall will be replaced by rain and the evaporation rate will accelerate. The water cycle will intensify and cause more floods and droughts. In spite of these global increases in rainfall many dry regions will suffer the most from a decline in seasonal rains and more rapid evaporation.

In Western Africa, for example, the Western monsoon bringing rain is becoming more unpredictable, creating uncertainty. Will there be enough rain to sow the crops and will the rivers be replenished on time? On the eastern coasts, warm dry winds are blowing further inland creating more drought and instability. Likewise with regard to the monsoon season in India, the rains are coming a month later and there is less precipitation. Because of these changes in climate, water is no longer a dependable, 'renewable resource' in many regions of the world. Although total fresh water supply is not depleted, it is distributed in new and unpredictable ways. To add to the difficulties much of the water that is available has become polluted and in many cases so contaminated that it is unfit for human use.

Biro, A. (November 2011). Underdevelopment and overconsumption drive water crisis. *CCPA Monitor*. Vol. 18 Issue 6, p36

Black, R. (February 8, 2009.) Where clean water is a pipedream. *BBC News*. Retrieved from <http://news.bbc.co.uk/2/hi/science/nature/7873516.stm>

Brown, L. (September 27, 2006). Water scarcity crossing national borders. *Earth Policy Institute*. Retrieved from http://www.earth-policy.org/book_bytes/2006/pb2ch03_ss6

Brown, L. (July 9, 2013). Peak water: what happens when the wells run dry?. *Plan B Updates*. Retrieved from http://www.earth-policy.org/plan_b_updates/2013/update115

Circle of Water. (May 24, 2010). Experts name the top 19 solutions to the global freshwater crisis. Retrieved from <http://www.circleofblue.org/2010/world/experts-name-the-top-19-solutions-to-the-global-freshwater-crisis/>

Cohen, J. (March 20, 2014). Dying of thirst in Harare. *International Business Times*. Retrieved from <https://www.hrw.org/news/2014/03/20/dying-thirst-harare>

Coto, D. (September 6, 2013). Caribbean water supply severely threatened by climate change, scientists warn. *Huffington Post*. Retrieved from http://www.huffingtonpost.com/2013/09/06/caribbean-water-supplies_n_3877475.html

CNW. (March 19, 2008). Canadians are overconfident in country's supply of fresh water new poll by Unilever and RBC Reveals. Retrieved from <http://www.newswire.ca/news-releases/canadians-over-confident-in-countrys-supply-of-fresh-water-new-poll-by-unilever-and-rbc-reveals-535580901.html>

ENR and INAC. (May 2010). Northern Voices, Northern Waters: NWT Water Stewardship Strategy. Retrieved from http://www.enr.gov.nt.ca/sites/default/files/strategies/nwt_water_stewardship_strategy.pdf

Environment and Climate Change Canada. (December 6, 2013). Water availability. Retrieved from <https://ec.gc.ca/eau-water/default.asp?lang=En&n=2DC058F1-1>

European Commission. Water scarcity and droughts in the European Union. Retrieved from http://ec.europa.eu/environment/water/quantity/scarcity_en.htm

Fabrizi, L. Droughts and water shortages – the English case. *Lenntech*. Retrieved from <http://www.lenntech.com/water-shortage.htm>

Ferragina, E. 'Bridging divides for water': The 5th World Water Forum (WWF) and the Alternative Water Forum. *Global Government*, 4 (2009): 180–86

Forslund, A. et.al. (2009). Securing water for ecosystems and human well-being: the importance of environmental flows. *Swedish Water House Report 24*, SIWI. Retrieved from https://cmsdata.iucn.org/downloads/securing_water_for_ecosystems_and_human_well_being.pdf

Germanos, A. (February 15, 2016). "NASA: 4 billion people at risk as 'water table dropping all over the world'", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/nasa-4-billion-people-at-risk-as-water-table-dropping-all-over-the-wor-1882174581.html>

Goldenberg, S. (June 27, 2011). How el paso is beating the worst drought in a generation. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2011/jun/27/water-conservation-el-paso-texas>

McKie, R. (March 8, 2015). Why fresh water shortages will cause the next global crisis. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/mar/08/how-water-shortages-lead-food-crisis-conflicts>

National Academy of Sciences. (2011). Global change and extreme hydrology, testing conventional wisdom. doi: 10.17226/13211

Sandford, R. (September 2012). An unexpected water crisis: Canada's changing climate means more droughts, flood and storms – along with less ability to predict them. *LRC*. Retrieved from <http://reviewcanada.ca/magazine/2012/09/an-unexpected-water-crisis/>

Schindler M. and Barlow, M. (March 26, 2007). Media coverage on climate change in Canada has focused almost exclusively on greenhouse gas emissions as have most politician and commentators. *The Edmonton Journal*. Retrieved from <http://www.canada.com/edmontonjournal/news/opinion/story.html?id=5fae1bbc-e8db-4edb-8a65-a0604185a9d0>

Swainson, B. (October 15, 2009). Rivers at risk: the status of environmental flows in Canada. *WWF Canada, Technical Report*. Retrieved from <http://www.wwf.ca/?4820>

The Guardian. (December 21, 2012). How will climate change impact on fresh water security? Retrieved from <http://www.theguardian.com/environment/2012/nov/30/climate-change-water>

UN World Water Assessment Programme. (2015) The UN World Water Development Report 2015: Water for a Sustainable World. UNESCO. Retrieved from https://www.unesco-ihp.org/sites/default/files/wwdr_2015.pdf

Walton, B. (January 15, 2015). World Economic Forum ranks water crisis as top global risk. *Circle of Blue*. Retrieved from <http://www.circleofblue.org/2015/world/world-economic-forum-ranks-water-crises-as-top-global-risk/>

Wines, M. (March 16, 2014). West's drought and growth intensify conflict over water rights. *The New York Times*. Retrieved from http://www.nytimes.com/2014/03/17/us/wests-drought-and-growth-intensify-conflict-over-water-rights.html?_r=0

WWF, Water scarcity. Retrieved from <http://www.worldwildlife.org/threats/water-scarcity>

Yeager-Kozack, C. (November 4, 2014). Sao Paulo's water waiting game avoided rationing but produced huge risk of severe shortage. *Circle of Blue*. Retrieved from <http://www.circleofblue.org/2014/world/sao-paulos-water-waiting-game-avoided-rationing-produced-huge-risk-severe-shortage/>

Water scarcity

Water is essential for all living creatures, small and large. Plants, trees, animals, humans all need water to live and survive. On average humans are 60-75% water. We can survive about three to five days without water before we die from dehydration. At the very least we need 2 liters of water a day to survive. The higher the temperature, the more water we need. During the 1984 drought in Ethiopia over a million people died and many millions of animals. During more recent heat waves in Europe, Russia, India, the US and other countries a large number of animals and people have died. We can only expect more of these extreme and prolonged heat waves. Over 1 billion people have no clean drinking water now and are living with *extreme water shortage*. It is estimated that over 1½ billion people will suffer *absolute water scarcity* by 2025 and about 4½ billion others will experience *severe water shortage*. This is only a decade from now. When annual water supplies drop below 1,700 cubic metres per person per year it is considered *water stress*. Many people, as many as 700 million, live below this threshold. In the Middle East the average is about 1,200 cubic metres of water per person. The available fresh water is diminishing on the planet, which is particularly devastating for those regions that are already suffering from water shortages.

Lack of clean water for drinking, hygiene and sanitation leads to diarrhea, salmonellosis, cholera, shigellosis (bacillary dysentery), and many other diseases. Waterborne diseases and lack of water for sanitation are both leading causes of death, especially for children under five. In developing countries, the majority of diseases (4/5) are caused by water that is contaminated by human and animal faeces, which underscores the importance of sanitation facilities. For most of us in the developed world these are just words and figures. It is only when we read the detailed reports about a particular region or city and see documentaries of how people actually live with a shortage of water and contamination that we get some sense of the enormity of the problem and the suffering it involves. Many of these images are not easy to forget, like the mother washing her little girl with water polluted with chemicals. Both had big rashes on their arms and body. The mother knew the water was contaminated but it was the only water she had. They used the same kind of water for cooking and drinking. There was nothing else. These kinds of situations can be seen all around the globe.

Water scarcity is much more widespread on every continent than was known or apparent decades ago. Slowly on the seriousness of the problem is becoming evident, to the point that many see it as the cause of the next global crisis. During the coming decades, climate change will manifest itself first of all as acute water shortages for millions of people. In several regions of China, Asia, Africa and South America the impacts of severe droughts and lack of safe drinking water are already felt. Canada has been slow in its awareness of the global water crisis and recognition of its own water problems. As we will see in the following chapters, the growing water crisis will require much more than better governance structures and international agreements. Preventing a desperate water shortage in the coming decades will require a structural change in how and by whom and for what purpose water is managed. Many news items and reports all highlight the looming water crisis.

Glaciers and snow covers

The great majority (90%) of the world's glaciers are melting at an alarming rate. Alarming because of the consequences it will have for countless ecosystems and millions of local and indigenous people in many parts of the world. It is estimated that many glaciers will disappear by the end of this century, if not sooner. Tropical glaciers are diminishing more quickly and a number will be gone within a few decades. Almost all glaciers are both retreating and losing mass. Photographs of glaciers from the eighteen hundred's and today dramatically illustrate the point. The *World Glacier Monitoring Service* is developing an inventory of about 100,000 glaciers worldwide, measuring periodic changes (retreats and advances) and long-term changes. The world faces a deglaciation of many mountain ranges in the coming decades. In the foothills of the Himalayas hundreds of lakes have formed as a result of meltwater from the glaciers. At any moment any of these newly formed lakes may overflow and create a deluge downhill.

A map showing the most significant glacier areas around the globe helps to understand the magnitude of these changes; from the west coast of *North America* (US, Canada); *the Andean mountain ranges along the west coast of South America* (Argentina, Chile, Bolivia, Colombia, Peru, Ecuador); *the alps in Europe* (Spain, France, Italy, Switzerland, Norway, Sweden); *mountains in New Zealand*; *the Himalaya mountain ranges in Asia* (Mongolia, western China, Pakistan, Afghanistan, India, and other countries); and finally, the *Arctic regions* (Alaska, the Canadian arctic, Greenland, Iceland). This worldwide retreat of glaciers also means they will reflect less solar energy back into the atmosphere. Instead the exposed rocks will absorb heat and add to global warming.

Globally glaciers have already lost 20% of their mass since 1945. Changes in atmospheric and ocean circulation have a great impact on glacier behavior and can accelerate their retreat. These changes will have a profound effect on climate, water supply, the temperature of rivers and lakes, habitats, and rising sea levels. Year after year they supply the earth's great rivers with fresh water. The glaciers and icecaps are like *massive storage reservoirs* that took millions of years to form. This enormous amount of water can't be replaced. The melting of the glaciers will temporarily increase the flow of water in rivers and lakes, but once they have melted rivers will shrink and dry up. Countless habitats will be altered or destroyed affecting numerous species of animals, birds and insects. Many lakes and dams may not be able to cope with massive increases in the flow of water, which may have catastrophic results. Millions of people will be deeply affected by this retreat of glaciers and shrinking rivers. When people lose their source of water, as in Bolivia, Peru, and other countries, where will they go and how will they survive? The same will be true for the millions of people living along the major rivers in Asia.

Canadian Cryospheric Information Network (CCIN). (June 8, 2015) Current status of glaciers. Retrieved from <https://www.ccin.ca/home/ccw/glaciers/current>

Carrington, D. (January 20, 2010). IPCC officials admit mistake over melting Himalayan glaciers. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2010/jan/20/ipcc-himalayan-glaciers-mistake>

Carrington, D. (April 15, 2012). Karakoram glaciers have grown over the last decade, new research shows. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2012/apr/15/karakoram-glaciers-grown-research>

Francou, B. (January 27, 2015). Global warming spells disaster for tropical Andes glaciers. *The Guardian*. Retrieved from <https://www.theguardian.com/science/2015/jan/27/global-warming-glacier-depletion-andes>

Fritzsche, J. (November 12, 2013). Trends in glacier mass balance for six Canadian glaciers. *Statistics Canada*. Retrieved from <http://www.statcan.gc.ca/pub/16-002-x/2010003/part-partie2-eng.htm>

Gillis, J. (April 4, 2013). In sign of warning, 1,600 years of ice in Andes melted in 25 years. *The New York Times*. Retrieved from http://www.nytimes.com/2013/04/05/world/americas/1600-years-of-ice-in-perus-andes-melted-in-25-years-scientists-say.html?_r=0

IPCC. (2007). *Working group I: The physical science basis*, Frequently asked questions 4.1, Is the amount of snow and ice on the earth decreasing? Retrieved from https://www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-4-1.html

IPCC. (2007). *Working Group II, Impacts, Adaptation and Vulnerability*, Chapter 4: Hydrology and water resources, 4.3.11. Glaciers and small ice caps. Retrieved from <https://www.ipcc.ch/ipccreports/tar/wg2/>

Jamail, D. (August 1, 2016). Alaskans witness collapsing mountains, shattered lives. *Truthout*. Retrieved from <http://www.truth-out.org/news/item/37042-the-front-lines-of-climate-disruption-alaskans-witness-collapsing-mountains-shattered-lives>

Lovett, R. A. (January 9, 2011). The end for small glaciers: IPCC estimates of sea level rise corroborated, but large ice sheets might endure. *Nature*. Retrieved from <http://www.nature.com/news/2011/110109/full/news.2011.3.html>

Milman, O. (July 29, 2014). New Zealand's 'dramatic' ice loss could lead to severe decline of glaciers. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2014/jul/29/new-zealands-dramatic-ice-loss-could-lead-to-severe-decline-of-glaciers>

Moore, D. (May 18, 2014). Unprecedented melt of B.C. glaciers seeps into US climate change concerns. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/british-columbia/unprecedented-melt-of-bc-glaciers-seeps-into-us-climate-change-concerns/article18738264/>

NASA. (May 14, 2015). NASA study shows Antarctica's Larsen B ice shelf nearing its final act. Retrieved from <http://www.nasa.gov/press-release/nasa-study-shows-antarctica-s-larsen-b-ice-shelf-nearing-its-final-act>

Nesje, A. et.al., (2008). Norwegian mountain glaciers in the past, present and future. *Elsevier*. doi:10.1016/j.gloplacha.2006.08.004

Noakes, L. (October 14, 2014). Icelandic glacier in dramatic decline due to climate change. *ClimateScience*. Retrieved from <http://www.reportingclimatescience.com/news-stories/article/icelandic-glacier-in-dramatic-decline-due-to-climate-change.html>

Phillips, T. (May 12, 2014). West Antarctic glaciers in irreversible decline. *NASA, Science News*. Retrieved from http://science.nasa.gov/science-news/science-at-nasa/2014/12may_noturningback/

Pidcock, R. (January 22, 2013). Glacier update: Andean glaciers melting faster due to climate change. *The Carbon Brief*. Retrieved from <http://www.carbonbrief.org/glacier-update-andean-glaciers-melting-faster-due-to-climate-change>

Plumer, B. (May 12, 2014). Scientists: Eventual collapse of west Antarctica's glaciers 'appears unstoppable'. *Vox*. Retrieved from <http://www.vox.com/2014/5/12/5710440/the-collapse-of-west-antarcticas-glaciers-appears-unstoppable>

Progress in Physical Geography. (April 2011). Glacier retreat and climate change: Documenting the last 50 years of Alpine glacier history from area and geometry changes of Dosde Piazz glaciers. vol. 35, no. 2, 181-182

RealClimate. (March 18, 2005). Worldwide glacier retreat. Retrieved from <http://www.realclimate.org/index.php/archives/2005/03/worldwide-glacier-retreat/>

Rowell, A. (January 6, 2016). "Scientists warn climate change affecting Greenland ice sheet more than previously thought", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/scientists-warn-climate-change-affecting-greenland-ice-sheet-more-than-1882143931.html>

Schueneman, T. (May 16, 2014). NASA research indicates slow, irreversible west Antarctic ice melt. *The Energy Collective*. Retrieved from <http://www.theenergycollective.com/globalwarmingisreal/382946/nasa-research-indicates-slow-irreversible-west-antarctic-ice-melt>

Schueneman, T. (August 7, 2009). USGS report shows a 'dramatic' decline in US glaciers. *Global Warming Is Real*. Retrieved from <http://globalwarmingisreal.com/2009/08/07/usgs-report-shows-a-dramatic-decline-in-us-glaciers/>

Schueneman, T. (December 27, 2012). Crises erupt as glacial retreat threatens water resources. *The Energy Collective*. Retrieved from <http://www.theenergycollective.com/globalwarmingisreal/164606/crises-erupt-glacial-retreat-threatens-water-resources>

Science Daily. (August 20, 2014). Record decline of ice sheets: scientists map elevation changes of Greenlandic and Antarctic glaciers. Retrieved from <http://www.sciencedaily.com/releases/2014/08/140820110538.htm>

SkepticalScience. Himalayan glaciers: how the IPCC erred and what the science says. Retrieved from <https://www.skepticalscience.com/IPCC-Himalayan-glacier-2035-prediction.htm>

Skeptical Science. Are glaciers growing or retreating? Retrieved from <https://www.skepticalscience.com/himalayan-glaciers-growing.htm>

UNEP. (2008). Global glacier changes: facts and figures. Retrieved from <http://www.grid.unep.ch/glaciers/>

Union of Concerned Scientists. Early warning signs of global warming: glaciers melting. Retrieved from http://www.ucsusa.org/global_warming/science_and_impacts/impacts/early-warning-signs-of-global-5.html#.VuB1FsXvaRM

WWF Nepal Program. (March 2005). An overview of glaciers, glacier retreat, and subsequent impacts in Nepal, India and China. PDF. from http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjuqpn6trTLAhVlvoMKHZmBC7wQFggBMAA&url=http%3A%2F%2Fassets.panda.org%2Fdownloads%2Fhimalayaglaciersonreport2005.pdf&usq=AFQicNEqPv82Bp2DIDNeN4tb30gD_lewma

Rivers and dams

There are approximately 165 *major* rivers in the world besides the hundreds of thousands of smaller rivers and streams. These rivers with their river basins and deltas, along with lakes and wetlands are the arteries of the land. They provide drinking water, replenishment of aquifers, water for irrigation, filtration, transportation, fish for people's livelihood and countless other eco services. Many of the great rivers are decreasing in size and becoming more polluted, like the *Rio Grande, Colorado, Yellow, Nile* and countless other ones. The flow of Asia's biggest rivers, the *Ganges, Indus, Brahmaputra, Yangtze, Mekong, Salween and Yellow* could be significantly reduced during the coming decades, or dry up completely as a result of rising temperatures and the melting of a part of the Himalayan glaciers. A number of rivers will become seasonal rivers that slow down to a trickle during the dry season. Increasing water temperatures and decreasing annual spring river flow exacerbates these problems.

Building more and more dams has led to the further decline of the world's rivers and river basin ecosystems. There are around 48,000 large dams (over 15 metres high) in the world with reservoirs that can hold over 3 million cubic meters of water. Worldwide these reservoirs can store about 6,000 cubic kilometres of water. More than 400,000 square kilometers of fertile land and forests, about the size of California, have been flooded by reservoirs worldwide. A number of dams (300) are more than 150 metres high. Many more are in the process of being built and hundreds of other ones are in the planning stage. More than 60% of the large rivers have been blocked, fragmented and diverted, which has a tremendous impact on each of the river basins and adjacent ecosystems.

The reservoirs themselves present serious ecological problems as well. About 10% of the water regularly evaporates and the rotting vegetation that has been flooded expels large amounts of methane gas. The methane gas, carbon dioxide and water vapors add to the warming of the atmosphere. The silt that would otherwise flow down the rivers and fertilize the floodplains and deltas, now collects and clogs up the reservoirs. Without silt river banks become unstable and tend to crumble. River bottoms are scoured and chemicals buried in the mud are pulled along and deposited downstream. Entire fertile river basin ecosystems have been altered or destroyed. Many species of fish can no longer migrate to their spawning grounds and diminish or disappear. Countless fishers, men and women that live off the river are losing their livelihood. It is estimated that by the building of dams worldwide millions of people have already been displaced. Many, mostly subsistence farmers, fishers and indigenous people, were simply flooded out by the rising waters of the reservoirs or forced to leave at gunpoint. They received little or no compensation or poor places to re-settle. Many have nowhere to go.

Following the fate of the people of one large dam, the *Nam Theun 2* dam, in the *Mekong River* in *Laos* illustrates the point. Associated reports, articles, interviews and documentaries present a disturbing picture. Even the people that were directly affected by the building of the dam and were moved to a new village are worse off than before. Their land and the river is some distance away from their new homes. They had no voice in the relocation of their village. Today they do have electricity but little or no income. To buy their food at the market many have resorted to illegal logging and poaching of exotic animals aided by the corrupt practices of companies and government bodies. Some indeed have TVs and can watch their favorite soccer team, but at the price of being subjected to hundreds of commercials each day and becoming *consumers in waiting*. Such is progress for them. They are the 'lucky' ones and serve as a 'showcase' for the company's social conscience and commitment.

According to the *Asian Times* (April 12, 2013), this multi-billion-dollar dam is already having sediment problems. The rocks around the reservoir have high levels of iron. These iron particles in the sediment are clogging the reservoir's outlet channels. Its generating capacity has been reduced. The reservoir of 450 square kilometers emits massive amounts of methane gas, nitrous oxide and carbon dioxide, which will continue for decades. The reservoir produces almost twice as much GHG emissions as a coal fired plant of equal capacity and far more than a natural gas fired plant. Dams are not a source of clean and green energy, on the contrary. There is also a danger of seismic activity in the area that has given rise to landslides. Given these factors the dam may only have a productive life span of ten years or so instead of twenty to thirty years. There are no plans or financial resources for decommissioning the dam when necessary.

The increasing propaganda by government agencies and many banks, including the World Bank, is primarily to secure commitments for the next large dam, the Xayaboury dam, and seven others that are planned for the Mekong River. The Nam Theun 2 project is presented as an economic and social development success story. Laos wants to develop 124 other new dams. As a totalitarian state, the government does not tolerate public protests and anti-dam movements. The protests are primarily coming from the surrounding countries, Thailand, Cambodia and Vietnam, that will be affected by the Xayaboury dam and other ones. Given a changing and more unpredictable climate, the warming of the atmosphere and the melting of the eastern part of the Himalayan glaciers, investing billions of dollars in environmentally ill-conceived projects seems like a foolish undertaking.

Seeing and hearing the local people talk about the changes is a disturbing experience. It gives the impact of dams on people's lives a human face. This is not even counting the thousands of farmers and fishers living downstream who will increasingly feel the effect of the radical changes in the flow and seasonal pulsation of the river over time. It is no wonder that more and more local people and organizations are protesting the building of more dams planned for the

Mekong River. Some 60 million people from four different countries live in the *Mekong River Basin* who all make their living from and alongside the river. The river is not just of economic importance but it has a deep cultural and spiritual meaning for the people; it is the centre of their lives. Rivers, large and small, are the arteries of the earth. To get a sense of the huge impact of these dams picture a map of the world with all the big rivers coloured in red and superimposed a map with a black line for each of the 48.000 large dams. Almost all of the major arteries have been blocked, changed, diverted and damaged. Beyond every black line the rivers have been slowed down, reduced and altered. The seasonal pulse of these rivers is gone and with it its life-giving force.

In spite of the beliefs and rhetoric of the *International Commission of Large Dams*, dams are primarily for the benefit of the well-to-do. Hydroelectric power serves the mining and forestry companies and the people in the cities that can afford electricity. It does not reach the billions of poor people and local villages that need clean drinking water and sanitation. The hydroelectric power and water used for irrigation increasingly serves large agribusiness plantations of monocultures for biofuel and for food that the poor cannot afford. Contrary to common perception, hydropower is not a clean power because of its ecological impact. Reservoirs, dams and compromised rivers are ecologically unsustainable and do more damage than good. Most of all, they bring displacement, economic hardship, suffering and misery to countless people. It is a challenging and at times a heart-wrenching experience to take a video tour of the major rivers and dams around the world and to hear peoples' reactions, their protests and their sense of outrage and injustice. These videos and small documentaries are easily accessible on You Tube.

Even the pristine *Mackenzie River* in the *North West Territories* of Canada is called 'A River on the Brink' by Ellen Wohl in her book, *A World of Rivers; Environmental Change on Ten of the World's Great Rivers (2010)*. It is one of the ten rivers she deals with, along with the *Amazon, Ob, Nile, Danube, Ganges, Mississippi, Murray-Darling, Congo, and Chang-Bang*. She vividly describes in detail the consequences of altering the seasonal pulse of each river and the ecological changes and devastation it brings about to all life systems. Climate change and global warming deepen these damages to the environment which in turn affects the climate. There are many alternatives to building large dams. Even for existing dams there are possibilities to make them less environmentally damaging. Worldwide, a large number of dams are in disrepair and decline. They form a danger to the environment and nearby local populations and need to be decommissioned, but, like many abandoned mines, there are no plans and there is no funding available.

Over 2 billion people depend on rivers, large and small, for their livelihood. River valleys, shores, flood plains and coastal deltas provide some of the most fertile farm lands, forests and wetlands. Most of the major rivers have already been altered, compromised and polluted. Some are so severely polluted by human waste, water-borne diseases, dangerous chemicals, debris and plastic particles that they are unfit for human use and most other creatures. Yet many people depend on those waters for cooking, washing and drinking water. Tragically, when you take a documentary tour of these rivers, everywhere you see children playing and swimming in these contaminated waters, joyful children that have no idea what is in store for them. Or perhaps they do, having heard their parents talk, but like the children and teenagers in Indonesia's and China's very polluted rivers they find moments of play and joy.

Not only have the world's rivers been compromised but also many of the major and smaller lakes. *Lake Chad, Aral Sea, Sea of Galilee, Lake Chapala*, and many lakes in *western China* are all shrinking or disappearing completely. China has lost half its natural lakes and almost all the lakes around Beijing. Each year more lakes are diminishing. Along with the decline of glaciers and rivers, the shrinking of countless lakes has a profound effect on wetlands and groundwater.

Boh, M. (April 12, 2013). A dam too far in Laos. *Asia Times*. Retrieved from <http://www.atimes.com/atimes/Southeast Asia/SEA-01-120413.html>

Braun, W. (October 2011). Hydropower boom won't necessarily alleviate global warming. *CCPA Monitor*. Vol. 18 Issue 5, p1

Bryant, N. (June 18, 2008). Australian rivers 'face disaster'. *BBC News*. Retrieved from <http://news.bbc.co.uk/2/hi/asia-pacific/7460492.stm>

EcoWatch. (May 12, 2015). Mega-dam projects will force tens of thousands of people from their land. Retrieved from <http://ecowatch.com/2015/05/12/borneo-project-mega-dam/>

Forero, J. (February 12, 2013). Brazil dam boom raises tensions. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2013/feb/12/brazil-hydroelectric-jirau-dam>

Guha, R. (July 6, 2008). The world's first anti-dam movement. *The Hindu Magazine*. Retrieved from <http://www.thehindu.com/todays-paper/tp-features/tp-sundaymagazine/the-worlds-first-antidam-movement/article1437414.ece>

Herbertson, K. (September 11, 2012). The Xayaburi dam: threatening food security in the Mekong. *International Rivers*. Retrieved from <https://www.internationalrivers.org/resources/the-xayaburi-dam-threatening-food-security-in-the-mekong-7675>

Hill, D. (April 27, 2015). Peru's mega-dam projects threaten Amazon river source and ecosystem collapse. *International Rivers*. Retrieved from <https://www.internationalrivers.org/resources/9022>

Hurwitz, Z. (March 2012). Dam Greenwashing flows at World Water Forum. *World Rivers Review*, Vol. 27/No. 1. Retrieved from https://www.internationalrivers.org/files/attached-files/wrr_march2012.pdf

International Commission on Large Dams. (August, 2000). Dams and the environment. http://www.icol-dc.org/GB/Dams/dams_environment.asp

International Rivers. (May 6, 2015). The challenge of climate change. Retrieved from <https://www.internationalrivers.org/resources/9024>

International Rivers, "Wrong climate for big dams: fact sheet", "Questions and answers about large dams", "Frequently asked questions", "Flood management: the soft path", "Human impacts of dams", "The World Commission on dams", "Banks and dam builders", "Economic impacts of dams", "Holding the dam industry to account", "China", "Sinahydro corporation", "Global role in dam building", "Southeast Asia", "South Asia", "Latin America", "Ethiopia's dam boom", "Grand Inga dam, DR Congo", "Dam decommissioning".

Loftus-Farren, Z. (April 14, 2014). California's San Joaquin tops list of America's 10 most endangered rivers. *Earth Island Journal*. Retrieved from http://www.earthisland.org/journal/index.php/elist/eListRead/californias_san_joaquin_tops_list_of_americas_10_most_endangered_rivers/

McCully, P. (2001) Silenced Rivers: the ecology and politics of large dams. *International Rivers*. <https://www.internationalrivers.org/resources/silenced-rivers-the-ecology-and-politics-of-large-dams-4043>

Pearce, F. (March 12, 2015). On the river Nile, a move to avert a conflict over water. *Yale Environment 360*. Retrieved from http://e360.yale.edu/feature/on_the_river_nile_a_move_to_avert_a_conflict_over_water/2855/

Pottinger, L. (July 19, 2013). A Tale of Two Dams: Comparing Ethiopia's Grand Renaissance to Hoover. *International Rivers*. Retrieved from <https://www.internationalrivers.org/blogs/229/a-tale-of-two-dams-comparing-ethiopia%E2%80%99s-grand-renaissance-to-hoover>

Rothman, F. D. and Oliver, P. E. From local to global: the anti-dam movement in southern Brazil, 1979-1999. *Mobilization: An International Journal* 1999, 4 (1): 41-57. Retrieved from <http://www.ssc.wisc.edu/~oliver/wp/wp-content/uploads/2014/08/from-local-to-global.pdf>

Sharma, T. (January 20, 2012). Mega dams: campaigning against the plans of the Indian government. *Open Democracy*. Retrieved from <https://www.opendemocracy.net/openindia/tanmoy-sharma/mega-dams-campaigning-against-plans-of-indian-government>

Shoemaker, B. et.al., (December 2014). Nam Theun 2: the World Bank's narrative of success falls apart. *World Rivers Review*. Vol.29/No. 4. Retrieved from <https://www.internationalrivers.org/resources/8479>

Tamirabarani teaches: saving tiger is saving river. (October 25, 2015). *Times of India*. Retrieved from <http://timesofindia.indiatimes.com/city/chennai/Tamirabarani-teaches-Saving-tiger-is-saving-river/articleshow/49499768.cms>

Stimson. (September 21, 2011.) A Thai perspective on proposed mainstream Mekong dams. Retrieved from <http://www.stimson.org/search/google/summaries%20a%20thai%20perspective%20on%20proposed%20mainstream%20mekong%20dams?mode=404>

Swayamprakash, R. (June 2014). Fishing the Cauvery river: how Mettur changed it all. *South Asia Network on Dams, Rivers and People*. Retrieved from <https://sandrp.wordpress.com/2014/06/07/fishing-the-cauvery-river-how-mettur-changed-it-all/>

Trandem, A. (December 2014). Is the Mekong at a tipping point? *World Rivers Review*. Vol. 29/No. 4. Retrieved from <http://www.internationalrivers.org/node/8456>

UNEP, Dams and Development Project. (February 9, 2001) The Brazilian movement of dam-affected people (MAB). *Grassroots International*. Retrieved from <http://www.grassrootsonline.org/where-we-work/brazil/movement-people-affected-dams-mab>

Vidal, J. (August 10, 2013). China and India 'Water Grab' Dams put ecology of Himalayas in danger. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2013/aug/10/china-india-water-grab-dams-himalayas-danger>

Wetlands

Wetlands present the most biologically distinct ecosystems of the world with characteristic flora and fauna. Wetlands absorb and store water from the surrounding landscape. They play an important role in maintaining the health of a watershed. The saturated soil supports many aquatic plants that purify and filter the water before it enters lakes and rivers. They not only clean and regulate the water but they are also closely connected to groundwater systems. Wetlands worldwide provide natural flood and storm protection and shoreline stability. As unique ecosystems they provide habitats for numerous mammals, birds, fish, amphibians, and invertebrates as well as many threatened and endangered species that depend on wetlands for their survival. Wetlands play an important role in the total water systems of the world. When they are drained the water flows away downstream instead and is lost to the watershed.

Wetlands, swamps, marshes, bogs, fens, mangroves cover between 5-10% of the earth's land. More than half of them have been destroyed or drained for agriculture or urban development. Canada has a high percentage of global wetlands. They cover about 16% of its land mass. On average seventy percent of Canada's wetlands have been lost or degraded. Besides being diminished, wetlands suffer from air pollution and climate change. Even small changes in temperature

affect wetland ecosystems, especially in coastal and arid areas. Without the water filtration of the wetlands excess nutrients and contaminants flow directly into lakes and rivers. As a result many lakes suffer from blue-green algae blooms which endanger and kill aquatic creatures and humans. In Canada many lakes have to be closed to the public each year because of contamination. In spite of the efforts of organizations like *World Wetland Network* and many national groups across the globe wetlands continue to disappear. Development often takes precedence over conservation and restoration. These organizations are developing an inventory of wetlands in different parts of the world and are exchanging information. Most important, they try to educate governments and the public about the important role wetlands play in the total ecosystem. The *Millennium Ecosystem Assessment* report of 2005 on *Wetlands and Water* gives a good overview of the state of the world's wetlands.

Barros, DF. And Albermaz, A.L.M. (November 2014). Possible impacts of climate change on wetlands and its biota in the Brazilian Amazon. *Brazilian Journal of Biology*, vol. 74, (4). Retrieved from <http://www.scielo.br/pdf/bjb/v74n4/1519-6984-bjb-74-04-810.pdf>

Biodivecanada. (2010). Canadian biodiversity: ecosystem status and trends. Wetlands. Retrieved from <http://www.biodivecanada.ca/default.asp?lang=En&n=6F7EB059-1&wsdoc=A519F000-8427-4F8C-9521-8A95AE287753>

Brander, L. and Schuyt, K. (November 2010). Benefits transfer: the economic value of world's wetlands. *Gist*. Retrieved from <http://www.teebweb.org/wp-content/uploads/2013/01/The-economic-value-of-the-worlds-wetlands.pdf>

Crooks, S. et.al. (March 2011). Mitigating climate change through restoration and management of coastal wetlands and near-shore marine ecosystems: challenges and opportunities. *The Blue Carbon Initiative*. Retrieved from <http://siteresources.worldbank.org/ENVIRONMENT/Resources/MtgnCCthruMgtofCoastalWetlands.pdf>

David Suzuki Foundation. (July 4, 2013). Working with nature can protect us from floods. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2013/07/working-with-nature-can-protect-us-from-floods/>

Ducks Unlimited Canada. (August 16, 2012). Wetland loss major factor in algae-filled Canadian lakes. Retrieved from <http://www.marketwired.com/press-release/wetland-loss-major-factor-in-algae-filled-canadian-lakes-1691322.htm>

Ducks Unlimited Canada. (October 12, 2010). Southern Ontario wetland conversion analysis. Retrieved from http://www.ducks.ca/assets/2010/10/duc_ontariowca_optimized.pdf

Ducks Unlimited Canada. (December 2008). The impacts of wetland loss: Canadians cannot afford to keep losing wetlands, yet wetlands continue to be drained and degraded across the country. Retrieved from http://www.pcap-sk.org/rsu_docs/documents/Impact_of_Wetlands.pdf

Ecojustice. (February, 2012). Protecting Greenbelt wetlands: how effective is policy? Retrieved from http://www.ontarionature.org/discover/resources/PDFs/reports/protecting_greenbelt_wetlands_report.pdf

Environment Canada. (October 13, 2010) Wetlands. Retrieved from <https://www.ec.gc.ca/tho-wlo/default.asp?lang=En&n=B4669525-1>

EPA. Wetlands, status and trends. Retrieved from <https://www.epa.gov/wetlands/how-does-epa-keep-track-status-and-trends-wetlands-us>

IPCC, 201.3 Supplement to the 2006 IPCC Guidelines for Natural Greenhouse Gas Inventories: Wetlands, chapter 4. Coastal wetlands. Retrieved from http://www.ipcc-nggip.iges.or.jp/home/docs/1105_WetlandsToC.pdf

Kennedy, G. and Mayer, T. (2002). Natural and constructed wetlands in Canada: an overview. *Water Quality Research Journal*. Vol. 37, No. 2, pp. 295-325. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.538.8957&rep=rep1&type=pdf>

Kingsford, R.T. and Thomas, R.F. Destruction of wetlands and waterbird populations by dams and irrigation on the Murrumbidgee river in arid Australia. *Environmental Management*, Vol. 34, No.3, pp.382-396.

Millennium Ecosystem Assessment, Ecosystems and Human Well-being. (2005). Wetlands and Water, Synthesis Report. Retrieved from <http://www.millenniumassessment.org/documents/document.356.aspx.pdf>

Morton, R.A. (2003). An overview of coastal land loss: with emphasis on the southern United States. *USGS*. etrieved from <http://pubs.usgs.gov/of/2003/of03-337/landloss.pdf>

Nicholls, R.J. Coastal flooding and wetland loss in the 21st century: changes under the SRES climate and socio-economic scenarios. *Global Environmental Change*, 14 (2004). pg. 69-86.

ScienceDaily. (March 10, 2015). Hidden greenhouse emissions revealed in new report. Retrieved from <https://www.sciencedaily.com/releases/2015/03/150310091402.htm>

ScienceDaily. (March 25, 2015). Greenhouse gasses unbalanced: how human intervention changes wetlands. Retrieved from <https://www.sciencedaily.com/releases/2015/03/150325082345.htm>

ScienceDaily. (April 28, 2014). Wetlands likely to blame for atmospheric methane increases: study. Retrieved from <https://www.sciencedaily.com/releases/2014/04/140428121353.htm>

ScienceDaily. (June 20, 2013). Farming carbon: study reveals potent carbon-storage potential of human-made wetlands. Retrieved from <https://www.sciencedaily.com/releases/2013/06/130620132116.htm>

ScienceDaily. (July 21, 2008). Massive greenhouse gases may be released as destruction, drying of world wetlands worsen. Retrieved from <https://www.sciencedaily.com/releases/2008/07/080720150209.htm>

Groundwater, aquifers and water tables

Groundwater plays a crucial role in the total global water supply. It makes up about 20% of the world's fresh water and serves as a *natural storage and a buffer* against shortages of surface water and periods of droughts. If all is well, it is replenished by the annual rainfall. Most rivers, lakes and wetlands feed the groundwater and are fed by it. The water constantly circulates and keeps the water table in balance. Groundwater percolates upward and keeps the soil moist

allowing plants and trees to grow. Ground water collects in large and smaller aquifers. Some are near the surface and others, the so-called fossil aquifers, are deep below the surface and not easily accessible. In scores of countries water tables are falling rapidly, as in northern *China, US, India, Pakistan, Iran, Mexico, Algeria, Egypt*, and many other countries. In several regions more groundwater is withdrawn and used than is replenished by annual rainfall. Each year approximately 1,000 cubic km of groundwater is taken worldwide for irrigation (67%) and industrial use (11%), leaving a limited amount for growing urban populations. Increasingly farmers are losing out to the demands of the cities. Technological solutions have been partial and not sufficient to restore the world's major aquifers.

The yearly *overuse* of the replenishable water supply is made up for by 'mining' the deeper aquifers, the fossil aquifers, that have been there for thousands or millions of years. This supply is finite. Once those aquifers are emptied, there are no other sources of extra water for irrigation, industry or drinking water. Farmers will once more have to depend on annual rainfall, which will result in reduced crop yields and shortages in drinking water. This has already happened in many areas. More and more countries that were self-sufficient before now have to depend on importing grain and rice. Cities, especially mega-cities, will be scrambling to find enough drinking water for their citizens. In *south western US, southern India*, and other countries, cities are buying up water rights from farmers to supply water for their citizens. As populations grow and cities expand, the need for water increases accordingly. To add to growing water shortages, in 45 states in the US, in Mexico City, and in other places landforms are sinking (called subsidence) as a result of the depletion of groundwater. None of these problems of clean drinking water for urban populations and water for irrigating agricultural lands can be solved by itself. They will require more underlying structural changes.

Barros, DF. And Albermaz, A.L.M. (November 2014). Possible impacts of climate change on wetlands and its biota in the Brazilian Amazon. *Brazilian Journal of Biology*, vol. 74, (4). Retrieved from <http://www.scielo.br/pdf/bjb/v74n4/1519-6984-bjb-74-04-810.pdf>

Biodivecanada. (2010). Canadian biodiversity: ecosystem status and trends. Wetlands. Retrieved from <http://www.biodivecanada.ca/default.asp?lang=En&n=6F7EB059-1&wsdoc=A519F000-8427-4F8C-9521-8A95AE287753>

Brander, L. and Schuyt, K. (November 2010). Benefits transfer: the economic value of world's wetlands. *Gist*. Retrieved from <http://www.teebweb.org/wp-content/uploads/2013/01/The-economic-value-of-the-worlds-wetlands.pdf>

Crooks, S. et.al. (March 2011). Mitigating climate change through restoration and management of coastal wetlands and near-shore marine ecosystems: challenges and opportunities. *The Blue Carbon Initiative*. Retrieved from <http://siteresources.worldbank.org/ENVIRONMENT/Resources/MtgtnCCthruMgtofCoastalWetlands.pdf>

David Suzuki Foundation. (July 4, 2013). Working with nature can protect us from floods. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2013/07/working-with-nature-can-protect-us-from-floods/>

Ducks Unlimited Canada. (August 16, 2012). Wetland loss major factor in algae-filled Canadian lakes. Retrieved from <http://www.marketwired.com/press-release/wetland-loss-major-factor-in-algae-filled-canadian-lakes-1691322.htm>

Ducks Unlimited Canada. (October 12, 2010). Southern Ontario wetland conversion analysis. Retrieved from http://www.ducks.ca/assets/2010/10/duc_ontariowca_optimized.pdf

Ducks Unlimited Canada. (December 2008). The impacts of wetland loss: Canadians cannot afford to keep losing wetlands, yet wetlands continue to be drained and degraded across the country. Retrieved from http://www.pcap-sk.org/rsu_docs/documents/Impact_of_Wetlands.pdf

Ecojustice. (February, 2012). Protecting Greenbelt wetlands: how effective is policy? Retrieved from http://www.ontarionature.org/discover/resources/PDFs/reports/protecting_greenbelt_wetlands_report.pdf

Environment Canada. (October 13, 2010) Wetlands. Retrieved from <https://www.ec.gc.ca/tho-wlo/default.asp?lang=En&n=B4669525-1>

EPA. Wetlands, status and trends. Retrieved from <https://www.epa.gov/wetlands/how-does-epa-keep-track-status-and-trends-wetlands-us>

IPCC, 201.3 Supplement to the 2006 IPCC Guidelines for Natural Greenhouse Gas Inventories: Wetlands, chapter 4. Coastal wetlands. Retrieved from http://www.ipcc-nggip.iges.or.jp/home/docs/1105_WetlandsToC.pdf

Kennedy, G. and Mayer, T. (2002). Natural and constructed wetlands in Canada: an overview. *Water Quality Research Journal*. Vol. 37, No. 2, pp. 295-325. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.538.8957&rep=rep1&type=pdf>

Kingsford, R.T. and Thomas, R.F. Destruction of wetlands and waterbird populations by dams and irrigation on the Murrumbidgee river in arid Australia. *Environmental Management*, Vol. 34, No.3, pp.382-396.

Millennium Ecosystem Assessment, Ecosystems and Human Well-being. (2005). Wetlands and Water, Synthesis Report. Retrieved from <http://www.millenniumassessment.org/documents/document.356.aspx.pdf>

Morton, R.A. (2003). An overview of coastal land loss: with emphasis on the southern United States. *USGS*. Retrieved from <http://pubs.usgs.gov/of/2003/of03-337/landloss.pdf>

Nicholls, R.J. Coastal flooding and wetland loss in the 21st century: changes under the SRES climate and socio-economic scenarios. *Global Environmental Change*, 14 (2004). pg. 69-86.

ScienceDaily. (March 10, 2015). Hidden greenhouse emissions revealed in new report. Retrieved from <https://www.sciencedaily.com/releases/2015/03/150310091402.htm>

ScienceDaily. (March 25, 2015). Greenhouse gasses unbalanced: how human intervention changes wetlands. Retrieved from <https://www.sciencedaily.com/releases/2015/03/150325082345.htm>

ScienceDaily. (April 28, 2014). Wetlands likely to blame for atmospheric methane increases: study. Retrieved from <https://www.sciencedaily.com/releases/2014/04/140428121353.htm>

ScienceDaily. (June 20, 2013). Farming carbon: study reveals potent carbon-storage potential of human-made wetlands. Retrieved from <https://www.sciencedaily.com/releases/2013/06/130620132116.htm>
ScienceDaily. (July 21, 2008). Massive greenhouse gases may be released as destruction, drying of world wetlands worsen. Retrieved from <https://www.sciencedaily.com/releases/2008/07/080720150209.htm>

Water: a human right

Water is a human right, because without water we cannot live. A part of the *Millennium Development Goal* was to cut by half the number of people without sufficient and safe drinking water by 2015. This goal has not been met. Although water has been recognized by the UN as a basic human right, ambiguities remain and it is left to individual governments to implement the agreement. Canada has belatedly endorsed the human right to water and sanitation. It remains to be seen whether this right will actually be implemented and enforced, including in Canada where over a hundred First Nations communities have no safe drinking water and sewage system. Worldwide many people will continue to go without water and sanitation with all the deplorable consequences of disease and death. To implement and enforce this right to water will require a radical change in international and national law. Water needs to be given *legal status of its own*, whether rivers, lakes, streams, wetlands, or aquifers. Instead of water as 'private property' that can be owned by someone and sold or monopolized, water needs to be given a right of its own. On the basis of such a legal status of a river for example, when it has been blocked, redirected, or contaminated companies can be enforced by law to restore the river to its original status.

Many indigenous people and villagers have successfully managed their common water sources for centuries. Today, with more intense land use, it will require new forms of cooperation, as in many areas in India. The key will be whether or not local villages truly have the right to their land and water and receive support to work out new forms of farming and cooperation. The WB, IMF, and other international organizations have been complicit in fostering the privatization of water as the answer to water scarcity and as a condition for obtaining loans. Land and water grabbing by banks and other investment companies is escalating. Water is a public good held in common that ought not to be corporately owned. In many countries opposition to privatization is growing. Violent clashes about access to scarce water sources can only increase during the coming decades. Desperate water and food refugees will flood neighbouring regions and countries or try to find their way to Europe. Armed border conflicts, if not outright wars, will erupt, if no fundamental changes are made. It will require limiting or phasing out water for industrial agriculture, mining and many manufacturers, as well as radical conservation measures and renewal of water infra-structures for most of mega-cities.

Achtenberg, E. (June 5, 2013). From water wars to water scarcity: Bolivia's cautionary tale. *NACLA*. Retrieved from <https://nacla.org/blog/2013/6/5/water-wars-water-scarcity-bolivia%E2%80%99s-cautionary-tale>
Amnesty International Canada. Canada: the right to water in First Nations communities. Retrieved from <http://www.amnesty.ca/our-work/issues/indigenous-peoples/indigenous-peoples-in-canada/the-right-to-water>
Atkins, E. (November 28, 2014). The corporate nullification of the human right to water: the case of El Salvador. *Open Democracy*. Retrieved from <https://www.opendemocracy.net/ed-atkins/corporate-nullification-of-human-right-to-water-case-of-el-salvador>
Ayala, E. (June 15, 2015). Water dispute pits communities against brewing giant. *IPS*. Retrieved from <http://www.ipsnews.net/2013/08/water-dispute-pits-communities-against-brewing-giant/>
Barlow, M. *Blue Future: Protecting Water for People and the Planet Forever*. House of Anansi Press. Canadian First edition (Sept. 9 2013).
Barlow, M. *Blue Covenant: The Global Water Crisis and the Coming Battle for the Right to water*. New Pr; Reprint edition (June 1, 2009)
Barlow, M. and Clarke, T. *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water*. New Pr (Sept. 1 2005)
BBC. (July 29, 2010). UN declares clean water a 'fundamental human right'. Retrieved from <http://www.bbc.com/news/world-us-canada-10797988>
Cameron, K. et.al. (December 15, 2010). Public water for sale: how Canada will privatize our public water systems. *The Council of Canadians and CUPE – SCFP*. Retrieved from <http://canadians.org/publications/public-water-sale-how-canada-will-privatize-our-public-water-systems>
David Suzuki Foundation. (November 27, 2014). Clean drinking water should be a human right in Canada. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2014/11/clean-drinking-water-should-be-a-human-right-in-canada/>
International Water Law Project Blog. (August 3, 2009). Why do so many governments oppose a human right to water? Retrieved from <http://www.internationalwaterlaw.org/blog/2009/08/03/why-do-so-many-governments-oppose-a-human-right-to-water/>
Petrella, R. *The Water Manifesto; arguments for a world water contract*. Zed Books. (October 5, 2001)
Petrella, R. (June 24, 2015). A war on poverty or a war on the poor? *IPS*. Retrieved from <http://www.ipsnews.net/2008/06/a-war-on-poverty-or-a-war-on-the-poor/>
The PLOS Medicine Editors (July 30, 2009). Clean water should be recognized as a human right. 6(6). Retrieved from <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1000102>

Provost, C. (March 12, 2012). World Water Forum will pander to corporate self-interest, say critics. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2012/mar/12/world-water-forum-corporate-self-interest>

Samson, K. (March 22, 2015). The privatization of water: Nestle denies that water is a fundamental human right. *Global Research*. Retrieved from <http://www.globalresearch.ca/the-privatisation-of-water-nestle-denies-that-water-is-a-fundamental-human-right/5332238>

The Star, Editorial Opinion. (July 13, 2010) A human right Canada rejects: Access to clean water. Retrieved from http://www.thestar.com/opinion/editorialopinion/2010/07/13/a_human_right_canada_rejects_access_to_clean_water.html

Tackaberry, J. (June 12, 2012). Canadian recognition of human rights to water and sanitation must be followed by action. *Amnesty International Canada*. Retrieved from <https://www.amnesty.ca/news/news-item/canadian-recognition-of-human-rights-to-water-and-sanitation-must-be-followed-by-acti>

UNRIC. (March 20, 2013). Riccardo Petrella presents the geopolitics of water. March 20, 2013. Retrieved from <http://www.unric.org/en/latest-un-buzz/28321-riccardo-petrella-presents-the-geopolitics-of-water>

Williams, T. (April 28, 2015). Getting water where it's needed: will the Lisbon Charter help? *The Guardian*. Retrieved from <http://www.theguardian.com/global-development-professionals-network/2015/apr/28/lisbon-charter-governments-improve-water-policy-regulation>

Wolfe-Wylie, W. (2002). How private companies are using Ontario's public water. O.Canada.Com. Retrieved from <http://o.canada.com/news/how-private-companies-are-using-ontarios-public-water>

Conclusion

Climate change and global warming, depletion of groundwater, mining of fossil aquifers, loss of wetlands, lowering or disappearance of lakes, damming of rivers, all contribute to a dangerous level of water scarcity in the world. Without water humankind and most organisms cannot survive. Presently most sources of water do not have a legal right of their own. They are primarily 'publicly owned' properties that governments can sell or trade away at will. Although water is acknowledged as a human right, countless people are unable to appeal to that right and have their sources of water protected. Most nations are living on borrowed time and keep developing as long as the supply of water lasts. When all sources of water have been depleted or used to their maximum, then more and more crops worldwide will diminish or fail. No country is immune to this trend, whether China, India, Brazil, Russia, US, Canada or Europe. Presently many countries are already running dry or will within the next few decades. Millions of people will be forced to move elsewhere, which will give rise to regional struggles and conflicts between nations.

The growing water scarcity is only one part of the threat to global ecosystems. The changing climate and the warming of the oceans, the degradation of the soil, land and forests, each add their share to the cumulative decline of the environment. Even if the increase in CO₂ emissions stopped today, the environmental decline would continue for many decades and centuries to come. That is why any debates about how quickly the amount of CO₂ particles in the atmosphere will rise above 500 or 600 ppm, or when the average temperature will rise above 2 degrees Celsius is limited since it is only one part of the total degradation of the environment.

6) The decline of the soil and the land

For most of us it is hard to believe that the loss of topsoil and the impoverishment of the soil have such drastic consequences for life on earth. We tend to take the presence of soil for granted. Some of it may not be as productive, but it has always been there. It is part of the land. We are surrounded by city lawns, gardens and parks and outside our cities and towns the farms stretch out for miles, at least in many parts of the Western world. But all is not well; it presents a deceiving picture. The reality is very different. Globally 1/3 of the earth's croplands are losing topsoil faster than it is being replaced.

Acton, D.F. and Gregorich, L.J. (eds.). (1995). The health of our soils: toward sustainable agriculture in Canada. *Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agri-Food Canada*. Retrieved from http://sis.agr.gc.ca/cansis/publications/manuals/1995-health/The_Health_of_Our_Soils.pdf

Agriculture and Agri-Food Canada. (April 25, 2012). Drought increases erosion concerns. Retrieved from <http://www.agr.gc.ca/eng/?id=1326746188555>

Ahmed, N. (June 7, 2013). Peak soil: industrial civilization is on the verge of eating itself. *The Guardian*.

Retrieved from <http://www.theguardian.com/environment/earth-insight/2013/jun/07/peak-soil-industrial-civilisation-eating-itself>

Alberta, Canada, Department of Agriculture and Forestry. (2014). Soil organic matter.

Retrieved from [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex890](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex890)

Alberta, Canada, Department of Agriculture and Forestry. An introduction to wind erosion control.

Retrieved from [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex3524](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3524)

Anderson, D. Lafond, G. P.(2010). Global perspective of arable soils and major soil associations. *Prairie Soils & Crops Journal*, Volume 3. P. 1-8. Retrieved from <http://www.prairiesoilsandcrops.ca>

Cann, M. et al., (1992). The impacts of soil degradation on crop yields in the Canadian Prairies: an annotated bibliography. *Land Resource Division, Centre for Land and Biological Resources Research, Research Branch, Agriculture Canada*. Retrieved from [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sag11262/\\$file/Impact_of_Soil_Degradation_on_Crop_Yields.pdf?OpenElement](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag11262/$file/Impact_of_Soil_Degradation_on_Crop_Yields.pdf?OpenElement)

Conway, G. (December 4, 2014). Soil isn't sexy – but it could explain hunger in Africa. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2014/dec/04/soil-sexy-hunger-africa-food-security>

De Graaff, A.H. (2016). “An update on, ‘The Decline of the Soil and the Land’”. www.arnolddegraafffoundationalissues.com

European Commission. (2014). Soil compaction. Retrieved from <http://esdac.jrc.ec.europa.eu/themes/soil-compaction>

FAO, (2015). “The Status of the World’s Soil Resources, Technical Summary”, Rome: FAO. <http://www.fao.org/3/a-i5126e.pdf>

FAO, (2015). “Revised World Soil Charter”, Rome: FAO. <http://www.fao.org/3/a-i4965e.pdf>

Forge, F. (August 27, 1998). Agriculture soil conservation in Canada. *Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agr-Food Canada*. Retrieved from <http://publications.gc.ca/Collection-R/LoPBdP/MR/mr151-e.htm>

George, H. Land degradation assessment in drylands. *FAO, Land and Plant nutrition Management Service, AGILL, Land and Water division*. Retrieved from <http://www.fao.org/nr/lada/>

Global Change, University of Michigan. (2010) Land degradation. Retrieved from http://www.globalchange.umich.edu/globalchange2/current/lectures/land_deg/land_deg.html

Lang, S. S. (March 20, 2006). Slow, insidious soil erosion threatens human health and welfare as well as the environment, Cornell study asserts. *Cornell Chronicle*. Retrieved from <http://www.news.cornell.edu/stories/2006/03/slow-insidious-soil-erosion-threatens-human-health-and-welfare>

Lang, S. S. (August 2, 2007). Water, air and soil pollution causes 40 percent of deaths worldwide, Cornell research survey finds. *Cornell Chronicle*. Retrieved from <http://www.news.cornell.edu/stories/2007/08/pollution-causes-40-percent-deaths-worldwide-study-finds>

Lau, G. (January 1, 2011). Ongoing soil degradation in Canada and its impacts on the future of soil productivity. *Circle UBC*. Retrieved from <https://open.library.ubc.ca/cIRcle/collections/undergraduateresearch/1037/items/1.0075518>

Monbiot, G. (March 29, 2015). We’re treating soil like dirt. It’s a fatal mistake, as our lives depend on it. *The Guardian*. Retrieved from <http://www.theguardian.com/commentisfree/2015/mar/25/treating-soil-like-dirt-fatal-mistake-human-life>

The National Soil Erosion Research Laboratory. Wind erosion. Retrieved from <http://milford.nserl.purdue.edu/weppdocs/overview/wndersn.html>

Ontario Ministry of Agriculture and Food. Soil erosion – causes and effects. Retrieved from <http://www.omafra.gov.on.ca/english/engineer/facts/12-053.htm>

Paulson, T. (January 21, 2008). The lowdown on topsoil: it’s disappearing. *Seattle PI*. Retrieved from <http://www.seattlepi.com/national/article/The-lowdown-on-topsoil-It-s-disappearing-1262214.php>

South Dakota University. (March 31, 2014). Black snow highlights soil erosion problems. Retrieved from <http://www.agprofessional.com/news/Black-snow-highlights-soil-erosion-problems--253251171.html>

Sparrow, H.O. (1984). Soil at risk - Canada’s eroding future. *Standing Senate Committee on Agriculture, Fisheries and Forestry*. Retrieved from <http://www.albertasenator.ca/flashblocks/data/Soil%20at%20Risk/Soil%20at%20Risk.pdf>

Tatarko, J. Wind erosion: problems, processes, and control. *USDA – ARS*. Retrieved from http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_019407.pdf

Time. (December 14, 2012). What if the world’s soil runs out? Retrieved from <http://world.time.com/2012/12/14/what-if-the-worlds-soil-runs-out/>

UNCCD. The Global Mechanism. (January 23, 2015). Land degradation neutrality – what is all the noise about? Retrieved from <http://www.unccd.int/en/programmes/RioConventions/RioPlus20/Pages/Land-DegradationNeutralityWorld.aspx>

UNCCD. Land degradation neutrality: resilience at local, national and regional level. Retrieved from http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/Land_Degrad_Neutrality_E_Web.pdf

UNCCD. (2014). “Desertification: the Invisible Frontline”, (2014). Bonn: UNCCD. http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/NEW_Invisible_%20Front_Line_%20EN.pdf

UNCCD. (2014). “The Land in Numbers; Livelihoods at a Tipping Point”, Bonn: UNCCD. http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/Land_In_Numbers_web.pdf

UNCCD. (2014). “An Introduction to the United Nations Convention to Combat Desertification”, Bonn: UNCCD. <http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/factsheets-eng.pdf>

Vidal, J. (September 24, 2009). Loss of soil threatens food production, UK government warns. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2009/sep/24/topsoil-farming-defra>

Vidal, J. (December 14, 2010). Soil erosion threatens to leave Earth hungry. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2010/dec/14/soil-erosion-environment-review-vidal>

WWF. Soil erosion and degradation. Retrieved from <http://www.worldwildlife.org/threats/soil-erosion-and-degradation>

Loss of topsoil and organic matter

On average the earth is covered with a thin layer of 6” of topsoil. Underneath this top layer there may be several feet of more granular and rocky soil. This nutrient rich top layer plays a critical role in maintaining life on earth. It is the basis of most of the food for all living creatures. For humans it is the basis of our civilization, as David Montgomery has emphasized in his book *Dirt: The Erosion of Civilizations*, (2012). This thin layer of topsoil has grown over millions of years and through a natural process of erosion and decay has generally been able to maintain itself. On average it takes a hundred years to generate 1 millimeter of soil. This time scale gives us some perspective on the long formation of our present-day soils. It is like a fragile skin around the earth that along with water and air maintains life. This top layer of soil forms an integral part of the ecological system. It is made up of weathered materials, water, oxygen and organic matter. It is the medium in which plants and trees grow, and this cover of vegetation in turn protects the soil from

erosion. Through human interference and mismanagement this balance between erosion and new formation has been disturbed on a large scale and many lands have become unproductive and barren. Particularly today the depletion and degradation of the soil has become a serious global problem. The depletion and desertification of agricultural lands, erosion of topsoil, decline in organic matter, acidification of the soil, salinization particularly of irrigated lands, and decline of millions of microorganisms are the major causes of the degradation.

Topsoil is eroded and carried away by water and wind. This can happen slowly, year after year, or more drastically by extreme rain and wind storms. More intense rainfall and storms of the last decades have accelerated the natural process of erosion. When significant amounts of topsoil are washed or blown away, the productivity of the soil is reduced. Both water and wind erosion is creating widespread problems on all continents. Some, like David Pimentel from Cornell University, consider it the second largest environmental problem after population increase. According to his study the U.S. is losing topsoil 10 times faster than the natural replacement rate, while China and India are losing topsoil 30 to 40 times faster. According to the *UN Global Assessment of Human-Induced Soil Degradation*, (with current updates) central U.S. has lost 75% of its topsoil. Generally the world's croplands are declining both in amount per capita and in quality.

Carbon, nitrogen, phosphorous and sulfur are all essential components of the soil's organic matter. They are the sources of energy and nutrients. The general loss of organic matter can be as high as 30 to 40 % depending on the kinds of soil. Crop yields have increased dramatically during the last fifty years through intensive cultivation and the use of chemical fertilizers, pesticides, herbicides and fungicides. This increase has been at the expense of soil organic matter. It has been called 'soil or nutrient mining'. The living organisms that bind the soil together have declined dramatically in some areas. The neonicotinoids pesticides, glyphosate herbicides, and new combinations in particular have contributed to the loss of soil biodiversity. The soil contains billions of microorganisms, bacteria, fungi, protists, nematodes, as well as arthropods, earthworms and mammals. The biodiversity of the soil is an essential part of the total ecological system. One teaspoon of soil or 1 gram can contain over a billion of these living organisms. Fertilizers and pesticides can greatly reduce the number of microorganisms. Depleted soils are kept alive artificially.

Water and wind erosion

The largest amount of erosion is by water, roughly about 2/3, and 1/3 by wind. Intense rainfall has a large amount of erosive power and loosens the surface particles which wash away. The silt clogs drainage channels and reservoirs and much of it ends up in rivers, streams, wetlands, lakes, harbors and finally the oceans. The run-off silt carries with it the contamination of fertilizers and pesticides. In Ethiopia about 2 billion tons of topsoil is washed away by rain each year. In China, the Yellow River carries about 1.6 billion tons of sediment to the sea each year. Worldwide 24 billion tonnes of topsoil are lost every year, or 1% of the soil. In Europe, particularly in the Mediterranean region, and in North America, it requires a lot of effort and investment to prevent such massive run-offs.

Wind erosion is an equally critical problem. A large amount of dust is carried away by the wind. Airborne fine soil particles act like an abrasive and combine with other dust particulates that give rise to air pollution or smog. It can happen more gradually over many years or more dramatically as a result of violent storms. Huge dust storms from central Africa travel across the Atlantic to the Caribbean where it clouds the water and damages the coral reefs. The Saharan and sub-Saharan dust storms have increased 10 fold during the last decade. In Mauritania dust storms have jumped from 2 to 80 a year. Every year 2-3 billion tonnes of fine soil particles leave Africa in dust storms. It drains the continent of its fertility and productiveness. In 2001 the U.S. west coast and in 2002 South Korea were covered with dust from China and Mongolia. There are approximately 10 major dust storms a year in China. Many villages have been covered and people have had to relocate.

Salinization and acidification

The earth is being 'skinned', as some have called it, by this loss of topsoil. It reduces the soil's ability to support plant growth, to store water, maintain nutrients and organic matter. Along with other factors it impoverishes the soil and its fertility and reduces its productivity. Besides erosion, soil salinization has a profound effect on the quality of the soil. The main cause of salinization is irrigation. River water and groundwater all contain soluble salts of sodium, magnesium, potassium, calcium and other salts which accumulate in water logged soils. Irrigation in arid and semi-arid regions is especially problematic and leads to poor crop production. In the EU, primarily in the Mediterranean countries, 1 to 3 million hectares of land have been affected. Worldwide it is estimated that 1 billion hectares may suffer from salinization, particularly in the arid and semiarid regions in China, which are the most affected, and in India, Pakistan, South America, Australia, Africa, Ukraine and Spain. Large areas of the prairies in North America have saline soils which have expanded as a result of human cultivation and present a problem to many farmers. In urban areas the watering of lawns, gardens and sport fields have resulted in saline soils. Anything that disrupts drainage patterns on a large scale like dams can create salinity. Salinization is a major cause of soil degradation and desertification and poses a severe threat to many ecosystems.

Soil acidification is another factor in the decline of soil quality. Acidification is a natural process that occurs over many centuries but agricultural practices can greatly increase the rate of acidification. When soils become more acid than alkaline it can strongly affect the growth of plants and reduce yields. Ammonium based nitrogen fertilizers can create acidity if applied at the wrong time and the wrong amounts leaching into the subsoil. Sulphur dioxide and nitrogen oxides in the atmosphere can form acid rain and can lead to large scale acidification. This is one of the problems with the expansion of the oil sands operations in Alberta. Many industrial areas in the developed world create similar problems. Both acid precipitation and the overuse or incorrect use of fertilizers contribute to widespread acidification and constitute a major cause of degeneration of soils. China faces a particularly difficult problem with acidification.

Desertification and degradation of dry lands

Finally we need to consider the desertification of land, especially the degradation of semi-arid and arid lands. These dry lands are home to millions of people. Every year about 10 million hectares of land are degraded to the point that they can hardly be regenerated. Only a small part (1/10) of the earth's land is croplands and a somewhat larger part (4/10) is grass lands. About 200 million people make their living on these semi-arid grass lands as pastoralists, primarily in Africa, Middle East, Central Asia, and north west China. Half of these grasslands are moderately degraded and some parts severely. This decline of grazing lands leads to barren wastelands and deserts. When forests in ecologically sensitive areas like mountain slopes and hill sides are converted to agricultural land the results are devastating. The removal of trees and protective grass leaves them vulnerable to wind and water erosion. The same happens when grasslands in dry areas are converted to croplands.

No region is immune to this degradation of dry-land ecosystems. Almost three quarters of North America's dry lands is vulnerable to drought, including the Canadian prairies. About 60% of Canada's croplands and 80% of rangelands are in dry-land areas. Severe droughts over a number of seasons can have devastating effects on these vulnerable lands. Desertification refers first of all to the development of human-made wastelands and deserts. They are the result of deforestation, the need for firewood, overgrazing, changing grasslands to croplands, and mismanagement. The increase in population and with it, the increase in animals, puts tremendous pressure on this expanding and changing land use.

Alongside these expanding wastelands, the natural deserts of the world are also expanding on every continent. They cover about 1/3 of the world's land surface. From the Sahara to the deserts of Iran, Brazil, Mexico, north west India, and

China, deserts are expanding. The shifting Sahara is pushing people northward into Morocco, Tunisia, and Algeria and southward to Nigeria. Increasingly, a large number of villages have had to be abandoned. With changes in climate and global warming, desertification and expanding deserts will increasingly add to the number of climate refugees.

Each soil problem, whether water and wind erosion, salinization, acidification, loss of organic matter, or desertification, adds to the decline of the soils worldwide. This decline will seriously impact the earth's productivity and add to large scale food insecurity. Looking at the total picture, we can appreciate all the more Montgomery's thesis that the exploitation of the soil inevitably leads to the erosion of civilizations. No doubt it is not the only factor. The political power structures, the social class divisions and the role of farming in a society, all played their part in the past as they do in the present. Moreover, the decline of civilizations is often a long time in coming as a result of these complex factors. Instead we could call the soil and what happens to it because of human impact, a *foundational function* that is inseparably related to all the other aspects of society. There is an inseparable coherence and unity to life in which each dimension plays its role. We can appreciate Montgomery's calling attention to the role of the soil in the erosion of civilizations.

- Barbut, M. (August 7, 2014). When land is degraded, its people and their prospects are degraded too. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/poverty-matters/2014/aug/07/least-developed-countries-sustainable-land-management>
- Brown, L. R. (August 31, 2011). Expanding desert, falling water tables, and toxic pollutants are driving people from their homes. *TreeHugger*. Retrieved from <http://www.treehugger.com/corporate-responsibility/expanding-desert-falling-water-tables-and-toxic-pollutants-driving-people-from-their-homes.html>
- Brown, L. R. (2011). *World on the Edge: how to prevent environmental and economic collapse*. Ch. 3. Eroding soils and expanding deserts. Retrieved from http://www.earth-policy.org/images/uploads/book_files/wotebook.pdf
- Carlson, B. (December 16, 2013). Waterless world: China's ever-expanding desert wasteland. *MINNPOST*. Retrieved from <https://www.minnpost.com/global-post/2013/12/waterless-world-china-s-ever-expanding-desert-wasteland>
- Carrington, D. (December 16, 2010). Desertification is greatest threat to planet, expert warns. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2010/dec/16/desertification-climate-change>
- Carroll, R. (March 7, 2015). California farmers resign themselves to drought: 'Nobody's fault but God's'. *The Guardian*. Retrieved from <http://www.theguardian.com/us-news/2015/mar/07/california-drought-farmers-drilling-groundwater-environment>
- David Suzuki Foundation. (April 4, 2013). Desertification is too important for Canada to ignore. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2013/04/desertification-is-too-important-for-canada-to-ignore/>
- Endo, T. et. al. Status and causes of soil salinization of irrigated agricultural lands in Southern Baja California, Mexico. *Applied and Environmental Soil Science*. (2011). DOI: [10.1155/2011/873625](https://doi.org/10.1155/2011/873625)
- Environment News Service. (April 2, 2013). Canada turns its back on International Drought Treaty. Retrieved from <http://ens-newswire.com/2013/04/02/canada-turns-its-back-on-international-drought-treaty/>
- ESRD – Alberta Environment and Sustainable Resource Development. *Soil acidification*. Retrieved from <http://aep.alberta.ca/lands-forests/land-industrial/education/chemical-land-quality/soil-acidification.aspx>
- European Commission, *European Soil Portal – Soil Data and Information Systems*. Soil themes – soil salinization. Retrieved from <http://esdac.jrc.ec.europa.eu/>
- Hopkin, M. (June 16, 2005). Deserts set to expand. *Nature*. Retrieved from <http://www.nature.com/news/2005/050616/full/news050613-7.html>
- Hipolito, M. C. Soil acidification: myth or reality? *AgriCultures Network*. Retrieved from <http://www.agriculturesnetwork.org/magazines/global/finding-common-ground/soil-acidification-myth-or-reality>
- ISIS. (March 30, 2010). China's soils ruined by overuse of chemical fertilizers. Retrieved from <http://www.i-sis.org.uk/chinasSoilRuined.php>
- King, E. (April 17, 2013). Desertification crisis affecting 168 countries worldwide, study shows. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2013/apr/17/desertification>
- Manitoba, Canada, *Agriculture, Food and Rural Development*. (January 23, 2014). Soil management guide: soil salinity. Retrieved from <https://www.gov.mb.ca/agriculture/environment/soil-management/soil-management-guide/soil-salinity.html>
- McKie, R. (September 28, 2014). Floods, forest fires, expanding deserts: the future has arrived. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/sep/28/climate-change-has-arrived-global-warming-icecaps-deserts>
- Montana State University. (2003). The basics of salinity and sodicity effects on soil physical properties. Retrieved from <http://waterquality.montana.edu/energy/cbm/background/soil-prop.html>
- Oh, N-H. and Richter, D. D. (November 2004). Soil acidification induced by elevated atmospheric CO₂. *Global Change Biology*, Volume 10, Issue 11, 1936-1946. DOI: [10.1111/j.1365-2486.2004.00864.x](https://doi.org/10.1111/j.1365-2486.2004.00864.x)
- Queensland Government. *Department of Environment and Resource Management*. (October 1, 2013). Impacts of salinity. Retrieved from <https://www.qld.gov.au/environment/land/soil/salinity/impacts/>
- Wang, D. et. al. (2010). Effect of agricultural practices on soil acidification in acid precipitation area. *19th World Congress of Soil Science, Soil Solution for a Changing World*.

7) The loss and decline of the global forests

The world's forests cover only about 2% of the total land surface of the earth, but they contain over 40% of all life forms. World-wide forests provide a habitat for millions of species, from large creatures to microorganisms. As a habitat for countless life forms, deforestation has a catastrophic effect on forest biodiversity. The tropical rainforests have the deepest gene pool, which is essential for the resilience of all of life. It is estimated that 50,000 species are lost each year and that at the present rate more than a quarter of all species may be gone by 2050. In Central Africa, forest animals play an important role in the dispersal of seeds and their loss slows down the recovery of damaged forests. Most of all, forests provide a way of life for millions of people. They have deep social, cultural and spiritual meaning for millions of people. For many forest people they are the ancestral grounds with sacred places and burial grounds. For thousands of years indigenous people have lived in harmony with the forests. The forests have given them an abundance of food, materials and medicines. Their knowledge has been passed on from generation to generation through the elders and shamans. New species of animals, birds and plants are discovered every year. The healing properties of thousands of plants are still unknown to the western world and stand to be lost forever in the coming decades as shamans and medicine women die out and forest people are displaced or killed.

According to the *National Indian Foundation (FUNAI)* and *Survival International*, there are 67 different uncontacted tribes just in Brazil and 44 in Papua New Guinea. Worldwide there may be over a 100 uncontacted tribes, many of which are in danger of dying out from disease and extermination. The majority will not survive the onslaught of 'civilization', that is, loggers and rangers with bulldozers and guns, developers of dams, prospectors for oil, gas and minerals. With their disappearance, the rich diversity of life and their cultures will be lost forever. Watching many of the documentaries on the lives of indigenous people and their cultures as well as more recently contacted tribes presents a stark contrast to what we call 'development' and 'progress'. *Cultural Survival* and other organizations provide regular updates of their struggles. There are campaigns to save tigers, elephants, whales, polar bears, caribou, gorillas, orangutans, and many other creatures; and rightly so because they all play an essential role in the ecosystem. But there are very few campaigns to save the over one hundred uncontacted tribes and to protect the lands of other indigenous tribes.

The tropical, temperate and boreal forests manifest an astounding wealth of life and an abundance of materials and foods that is contained in them. Even a general acquaintance with the forests makes it abundantly clear that they cannot be reduced to a stand of two-by-fours, or so many cubic meters of pulp and paper, or so many tonnes of wood pellets for Europe, or, more recently in view of climate change, so many stands of carbon stocks that can be traded. Only a one-dimensional view sees nothing but their economic value, and even then, only a part of their potential economic worth. Nor can forests be reduced to complex bio-chemical ecosystems. They are certainly miracles of intricate and interrelated ecological systems that are part of large geophysical and atmospheric forces. But they are so much more. Forests are total, integral phenomena that function in all the dimensions of life. At international and scientific conferences there is a general embarrassment and taboo to even allude to or mention these inseparable aspects of forests. Even words like 'eco services' and the 'recreational and social value' of forests can easily become reductionistic concepts that distort the total intrinsic significance forests have.

The role of the world's forests in the ecosystem and climate change

Within the total ecosystem the world's forests play a pivotal role. Along with the oceans and land, the global forests are a significant part of the 'lungs of the earth'. Through the processes of photosynthesis and evaporation they absorb carbon dioxide from the atmosphere and emit oxygen and water vapor. They are an important part of the total oxygen (around 20%) and the global water and carbon cycles. Forest canopies reflect and absorb the light and heat from the atmosphere, especially in the tropical rainforests. Through a constant process of transpiration and evaporation they generate more rainfall, hold moisture and cool the air. Millions of liters of water are daily pumped into the air through

this process of transpiration. Most of the moisture in the Amazon is re-cycled and remains in the forest ecosystem. Even during heavy rainfalls they regulate the flow of water, preventing rapid run-offs, reducing the severity of floods, erosion, mudslides and droughts. They regulate local climate and the flow of rivers, cleaning and purifying the water. In short they maintain and conserve the entire forest basin and ecosystems. The Amazon is an important source of water that is nourished and protected by the forest. One-fifth of the world's fresh water is found in the Amazon Basin. The same holds true for the Congo Basin and the South Asian tropical forests, peatlands and mangroves.

If left undisturbed, the forests absorb large amounts of CO₂ from the atmosphere. The foliage, trunks, roots and soil of the tropical forests are a part of the world's primary reservoir of carbon, storing an estimated 600 billion tons of carbon. The above-ground storage of carbon in trees is estimated at 50% in South America, 26% in Asia and 25% in Africa. The northern boreal forests add their part. When forests are cut down carbon and other greenhouse gases are released into the air. The clearing and burning of tropical forests, the peatlands and mangroves releases more than 3.7 billion tons of CO₂ into the atmosphere each year. The continuing deforestation and degradation of the forests results in a double loss, more emissions and less absorption of CO₂. This constitutes about 14-21% or more of human generated greenhouse gases. Deforestation is the third largest contributor to greenhouse gases after oil, gas and coal.

Bunnell, F. L. and Dunsworth, G. B. (2009). *Forestry and biodiversity: Learning how to sustain biodiversity in managed forests*. UBC Press, Vancouver. Retrieved from <http://www.ubcpres.ca/books/pdf/chapters/2009/ForestryandBiodiversity.pdf>

Butler, R. A. (December 17, 2014). Amazon peatlands store mega carbon. *Mongabay*. Retrieved from <http://news.mongabay.com/2014/12/amazonian-peatlands-store-mega-carbon/>

Foster, J. M. (July 15, 2011). As 'sinks' for carbon, forests are even mightier than assumed. *New York Times*. Retrieved from http://green.blogs.nytimes.com/2011/07/15/as-carbon-sinks-forests-are-even-mightier-than-assumed/?_r=0

Hume, M. (July 8, 2014). Forestry groups warns of climate change impact on B.C.'s ecosystems. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/british-columbia/forestry-groups-warn-of-climate-change-impact-on-bcs-ecosystems/article19521698/>

Phillips, A. (September 11, 2014). Trees are dying from 'no obvious cause' in Rocky Mountains, report says. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/09/11/3566195/rocky-mountain-trees-risk/>

Priyadrshi, N. (August 30, 2009). No forest no oxygen. *The Peoples Voice*. Retrieved from <http://www.thepeoplesvoice.org/TPV3/Voices.php/2009/08/30/no-forest-no-oxygen>

WWF. (2014). Canadians must choose environment and economy for strong future. Retrieved from <http://www.wwf.ca/?10841/WWF-Canadians-must-choose-environment-and-economy-for-strong-future>

WWF. Living Planet Report 2012: Biodiversity, biocapacity and better choices. Retrieved from <http://www.worldwildlife.org/publications/living-planet-report-2012-biodiversity-biocapacity-and-better-choices>

Deforestation; the threat to global forests

Throughout history few societies have been able to preserve and manage their forests in an ecologically sustainable way. The world's forests are primarily a history of deforestation, whether in Europe, the Middle East, China, Asia, or any other continent. Most often the clearing of forests was prompted by population increases and the subsequent need for more farm land. The only difference today is that the destruction and decline is much more global, rapid and extensive. Generally forests were not appreciated for their essential value and richness. It seems that only indigenous people knew how to live within and with the forests, clearing small patches at a time and letting them regenerate. Some of Canada's First Nations followed this practice.

The world's total forest area has been reduced to approximately 4 billion hectares from 5 billion in the 1900's. Deforestation globally continues at an alarming rate, especially the primary forests are rapidly declining. Some predict that by 2050 a large portion of the Amazon forests will be lost due to logging and clearing and to subsequent warming, drought and dieback. As the Amazon is weakened it may reach a tipping point. Once degraded, tropical forests rarely recover; they become wastelands or shrub forests. Asia has lost about 90% of its forests and so has west Africa. Madagascar has lost more than two thirds of its rainforests and more to go. Indonesia will have depleted its forests within the next 10 years and Papua New Guinea in about 15 years. After depleting Borneo, companies moved on to Sumatra, Myanmar, Papua New Guinea and Malaysia. Soon that will only leave the Amazon and the Congo Basin for

prized hardwoods. The Amazon basin could lose 60% or more of its forest by 2030 and be changed to agricultural land and pasture for livestock.

Legal and illegal roads penetrate deeper and deeper into the rainforests. Small farmers migrate along these roads in search of land. They claim plots of land to clear and plant crops. After a few years rains and erosion deplete and wash away the soil. Crop yields start to diminish. Then they convert the degraded land to pasture for cattle and clear additional land for crops. In time these small farmers abandon their lands or sell them to large cattle holders, who consolidate these plots into large pastures. The small farmers move on and the process starts all over again. The Brazilian government has actively promoted this practice. This practice contains discontent and protests by small farmers. Sustainable or selective logging does not work in the Amazon, even if it could be enforced. At some distance from the roads selective logging is replaced by clear cutting. Selective cutting blazes a trail for deforestation. There have been naive responses by the UN and other organizations about sustainable forestry in tropical forests. It would take great care in these fragile ecosystems. Most of all, any 'sustainable' practices would not be viable for large logging companies. Even in the Boreal Forests in Canada these practices are seldom followed.

The Congo Basin contains the second largest area of rainforests and spreads across several countries, from the Republic of Congo, Congo-Brazzaville, Cameroon, Central African Republic, Gabon and Guinea. The Congo River with its tributaries is the second largest river in terms of the amount of water it carries. It is responsible for over 75% of the rainfall for its forests; it is almost like a closed circuit. Deforestation would drastically alter the local climate and rainfall. It would erode the soils and affect the flow of the water. It is home to countless species of mammals, birds and plants. New species are constantly being discovered. There are millions of people with over 250 indigenous groups that depend on these forests for their existence. They rely on the natural resources of the forests and cultivation, rotating between clearing small forest spaces, cultivation, abandonment, fallow and re-forestation, followed by re-clearing.

Indonesia, spread over thousands of islands, large and small, contains the third largest area of rainforests. It too is home to countless species of mammals, birds, insects and plants and millions of indigenous people. Many species are in danger of extinction. The customary rights of the indigenous people are constantly violated, as a result of land grabbing and illegal logging. At the present rate of deforestation Indonesia will lose its primary forests within the next decade or so. In south east Asia and Indonesia the forests are mainly cleared for palm oil plantations. Some coastal areas are cleared for shrimp farming. Almost everywhere mining, dams for hydro-electric power, access roads, etc. create large-scale disturbances. Most of these developments seldom benefit local people, on the contrary, they often face dislocation, violence and the destruction of their home-land.

The loss of trees which anchors the soil causes widespread erosion. Large amounts of topsoil are lost when forests are cleared. After heavy rains the soil with its nutrients is carried away downstream to local creeks and rivers, clogging reservoirs and irrigation canals. The silt raises river beds and creates sandbars that make navigation more difficult. Mangroves forests are damaged by siltation which affects local fisheries and coral reefs. Many countries lose an astonishing amount of topsoil every year as a result of deforestation. Disappearing forests change the weather systems, not only locally but across continents. The loss of many global forests and on-going de-forestation is a profound tragedy. It will have a devastating effect on global warming and will lead to countless climate refugees and human rights violations. Reforestation and afforestation (planting trees on degraded land) cannot begin to make up for the loss of primary forests and the richness they contain. Planting trees in itself is seldom sufficient; it needs to be an integral part of a total ecological restoration. They can play an important part in mitigation of global warming and slowing down climate change, but they cannot make up for the loss of tropical rainforests.

Adams, E. E. (August 31, 2012). World forest area still on the decline. *Earth Policy Institute*. Retrieved from http://www.earth-policy.org/indicators/C56/forests_2012

Anderson, J. (March 2, 2014). 5 overlooked deforestation hotspots. *Global Forest Watch*. Retrieved from <http://www.globalforestwatch.ca/node/195>

Boucher, D. et al., (June, 2011). "The root of the problem –drivers of deforestation; what is driving tropical deforestation today?", *Union of Concerned Scientists*. Retrieved from, http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/UCS_RootoftheProblem_DriversofDeforestation_FullReport.pdf

Butler, R. (July 22, 2012). Atmospheric role of forests: rainforests and climate. *Mongabay*. Retrieved from <http://rainforests.mongabay.com/0907.htm>

Butler, R. A. (April 10, 2014). Forests in Indonesia's concession areas being rapidly destroyed. *Mongabay*. Retrieved from <http://news.mongabay.com/2014/04/forests-in-indonesias-concession-areas-being-rapidly-destroyed/>

Butler, R. A. (January 2, 2015). Rainforests: 10 things to watch in 2015. *Mongabay*. Retrieved from <http://news.mongabay.com/2015/01/rainforests-10-things-to-watch-in-2015/>

Butler, R. A. (January 13, 2015). Deforestation climbing – along with fears – in the Amazon. *Mongabay*. Retrieved from <http://news.mongabay.com/2015/01/deforestation-climbing-along-with-fears-in-the-amazon/>

Carrington, D. (November 20, 2015). Half of tree species in the Amazon at risk of extinction, say scientists. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/nov/20/half-tree-species-amazon-risk-extinction-study>

Cultural Survival. (January 25, 2016). Campaign Update – Cameroon: Herakles Farms, champions of illegal deforestation. Retrieved from <https://www.culturalsurvival.org/news/advocacy/3060>

Cunningham, M. (April 21, 2010). Deforestation and poverty in sub-Saharan Africa. *World Forestry*. Retrieved from <http://www4.ncsu.edu/~mtcunnin/World%20Forestry/>

Davies, C. (October 29, 2015). Deforestation 'may have started west Africa's Ebola outbreak'. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/oct/29/deforestation-might-have-started-west-africas-ebola-outbreak>

EcoWatch. (September 8, 2014). 'Out of Fashion' Campaign: preserving the world's endangered forests. Retrieved from <http://ecowatch.com/2014/09/08/worlds-endangered-forests-need-help/>

FAO. (2010). Global Forest Resources Assessment 2010, Main Report. Retrieved from <http://www.fao.org/docrep/013/i1757e/i1757e.pdf>

FAO. (2012). State of the World's Forests 2012. Retrieved from <http://www.fao.org/docrep/016/i3010e/i3010e00.htm>

FAO. (2014). State of the World's Forests: Enhancing the socioeconomic benefits from forests. Retrieved from <http://www.fao.org/forestry/sofo/en/>

Gray, I. (October 2012). Pollution Effects, on Humans, Animals, Plants and the Environment. *Tropical-Rainforest-Animals*. Retrieved from <http://www.tropical-rainforest-animals.com/pollution-effects.html>

Gray, I. (November 2007). Ecuador rainforest home to one of the worst cases of oil production ever. *Tropical-Rainforest-Animals*. Retrieved from <http://www.tropical-rainforest-animals.com/Ecuador-Rainforest.html>

IRIN. (June 24, 2009). Uganda: Environmentalists point to worrying pace of deforestation. Retrieved from <http://www.irinnews.org/report/84972/uganda-environmentalists-point-worrying-pace-deforestation>

Oxfam Case Study. (September 2011). The New Forests Company and its Uganda plantations. Retrieved from <https://www.oxfam.org/en/research/new-forests-company-and-its-uganda-plantations-oxfam-case-study>

Phnom Penh Post. (December 31, 2013). Campaign update – Cambodia: Images show forest devastation in 2013. *Cultural Survival*. Retrieved from <https://www.culturalsurvival.org/news/campaign-update-cambodia-images-show-forest-devastation-2013>

Rainforest Action Network. (April 2, 2014). Conflict Palm Oil in Practice, Exposing KLK's role in rainforest destruction, land grabbing and child labor. Retrieved from http://www.ran.org/conflictpalmoil_in_practice_exposing_klks_role_in_rainforest_destruction_land_grabbing_and_child_labor

Robertson, J. (September 17, 2015). Deforestation surges in Queensland ahead of crackdown on land clearing. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/sep/17/deforestation-surges-in-queensland-ahead-of-crackdown-on-land-clearing>

Rocha, J. (September 15, 2014). Drought bites as Amazon's 'flying rivers' dry up. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/sep/15/drought-bites-as-amazons-flying-rivers-dry-up>

Rudel, T. (July 22, 2013). The national determinants of deforestation in sub-Saharan Africa. *The Royal Society: Biological Sciences*. Retrieved from DOI: 10.1098/rstb.2012.0405

Science Daily. (January 6, 2009). Amazon deforestation trend on the increase. Retrieved from <https://www.sciencedaily.com/releases/2009/01/090104093542.htm>

Watts, J. (November 27, 2015). Amazon deforestation report is major setback for Brazil ahead of climate talks. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/nov/27/amazon-deforestation-report-brazil-paris-climate-talks>

WWF. (June 17, 2014). Virunga oil permits should be cancelled, UNESCO rules. Retrieved from http://wwf.panda.org/wwf_news/?223716/Virunga-oil-permits-should-be-cancelled-UNESCO-rules%22

WWF. (July 4, 2013). Pulp and paper giant dodges deforestation probe. Retrieved from http://www.wwf.org.uk/about_wwf/press_centre/?unewsid=6734

Forest fires, diseases and pests

Warmer temperatures and compromised forests lead to drying out and make forests vulnerable to wild fires. Millions of acres are lost each year. Indonesia, Brazil, Columbia, Central America, Australia, Western United States, and many other places have experienced devastating fires. About 1% of the global forests are consumed by fire each year. Forest fires, mostly wild fires, tend to be underreported. Large fires create extensive clouds of smoke, carrying pollution and soot particles across continents. As the average temperature rises forest fires will increase and start earlier.

Insect pests and diseases cause a great deal of damage, especially in temperate and boreal forests. Worldwide, 35 million hectares are damaged or lost each year from pests, diseases and invasive species. In the western US and Canada 11 million acres of forest have been lost since 1990. Deforestation can have an impact on the emergence of tropical diseases and outbreaks of new diseases, especially as a result of unknown microorganisms. Changes in land formation create stagnant ground pools, puddles from heavy machinery that tear up the earth, drainage ditches and reservoirs

provide breeding grounds for mosquitoes and snails and bring people in closer contact with contaminants. Malaria, which kills 1 to 2 million people each year, is a major threat to indigenous forest people who have little resistance against this disease and have no access to anti-malarial drugs. Climate change could expand the range of malaria-bearing mosquitoes and other diseases. Global travel adds even more to the dangers of infectious diseases. Many forest people that have had no contact with outside people are destined to die out. Government efforts will not be sufficient to protect them, since they do not take into account migrant settlers along logging roads and illegal logging that penetrate ever deeper into the rainforests. Many people are not aware how climate changes in many areas are giving rise to diseases and epidemics. Especially changes in temperature and rainfall affect the range of disease-bearing insects and the spread of certain diseases. More tropical diseases and outbreaks of new diseases may emerge with changing climates. Land alterations may also result in the rise of many emergent and resurgent diseases. With increased long distance air travel infectious diseases can more easily spread from tropical areas to more temperate countries.

Conclusion

Global forests are essential for human survival. The ongoing deforestation and degradation will contribute significantly to global warming each year. In turn global warming and climate change will deeply affect the health of the forests. The annual loss of forest biodiversity, both animals and plants, will accelerate the decline of forests. The development of large dams will increasingly disrupt hydrological cycles and micro climates. Forest fires and insects will further decimate forests worldwide and diseases will be able to rise and spread more easily with the fragmentation of the forests. Efforts to halt the disappearance and decline of the forests to date are too limited and piecemeal. Governments and international bodies seem powerless to stop global deforestation and degradation. It is an alarming and discouraging picture. There is no lack of basic structural and effective solutions as the many small pilot projects demonstrate as well as the local village-managed forests. There is a collective ideological blindness that prevents taking drastic measures to stop deforestation and protect the remaining forests.

8) The loss and decline of species; biodiversity and climate change

During the last decades the loss and decline of a great variety of species has increased dramatically. The last great extinction, the 5th, was some 65 million years ago when the dinosaurs were killed off along with many other species. It took millions of years to recover the level of species that existed before. Since the industrial revolution, and particularly during the last decades, this rate has increased to a 100 or more species per million. Or, as it has been put, from 1850-1950 we lost 1 species a year; in 1989 1 per day; in 2000 1 per hour; in 2013 1 every 20 minutes or 3 per hour. If this rate continues, 50% to 90% of all species will die off during this century. In total about 1.7 million species have been recorded with many new species being discovered on a regular basis, especially in the tropical forests. The tropical ecosystems are also the most threatened by deforestation and climate change. The pace of change is faster than what has been anticipated. Not surprisingly many authors believe we are in the early stages of the sixth great extinction; this time a human-made extinction.

There are about 950.000 known insect species, 270.000 plant species, 72.000 fungi species, 19.000 fish species, 10.500 reptile and amphibian species, and 4000 mammalian species and other micro-organisms. These numbers give us an approximate base line that helps us understand the extent of the present losses. Current losses are estimated to be about 30.000 species a year, which means that in 10 years about 300.000 species could be on the brink of extinction. Given our current land use there will be a 20% loss in the global biodiversity by 2020 and a 40% loss by 2050, and so on. For individual species that means that during this century 50% of amphibians could be lost, 21% of all animals, 28 % of reptiles, 70% of plant life, 13% of all birds, 37% of fresh water fish, 33% of reef building corals, 30% of conifers; 296 primate species are at risk and 114 are close to extinction and in Europe and North America about 25% of the honey

bees are lost each year. These percentages differ from region to region. There are 50.000 species on the Red List of endangered species and 17.000 species that face immediate extinction. When species are lost or on the brink of extinction, entire ecosystems are unbalanced and in danger of decline. Each species plays its own irreplaceable role in the total ecosystem. When top predators are lost, species lower on the food chain multiply and take over. When native plants die off, invasive species take their place and entire habitats are degraded. The living planet is ill.

For example, when African and Asian elephants are killed by poachers for their ivory, it is not only about the loss of these magnificent animals, but about the loss of the role they play in their wide-ranging territory. It is estimated that as many as 20.000 elephants are poached each year; 30.000 in 2012. They play a crucial role in their ecosystems as 'forest gardeners', opening up woodlands as they feed and roam, creating clearings and regenerating the forest. They help maintain tree variety and distribute seeds over long distances in nutrient rich and protective dung. They are an essential part of a complex and varied ecosystem. That means that every year there are at least 20.000 less 'forest gardeners' with all its detrimental effects on the total environment. Their seed dispersing role will be taken over by wind dispersed seeds, changing the entire ecosystem. At this rate, it is estimated that elephants could become extinct in the next few decades. This is only one example of countless other ones. Illegal trade not only in ivory from elephants and rhinos, but also in exotic animals, birds, fish, reptiles, animal parts and skins is a lucrative multi-billion-dollar business. Half a million python skins alone are exported each year from South-East Asia. Given the high numbers of animals and large amounts of money involved such an extensive illegal trade can only happen with the complicity of many people and officials.

These losses will continue to have a profound effect on the ongoing functioning of ecosystems. As we have already highlighted in the previous sections, many major forest, river, wetlands, great plains, desert, coastal, ocean, and Arctic communities are in decline, as many as 15 out of 24 major biomes. As species disappear ecosystems that depend on a large number of species will begin to degrade. With the disappearance of life forms there is a corresponding threat to the dispersal of seeds, pollination, insect control, nutrient cycling, soil formation, fertility, purification of water, decomposition of waste products, cycling of carbon, nitrogen and other basic elements, maintenance of the depth and extent of the gene pool, etc. Ecosystems are living structures that have evolved over millions of years and have provided ideal conditions for human life. The weakening and tearing of the fabric of life will lead to irreversible changes in these systems. It raises the question of ecological tipping points. When will the decline of biodiversity along with rising temperatures, depletion of fresh water, acidification of oceans, disappearance of wetlands, loss of topsoil, degrading of dry lands, dust storms, air pollution, etc. lead to a sudden breakdown of earth's life systems? The sixth great extinction?

The decline in biodiversity will directly affect human life as well, particularly the loss of the genetic diversity of crops and livestock and many locally adapted varieties. Presently agriculture depends on a restricted gene pool of a few dozen species of domestic animals, a few hundred crop plants and a dozen or so major timber species. Globally industrial agriculture depends on about 20 plant species for staple foods. Diseases, pests and epidemics can quickly wipe out an entire species of domestic plants or animals, which will put the world's food supply in jeopardy. Degraded ecosystems will also result in greater transmission to the human population of infectious diseases as natural barriers break down. The causes of these threats to the loss of biodiversity, our food supply and human health are clear and well-known: loss and destruction of habitats and watersheds, damming of most of the major rivers, deforestation particularly of the tropical forests, destruction of mangrove forests, overfishing, disruption of migration routes, chemical pollution of the environment, unplanned and reckless urbanization, exploitation of resources, burning of carbon fuels, etc. There is a giant death sentence hanging over much of the environment and humankind. The human race is on 'extinction death row'; a coming global ecocide is threatening. This time the annihilation of many life systems will not be caused by a meteorite striking the earth; it will be of our own doing, which means that it can also be changed by humans, at least to a large extent.

So far all the international organizations, conventions, and agreements have not been able to bring about a fundamental change or much of a slow-down in environmental deterioration. Dozens and dozens of extensive and challenging reports have not resulted in a major change in direction. Ambitious commitments by a majority of governments have not been implemented, or at most, only piecemeal. The targets that have been set are not being met. World leaders are incapable of real solutions; they are hard-wired into a system of unlimited economic growth, material development, and creating wealth for a small minority of the world's population. The 'political will' is deeply committed to business-as-usual, requiring global domination and integration. This brings us to the next chapters. Quite concretely, how does the present approach to mining, agriculture, forestry, fishing, manufacturing, transportation, and building, destroy the earth, increase poverty and violate human rights? What ideology drives these developments? What are the alternatives? There is a wealth of alternative approaches based on very different convictions about life, the healing of the planet and human well-being.

BBC Nature, Big five mass extinction events. Retrieved from http://www.bbc.co.uk/nature/extinction_events

Bradley, J. et.al. Biodiversity loss and its impact on humanity. *Nature*. 486, p. 59-87. June 7, 2012. doi:10.1038/nature11148

Campos-Arceiz, A. and Blake, B. Megagardeners of the forest – the role of elephants in seed dispersal. *Acta Oecologica*. February 2011. Retrieved from <http://faculty.washington.edu/timbillo/Readings%20and%20documents/CO2%20and%20Forests%20readings/Campos%20Arceiz%202011%20Elephant%20seed%20dispersal.pdf>

Carrington, D. (March 8, 2013). Poachers drive wildlife to brink. *The Guardian*. Retrieved from <http://www.pressreader.com/UK/the-guardian-weekly/20130308>

Carrington, D. (September 30, 2014). Earth has lost half of its wildlife in the past 40 years, says WWF. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/sep/29/earth-lost-50-wildlife-in-40-years-wwf>

Ceballos, G. et.al. Accelerated modern human-induced species losses: entering the sixth mass extinction. *Science Advances*, Vol. 1, No. 5, June 19, 2015. Retrieved from <http://advances.sciencemag.org/content/1/5/e1400253>

Center for Biological Diversity, The extinction crisis. Retrieved from http://www.biologicaldiversity.org/programs/biodiversity/elements_of_biodiversity/extinction_crisis/

Chapin III, F.S. et.al. Consequences of changing biodiversity. *Nature*, 405, 234-242, May 11, 2000. doi:10.1038/35012241

Convention on Biological Diversity (CBD). (October 12, 2014). Global Biodiversity Outlook 4. Retrieved from <https://www.cbd.int/gbo4/>

David Suzuki Foundation. (July 12, 2013). State of the world's birds bleak but not hopeless. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2013/07/state-of-the-worlds-birds-is-bleak-but-not-hopeless/>

Diaz, S. et.al. Biodiversity loss threatens human well-being. *PLOS Biology* 4 (8), August 15, 2006. doi.org/10.1371/journal.pbio.0040277

Ecowatch. (July 27, 2012). Growing threats to biodiversity 'Arks'. Retrieved from <http://ecowatch.com/2012/07/27/biodiversity-arks/>

FAO, AGP, Biodiversity and ecosystem services. Retrieved from <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/biodiversity/en/>

FAO, Biodiversity: Microbes and Invertebrates. Retrieved from <http://www.fao.org/biodiversity/components/microbes-and-invertebrates/en/>

FAO and Platform for Agrobiodiversity Research. (2010). Biodiversity for food and agriculture. Retrieved from http://www.fao.org/fileadmin/templates/biodiversity_paia/PAR-FAO-book_lr.pdf

Hance, J. (April 25, 2014). Elephants: the gardeners of Asia's and Africa's forests. *Mongabay*. Retrieved from <https://elephantconservation.org/sample-press-release-1/>

Hooper, D.U. et.al. (June 7, 2012). A global synthesis reveals biodiversity loss as a major driver of ecosystem change. *Nature*, 486, 105-108. doi:10.1038/nature11118

IPCC, *Climate Change 2007, Working Group II: Impacts Adaptation and vulnerability*, 4.4.11. Global synthesis including impacts on biodiversity. Retrieved from https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4_wg2_full_report.pdf

IUCN. (July 2, 2009). Wildlife crisis worse than economic crisis – IUCN. Retrieved from <http://www.iucn.org/?3460/Wildlife-crisis-worse-than-economic-crisis-IUCN>

IUCN. (July 2013). The IUCN Red List of Threatened Species: Strategic plan 2013-2020. Retrieved from http://www.iucnredlist.org/documents/red_list_strategic_plan_2013_2020.pdf

Jowitz, J. (March 7, 2010). Human driving extinction faster than species can evolve, say experts. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2010/mar/07/extinction-species-evolve>

Lopez-Pujol, J. et.al. Plant diversity in China: richly varied, endangered, and in need of conservation. *Biodiversity and Conservation*. 15, p. 3983-4026, 2006. doi: 10.1007/s10531-005-3015-2

Max Paris. (June 20, 2013). 1 in 8 bird species threatened with extinction: Canada's birds in better shape than most, study says, but situation still dire. *CBC News*. Retrieved from <http://www.cbc.ca/news/technology/1-in-8-bird-species-threatened-with-extinction-1.1359121>

Millennium Ecosystem Assessment Report, *World Ecosystem Assessment*. (2005). Ecosystems and human well-being: biodiversity synthesis. Retrieved from <http://www.unep.org/maweb/documents/document.354.aspx.pdf>

Monbiot, G. (October 1, 2014). It's time to shout stop on this war on the living world. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/georgemonbiot/2014/oct/01/george-monbiot-war-on-the-living-world-wildlife>

National Science Foundation. (May 2, 2012). Ecosystem effects of biodiversity loss rival climate change and pollution. Retrieved from https://www.nsf.gov/news/news_summ.jsp?cntn_id=124016

NRDC. (August 19, 2014). Save African Elephants. Retrieved from <http://savetheelephants.org/>

Pappas, S. (March 2, 2011). Humans on verge of causing 6th Great mass extinction. *Live Science*. *Rainforest Conservation Fund*, 2014, 2, *Biodiversity*, 4) Consequences of biodiversity loss. Retrieved from <http://www.livescience.com/13038-humans-causing-sixth-mass-extinction.html>

Peterson, C. (February 23, 2015). "Connecting the dots between development, biodiversity, and climate change", *Climate Change Policy & Practice*. Retrieved from, <http://climate-i.isd.org/guest-articles/connecting-the-dots-between-development-biodiversity-and-climate-change/>

Radford, T. (June 24, 2015). "Global warming is accelerating loss of species", *Climate News Network*. Retrieved from, <http://climatenewsnetwork.net/global-warming-is-accelerating-loss-of-species/>

Shah, A. (January 19, 2014). Loss of biodiversity and extinctions. *Global Issues*. Retrieved from <http://www.globalissues.org/article/171/loss-of-biodiversity-and-extinctions>

Spray, S. L. & McGlothlin, K. L. eds. (2003). *Loss of Biodiversity*. Rowman & Littlefield.

Tilman, D. (May 11, 2000). Causes, consequences and ethics of biodiversity. *Nature*. 405, 208-211. doi:10.1038/35012217

Tittensor, D. et.al. A mid-term analysis of progress toward international biodiversity targets. *Science*. Vol. 346. No. 6206 pp. 241-244. doi: 10.1126/science.1257484

Vaughan, A. (October 6, 2014). UN biodiversity report highlights failure to meet conservation targets. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2014/oct/06/un-biodiversity-report-failure-meet-conservation-targets>

WHO. Climate change and human health: biodiversity. Retrieved from <http://www.chgeharvard.org/category/biodiversity-and-human-health>

WHO. (2003). WHO guidelines on good agricultural and collection practices (GACP) for medicinal plants. Retrieved from <http://apps.who.int/iris/bitstream/10665/42783/1/9241546271.pdf>

WWF. African elephants. Retrieved from <http://animals.nationalgeographic.com/animals/mammals/african-elephant/>

WWF. (September 1, 2000). Speed kills: rates of climate change are threatening biodiversity. Retrieved from <http://wwf.panda.org/?2143%252FSpeed-Kills-Rates-of-Climate-Change-are-Threatening-Biodiversity>

WWF and *Equilibrium Research*. (2010). The contribution of protected areas to human health. Retrieved from http://wwf.panda.org/wwf_news/?191201/Human-health-linked-directly-to-forest-health

WWF. (2014). Living Planet Index. Retrieved from <http://www.livingplanetindex.org/home/index>

Zoological Society of London. (August 31, 2012). Invertebrates on the brink. Retrieved from <https://www.zsl.org/conservation/news/invertebrates-on-the-brink>

Zalasiewicz, J. (June 21, 2015). The earth stands on the brink of its sixth mass extinction and the fault is ours – the rate at which vertebrate species are dying far exceeds the norm. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/jun/21/mass-extinction-science-warning>

ZSL together with WWF, IUCN, SSC. (2010). Evolution Lost: status and trends of the world's vertebrates. Retrieved from <https://portals.iucn.org/library/efiles/edocs/2010-057.pdf>

CHAPTER 3: The human factor; the violation of nature's and society's thresholds

Introduction

- a. Mining practices
- b. Agricultural practices
- c. Forestry practices
- d. Fishing practices
- e. Population Increase
- f. Some other aspects of the economy: a summary

Conclusion

Introduction

As stated in the introduction, there are two main areas of 'externalities', the environment and the social dimensions of life. The present economic system can only survive by excluding both of these areas of life from its consideration. Given this exclusion, my *basic premise is that within the present economic context, corporations cannot operate in a socially just and ecologically sustainable way. The market does not allow it.* In the next two chapters we will explore in some detail the reasons for this inability. The majority of the large companies each year add more CO₂ and other gases to the environment, pollute the water and soil and exploit workers. Even in the developed countries the gap between the wealthy and the rest of the population continues to grow. The main purpose of the following sections in this chapter is to highlight what happens when the environmental and social 'externalities' are not taken into account. Sometimes there are token gestures and at other times partial considerations that do not change the basic economic approach. The one-sided pursuit of economic development at the expense of everything else leads to ecological disintegration, social injustice and the dislocation of all of life. The *first section* will primarily focus on the environmental disintegration of global *mining* practices, the violation of human rights and the role of governments. The *second section* on the

agricultural industry will highlight corporate power in the food sector and its consequences for human health, world hunger and food sovereignty. The *third and fourth sections* on *forestry* and *fishing* will summarize the overwhelming effects of ongoing deforestation, illegal logging and overfishing. Only radical alternatives can stop this devastation of the world's forests and fish stocks. *Water management, transportation, pollution, waste, and diseases* are all reminders of what has already become evident earlier in our discussion.

a. Mining practices

- 1) Excluding the 'externalities' in mining
- 2) Mining practices and climate change
- 3) Nigeria and Ghana
- 4) Peru
- 5) Canada
- 6) Ecologically and socially just mining?
- 7) Other aspects of the mining industry
- 8) The driving force of neoliberal mining practices
- 9) Governing and the mining industry
- 10) Peoples Movements; international summits and forums

1) Excluding the 'externalities' in mining

There is no other range of economic activity that contributes as much to climate change and global warming as the energy sector and the burning of fossil fuels. Besides contributing the highest amount of CO₂ emissions, the extraction of carbon fuels and the mining of minerals contaminate the soil and the air, use and pollute large quantities of water, disturb vulnerable ecosystems and reduce biodiversity. In the process they often violate the rights of local communities and indigenous people. The environmental and social costs of their operations are basically treated as 'externalities' that are paid for by everyone and suffered by those most immediately involved. Adding more CO₂ and other gases to the environment affects all people in the world for decades to come. Global warming does not recognize national borders. No country is exempt from the effects of adding more GHG emissions to the atmosphere. What happens in the US, or China, or India, or Brazil affects all of us as well as our children and grandchildren. The extraction and burning of fossil fuels has become a global issue. Mining companies, among many other industries, and complicit governments are *a danger to humanity*; a danger to our well-being and our survival.

To remind ourselves of the urgency of our situation, most scientists, national and world energy organizations agree that we need *a radical decarbonisation* of our system of production and consumption. To accomplish such a reduction in carbon emissions, the International Energy Agency (IEA), Intergovernmental Panel on Climate Change (IPCC) and others have made it clear that we need to leave at least two-thirds to four-fifth of all our oil, gas and coal deposits in the ground. *This is a very minimum. In all our considerations of economic life that needs to be our startingpoint, whether the energy sector, large-scale agriculture, industrial forestry, international transportation, production of cement, building practices, etc.* To accomplish such a fundamental change in our approach to the supply and use of energy there are a host of *energy saving devices and methods* that could be developed on a large scale. There are many *technological innovations* that would make the extraction of *some essential minerals* less polluting. In a transition period anti-polluting devices on electrical power plants could buy some time for a massive development of renewable energy (see Chapter 11).

An essential part of such a change would be the *phasing out of all subsidies* to the energy sector by 2020, anywhere from 400 billion dollars a year and up, and using this money for the development of renewable energy and other energy

saving technologies and products. Such a radical decarbonisation is not wishful thinking or an illusion. Already there are many concrete suggestions and pilot programs on how to accomplish such a change from the production and use of fuel energy to renewables. There are many local, small-scale operations that can operate in a carbon neutral way and that do not damage the ecology of the land and watersheds. Such a drastic change in approach to life *does require adopting a very different vision and way of life; it would require a structural change* with regard to the entire economy (see Chapter 3 and 4). There is no global energy crisis. There may be increased demands for more and more energy in the coming decades, but it is a *pseudo crisis* generated by the present economic system of unlimited economic growth with its dependency on fossil fuel and the production of many unnecessary and disposable goods.

Energy Digital. (November 1, 2011). Renewable energy held back by fossil fuel subsidies – IEA. Retrieved from <http://oilprice.com/Energy/Energy-General/Renewable-Energy-Being-Held-Back-by-Fossil-Fuel-Subsidies-IEA.html>

EWEA. (February 4, 2013). Fossil fuel subsidies are ‘public enemy number one’ – IEA chief. Retrieved from <http://www.ewea.org/blog/2013/02/fossil-fuel-subsidies-are-public-enemy-number-one/>

The Tyee. (May 15, 2014). IMF pegs Canada’s fossil fuel subsidies at \$34 billion. Retrieved from <http://thetyee.ca/Opinion/2014/05/15/Canadas-34-Billion-Fossil-Fuel-Subsidies/>

UNEP. (2008). Reforming energy subsidies. Retrieved from http://www.unep.org/pdf/pressreleases/reforming_energy_subsidies.pdf

World Bank. (January 9, 2001). The challenge of reducing subsidies and trade barriers. Retrieved from <doi.org/10.1596/1813-9450-3415>

OILCHANGE. (November, 2015). Empty Promises: G20 subsidies to oil, gas and coal production. Retrieved from <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9958.pdf>

IRENA. (2015). Rethinking Energy: Renewable Energy and Climate Change. Retrieved from <http://www.irena.org/rethinking/default2015.aspx>

As a reminder of our environmental situation, presently the CO₂ emissions are at 400 ppm. To stabilize emissions at 450 ppm will require radical reductions in order to keep the atmosphere from rising above 2 degrees Celsius. To bring it back during the coming decades to 350 ppm will require even more reductions and changes. Many suggest we need to cut emissions by 40% by 2020 and at the very least by 80% by 2050. Since it is *the total accumulation* that counts, the sooner significant cuts are made during each of the decades following 2020, the better. Within the present economic set-up there is little hope that these targets will be met. Instead greenhouse gasses are projected to continue to rise by 2020. Canada and many other nations will not meet the targets they committed themselves to. Currently there is still a yearly increase in CO₂ emissions, adding to the cumulative amount of CO₂ in the atmosphere. Soon we may be reaching an average of 405 ppm. Given the present rate of increase and barring drastic changes, there will be a 40% growth in carbon emissions by 2050, which will lead to a rise in temperature of 4 to 6 degrees Celsius. The limit of safety is considered a rise of 2 degrees Celsius, anything above that level will be unbearable for most creatures, including humans. Yet some countries (Japan and Russia) are suggesting that any major decisions and commitments should be postponed till 2018 and 2020 to get all countries on board.

Canada has committed itself at Copenhagen to a reduction of 20% below 2006 GHG emissions. Given the present rate of reductions in 2014, Canada will only be halfway to that very minimal target, if at all. In 2010 some progress was made, primarily because of the recession and provincial actions. Now it looks like Canada will not only fail to reach that target but will actually increase its level of emissions, regardless of some fancy juggling of figures. The Auditor General in his 2010 report on *Adapting to Climate Change* noted that the federal government has no overall strategy to deal with climate change, even though it was mandated to develop such a integrated strategy. He stated that whatever progress has been made is totally inadequate and very limited. There is no adaptation program, for example, to deal with storm surges and rising sea levels in New Brunswick. Areas most at risk are Canada’s north, fisheries, forestry, ecosystems and human health. Funding to develop programs to deal with climate change has been reduced or not renewed. Current funding does not have the capacity to address the impacts of global warming. The attitude and lack of action on the part of the Canadian government reminds one of the Florida politicians. Canadian representatives will not fare well at the next international climate conferences in Paris in 2015. Unfortunately Canada will not be alone in failing to meet its emission reduction targets.

Before the Paris climate talks George Monbiot in an article in *The Guardian* (2015) made a tentative suggestion for adoption by world leaders with regard to fossil fuel extraction. He wrote,

“Scientific assessments of the carbon contained in existing fossil fuel reserves suggest that full exploitation of these reserves is incompatible with the agreed target of no more than 2C of global warming. The unrestricted extraction of these reserves undermines attempts to limit greenhouse gas emissions. We will start negotiating a global budget for the extraction of fossil fuels from existing reserves, as well as a date for a moratorium on the exploration and development of new reserves. In line with the quantification of the fossil carbon that can be extracted without a high chance of exceeding 2C of global warming, we will develop a timetable for annual reductions towards that budget. We will develop mechanisms for allocating production within this budget and for enforcement and monitoring.”

He concluded,

“If something of that kind were to emerge from Paris, it will not have been a total waste of time, and the delegates would be able to congratulate themselves on a real achievement rather than yet another false one. Then, for once, they would deserve their own applause.”

By now we know that the delegates did not adopt any resolutions to cut back on extracting fossil fuels. They endorsed market solutions and technological innovations for the processing and consumption of fossil fuels in order to reduce greenhouse gasses. (See the Postscript to the Paris Climate Agreement at the end.)

Anderson, M. (February 1, 2016). “Psst, Trudeau: IMF now pegs our fossil fuel subsidies at \$46 billion”, *The Tyee*. Retrieved from, <http://thetyee.ca/Opinion/2016/02/01/IMF-Fossil-Fuel-Subsidies/>
Council of Hemispheric Affairs, (June 11, 2014). “Canadian Mining in Latin America: exploitation, inconsistency, and neglect”. Retrieved from, <http://www.coha.org/canadian-mining-in-latin-america-exploitation-inconsistency-and-neglect/>
Feffer, J. (January 6, 2016). “The geopolitics of cheap oil; economists said the market would save the planet. It didn’t”, *Foreign Policy in Focus*. Retrieved from, <http://fpif.org/geopolitics-cheap-oil/>
MiningWatch Canada, (April 21, 2016), “Canada has blood on its hands; justice in Honduras requires a u-turn in Canadian foreign policy”. Retrieved from, <http://miningwatch.ca/news/2016/4/21/canada-has-blood-its-hands-justice-honduras-requires-u-turn-canadian-foreign-policy>
MiningWatch Canada, (June 9, 2016). “OceanaGold not welcome in El Salvador and the Philippines, company told during Toronto meeting”. Retrieved from, <http://miningwatch.ca/news/2016/6/9/oceanaGold-not-welcome-el-salvador-and-philippines-company-told-during-toronto-meeting>
MiningWatch Canada, (November 11, 2015). “Ontarians on the hook for water & mine site clean-up costs – alarming report from eco-commissioner”. Retrieved from, <http://miningwatch.ca/news/2015/11/10/ontarians-hook-water-mine-site-clean-costs-alarming-report-eco-commissioner>
Monbiot, G. (March 10, 2015). “Keep fossil fuels in the ground to stop climate change”, *The Guardian* Retrieved from, <https://www.theguardian.com/environment/2015/mar/10/keep-fossil-fuels-in-the-ground-to-stop-climate-change>
Moore, J. et.al. (August 2015). “In the national interest? Criminalization of land and environment; defenders in the Americas”, *MiningWatch Canada*. Retrieved from, http://icimg.ca/wp-content/uploads/sites/37/2015/09/IntheNationalInterest_FullReport.pdf
Romm, J. (June 13, 2016). “Coal and gas to begin ‘terminal decline’ in less than a decade, Bloomberg says”, *ClimateProgress*. Retrieved from, <http://thinkprogress.org/climate/2016/06/13/3787700/coal-gas-plants-cheap-renewables/>
Sierra Club, et.al., (2015). “Keep it in the ground”. Retrieved from, <https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/Keep%20it%20in%20the%20Ground%20-%20January%202016.pdf>

To add to the threat of rising CO₂ emissions, there is a ‘locked in’ increase in emissions by the present fossil fuel power stations, factories, buildings, industrial infrastructures, transportation systems, etc. By the end of 2015 they will have used up 90% of the *total carbon budget* of 1000 Gigatonnes (Gt) and by 2017 all of it. A thousand Gt is the amount that may keep the increase in temperature at 2 degrees Celsius. These locked in increases in CO₂ leave little room for adjustment and changes. Already this time-line is higher than the dates suggested earlier because of the yearly increase in the actual CO₂ emissions and the total accumulative amount of carbon in the atmosphere. This brief reminder makes sense of the suggestion by the IEA and others that we must leave most of the fossil fuels remaining in the ground if we are to avoid a dangerous rise in temperature. Any new developments that are not carbon neutral or nearly so commits us to more global warming. Every time a new office tower, condominium, or suburb is built in the usual way, there is a guaranteed increase in greenhouse gasses for the next 30 to 50 years. The same when a new oil or gas well is drilled by present-day methods, we commit ourselves to more CO₂ in the atmosphere and to more severe weather changes. Until we make radical changes, we can know that every time a ribbon is cut for a new bridge, a new building, a new transport system, and so on, we are cutting a ribbon for more global warming, more droughts, more floods, more forest fires, more infestations, etc. Until we initiate and enforce new building codes, require the use of new materials, new heating

and cooling systems, in short, new ways of building, extracting, growing, fishing, logging, transporting, we are locking ourselves into increases in CO₂ for decades to come.

2) Mining practices and climate change

There are a number of examples that illustrate all that is wrong with the global mining industry: one example is from Africa: Nigeria; one from South America: Peru; and one from Canada: British Columbia. We could have focussed on any other African country to illustrate the point, or for that matter, on any country in Central America, South America, Asia, or North America. Everywhere it is basically the same story: environmental degradation, displacement of local and indigenous people, exploitation of laborers, manipulating and bribing weak or corrupt governments and expatriating profits. Then companies leave the host country or area and the majority of the people as impoverished as before or worse. Usually tailings are left behind when the mines are no longer productive and mining companies take only limited or no responsibility for cleaning up and restoring the environment. The heavy metals in the tailings continue to pollute and poison the soil, water and air for decades to come if not centuries.

Nor do they tend to compensate the surrounding communities or displaced people unless forced by law. Even then, they are token or minimal compensations, especially seen in the light of their profits. Many are guilty of human rights abuses and condoning or complicit in the use of force by para-military or security forces. In spite of all the rhetoric of the companies involved and their agreement with international ethical and sustainable guidelines for mining, their practices on the ground show a very different picture. Ultimately, the mining industry's only guideline is the 'morality of the market', that is, maximizing profits without considering the 'externalities', at least not in any substantial or meaningful way. Even the reports on 'sustainable' mining' and the guidelines for 'ethical mining' do not take into account the precarious state of the environment: the steady accumulation of CO₂ in the atmosphere and the increasing exploitation of land and water. If the state of the environment is taken into account that would immediately give rise to the question whether mining should be engaged in at all: in this place, with this vulnerable eco system, near these rivers, in this forest, near these communities with their way of life. Generally the way mining is practiced today is incompatible with reducing greenhouse gases, the conservation of the environment and social justice.

Testimonies of countless rural and indigenous people across the globe, including Canada, speak louder than the rhetoric of the mining companies. A recent report by Alianza Arkana (A Grassroots Alliance Protecting the Amazon by Supporting its People and Traditions) about *Pluspetrol* says it all, "*The Misleading Art of Commercial Deception; How to transform a major polluter into an environmentally sustainable and socially responsible company*", (December 9, 2013). Pluspetrol was awarded the '2013 Sustainable Development Award' by its associates in the industry; all protecting each other with the complicity of different governments. One only needs to read the weekly reports from *MiningWatch Canada*, *Cultural Survival*, the news items in the *Guardian* and many other articles, reports and videos to get a sense of the extent of the destructive ecological and social practices of Pluspetrol and many other mining companies. What is one to think of the executives and PR people of companies like Shell, Chevron, Barrick Gold, Occidental Petroleum, Candente Copper, Talisman Energy and hundreds of other companies; spilling oil daily over many decades; dumping contaminated waste directly into rivers, some for thirty years; using aging equipment and corroding pipes; invading protected areas without consent; using armed security guards or hiring local army units; not restoring mine sites or cleaning polluted waters; hiring dozens of law firms to counter with lawsuits, and so on? How are such practices possible and what is one to think of people that engage in such practices?

3) Nigeria, the setting

To set the stage, Nigeria has an annual rate of growth of about 7%, which could be the envy of many Western countries that struggle with a growth rate of 1% to 3%. Most of this increase comes from agriculture, manufacturing, services and oil. It is the largest economy of Africa and is expected to be one of the 20 largest economies in the world by 2050. The GDP per person has doubled from \$1400 in 2000 to \$2800 in 2012. Although the petroleum sector is relatively small compared to other countries, it provides the government with over 80% of its earnings. Nigeria has an abundance of natural resources and a climate for growing crops year-round. According to the *World Bank* Nigeria has reached 'lower middle income status', and according to *Citygroup* it will have the highest average GDP growth by 2050. Not only does Nigeria have the largest economy of Africa, it is also its most populous country with about 174 million people in 2014, which is expected to double by 2050. It has 6 mega-cities with over a million citizens. Lagos has the largest population (15 million). From these kinds of reports you would think that Nigeria is a great country with a great future.

In spite of the continued growth in GDP and economic potential, all is not well. Nigeria is listed among the top twenty *failing or fragile states* (number 16), according to joint research by *Fund for Peace* and *Foreign Policy* which is updated and published yearly in *Foreign Policy* magazine. The total number of nations listed is 178; the first 35 are ranked under *Alert*, followed by a large number of countries under *Warning*. Nigeria is surrounded by several other failing or vulnerable states, Chad (5), Niger (18), Cameroon (27), Central African Republic (9), Ivory Coast (12), Burkina Faso (35), and other very vulnerable states somewhat further away. The index is based on 12 broad-based social, economic and political criteria.

The main criteria are: loss or declining government power; disintegration of the rule of law; inability to provide basic services such as health care, education, sanitation, drinking water, food supply, and personal security; unable to collect sufficient revenues; fragmentation of society, tribal conflicts or civil war; deterioration of infrastructures like roads, power supply, management of waste, pollution, decline of eco systems; outbreaks of infectious diseases; the prevalence of organized crime; providing a basis for piracy; and other criteria. On almost every score Nigeria fits the profile. In essence Nigeria is a failing and very vulnerable state. There have been a few consecutive years of drought, more intense yearly floods, erratic or reduced flow of rivers, decline of fresh water fish, contamination of coastal waters depriving fishing communities of their livelihood, increasing desertification in the north, water shortages, sudden epidemics, increasing political unrest and religious conflicts. Anyone of these factors or a combination of them could bring Nigeria to the brink of disaster.

About 70% of the population, over 110 million people live in extreme poverty on less than \$2 or \$1 a day, especially in the rural areas. Over 40% of people have no access to clean drinking water and over 60% don't have access to adequate sanitation. About 80% of young people are unemployed. Corruption on all levels has been rampant for decades. About 15 million children between 5 and 14 are involved in child labour or forced labour. About 78.000 children and their families are working on tobacco farms, fast approaching the number of Malawi's tobacco farm children (see Chapter 9). Other children work on cocoa plantations, in granite quarries, gold mines, etc. Many of them are slaves. Over 700.000 adults are trapped in a life of virtual slavery, in forced or bonded labour. Worldwide there are about 30 million men and women that are slaves or bonded labourers for life. Numerous videos show us what that is like. It is written on their faces. It is estimated that around 12 million children between 10 and 14 (and younger) work in stone quarries, cocoa plantations, tobacco fields, gold mines, etc. Many work 8 to 12 hours a day or more, 6 or 7 days a week, in the heat and rain, covered by grime, beaten when they haven't filled their quota and sleeping in the open. The children's faces are haunting. Parents may sell their children for money in bonded labour for two or three years. Nigeria is one of 8 countries with the highest level of human trafficking. Children are abducted or lured from neighbouring countries, especially Benin and brought to Nigeria. In many of the surrounding countries child labour and child slavery is rampant. These children are deprived of their childhood and an education. In the north of Nigeria less than 50% of the children attend school.

The other half, over 8 million, work. If you add all the other child workers in other countries and the adult bonded laborers (between 20 to 30 million) to these numbers, outsourcing and cheap labour takes on a whole new meaning.

Akiyo, S. (January 18, 2011). Nigeria: child slavery on Nigeria tobacco farms. *Shout-Africa*. Retrieved from <http://www.shout-africa.com/news/nigeria-child-slavery-on-nigeria-tobacco-farms/>

Duffield, C. (September 28, 2010). Nigeria's children 'robbed of a future'. *BBC News*. Retrieved from <http://www.bbc.com/news/world-africa-11427409>

The Global Slavery Index, 2014. Retrieved from <http://www.globallslaveryindex.org/>

Human Rights Watch. (December 6, 2012). Nigeria: death stalking lead-poisoned children. Retrieved from <https://www.hrw.org/news/2012/12/06/nigeria-death-stalking-lead-poisoned-children>

Large, T. (October 18, 2003). 30 million trapped in a life of slavery. *The Scotsman*. Retrieved from <http://www.scotsman.com/news/world/30-million-trapped-in-a-life-of-slavery-1-3148067>

Mark, M. (September 2, 2013). Nigeria's child brides: 'I thought being in labour would never end'. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2013/sep/02/nigeria-child-brides-religion>

News24. (December 12, 2007). Child slavery rife in Nigeria. Retrieved from <http://www.news24.com/Africa/News/Child-slavery-rife-in-Nigeria-20071212>

Olukoya, S. (November 13, 2003). Tales of woe from Nigeria's child 'slaves'. *BBC News*. Retrieved from <http://news.bbc.co.uk/2/hi/africa/3264959.stm>

Soyingbe, A. (June 17, 2014). Unending scourge of child labour, youth slavery in Nigeria. *Daily Independent*. Retrieved from <http://allafrica.com/stories/201407170087.html>

UNICEF, Nigeria, (2006). Child labour. Retrieved from http://www.unicef.org/nigeria/children_1935.html

The country's infrastructure is in a state of neglect and disrepair. Many rural people have no access to medical clinics, and many school facilities have deteriorated. Infant mortality is high and general health especially of the rural population is poor. Desertification, deforestation, overfishing, pollution of waterways and groundwater, dumping of industrial and domestic waste are major environmental problems. Such massive poverty, lack of health care, lack of access to education and lack of the basic necessities of life are a breeding ground for political and religious conflicts and for wide-spread corruption. Apparently *growth* in GDP does not necessarily mean *general economic development* and certainly not real *social development and well-being* for the majority of people, on the contrary. In view of the prevailing poverty, it is ironic that Nigeria has to import large amounts of grain, meat, dairy products, fish, and of all things, gasoline, when it could be totally self-sufficient and food secure. With the level of poverty, especially in the northern parts, it is hard to control infectious diseases like cholera, sleeping sickness, malaria, TB, HIV/AIDS, and other diseases. There is a resurgence of polio in certain areas. The percentage of adult HIV infections is about 3%; 3.3 million people are living with HIV/AIDS. The rural population particularly is in ill health.

The positive economic reports about Nigeria's impressive growth and future potential are an insult to the millions of hungry and suffering people. Instead of 'let them eat cake', it is like saying, 'let them eat GDP'. Colonialism, under British rule from 1915 till 1960, has had its effect and laid the groundwork for the present situation. Since independence political corruption and religious conflict opened the door to the neo-colonialism of global corporations and supporting national governments, reinforced by the policies of the WB, IMF, WTO and other lending institutions. The country is being plundered of its oil, gas, minerals, forests, and large sections of irrigated land for growing rice, palm oil, sugar cane, and other foods for export. The substantial government revenues (80%) from these industries benefit only a small proportion of the population. Not surprisingly the slogan '*Occupy Nigeria*' is in the air, but public protests and calls for reform tend to be repressed or brutally put down, like the *Movement for the Survival of the Ogoni People (MOSOP)*. The conflict was heightened by the execution of Ken Saro-Wiwa and his fellow activists. It is estimated that in the Niger Delta alone a thousand people are killed in conflicts each year. Already in 2001, out of concern for the environment and in solidarity the *Association of Nigerian Authors* along with the *Environmental Rights Action* and *Friends of the Earth, Nigeria* titled their conference '*The Land Is Dying*'. Like any country, Nigeria is a complex society and this brief summary account only touches on some basic features. Because there is limited flow of news, difficulty accessing certain areas and lack of personal safety and danger of kidnapping, we have limited information. It is surprising how many reports and documentaries are available. None of this description of economic and social conditions says anything about the courage and perseverance of the people, their joyfulness, their rich culture, music, literature, art and spirituality.

Baraka, A. (January 30, 2015). Putting Boko Haram in context. *Foreign Policy in Focus* and *The Nation*. Retrieved from <http://fpif.org/putting-boko-haram-context/>

Bassey, E. (2003). The effects of land tenure on natural resource conservation in the Nigerian rainforest ecosystem. *World Forestry Congress*. Retrieved from <http://www.fao.org/docrep/ARTICLE/WFC/XII/0138-B1.HTM>

Emmanuel, O. and Ezeamalu, B. (January 12, 2013). Occupy Nigeria: one year later, the gains, the losses. *PremiumTimes*. Retrieved from <http://www.premiumtimesng.com/news/114890-occupynigeria-one-year-later-the-gains-the-losses.html>

Enough is Enough Nigeria Coalition. (August 7, 2015). The weeks that shook Nigeria: Occupy Nigeria one year after. *The Guardian, Africa Network*. Retrieved from <http://eie.ng/occupynigeria/>

Heenali Patel. (August 7, 2015). Masogo school in Nairobi's Kibera slum hits the right note with music that heals. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2015/aug/07/kenya-magoso-school-kibera-slum-nairobi-music-therapy>

IFAD. (August 2012). Enabling poor rural people to overcome poverty in Nigeria. Retrieved from <https://www.ifad.org/documents/10180/4ebc0611-1d29-4172-bd8e-355db32c034b>

Ikechukwu Ezeigwe, C. edited by Stapp, K. (March 22, 2015). Opinion: Water and sanitation in Nigeria – playing the numbers game. *Global Issues*. Retrieved from <http://www.ipsnews.net/2015/03/opinion-water-and-sanitation-in-nigeria-playing-the-numbers-game/>

International Rivers (June 15, 2014). Chinese dams in Africa. Retrieved from <https://www.internationalrivers.org/campaigns/chinese-dams-in-africa>

Moghalu, K. (August 7, 2015). Strategic thinking about Nigeria's future. *The Guardian, Africa Network*. Retrieved from <http://guardian.ng/opinion/strategic-thinking-about-nigerias-future/>

Okoye, J. K. and Achakpa, P.M. (March 2007). Background study on water and energy issues in Nigeria to inform the National Consultative Conference on dams and development. Retrieved from http://www.unep.org/dams/files/nigeria_final_report_on_background_study_22_may_07.pdf

Osalar, P. (January 3, 2011). Fishing and Nigeria's 2020 goals for entrepreneurial revolution. *Vanguard*. Retrieved from <http://www.vanguardngr.com/2010/11/ishing-and-nigeria%E2%80%99s-2020-goals-for-entrepreneurial-revolution-part-2/>

Poverties.org. (April 2013). Poverty in Nigeria, rich country, poor people. Retrieved from <http://www.poverties.org/poverty-in-nigeria.html>

Rural Poverty Portal. Rural poverty in Nigeria. Retrieved from <http://www.ruralpovertyportal.org/country/home/tags/nigeria>

Rural Poverty Portal. Statistics. Retrieved from <http://www.ruralpovertyportal.org/country/statistics/tags/kenya>

Uyigwe, E. (March 2006). Dams are unrenueable, a discussion paper. *Community Research and Development Centre*. Retrieved from http://www.credcentre.org/Publications/Dams_are_unrenueable.pdf

Vives, L. (April 2, 2015). Opinion: where does Nigeria go from here? *Global Issues*. Retrieved from <http://www.globalissues.org/news/2015/04/02/20823>

Waldman, J. and Limburg, K. (August 7, 2015). Undamming rivers can offer a new source for clean energy. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/aug/07/undamming-rivers-can-offer-a-new-source-for-clean-energy>

Oil and gas companies in Nigeria

This general setting is part of the Nigerian context within which international oil, gas and other mining companies are operating. Many of the oil companies are very familiar with the fragile social and economic situation, since they have been operating in Nigeria for many decades. None of that seems to matter nor has it led to fundamental changes in their way of operating. You would think that they might have reconsidered their policies and practices or even their very presence. No matter what, it is business-as-usual and when things get rough there is always the police and the army. Many have tried to present themselves as socially and environmentally responsible companies. Their websites are masterpieces of deception and propaganda. Their claims and figures have been shown to be mostly unfounded.

The activities of the oil and gas corporations are truly disturbing, both in the Niger Delta and in the offshore drilling areas. The delta used to be an ecologically rich, varied and beautiful area with its coastal barrier islands, mangrove swamp forests, freshwater swamps, lowland rainforests and abundant biodiversity. The delta (20,000 square km) lies within the third largest drainage basin (70,000 square km) in Africa. About 20 million people live in the delta and they used to be able to make a living in the arable areas, growing a variety of crops and trees and fishing in the many delta channels with its abundance and great diversity of freshwater fish. Large tracts of mangrove forests have been polluted by oil spills or destroyed (5% to 10%). The decline in biodiversity allows invasive species to take over. The delta environment is increasingly becoming uninhabitable. Some call it ecocide. Because of dam constructions the delta could lose 40% of its inhabitable terrain in the coming decades, leaving millions of people without a livelihood. Decades of oil spills and pollution from natural gas flaring has drastically changed the delta. It is estimated that 6 million people in the delta live in extreme poverty.

Oil spills have spread out over large areas, destroying crops and aquacultures through contamination of the groundwater and soil. Drinking water is often polluted, yet it is all many people have. Burning off the gas (more than 70%) releases large amounts of methane gas and carbon dioxide into the atmosphere endangering the health of people.

Because of the relatively small size of the 606 oil fields there is an extensive network of pipelines between the fields, from many small flowlines to larger ones. Many pipelines are more than a few decades old and some as many as 40 years, making them susceptible to erosion, rupturing and leaks. Damaged lines may go unnoticed for days and repairs may take even longer. The usual lifespan of pipelines is about 15 years. Inspection and maintenance is limited. Regulations are weak and penalties are seldom enforced. An entire area has been devastated with many people deprived of their livelihood.

It is estimated that there are about 300 oil spills a year and many more minor spills, which amounts to at least 2300 cubic meters of oil per year flowing into the environment. Most of the spills are due to poor maintenance. Over the last decades there have been thousands (5000 to 7000) of spills with as many as 70% not recorded. Offshore spills account for approximately 69%, spills in swamps 25% and on land 6%. The majority of the oil spills are due to pipeline and tanker accidents, production operations and inadequate or faulty equipment (72%). Some spills are due to 'sabotage' and 'theft' (28%) but that amount may be debatable, since it is repeatedly used as the major reason for the spills by oil companies. The many documentaries (*Delta Blues; Delta – Dirty Business; Endless Oilspills; Niger Delta Freedom Fighters; The Shocking Extent of Nigeria's Oilspills; Nigeria: Oil Pollution in the Niger Delta; Remembering the 2009 Amnesty; Battling Oil Theft in the Niger Delta; Niger Delta Militant Groups; Niger Delta, Ex-militants; Rights and Religion, Nigeria;* and others) present a vivid picture of the devastation and the distress, anger and despair of the people affected by the environmental damages. These images stand in sharp contrast to the meticulously dressed governors, politicians, generals and oil company representatives being interviewed in their lavish offices and villas. The double talk and rationalizations are astounding. *Friends of the Earth, Nigeria* keep track of the oil spills the best they can. Reportedly Shell spends millions of dollars in bribes.

More oil is spilled from the delta's network of terminals, pipes, pumping stations, and oil platforms every year than the disastrous *Gulf of Mexico* spill. During the last half century 1.5 million tons of oil have been spilled in the delta, which is 50 times more pollution than that from the *Exxon Valdez* tanker disaster in *Alaska*. *Amnesty International* claims that at least 9 million barrels of oil were spilled during these last fifty years. The amount of oil spilled is disturbing and the documentary images are both sad and despairing. A 2011 *UN Report, Friends of the Earth International, WWF UK, World Conservation Union, Platform, Nigerian Conservation Foundation, Stakeholder Democracy Network* in Lagos, *Nigerian Environmental Rights Action* and many others have all challenged and condemned the oil companies and the Nigerian government, so far, to no avail. Spills continue on year after year and day after day. If this was happening anywhere else in the world there would be an outrage, in Nigeria it is the order of the day.

Offshore spills are usually greater in scale than on land. They contaminate coastal waters and shores and cause a decline in the local fishing production. Oil slicks have spread over large areas. Offshore drilling is more attractive because there is less government involvement, fewer regulations and less danger of sabotage or protests. There were large oil spills in 1998, 2008, 2009, 2011 and 2012 as well as numerous smaller ones. There is little effort on the part of the oil companies to clean up these spills, which would take decades if not longer. The images and interviews with local fishermen speak louder than the assertions and excuses of the oil companies' public relations people. Many fishing communities have been robbed of their livelihood and the small amounts of fish they do catch are contaminated and often not edible.

In addition to the numerous oil spills more than 70% of the gas associated with oil extraction is burned off, polluting the air. The natural gas could be collected instead of being wasted, however that would be more expensive. It is cheaper to extract natural gas directly from sources that are not mixed with oil. Even though everyone agrees that gas flaring is not good, including the oil companies, the practice continues. In the end it is the bottom line that decides what happens. Gas flares are often close to villages. They are seldom moved away from communities. The polluted air and soot create

many health problems like asthma, chronic bronchitis, skin lesions and even leukemia because of the presence of volatile organic compounds like benzene. The heat and air pollution also affects vegetation and other organisms. There have been many devastating reports about carelessness on the part of the government and the oil industry, showing little concern for the ecological impact, health issues and human rights violations of their operations. The oil companies involved are Royal Dutch Shell, Chevron, Exxon-Mobil, Agip, Total, Texaco now merged with Chevron, and other smaller companies.

Given these social and ecological violations, it is not surprising that there have been some major consequences for this long-standing exploitation. The first one is that of organized crime, which involves a large number of people. It is estimated that about 10% of the total production of oil is siphoned off, shipped, refined, sold and the proceeds laundered. Ten percent or 30.000 to 40.000 barrels a day constitutes a large amount of oil, which represents a loss of 1.6 billion a month to the government and the oil companies. Such a large criminal operation cannot happen without the knowledge of many people. The military, police, local politicians, tanker owners, refineries in many different countries and world financial centres for laundering the proceeds, all are complicit in this illegal trade including the oil companies. No one can claim ignorance. Given the level of militarization of the entire region by the army, the police and ethnic militia groups all competing for a part of the oil wealth, it is no wonder that a thousand people are killed each year. The military has been accused of burning houses and villages, intimidation, torture and killing.

A second group of people that are trying to profit from the oil extraction are local communities that siphon of the crude oil from the pipelines and have set up small, cheap refineries. It is a dangerous enterprise but many are driven by poverty and unemployment. There may have been as many as 500 of these local refineries in the last years. Each installation can produce as much as 10.000 litres a day of rough diesel oil, which is used for local consumption. Since no one knows what to do with the waste, these small-time operations have added voluminous pollution to the environment. There has been little or no compensation for the degradation of their lands and waterways, depriving them of their livelihoods of sustainable farming and fishing. Since the subsidies toward the consumption of gasoline were reduced, the price of gas has doubled, putting it out of reach of many people. So they make do with dirty diesel oil to their own and everybody else's detriment. When the human rights of local communities are consistently violated, there are consequences: protests, resistance, radicalization, violence, kidnapping, corruption, theft and organized crime.

There has been a large militarized protest group that has engaged in armed resistance, killings and kidnapping. Many are well-educated and are very articulate about the injustice of the situation. Recently they have responded to a general amnesty and laid down their arms in return for promises of reform, development and cleaning up the environment. Many of the leaders want to give the government a chance and want to hold them to their promises. But unless there are some fundamental changes in government policies, things do not look hopeful for the Delta people. If the promises are not kept there will be a return to armed resistance.

There are many other aspects of the Nigerian economy that are of concern. With eco or conservation farming and agro-forestry, even in the drier northern parts of the country, people could have an abundance of food and be food secure. Instead Nigeria has to import food, even though only half the arable land is used. Nigeria has lost about half of its primary forests and has the highest deforestation rate in the world. In the north, land and forests have been lost through desertification. Overplowing, overgrazing and rising temperatures have accelerated this process. During the last few decades there has been an increase in temperature of 1.1 degrees Celsius in the north compared to the average of 0.74 degrees Celsius elsewhere. Rainfall has lessened by 81 mm per year. Dust storms and loss of soil from wind erosion are slowly turning the northern part into a desert. About 350.000 hectares of crop and range land are lost each year. As in many other African countries, there is a great demand for fuel wood for cooking especially by the rural population,

which adds to the depletion of the tree cover. Kerosene is often too expensive. Logging and widespread illegal logging is diminishing the forests even further.

These conditions underscore how much need there is for an alternative way of farming and forestry. There are many exemplary projects of ecologically sustainable ways of farming and forestry that can provide a variety of vegetables and fruits, fodder for animals and firewood even in arid areas. Compressed vegetation bricks can replace charcoal bricks and firewood and, where needed, other forms of stoves can be made from local materials for cooking. Some promising examples are those of the *Rainforest Information Centre* and its project in Zimbabwe; the organization *Restoring the Land* in Ghana as well as the radical reclamation projects by Dr John Liu in China and Jordan.

Perhaps the most inspiring are the many schools with school garden programmes in several west African countries. The children assisted by teachers and parents before they start classes, grow enough food for breakfast and lunch. They are happy, well-fed and healthier. They learn about sanitation, solar cookers, organic farming, agro-forestry, caring for chickens, milking goats, and so on. Excess food is sold locally and parents can pay with produce for school tuition. These kinds of programs provide hope for the future, especially in the face of climate change. The children from these schools will be able to provide food for themselves and their future children in spite of corrupt governments and ecologically and socially irresponsible corporations. Above all, the *SNV School Garden Programmes* and many other ones like it in Nigeria, Uganda, Ghana, Namibia, Kenya, etc., for example, illustrate that there is another way.

When the 'externalities' are discounted, *profits* may be high for a small minority, but the *cost* to society and the environment is immense, especially today in the face of climate change and increasing social injustice. Massive poverty, lack of the basic necessities of life, repression, dispossession, forced labour of children and adults, trafficking for sexual exploitation, cruel and inhumane treatment of prisoners and other gross injustices are a breeding ground for political and religious conflicts. Nigeria will suffer the consequences of its unjust and corrupt policies for decades. Regrettably, this basic picture of ecological degradation, displacement, conflicts and human rights violations is the reality in many countries.

BBC News. (August 4, 2011). Nigeria Ogoniland oil clean-up 'could take 30 years'. Retrieved from <http://www.bbc.com/news/world-africa-14398659>

BBC News. (December 23, 2011). Nigeria oil spill 'could hit fisheries'. Retrieved from <http://www.bbc.com/news/world-africa-16320764>

Common Dreams. (November 19, 2012). Offshore oil leak in Nigeria, 'worst ever' in string of many: twenty-mile oil slick destroys local fishing industry. Retrieved from <http://www.commondreams.org/news/2012/11/19/offshore-oil-leak-nigeria-worst-ever-string-many>

De Vieira Fleming, C. Traditional sustainable use of coastal mangrove swamps by indigenous people. *Indigenous Rainforest Keepers*. Retrieved from <http://www.indigenous-rainforest-keepers.com/sustainable-use-of-coastal-mangrove-swamps-by-indigenous-people.html>

Ebiri, K. (August 7, 2015). Hope rises for local refineries. *The Guardian Africa Network*. Retrieved from <http://guardian.ng/lead-story/hope-rises-for-local-refineries/>

Friends of the Earth. (October 4, 2004). Gas flaring in Nigeria. Retrieved from https://www.foe.co.uk/sites/default/files/downloads/gas_flaring_nigeria.pdf

Huffington Post. (December 26, 2011). Royal Dutch Shell says worst Nigeria offshore oil spill in more than a decade now contained. Retrieved from http://www.huffingtonpost.ca/2011/12/26/royal-dutch-shell-says-wo_n_1170136.html

Human Rights Watch. (January 1999). The price of oil. Retrieved from <https://www.hrw.org/reports/1999/nigeria/>

Living on Earth. (December 14, 2012). Oil spills in Nigeria. Retrieved from <http://loe.org/shows/segments.html?programID=12-P13-00050&segmentID=4>

Nwilo, P. C. and Badejo, O.T. Impacts and management of oil spill pollution along the Nigerian coastal areas. *International Federation of Surveyors*, 2007. Retrieved from https://www.fig.net/resources/publications/figpub/pub36/chapters/chapter_8.pdf

Oil Change International. The price of oil: human rights violations. Retrieved from <http://priceofoil.org/thepriceofoil/human-rights/>

Okere, R. (March 31, 2015). Nation's refineries suffer low capacity utilization. *The Guardian Africa Network*. Retrieved from <http://guardian.ng/lead-story/nations-refineries-suffer-low-capacity-utilisation/>

Owolabi, T. (August 31, 2012). Oil spill stretches for miles by Exxon Nigeria field. *Reuters*. Retrieved from <http://www.reuters.com/article/us-nigeria-oilspill-idUSBRE87U0VW20120831>

Petre, C. (May 16, 2012). Oil companies and their human rights (ir)responsibilities. *Consultancy Africa Intelligence*. Retrieved from http://www.consultancyafrica.com/index.php?option=com_content&view=article&id=1023:oil-companies-and-their-human-rights-irresponsibilities-&catid=91:rights-in-focus&Itemid=296

Pilkington, E. (June 9, 2009). Shell pays out \$15.5m over Saro-Wiwa killing. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2009/jun/08/nigeria-usa>

Ridderhof, R. (February 15, 2013). Shell and Ogoni People: (s)oil pollution in the Niger Delta. *Peace Palace Library*. Retrieved from <http://www.peacepalacelibrary.nl/2013/02/shell-and-ogoni-people-soil-pollution-in-the-niger-delta/>

Shah, A. (June 10, 2010). Nigeria and Oil. *Global Issues*. Retrieved from <http://www.globalissues.org/article/86/nigeria-and-oil>

Vidal, J. (May 30, 2010). Nigeria's agony dwarfs the Gulf oil spill. The US and Europe ignore it. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2010/may/30/oil-spills-nigeria-niger-delta-shell>

Vidal, J. (August 7, 2015). Nigerian government finally sets up fund to clean up Ogoniland oil spills. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/aug/07/nigerian-government-finally-sets-up-fund-to-clean-up-ogoniland-oil-spills>

Ghana

It is interesting to compare this profile of Nigeria with that of nearby Ghana, which has its own unique and complex cultural, social, economic and environmental context. In contrast to Nigeria, it is not a failing or vulnerable state according to the *Index*. It is number 110 out of the 176 nations listed, which is the highest most successful standing of any African country. In 2011 it gained lower middle-income status. Ghana has a population of over 25 million people with a relatively low birthrate and high life expectancy. It is stable politically and has a relatively appealing investment climate.

In spite of this very positive picture, over 4 ½ million rural people (out of about 12 million) in the northern part of the country live in extreme poverty. Overall, about 28% of the people are considered poor, which may be a low estimate. Gold mining, the extraction of other minerals, oil and gas exploration, manufacturing, export-orientated agriculture and other enterprises, are economic activities that have not have benefitted a large segment of the population. The market-orientated agribusinesses with cocoa, coffee, cotton, tobacco, rubber, and oil palm exports, encouraged by the WB, IMF, WTO and subsidized by the government, has not made the country food secure. The structural adjustment programs have done their work. Presently, subsistence farming barely provides sufficient food for Ghana's population and any droughts can be devastating.

Caluag, M. (July 1, 2013). Poverty in Ghana. *The Borgen Project*. Retrieved from <http://borgenproject.org/poverty-in-ghana/>

Grusky, S. (September 2001). Privatization tidal wave IMF/World Bank water policies and the price paid by the poor. *The Multinational Monitor*. Volume 22, Number 9. Retrieved from <http://multinationalmonitor.org/mm2001/01september/sep01corp2.html>

Harsch, E. (October 2008). Closing Ghana's national poverty gap. *Africa Renewal*. Retrieved from <http://www.un.org/africarenewal/magazine/october-2008/closing-ghana%C3%A2%E2%82%AC%E2%84%A2s-national-poverty-gap>

Ofosu-Appiah, B. (August 28, 2011). Why is poverty worse in Ghana...after 55 years of independence? *Joy OnLine*. Retrieved from <http://opinion.myjoyonline.com/pages/feature/201108/71929.php>

Rural Poverty Portal. (2011). Rural poverty in Ghana. Statistics. Retrieved from <http://www.ruralpovertyportal.org/country/home/tags/ghana>

Salam, R. (August 16, 2011). Urban centres pay less for water than rural areas in Ghana. *Modern Ghana News*. Retrieved from <http://edition.myjoyonline.com/pages/news/201111/76601.php>

Deforestation is a serious problem and Ghana many lose most of its primary forests in two or more decades. Already more than three quarters of its forests are gone. Wide-spread illegal logging is adding to this rapid decline. Deforestation has led to the further encroachment of the desert, as well as droughts, bushfires and soil erosion. Like most other African countries, 90% of the rural people depend on firewood and charcoal for cooking and about 50 % of the urban population depend on charcoal. Several million families rely on the forests for their income and food supplements. Rural poverty has led to increased migration to the cities. Ghana has 2 large metropolitan centres, Accra, with nearly 2 million, Kumasi with 1½ million and other large cities complete with slums, open gutters, pollution, poverty, corruption, crime, child slavery and unemployment.

Adjei, A. (April 29, 2014). Life in Sodom and Gomorrah: the world's largest digital dump. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development-professionals-network/2014/apr/29/agboghloshie-accra-ghana-largest-ewaste-dump>

Energy Commission, Strategic Planning & Policy Division, January 2014, Charcoal price tracking in major urban centres of Ghana. Retrieved from <http://energycom.gov.gh/files/Charcoal%20Price%20Tracking%20January%20to%20December%202013.pdf>

The Guardian. (February 27, 2014). Agboghloshie: the world's largest e-waste dump – in pictures.

Retrieved from <http://www.theguardian.com/environment/gallery/2014/feb/27/agboghloshie-worlds-largest-e-waste-dump-in-pictures>

ScienceDaily. (September 2, 2014). Household air pollution puts more than one in three people worldwide at risk of ill health, early death. Retrieved from <https://www.sciencedaily.com/releases/2014/09/140902205230.htm>

Worst Polluted, 12 Cases of Cleanup and Success. (2009). Reducing indoor air pollution – Accra, Ghana. Retrieved from http://www.worstpolluted.org/projects_reports/display/69

During the last decade Ghana has had to deal with about 50.000 illegal Chinese gold miners. In 2013, 168 gold miners were arrested. With their excavating equipment they can destroy large areas of forest even in one day. Their explorations have caused conflict, dislocation, pollution of rivers and degradation of the land. It is estimated that the largest percentage of gold mining is illegal and made possible by bribery of the police and corruption on many levels. Many children are involved in 'illegal' small-scale gold mining. Ghana has its own mining organization for the development of responsible mining called the *Ghana Responsible Mining Alliance*, but its descriptions and goals have a sense of unreality compared to the actual practices on the ground, including those of Canadian companies. As the work of the *Artisanal Gold Council* illustrates gold mining could be done so much differently in Ghana and other west African countries.

Amponsah-Tawiah, K. And Dartey-Baah, K. The mining industry in Ghana: a blessing or a curse? *International Journal of Business and Social Science*. Volume 2, No. 12: July 2011.

Ghana Responsible Mining Alliance. (May 24, 2007). Collaborative planning: findings and options. Retrieved from

https://www.rti.org/sites/default/files/resources/ghana_alliance_collaborative_planning_report-final_may_24_2007.pdf

GhanaWeb. (March 21, 2010). Mining operations violate right of mining communities to clean water – Wacam. Retrieved from

<http://www.ghanaweb.com/GhanaHomePage/NewsArchive/Mining-operations-violate-right-of-mining-communities-to-clean-water-Wacam-178917>

Hirsch, A. (April 23, 2013). Influx of Chinese goldminers sparks tensions in Ghana. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2013/apr/23/influx-chinese-goldminers-tensions-ghana>

ILO. (2007). Girls in mining: research findings from Ghana, Niger, Peru, and United Republic of Tanzania. Retrieved from

<http://www.ilo.org/public/portugue/region/eurpro/lisbon/pdf/girlsmining.pdf>

Komnienic, A. (January 2, 2014). Gold mining declining fast in Ghana – Africa's second largest gold producer. *MINING.com*. Retrieved from

<http://www.mining.com/gold-mining-declining-fast-in-africas-second-largest-gold-producer-ghana-57050/>

Oforu-Appiah, B. (May 6, 2010). Avoiding the oil curse in Ghana part II, *Reporting oil and, gas*. Retrieved from <http://www.reportingoilandgas.org/avoiding-the-oil-curse-in-ghana-part-ii/>

The same is true for the 'illegal' logging by approximately 100.000 local villagers. If it was legalized and the communities had full rights to the forests, they could contribute to the sustainable management and conservation of the forests as experiences elsewhere indicate. Presently a lot of prized logs are illegally exported by logging companies, which involves corruption, bribery, smuggling, fraudulent invoicing, non-payment of royalties and failure of government control and inspection.

Boafo, J. (January 16, 2013). The impact of deforestation on forest livelihoods in Ghana. *Africa Portal*. Retrieved from

<https://www.africaportal.org/dspace/articles/impact-deforestation-forest-livelihoods-ghana>

Pearce, F. In Ghana's forests, should chainsaw loggers be legalized? *Yale Environment 360*. Retrieved from,

http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwilm9jlvMjMAhWC2B4KHd8kBOUQFggBMAA&url=http%3A%2F%2Fe360.yale.edu%2Ffeature%2Fin_ghanas_forests_should_chainsaw_loggers_be_legalized%2F2562%2F&usq=AFQiCNGpKoiQVru-zNA03oU3NnSXnQFDw

Ghana along with many of its neighboring countries is a centre for modern-day slavery. Both boys and girls are trafficked within Ghana for forced labour on farms, fishing villages, street peddling, begging, (kente) weaving, portering, domestic labour and sexual exploitation. Young boys are sold for cheap labour to fishing communities on Lake Volta and young virgins may be forced to serve as slaves in north eastern Ghana.

Krauss, A. (June 2013). Understanding child labor in Ghana beyond poverty. *The World Bank*. doi.org/10.1596/1813-9450-6513

Hawskley, H. (February 8, 2001). Ghana's trapped slaves. *BBC News*. Retrieved from

http://news.bbc.co.uk/2/hi/programmes/from_our_own_correspondent/1158115.stm

Left, S. (March 22, 2007). Sons for sale. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2007/mar/22/sarahleft>

In spite of these difficulties and possibilities, the Ghana government is deeply committed to 'a program of accelerated economic growth, private investment and rapid and aggressive industrialization', according to its *Vision 2020*. It has adopted the neoliberal ideology for economic development, which will increasingly lead to environmental degradation and further social inequality. It is not surprising that the Catholic Bishops' Conference expressed its concern about Ghana's future in a statement on May Day in 2014. Given a different vision, things could be very different; agroforestry could supply a dependable and secure supply of food and hold back desertification. Local logging communities could

maintain and preserve the forests. Artisanal gold cooperatives could supply a part of essential gold. Fishing co-ops could prevent overfishing and preserve fish stocks. An expanded renewable energy section could supply electrical power. Small regional manufacturing companies could provide material products for domestic use, and so on. In view of climate change that will deeply affect many African countries, this is not a dream but a necessity if Ghana is to flourish. Another world is possible.

Acheampong, E. and Beto Campion, B. The effects of biofuels feedstock production on farmers' livelihoods in Ghana: the case of *Jatropha curcas*. *Sustainability*. July 2014, vol. 6, p. 4587-4607.

Ayittey, G. B.N. (August 10, 2012). Can Ghana's economy prosper against the odds? *CNN Opinion*. Retrieved from <http://www.cnn.com/2012/08/10/opinion/george-ayittey-ghana-economy/>

Food Sovereignty Ghana. (July 28, 2015). USAID promotes massive risk, calls it biosafety education. Retrieved from <http://foodsovereigntyghana.org/usaaid-promotes-massive-risk-calls-it-biosafety-education/>

Frimpong-Boateng, K. (March 15, 2011). Ghana: Vision 2020 minus 2015 minus Vision 2010. *Modern Ghana*. Retrieved from <https://www.modernghana.com/news/320465/ghana-vision-2020-minus-2015-minus-vision-2010.html>

GhanaWeb. (May 1, 2014). Ghana's economy 'not in the best of shape'. Retrieved from <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/Ghana-s-economy-not-in-the-best-of-shape-307839>

Mongabay. Ghana: environmental profile. Retrieved from <http://rainforests.mongabay.com/20ghana.htm>

Ofori-Appiah, B. (March 16, 2013). The burden of poor leadership. *Ghana MMA*. Retrieved from <http://www.ghanamma.com/2013/03/16/ghana-the-burden-of-poor-leadership/>

Okudzeto, E. et.al., (May 28, 2015). Ghana. *African Economic Outlook*. Retrieved from

http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN_data/CN_Long_EN/Ghana_GB_2015.pdf

Osei, B. (2004). The cost of aid tying to Ghana. *Africa Portal*. Retrieved from http://dspace.africaportal.org/jspui/bitstream/123456789/32330/1/RP_144.pdf?1

Otu-Tei, C. (March 19, 2014). Broken promises: Ghana's Bui Dam resettlement. *International Rivers*. Retrieved from <https://www.internationalrivers.org/resources/broken-promises-ghana-s-bui-dam-resettlement-8269>

Tamakloe, K. (August 4, 2014). Ghana's vision 2020, 7 year development plan and the Senchi consensus. *Modern Ghana*. Retrieved from <http://www.modernghana.com/news/561139/0/ghanas-vision-2020-7-year-development-plan-and-the.html>

4) Peru: the setting

The setting for Peru is somewhat different but equally disturbing and devastating for a large section of its population. The coastal area west of the Andes faces a severe water crisis, including the capital city, Lima, and irrigation farms. Peru's population is over 30 million with 2/3 of the people living west of the mountains in the dry areas. This region receives only 1 cm of rain per year. At the same time the many glaciers of the Andes are retreating at an alarming rate, diminishing the flow of the water in the rivers west of the mountains and in the highlands. Some predict that many of the glaciers will be gone in a few decades, leaving the majority of the people without drinking water. Neighbouring Bolivia, Ecuador and other countries face similar water crises. In spite of this growing water scarcity large companies keep buying up land for growing vegetables and fruits destined for Europe and other countries. The water required for irrigation is rapidly lowering the aquifers which will be depleted in the coming decade(s). Not surprisingly conflicts over water have arisen between small-scale farmers, herdsmen and agribusinesses. The one alternative, if there is any at all, for larger export operations is to switch to some form of organic farming. For the small-scale farmers and herdsmen there are several solutions from conserving and collecting water, drip irrigation and agroforestry.

Lima is the second largest desert city (after Cairo) in the world with a growing population of over 8 million people. Many poor people migrate to the city looking for work. They settle on the sandy grounds on the edge of the city. Traffic and air pollution are a serious problem. Lima has the most polluted air of South America. In addition there is a large variation between day and night time temperatures. The nights can be very cold which affects many poor people who do not have adequate protection against the cold. One million people have no access to safe drinking water. Private tankers come by to sell water at raised prices. In the rich neighborhoods water is 20 times cheaper and water is used freely for swimming pools, fountains and watering lawns. The poor use less than 1/3 of the water used by the wealthy but pay 5 times as much. To add to the problem of water scarcity, about 40% of water is lost in the aging city water system. The well-off people of Lima haven't learned the lessons yet from El Paso in Texas, California and other states. There are many

solutions to the growing water shortages, including innovative fog collectors. The atmosphere has a high level of moisture (98%), which can be collected.

In spite of some reduction, poverty rates remain high in Peru, especially among the rural population. Half the population is poor and 20% extremely poor, of which 2.1 million are children. Even though accounts of poverty rates differ somewhat there is a significant number of subsistence farmers and indigenous people whose livelihoods are threatened by mining developments, illegal logging and climate change (droughts).

On the other side of the Andes, in the Peruvian part of the Amazon, the problems are equally severe. There is an increasing encroachment on the tropical rainforest, developments of frontier towns, pollution and spills from mining operations, illegal logging, damming of rivers, child labour especially in the gold mines, displacement of indigenous people, increasing risks to tribes that still live in voluntary isolation and human rights violations of those who oppose these developments.

BBC News. (March 12, 2007). Peru's alarming water truth. Retrieved from <http://news.bbc.co.uk/2/hi/americas/6412351.stm>

Boelens, R. (2008). *The rules of the game and the game of the rules*, Wageningen: Wageningen University.

Climate Pains. (July 17, 2012). Peru: Can a metropolis die of thirst? Retrieved from <http://www.globalpost.com/dispatch/news/regions/americas/peru/120716/lima-water-shortage-desert-city-climate-change-global-warming>

Deutsche Welle. (June 12, 2011). Water crisis in Lima. Retrieved from <http://www.dw.com/en/water-crisis-in-lima/a-15581756>

Environmental Monitor. (February 7, 2012) River monitoring network uncovers Peru's dwindling water supply. Retrieved from <http://www.fondriest.com/news/river-monitoring-uncover-peru-dwindling-water-supply.htm>

FogQuest. Sustainable Water Solutions. Retrieved from <http://www.fogquest.org/>

Future Challenges. (August 17, 2013). Poverty and Poverty Perception in Peru. Retrieved from <https://futurechallenges.org/local/gesperspectives/poverty-and-inequality-perceptions-in-peru/>

The Guardian. (December 13, 2013). Why climate change threatens Peru's poverty reduction mission. Retrieved from <http://www.theguardian.com/global-development/poverty-matters/2013/dec/13/undp-climate-change-peru-poverty-reduction>

Opinion. (May 15, 2013). Peru's impending water crisis. Retrieved from <http://www.peruthisweek.com/blogs-peru-impending-water-crisis-50285>

Pearce, F. *When the rivers run dry; water – the defining crisis of the twenty first century*. Beacon Press, 2006.

Peru Support Group. (May/June, 2012). Women and Human Rights in Peru. Retrieved from <http://www.perusupportgroup.org.uk/article-560.html>

Scientific American. (May 19, 2009). Water wars come to the Andes. Retrieved from <http://www.scientificamerican.com/article/water-wars-in-the-andes/>

Mining operations in Peru

It is in this setting within which international oil, gas and other mining companies are operating. A majority of the local people are against these developments in their local communities. Protests are the order of the day, people get killed, but that hasn't stopped any of the companies nor the government from going ahead. Permits continue to be issued and concessions handed out. Regulations are weak and seldom enforced. Corruption is rampant. It is the kind of situation where no 'socially responsible' corporation should want to operate and no foreign government should want to promote mining. Nevertheless, there are about 75 Canadian mining companies active in Peru and in 2013 the prime minister of Canada committed 53 million dollars in 'aid money' mostly to support the mining industry. These reports and documented cases make mining executives, the Canadian government and, ultimately, all Canadians through their taxes and pension funds complicit in human rights violations and the decline of the Amazon rainforest.

Peru is rich in minerals and with a more 'stable' government mining companies have swooped down on the country to exploit its riches. Most of the profits are expatriated and do not benefit the majority of the people. In some areas in the north 50% of the land has been divided in large concessions for mineral extraction. The rural population living in these areas fear that their agriculture and ranching will be jeopardized by pollution and lack of water. Although some mineral mining could possibly be done without environmental degradation and severe air and water pollution, that is not the general practice. It is cheaper to dump the polluted water into the rivers, to leave the tailings to pollute the soil, and to let oil spills soak into the ground. The extensive and well-documented report by the indigenous Awajuns and Wampis People in the north east give a vivid account of the conflicts, military violence, deaths, government betrayal, violation of the United Nations Commission on Human Rights, reduction of a national park - their sacred territory - destruction of

their environment and threat to their way of life. The local communities are learning how to present their case and defend their rights in spite of the harassment, threats, imprisonment and risks to their lives.

Developments towards the south east in the tropical areas are equally devastating. Oil and gas companies penetrate deeper and deeper into the rainforest. Over 200 'junior' mining companies, mostly Canadian, keep searching for resources all across the area. With the majority of mining companies based in Canada (75%) it is not surprising that the largest number of companies in Peru are Canadian. 'Exploring' is not just a simple preliminary activity. It involves opening up roads, sometimes deep into pristine forests, bringing in equipment, plotting and dividing the area for seismic tests (with explosives), drilling, using toxic chemicals and water, producing tailings, etc. Even at this preliminary stage it is already an invasive process that more likely than not will do irreversible damage to the Amazon rain forest. Many concessions cover indigenous peoples' territories, protected areas and reserves. Disease and displacement threaten many uncontacted tribes. Different tribal communities are exploited and used to create conflict between communities. Many more dams are being built in pristine rivers and many more are in the planning stage.

Logging roads open the way for squatters to move in for small-scale gold mining, logging prized species of trees or clear land for farming or ranching. All of these activities are 'illegal' but there is little control or enforcement and when there is it tends to erupt in violent confrontations. In one area (Madre de Dios) alone there are about 30.000 'illegal' gold miners; individuals and families with their children trying to make a living. For many it is the only means of survival. Some of the artisanal miners and their unions would like to have their operations recognized and made legal. Over the years an intense struggle has developed between the government and the miners. Organized crime, like everywhere else where there is opportunity and corruption, has seized the opportunity and developed their own lucrative business worth more than 3 billion a year. Given its size, there is complicity, bribery and corruption on every level including money laundering. The frontier towns and settlements bring the drug trade and human trafficking for prostitution. Over a hundred conflicts of the past years are related to mining and another hundred to logging, land and water disputes.

The extraction and processing of gold, zinc, tin and lead leave a legacy of heavy toxic metals in tailings, water and air. Local people have every reason to protest these developments, which will deprive them of their livelihood, use up or contaminate their scarce water supplies and affect their health for years to come. The benefits will go primarily to the elite in Peru, to foreign mining executives and wealthy share holders. The poor in Lima and the coastal area will remain poor and deprived of clean drinking water and sanitation. Indigenous tribes will continue to be threatened by disease, dislocation and deprived of their fishing and hunting grounds. The glaciers will continue to decrease and rivers will keep diminishing and drying up. These kinds of developments can only accelerate the process of climate change and lead to more and more social protests.

Instead, *given a different vision of life*, artisanal gold mining presents a perfect opportunity to have Peru's poor and small-scale miners provide a part of the *approximately 11% of gold* needed for electronics and other essentials. The other part could be supplied by the over one million artisanal gold miners across the globe. Presently many work under miserable and dangerous conditions, including countless children. The images of these small-scale operations are often heart breaking. There are new and innovative methods of extracting gold without using mercury, arsenic, cyanide or other toxic chemicals. The publications and videos of the *Artisanal Gold Council (AGC)* located in Victoria, B.C., the *Coalition for Green Gold*, in California and others provide a vivid and exciting picture of an alternative way of extracting gold. Across the globe, including Peru, the *Artisanal Gold Council* is providing support, equipment and teaching local miners to develop safe extracting methods. These small-scale mining cooperatives would need to be given legal status and rights in specific areas, so that they could no longer be displaced by large mining companies. They could take

responsibility for working conditions, safety, health care, maintaining equipment, environmental protection, and so on. Both in Nigeria and Ghana there are small pilot projects of artisanal mining organized by the AGC.

There is no need for the approximately 70% of gold that is used for jewelry. If it is a matter of saving the environment and improving the lives of a million artisanal miners and their families, we could all commit ourselves not to buy gold jewelry. So far the attempt to develop certification standards for gold has failed and won't succeed until there is a fundamental change in mining operations. There are many beautiful artistic alternatives to gold jewelry. Speculation in gold and investment in gold serves no useful function in society; it is redundant. In view of the environmental damage, health hazards and socially unjust practices, gold mining needs to be phased out. Norway's struggle with ethical standards (the *Council on Ethics*) for the *Government Pension Fund* investments can inspire other countries to divest themselves from these kinds of corporate investments. Presently there are 60 companies that are blacklisted and excluded from pension fund investments in Norway. There are many indigenous organizations in Peru, like the *Interethnic Association for the Development of the Peru Rainforest (AIDESEP)*; *Coordinator of Indigenous Organizations of the Amazon (COICE)*; and others as well as many 'watch dog' organizations like, *Amazon Watch*, *Earthrights International*, *Support Group*, *Institute of Legal Defense*, *Cultural Survival*, *Rainforest Foundation (Norway)* that could support the development of such small artisanal gold mining cooperatives as well as alternative farming, forestry and fishing practices.

Cuffe, S. (June 20, 2016). Deadliest year on record for environmental activists. *Mongabay*. <https://news.mongabay.com/2016/06/deadliest-year-on-record-for-environmental-activists/>

Cultural Survival. (January 14, 2014). Peru: force oil company to clean up spills. Retrieved from <https://www.culturalsurvival.org/campaigns/peru-force-oil-company-clean-spills>

The Dominion. (September 12, 2011). Showdown in Peru. Retrieved from <http://www.dominionpaper.ca/articles/4161>

Earthworks. (2007). Yanacocha. Retrieved from <http://nodirtygold.earthworksaction.org/voices/yanacocha#.Vy5vdcXvaRM>

Earthworks. (May 22, 2013). More shine than substance; how RJC certification fails to create responsible jewelry. Retrieved from https://www.earthworksaction.org/library/detail/more_shine_than_substance#.Vy5vosXvaRM

The Economist. (June 23, 2012). Dashed Expectations. Retrieved from <http://www.economist.com/node/21557344>

EIA. (March 24, 2014) Civil society to Peruvian government: 'Maintain environment impact assessments!' Retrieved from <http://eia-global.org/blog/civil-society-to-peruvian-government-maintain-environment-impact-assessment>

Global Witness, (June 20, 2016). On dangerous ground. Retrieved from, <https://www.globalwitness.org/en/reports/dangerous-ground/>

The Globe and Mail. (May 31, 2013). Harper should not be promoting mining interests in Peru. Retrieved from <http://www.theglobeandmail.com/news/politics/harper-should-not-be-promoting-mining-interests-in-peru/article12291733/v>

The Guardian. (January 27, 2014). Gas firm to move deeper into reserve for indigenous people in Peru. Retrieved from

The Guardian. (May 6, 2014). More than 400 dams planned for the Amazon and headwaters. Retrieved from <http://www.theguardian.com/environment/andes-to-the-amazon/2014/may/06/more-400-dams-amazon-headwaters>

The Guardian. (May 14, 2014). Canadian mining doing serious harm, the IACHR is told. Retrieved from <http://www.theguardian.com/environment/andes-to-the-amazon/2014/may/14/canadian-mining-serious-environmental-harm-iachr>

The Guardian. (June 29, 2014). Peru now has a 'licence to kill' environmental protesters. Retrieved from <http://www.theguardian.com/environment/andes-to-the-amazon/2014/jun/29/peru-licence-to-kill-environmental-protestors>

International Work Group for Indigenous Affairs. (2011). Indigenous people in Peru. Retrieved from <http://www.iwgia.org/regions/latin-america/peru>

IWGIA. (July 19, 2014). Peru: Ollanta Humala asked not to consummate blow to the environment and indigenous people's lives. Retrieved from http://www.iwgia.org/news/search-news?news_id=1036

NACLA Latin America. (December 16, 2013). Peru: Police abuse in the pay of mining companies. Retrieved from <https://nacla.org/blog/2013/12/16/peru-police-abuse-pay-mining-companies>

Opinion. (May 22, 2013). Peru's biodiversity is vital to country's history and future. Retrieved from <http://www.peruthisweek.com/blogs-peru-biodiversity-is-vital-to-countrys-history-and-future-50289>

Organization for the Development of the Border Communities of El Cenepa (ODECOFROC). (2010). Mining and Indigenous Rights in the Cordillera del Condor of Peru. Retrieved from <http://odecofroc.blogspot.ca/>

Rabble.ca. (May 23, 2013). Harper spins Canadian Mining in Peru. Retrieved from <http://rabble.ca/blogs/bloggers/brent-patterson/2013/05/harper-spins-canadian-mining-peru>

Survival International.org. (April 8, 2011). Malaria outbreak could reach uncontacted Indians. Retrieved from <http://www.survivalinternational.org/news/7193>

Survival International.org. (April 29, 2014). French energy giant targeted over Amazon dams. Retrieved from <http://www.survivalinternational.org/news/10216>

The Tye. (May 30, 2013). Harper in Peru: what media failed to report. Retrieved from <http://thetyee.ca/Opinion/2013/05/30/Stephen-Harper-Peru/>

United Church Observer. (June 2013). Standing up to big gold. Retrieved from http://www.ucobserver.org/features/2013/06/big_gold/

For a profile of one mining company in Peru, see the extensive report by Sakura Saunders, ed., (2013), "Debunking Barrick"; as well as the reports on other mining companies in Peru.

Contrary to the neoliberal hope for Peru's economy, which will continue to bring ecological devastation, gross inequality and violation of human rights, *the real hope for Peru are its rural and indigenous people and their vision and way of life*. In view of the preparatory Conference of the Parties (COP) 20, which is the governing body of the UN Framework Convention on Climate Change, meeting in Lima in December 2014, they are the ones, especially the women that have been speaking out about climate change and have made significant contributions. The various indigenous organizations have organized together in a *Unity Pact* to present an alternative to 'the model of civilization at odds with Mother Earth that represents the greatest threat to humanity'.

The *National Conference of Women for Climate Justice in Defense of Mother Earth* that met in Lima in June 2014, has presented a number of key statements and proposals: we "strongly reject the 'false solutions' to global warming and require governments from the South to support sustainable peasant agriculture and production towards domestic markets with energy saving policies; (we) argue that peasant agriculture contributes to the carbon balance of the planet, increases biodiversity, restores soil and organic matter and replaces the industrial production of meat for a diversified small-scale food production; expanding local markets, stopping deforestation and developing a comprehensive forest management is the best way to fight hunger, malnutrition and the current food crisis; (we) demand the right to land and recovery of the territories on a global scale, especially by women, access to water as a social good and a human right and the right to use, conserve and exchange seeds; given the climate crisis, this is a strategic moment to build more fair and equitable models, promoting self-determination, the Buen Vivir (Good Living) and gender equality as the real basis for change. (We) call for all those committed to a better future to participate in the upcoming Peoples Climate Summit, parallel to the official COP20, to speak with a common voice in a space of collective construction and mobilization."

Global Witness. (November 17, 2014). Peru's deadly environment: the rise in killings of environment and land defenders. Retrieved from <https://www.globalwitness.org/en-gb/campaigns/environmental-activists/perus-deadly-environment/>

Global Witness. (April 15, 2014). Deadly Environment: the dramatic rise in killings of environment and land defenders. Retrieved from <https://www.globalwitness.org/en/campaigns/environmental-activists/deadly-environment/>

The Guardian. (July 25, 2014). Community control of forests could help combat climate change. Retrieved from <http://www.theguardian.com/global-development/2014/jul/25/forests-land-rights-deforestation-climate-change>

WGIA. (July 16, 2014). Peru: Indigenous organizations to present climate change agenda. Retrieved from http://www.iwgia.org/news/search-news?news_id=1040

WGIA. (July 16, 2014). Peru: Women raise their voice against climate change. Retrieved from http://www.iwgia.org/news/search-news?news_id=1042

Moore, J. et al. (August 2015). In the national interest? Criminalization of land and environment defenders in the Americas. *MiningWatch Canada*. Retrieved from <http://miningwatch.ca/publications/2015/9/21/national-interest-criminalization-land-and-environment-defenders-americas>

In contrast and given its present course, the Peruvian government, like the Canadian government, will have very little to contribute to the climate change talks. Unlike Nigeria, Peru is not regarded as a failing state. In fact it is number 103 out of 176 nations on the Index. Given the threat of water shortage, the decline and reduction of the rain forest, pollution, poverty, lack of food security, level of corruption, Peru is in fact a very vulnerable state. A more rapid decline of the glaciers affecting the supply of drinking water, a few dry years affecting irrigation and agribusiness, a persistent change in the coastal ocean currents affecting the fishing industry, extensive forest fires devastating more areas of the rain forest, flooding of large areas because of new dams, further disruption and pollution in many locations because of mining and logging, increased protests and violence, are all critical variables. Any one or a few of these factors could easily push Peru over the edge. The turmoil of the twenty years between 1980 and 2000 in which 70.000 people died and many were tortured and raped is not far behind. In view of these realities and threats the words of the environment minister about 'green' solutions sound hollow and empty. As we will see, the Canadian mining industry has much to learn from these brief case studies of Nigeria, Ghana, Peru and Canada's own First Nations.

5) Canada: coal mining in British Columbia

"Coal is the most dangerous substance on the planet." This statement by Bill McKibben (on *Democracy Now*) is as relevant today as when he first made it some time ago. With the continued increase in the mining, export and burning of

coal it is even more to the point today. In an open letter in the *Observer* (February 15, 2009), James Hansen made a similar statement, "...coal is (the) single greatest threat to civilization and all life on our planet." Such statements may sound extreme and one-sided, but they accurately express the ecological, and we could add the social impact of burning coal. Coal is a toxic substance; burning carbon releases large amounts of CO₂ and other toxins to the atmosphere. The mining and burning of coal is a leading cause of global warming. Coal-fired power plants alone account for a large percentage of greenhouse gasses emissions. There are over 2300 coal-fired power stations worldwide and many more planned. Together they provide approximately 40% of the world's energy (over 45% in the U.S.; about 10% in Canada; and in many countries over 50%).

The hidden costs of coal mining and coal-fired power plants are enormous; it is ecologically the most expensive way to produce power. Coal can only be considered a 'cheap' source of energy' if *all the externalities* are discounted. Already in 2007 the *Massachusetts Institute of Technology, The Future of Coal*, stated that without reducing emissions from existing coal plants we cannot achieve significant reductions in CO₂ emissions. Without such reductions there is no credible pathway toward CO₂ stabilization targets. Today most reports agree that all coal-fired power plants need to be phased out by 2020; that a moratorium be placed on any new coal mines; that existing mines need to be closed down; and that all abandoned mining sites be cleaned up and restored.

Environmentally coal is the dirtiest form of energy. Every stage of the production, processing, transportation and burning of coal creates its own pollution and GHG emissions. It already starts with the seismic mapping, exploratory drilling, developing roads for heavy machinery, setting up a mining site with buildings, removing tonnes of waste rock, blasting, crushing, washing, drying, and so on. The entire mining process requires large amounts of water, much of which becomes polluted. In many arid areas it taxes or depletes scarce surface and groundwater. It is estimated that the global industrial use of water will increase to 600 cubic kilometers by 2025, which is also the period in which almost 2 billion people will suffer extreme water scarcity. Acid drainage and toxic wastes contaminate the soil, groundwater, creeks and rivers. During the mining process there is a direct release of methane gas which is highly toxic in itself. During excavations and use of heavy machinery large amounts of dust are stirred up, giving rise to air pollution that affects both the health of workers and the surrounding habitat. Trucks and machinery require a substantial amount of diesel and other fuels, adding more air pollution and particulates as well as noise pollution.

In many instances coal mining has opened up large sections of remote or unexplored wilderness areas including watersheds and habitats. This wide-scale disturbance in turn affects the range and migratory patterns of animals, birds and fish and the biodiversity of the area. This decline in habitat in more remote areas world-wide has deeply affected the traditional hunting and fishing grounds of many indigenous people and First Nations in Canada. Usually these developments have taken place without consultation and the prior and informed consent of the people involved. The results have been devastating for countless communities. The expansion of mining has left many without land, water, forests, depriving them of their livelihood. Hundreds of thousands of people have been dispossessed and displaced from their traditional homelands. Destitute, many have flocked to the margins of mega-cities, trying to survive.

Coal-fired power plants have an equally devastating effect on the environment. It is the single largest cause of global warming emissions. There are around 600 coal-fired power plants in US; over 2000 plants in China; and 24 in Canada, which account for about 17% of Canada's greenhouse gas emissions. World-wide the burning of coal accounts for 1/3 of all CO₂ and other toxic gas emissions. It makes sense out of James Hansen's claims before the US congress that phasing out coal-fired power plants is 80% of the solution to cut back CO₂ emissions and the increase in global warming. Instead, the global coal industry, power companies with the support of national governments and international banks are

planning to develop many new coal mines and coal-fired power plants. No amount of new technologies can begin to make up for these developments.

The hope is that carbon emissions can be trapped at the smokestack, compressed and shipped via (long) pipelines to a disposal site and injected deep underground. It is called *Carbon Capture and Storage, CCS*. There are several successful small-scale carbon capture projects, but no large-scale CCS projects. It will require a lot of expensive research and development before this is a viable option. Such solutions are decades away and the question is who will pay for the research? The costs of retrofitting the thousands of coal-fired utilities would be astronomical and would increase the cost of electricity, perhaps by as much as 20%, depending on the age and size of the plant. The MIT study describes different kinds of coal technologies like *Integrated Gasification Combined Cycle (IGCC)* and '*oxygen fired pulverized coal combustion*' and a number of other technologies. All are costly, have limitations, and will require many decades before they can be applied on a large scale. Most important of all, such technologies, even if feasible in the future, continue the dependency on fossil fuels for decades. It takes away resources from the development of alternative energies.

In the face of the eventual shut down of coal mines and phasing out of coal-fired power plants, the industry has doubled its efforts to maintain and expand its activities. Millions of dollars are being spent on lobbying, contributions to political parties, public relations campaigns and TV commercials; suggesting that 'clean coal' is safe and that we will need coal for many decades to come. For now, 'clean coal' and 'clean' coal-fired power plants is an illusion. There are many reports that have exposed these myths and coal companies' opposition campaigns

According to these reports, the reality of mining and burning 'clean coal' is that it kills people (about 400,000 world-wide per year) and results in many other health problems (asthma, heart attacks, etc.); kills miners (black lung disease, silicosis, mesothelioma, etc.); is expensive in terms of environmental costs; adds to acidification of forests and oceans; and poisons and pollutes huge quantities of water. It is the largest single source of mercury emissions and other toxic metals; creates fewer jobs than renewables; and costs billions in subsidies; etc.

In spite of the environmentally destructive role of the mining industry and coal-fired power plants, the global coal industry continues to apply for new coal mining permits. Over a thousand new coal-fired plants are being proposed by over 400 hundred power companies in more than 50 countries. The majority of these proposals are for China and India. They expect coal consumption will continue to rise in the coming decades. Large infrastructure developments are taking place in Australia, China, India and other countries, both for export and import. They require new or expanded port facilities, dredging and deepening of harbors, developing roads and railways, expropriating lands, etc. and huge financial investments. In view of climate change and the urgent need for reducing carbon emissions, the coal industry is an ecologically and socially irresponsible industry. Governments continue to hand out permits and concessions illegitimately. They do not have the inherent right to make decisions about resources, lands, rivers, and forests without consultation and the prior and informed consent of the peoples. More and more indigenous people are learning to claim their 'customary rights' and finding ways to get around international trade agreements. These agreements have no legitimacy, because they have been negotiated in secret and do not have the consent of the peoples.

ABC Environment. (April 7, 2015). Coal is not the answer to energy poverty. Retrieved from <http://www.abc.net.au/environment/articles/2014/04/11/3982877.htm>
CBC News. (January 22, 2009). *How easy is it to nab greenhouse gases at the smokestack?* Retrieved from <http://www.cbc.ca/news/canada/how-easy-is-it-to-nab-greenhouse-gases-at-the-smokestack-1.792186>
CDP's Water Disclosure. (2010). Global Report. Retrieved from <https://www.cdp.net/CDPResults/CDP-2010-Water-Disclosure-Global-Report.pdf>
Centre for American Progress. (July 29, 2014). Federal coal leasing in the Powder River Basin, a bad deal for taxpayers. Retrieved from <https://www.americanprogress.org/issues/green/report/2014/07/29/94204/federal-coal-leasing-in-the-powder-river-basin/>
ClimateProgress. (July 8, 2014). Chevron admits the truth: oil shale will use huge amounts of western water. Retrieved from <http://thinkprogress.org/climate/2014/07/08/3457738/chevron-oil-shale-water/>
Democracy and Health News. (2008). Green Coal? Retrieved from http://www.precaution.org/lib/08/prn_is_coal_green.081106.htm

EcoWatch. (September 1, 2014). World Water Week: 7 reasons to claim water for life, not coal. Retrieved from <http://ecowatch.com/2014/09/01/world-water-week-water-life-not-coal/>

Greenpeace. (July 29, 2014). Leasing coal, fueling climate change, how the federal coal leasing program undermines President Obama's Climate Plan. Retrieved from <http://www.greenpeace.org/usa/research/leasing-coal-fueling-climate-change/>

The Guardian. (November 20, 2012). More than 1,000 new coal plants planned worldwide, figures show. Retrieved from <http://www.theguardian.com/environment/2012/nov/20/coal-plants-world-resources-institute>

IEA Clean Coal Centre. (2012). Status of Coal Fired Power Plants World-Wide. Retrieved from <http://www.iea.org/media/workshops/2011/cea/topper.pdf>

Massachusetts Institute of Technology. (2007). *The Future of Coal*. Retrieved from http://web.mit.edu/coal/The_Future_of_Coal_Summary_Report.pdf

MIT News. (June 18, 2009). Cutting CO₂ emissions from existing coal plants. Retrieved from <http://news.mit.edu/2009/coal-0619>

Pembina Institute. (July 2014). Fossil Fuel Subsidies, an analysis of federal financial support to Canada's oil sector. Retrieved from <https://www.pembina.org/reports/fossil-fuel-subsidies.pdf>

Toronto Star. (June 2, 2012). Will Canada remain a world leader in CCS? Retrieved from https://www.thestar.com/news/canada/2012/06/08/carbon_capture_and_storage_an_uncertain_future_in_canada.html

Water Footprint. (June 6, 2014). Humanity's environmental footprint must be 'assessed holistically and capped' for us to live sustainably. Retrieved from http://waterfootprint.org/media/downloads/WFN_press_release_-_humanitys_unsustainable_footprint_-_final.pdf

World Resources Institute. (2012). Global coal risk assessment: Data analysis and market research. Retrieved from <http://www.wri.org/publication/global-coal-risk-assessment>

British Columbia's Coal Industry

Against this background we need to see the coal mining developments in British Columbia, especially in the *Peace River Region*. We could have focused on any other kind of mining in any other province or region to illustrate what is wrong with the mining industry in Canada. Everywhere it is basically the same story. In spite of all the evidence about 'dirty' coal and its large contribution to climate change and all the protests, the B.C. government is allowing the coal industry to expand. In view of its boasts of high targets for lowering emissions, you would expect that the province would be phasing out or at the very least putting a moratorium on any new coal developments. The coal industry wants to double coal exports in the next few years. Four corporations with ten operating mines control the coal industry in B.C. and dozens of corporations have made proposals for further developments. By making substantial contributions to the B.C. government and by extensive lobbying the coal industry has a strong influence on the government. As in many other places, governments are largely in the service of global corporations with a veneer of permits, regulations and conditions. Canada's policies are contradictory and lack transparency when it comes to cutting back on GHG emissions. There is no consolidated strategy with regard to coal mining, phasing out coal-fired power plants and cutting CO₂ emissions.

More than half of B.C.'s coal is exported to Japan and South Korea for the steel industry, and the rest to the US and Europe. Port facilities both in Prince Rupert and Vancouver with its five terminals are expanding for shipping more coal. The US also wants to ship coal through Seattle and Vancouver terminals with opposition from both sides of the border. The US and Canada together already export a large amount of coal each year that will pollute the air elsewhere and add to the global level of GHG. With many utilities changing or planning to change to natural gas, the coal industry in Canada is looking for new markets in Asia. They are supported by shipping subsidies from the government to be able to undercut the U.S.'s exports. With the more abundant and cheaper supply of shale gas, the coal industry is desperate to develop new markets, especially in India and China, before it is too late. There is strong competition from Australia and other countries that already have an established market in Asia.

At the same time China is reconsidering its policies to keep expanding its coal-fired plants. Even Australia has to reconsider this changing situation in developing its giant open pit coal mine (Carmichael) in north Queensland and a channel through the Great Barrier Reef for shipping to India. Opponents to this mega-project have been called eco-terrorists. Australia is the world's biggest coal exporter. These mega-mine plans are considered the world's second biggest 'carbon bomb'. Recently Australia has lifted its carbon tax to expedite further developments. This competition does not bode well for B.C.'s coal exports. Perhaps the political and corporate hope is that the export of liquefied natural gas (LNG) can compensate for this changing export situation

In the U.S. as well as in Canada there is strong citizen opposition to these expansions because of concern about coal dust and pollution near railroad terminals, harbour facilities and nearby coastal waters. Generally, many oppose shipping 'dirty coal' for burning in other countries that will significantly add to global warming. Climate change has become a global issue and will come back to haunt BC with melting glaciers, severe weather, floods, mud slides, droughts, forest fires, loss of large areas of forests because of pests and disease, loss of biodiversity, changing migration patterns of fish, birds and animals, dust particles with toxic chemicals blowing across the ocean from China and other countries, etc. Already the western world is suffering the consequences of outsourcing manufacturing to countries with cheap labour and very few environmental regulations. Instead of phasing out the fossil fuel industry, its expansion is ultimately an ethical question in the sense of violating the rights of everyone to clean air, water, land and health, as well as the lives of tens of thousands indigenous peoples across the world. At the same time as these developments are taking place, B.C. forestry groups are urging the government to provide strong action and leadership on climate change. This group represents more than 9000 forest professionals and they are highlighting the increased levels of disturbance and the dramatic impact climate change is already having in the forests. B.C. prides itself on its record and high targets for limiting its CO₂ emissions by the year 2020. It can accomplish this reduction in CO₂ only by means of its deceptive emissions accounting.

Allan, A. (May, 2016). "Toward financial responsibility in B.C.'s mining industry", Victoria, B.C.: *Union of B.C. Indian Chiefs*. Retrieved from, https://d3n8a8pro7vhmx.cloudfront.net/ubcic/pages/1290/attachments/original/1463347826/Toward_Financial_Responsibility.pdf

Bast, E. et.al., (November, 2015). "Empty promises; G20 subsidies to oil, gas and coal production", *Oil Change International*. Retrieved from, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9957.pdf>

Bellringer, C., (May, 2016). An audit of compliance and enforcement of the mining sector. Victoria: *Auditor General of B.C.* Retrieved from, https://www.bcauditor.com/sites/default/files/publications/reports/OAGBC_PerformanceAuditCoveragePlan_FINAL.pdf

Blogwood. (October 17, 2013). Coal exports from U.S sent via B.C. shorten lives in China. Retrieved from <https://dogwoodinitiative.org/blog/coal-export-op-ed>

Chen, H. (May 24, 2016). "Some G7 countries still providing billions in financing for coal plants: findings from our new report", *NRDC*. Retrieved from, <https://www.nrdc.org/experts/han-chen/some-g7-countries-still-providing-billions-financing-coal-plants>

Climate Justice Project. (2012). BC's legislated greenhouse gas targets vs. natural gas development: the good, the bad and the ugly. *Carbon Tracker*. Retrieved from https://www.policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2012/10/CCPA-BC_GHG-Targets-vs-Natural-Gas.pdf

ClimateProgress. (July 12, 2014). Gas export terminal draws opposition from Marylanders, faith groups. Retrieved from <http://thinkprogress.org/climate/2014/07/12/3459556/opposition-gas-exports-maryland/>

ClimateProgress. (July 17, 2014). Australia becomes the first country to repeal carbon price – too bad it was working. Retrieved from <http://thinkprogress.org/climate/2014/07/17/3461224/australia-repeals-carbon-price/>

Creedy, D. et.al., (June 24, 2016). "Methane emissions from coal mines key to climate fight", *Eco-Business*. Retrieved from, <http://www.eco-business.com/opinion/methane-emissions-from-coal-mines-key-to-climate-fight-2/>

Dogwood Initiative. (2008). BC's Dirty Secret, Big Coal and the Export of Global-Warming Pollution. Retrieved from <https://dogwoodinitiative.org/publications/reports/coalreport/view>

MiningWatch Canada, (May 30, 2016). "New analysis – B.C. ranks worst in Canada for unsecured environmental liability of mine sites". Retrieved from, <http://miningwatch.ca/news/2016/5/30/new-analysis-british-columbia-ranks-worst-canada-unsecured-environmental-liability>

Nagata, K. (2016). "Why no climate action? Follow the money; big polluters donate big bucks to B.C. politicians", *Dogwood Initiative*. Retrieved from, <http://blog.dogwoodinitiative.org/2016/06/27/no-climate-action-follow-money/>

Olden, M. & Neumann, J. (2015). "Double jeopardy: coal's threat to forests", *Fern*. Retrieved from, http://www.coalforest.org/pdf/CoalForest_Report.pdf

Pereira, S. (July 5, 2016). "Coal dust causes 23,000 premature deaths in the E.U.", *ClimateProgress*. Retrieved from, <http://thinkprogress.org/climate/2016/07/05/3795394/coal-plants-dust-european-union/>

The Globe and Mail. (July 2, 2014). U.S. climate-change plan will likely affect Vancouver coal-port expansion. Retrieved from <http://www.theglobeandmail.com/news/british-columbia/us-climate-change-plan-will-likely-affect-vancouver-coal-port-expansion/article18957220/>

The Globe and Mail. (July 8, 2014). Forestry groups warn of climate change impact on B.C.'s ecosystems. Retrieved from <http://www.theglobeandmail.com/news/british-columbia/forestry-groups-warn-of-climate-change-impact-on-bcs-ecosystems/article19521698/>

The Guardian. (December 16, 2013). Coals grim forecast: projects may be stranded by falling Chinese demand. Retrieved from <http://www.theguardian.com/environment/2013/dec/16/coals-grim-forecast-chinas-falling-demand>

Horne, M. (February 15, 2012). Claims of climate leadership in BC's natural gas strategy leave much to be desired. *Pembina Institute blog*. Retrieved from <http://www.pembina.org/blog/611>

Olden, M. and Neumann, J. (2015). Double Jeopardy: Coal's Threat to Forests. *FERN*. Retrieved from http://www.fern.org/sites/fern.org/files/CoalForest_Report.pdf

The New York Times. (February 12, 2014). Don't sell cheap U.S. coal to Asia. Retrieved from http://www.nytimes.com/2014/02/13/opinion/dont-sell-cheap-us-coal-to-asia.html?_r=0

Sierra Club BC. (2012). Emissions Impossible? British Columbia's Uncounted Greenhouse Gas Emissions. Retrieved from <http://sierraclub.bc.ca/wp-content/uploads/2015/08/Emissions-Impossible-Executive-Summary.pdf>

The Peace River Region

The industrial activities in northeastern B.C. are fracturing and disturbing the entire Peace River Region. It is not only the 4 coal mines and the 4 proposed new mines, but also the oil, gas, shale gas and logging activities that are criss-crossing the area. It is a broken(-up) country. There are over 16,000 gas and oil well sites with connecting pipelines; over 8,000 petroleum and natural gas facilities, all requiring water withdrawals; countless seismic lines; over 2,000 stream crossings; 2 large-scale hydroelectric dams with reservoirs and a proposed new dam (C dam); over 200 run-of-river hydropower sites that disturb river basins and habitats; clearcuts and thousands of existing and planned logging cut-blocks; over 45,000 km of roads and over 1,100 km of transmission lines. There are thousands of additional square kms of coal and mineral tenures. All of this is happening in an area of 5,611,800 hectares of land. Almost 70% of the region has been disturbed by these developments. The *Passages from the Peace, 2013* with its over-lay maps and voices from different communities produced by the *David Suzuki Foundation* illustrate the large-scale fragmentation and what that means for the people and the environment. It is the *cumulative impact* of these activities that is destroying the region. Farmland is cut up and pristine hunting and fishing grounds are compromised or permanently disturbed. Fish are contaminated by mercury. There is no overall integrated plan for development. And all this for an unsustainable industry that daily adds large amounts of CO₂ to the atmosphere and devastates the environment. The benefits are primarily for the well-to-do.

Only a very small percentage of the Peace River area, about 4.2%, has been designated as parks and protected areas, 1.6% for aboriginal use and 9.2% for farmland. Both the farming communities and the First Nations have been deeply affected by these developments. They are happening without meaningful consultation and the prior and informed consent of the people, and regardless of their protests. It has violated the homelands and treaties of a number of First Nations. As the elders express it, the 'land is suffering', 'the land is broken'. Federal and provincial economic development trumps all other local considerations.

Alternatives North. (2013). Petition to Commissioner of the Environment and Sustainable Development. Retrieved from http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201311_09_e_38679.html

David Suzuki Foundation. (2014). Broken Ground. Retrieved from <http://brokenground.ca/>

MiningWatch Canada. (March 7, 2014). White River First Nation says Yukon's response to Ross River Dena 'free entry' court decision inadequate. Retrieved from <http://miningwatch.ca/news/2014/1/7/white-river-first-nation-says-yukon-s-response-ross-river-dena-free-entry-court>

MiningWatch Canada. (July 17, 2014). The Grassy Narrows decision. Retrieved from <http://miningwatch.ca/>

Page, S. (August 10, 2015). Abandoned mine leaks millions of gallons of bright orange, toxic water into a Colorado river. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/08/10/3689745/epa-spills-three-million-gallons-of-wastewater-from-mine/>

Rabble Ca. (June 26, 2014). Supreme Court decision acknowledges aboriginal title over Tsilhqot'in First Nation Land. Retrieved from <http://rabble.ca/news/2014/06/supreme-court-decision-acknowledges-aboriginal-title-over-tsilhqotin-first-nation-land>

Rabble Ca. (September 27, 2013). The bells tolls for free entry in Canada: legal victory for Yukon First Nation will have implications across the country. Retrieved from <http://rabble.ca/blogs/bloggers/miningwatch/2013/09/bell-tolls-free-entry-canada-legal-victory-yukon-first-nation-wil>

After all the reports by many reputable organizations and many protests, no one can claim ignorance. To give a sampling: *Dogwood Initiative*, 2008, "BC's Dirty Secret, Big Coal and the Export of Global-Warming Pollution"; *Sierra Club, BC*, 2012, "Emissions Impossible"; *CCPA*, 2012, "BC's Legislated Greenhouse Gas Targets vs Natural Gas Development"; *Wilderness Committee*, "Coal: BC's Dirty Secret"; *Vancouver Observer*, October 16, 2012, "Climate Pollution in BC's Economy"; the regular *Climate Snapshots* related to BC's mining developments by Barry Saxifrage in the *Vancouver Observer*; and many other articles. Besides these special reports, there are the regular updates by *MiningWatch Canada*; *SourceWatch*, *CoalSwarm*, *FrackSwarm*; *Global Forest Watch Canada*; *Wildsight*; *Earthlife*; *Energy Justice Network*; *Wilderness Committee*; *Rivers Without Borders*; *North Watch*; *Eco Justice*; *Citizens Against Strip Mining*; *Watershed Sentinel*; *Canadian Network on Corporate Responsibility*; *Blue Planet Project*; and many other civil society groups. These various organizations are the true governors of British Columbia and the other Canadian provinces. They speak for the environment and all communities and First Nations that are threatened by disruptive and unwanted mining developments.

There is a *veneer* or *smokescreen* of policies, standards, regulatory frameworks, penalties, environmental conditions, consultation requirements, closure plans, financial assurances, health assessments, best practices, etc. developed by government departments together with other 'stake holders'. Many of these regulations are summarized in a number of reports, like *Earthworks & WWF*, 2005, "The Principles of Responsible Mining"; *The Canary Research Institute for Mining*, "Environment and Health", with references to various Canadian government mining acts; Partha Das Sharma, 2009, "Bringing Sustainability in Coal Mining Operations – Need-of-the-Hour"; and many others. Although good in themselves, these requirements and best practices can nevertheless be called a *veneer* or *smokescreen* because they hide the reality of the actual practices on the ground. There are any number of loopholes, exceptions, temporary permits, failures to comply, blatant violations, lack of inspection, minimal fines, laws lacking final endorsement or waiting further clarification, indefinite postponements, etc. that often make the official legislation ineffective or meaningless. Intense lobbying and large donations further limit what is enacted.

Abandoned mines

The many abandoned mines are a good example of the contrast between good guidelines and the actual practices. Besides provincial and territorial government legislations, several organizations have spelled out in detail how to deal with abandoned mines and presented requirements for future developments. The *National Orphaned/Abandoned Mines Initiative (NOAMI)*, "Mining for Closure, Abandoned Mines in Northern Canada"; *MiningWatch Canada*, "Abandoned Mines"; *Environmental Defense*, "Abandoned Mine Lands, (US)"; and other organizations that have developed good guidelines for the closure of mines and the clean-up of abandoned mines. That is the theory, or the 'appropriate management practices', 'policy frameworks' and 'best practices'. In many instances the reality is very different. As the *Commissioner of the Environment and Sustainable Development* mentioned again in 2012, "there is no consolidated strategy to clean up contaminated sites and limited transparency". This compares to his previous devastating report in 2002. There are many documented accounts of contaminated and abandoned mining sites both in B.C. and other provinces and the effects they have on local communities. Canadian tax payers pay millions of dollars each year to clean up the worst of the contaminated 'orphaned' mining sites. Apparently, the 'polluter pays principle' did not hold for past mining projects, and even today may only cover part of the cost. This situation is the direct result of excluding the externalities, or, pursuing one-dimensional economic policies. These more basic *systemic questions and ethical questions* are seldom raised.

About a thousand mining companies (75%) are located in Canada with projects in over a hundred different countries. Apparently Canada is a favorite home-base for mining companies with few regulations, appealing subsidies (1.4 billion per year) and excellent tax breaks (840 million per year). In developing countries with limited legal frameworks and politicized courts, with fewer regulations, lack of inspection, corruption, bribery, environmental degradation and human rights violations, these practices are the order of the day as we saw with regard to Nigeria and Peru.

A 2013 study available from Global Forest Watch illustrates the point. *The Environmental Incidents in Northeastern Alberta's Bitumen Sands Region, 1996-2012* report "found that environmental violations in Alberta's bitumen sands region are frequent, enforcement is rare, record keeping is dysfunctional, and there is a chronic failure to disclose important environmental incident information to the public". They documented over 9000 environmental incidents over this 16-year period, of which over 4000 were violations of Alberta's laws and regulations. This figure is considered a conservative number because of underreporting. Given the many reported incidents and conflicts world-wide, there is no doubt that the same is true for many other areas and countries. In the Niger Delta in Nigeria there is at least 1 incident a day; in the Alberta's tar sands there are about 2 incidents a day. During the last decade there were 171 companies involved in mining incidents; about 58 of those were Canadian-based companies. The incidents had to do

with community conflict, protests, physical violence, environmental degradation, unethical behavior, careless disregard for human rights and local laws.

One can wonder what it is like to develop these sorts of regulations, often in great detail, knowing that they have very limited meaning. They involve endless meetings and the efforts and energy of a great number of people. These kind of official government documents are on the books for every area of the economy and society. Many express the hope and are confident that progress is being made and that over time things will continue to improve. It is a make-belief world that many of us have to come to terms with. So much money and so much effort of so many people spent on something that has so little effect and gets undermined at every turn. That is true for local councils, provincial and national governments as well as official international organizations. What does it take to believe in these efforts? In Nigeria and Peru these discrepancies between the official line and the reality is openly called 'corruption and bribery at every level' and considered the normal order of the day. What would we call this smokescreen of laws, recommendations and international guidelines in developed countries, the 'rule of law'?

The one useful aspect of these official regulations is that they *provide a legal framework that the watchdog organizations can appeal to*. As the true governors of Canada they can take the government and energy companies to court for noncompliance or violations of the existing laws. Many do so at great financial expense and personal sacrifice, giving freely of their time and expertise. It is a topsy-turvy world where government and industry have to be constantly challenged, opposed, and taken to court in order to protect our environment, our health, the rights of our communities and the treaty rights of First Nations. Without their efforts, the degradation of the environment and social injustice would be much greater. Time will tell whether the new Supreme Court of Canada's favorable decision with regard to the rights of the Tsilhqotin First Nation will affect other cases pending and future developments. *Perhaps all those involved in watchdog agencies can take comfort in the fact that they are the true governors of the land*. Governing, the call to do justice has never been easy. It has always involved a great struggle in the face of opposition, or worse, threats and violence. In some countries opposition leaders have paid with their lives. Unfortunately many countries do not even have such an elaborate legal framework as Canada and other developed countries.

6) Ecologically sustainable and socially just mining?

Given that most gas, oil, coal and minerals should be left in the ground if we are to survive as a species, can *some mining actually* be done in an ecologically sustainable way as several reports claim? If we look at those reports more closely, the answer might be, perhaps. It depends on what is taken into account: global warming, specific location, customary law, corrupt governments, etc.

It seems that seismic explorations could be done in a way that does not disturb the environment for decades to come or permanently. It could be done by helicopter, for example, as the 'best practices' guidelines illustrate. *Access roads* could be developed in such a way that it does not provide a 'highway' for predators to invade new territories. Roads through boreal forests could be kept very narrow, just wide enough for all-terrain vehicles and be 'blocked' at intervals so that they do not form a straight line; perhaps 'platform' approaches like those used in offshore drilling could be used in primary tropical rainforests; transportation by helicopter or boat could be an alternative. *Water* used for extracting and processing could be recycled and *tailings* could be decontaminated. *Large machinery* and the *diesel oil* used could be made nearly carbon neutral. *Emissions* could be almost pollution free. *Accidents* and *occupational diseases* could be eliminated through mechanization and ventilation. From the beginning plans could be made for *retiring* mines and *restoring* the environment to whatever degree still necessary. There seem to be improved and advanced technologies available with regard to almost every part of the mining process. These kinds of improvements and changes *could make*

small-scale mining more ecologically sustainable. The examples from Finland, Green Gold in the US, and the projects in Catalonia in Spain are perhaps the most convincing.

In terms of social justice, small mining companies could involve and consult the surrounding peoples and seek their prior, full and informed consent, assuming that there is an ecologically sustainable way of mining in their area. If they do agree (without coercion, intimidation, bribery, false promises, etc.) the company could see to it that they benefit fully from the development of their resources. Especially if the local community was *supported to improve their own way of living in ways that suited them*, they would feel part of the process of development. In many instances that would mean learning to manage and protect their water supply and develop better sanitation; it might mean that as a village they pay for a teacher to develop a local school with a large school garden program to feed the children; that they develop a tree nursery for agroforestry; learn to make different cooking stoves that would eliminate most smoke; plant trees for a forest area for their community; pay for a medical practitioner to come by once a week; teach a person to maintain a bicycle ambulance and be available when needed; and so on, whatever the community needs most. Especially if they saw that their environment was protected and if the support was for real, they would trust the process and become part of it. It is all a little hypothetical since there are no mining projects that I am aware of that follow all or even most of these mining practices. The best examples are the projects sponsored and supported by the *Artisanal Gold Council* mentioned earlier where the local people themselves were empowered.

Even if all the ecological and social aspects were taken into account, there is only one problem: all these *socially just and ecologically sustainable ways of mining would cost more.* Of course, they would *not really cost* more if the environmental and social costs were taken into account. Moreover the mining projects would probably have to be much more small scale and limited in number and that would affect the bottom line as well. Perhaps such ecologically and just ways of mining would come close to being carbon neutral and socially just. However, such an integral approach would not fit the prevailing market ideology with its one-dimensional vision. Rather, it would require a multi-dimensional approach (see Chapter 6) that would do justice to every aspect of life and not just the economic. In fact, it would amount to a radically alternative form of extracting essential minerals within an integral economic approach.

It is doubtful that there are any mining companies today that follow these 'best practices'. The market ideology does not allow it. Maximizing profits is the fundamental guideline, no matter what the consequences. Mining companies tend to spend as little 'extra' money as possible, especially in Africa, Asia and the Americas. The many reports of ugly mining practices in almost every developing country with natural resources speak volumes. Environmental violations and social injustice seem to be the order of the day. Only when challenged, fined, sued, exposed will they make some adjustments, and even then they may countersue, bribe, ignore, stall, not follow through, go bankrupt, or sell the company to another one that cannot be held responsible. The reality is an ugly story whether about practices in Papua New Guinea, Philippines, Guatemala, Ecuador, Chili, Columbia, Costa Rica, Mexico, RD Congo, Nigeria, Ghana, Malawi, Greece and many other countries. Even companies that seek to follow more sustainable practices do not seem to take the broader ecological, social and cultural context into account.

The countless abandoned mines across the globe are a silent testimony to an ecologically and socially irresponsible industry. In Canada alone there are over 10.000 abandoned mines and in the U.S. more than 500.000. World-wide there may be as many as hundreds of thousands sites, all at different stages of decay and contamination. Given the fact that many mines do not last more than 15 years, those numbers are not surprising. Mining activities have left behind scarred, degraded and polluted environments and many displaced people. The tailings will continue to leach dangerous chemicals into the soil, groundwater and rivers for decades, affecting the health of the surrounding people and without benefit to the majority of the people. In some instances the pollution lasts forever; for example, the Giant Mine in

Yellowknife which needs to be monitored and maintained continuously year after year. Apparently the polluter does not have to pay. If the damage is severe enough or very obvious requiring immediate clean-up, the citizens pay. In this respect, mining is a 'waste management industry'. The consequences of *economic reductionism* are perhaps nowhere as visible as in this sector of the economy.

A sizeable lobby group makes sure the prime minister and his cabinet protect and promote their industry and use their ambassadors to lobby overseas for favorable conditions and a minimum of regulations (see the list in MiningWatch Canada). In view of this pervasive picture it is not surprising that the United Church of Canada together with the ecumenical organization Kairos has appealed to the government to change the law so that Canadian based mining companies and their executives can be charged about violations in other countries. So far without success in spite of a private member's bill by liberal MP John McKay.

One response that is gaining momentum is the *divestment movement* in an effort to stop investing in fossil fuel companies and purge their holdings of all fossil fuel assets. It is a call to divest from the 200 publicly traded companies that hold the vast majority of oil, gas and coal reserves and urge them to stop exploring for new fossil fuels. There are about 400 campuses involved in an 'oil cleanse' campaign. Several big universities have already committed themselves to divest their endowment funds from fossil fuel investments. Many are reinvesting in renewable energies, like the 17 foundations joined together in Divest-Invest Philanthropy. The movement has spread to Europe, the U.K., Sweden, the Netherlands, Germany, and others. If nothing else, it is a powerful testimony. There is an additional issue of putting investors at risk of what may turn out to be a 'carbon bubble', an overheated fuel market or what might happen after a world-wide carbon tax. A new approach to investing can no longer ignore the environmental and social impacts of the energy industry.

Alberta Centre for Boreal Studies. (2001). The oil and gas industry in Alberta: seismic exploration. Retrieved from <http://esrd.alberta.ca/lands-forests/industrial-activity/seismic-exploration/default.aspx>

Carbon Tracker. (March, 2012). Unburnable Carbon – are the world's financial markets carrying a carbon bubble? <http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf>

Energy, Mines and Resources, Oil and Gas. (2006). Best Management Practices: Seismic Exploration. Retrieved from http://www.emr.gov.yk.ca/oilandgas/pdf/brochures_seismic_aug2006.pdf

Mining News. (August 5, 2013). Finland's Mining industry to be a forerunner in sustainable development in the extractive industry. Retrieved from <http://www.investinfinland.fi/articles/news/mining/finlands-mining-industry-to-be-a-forerunner-in-sustainable-development-in-the-extractive-industry/49-916>

UN Development Knowledge Platform. Sustainable Development in Finland's Mining. <https://sustainabledevelopment.un.org/index.php?menu=963>

Uusino, M. (2013). Action Plan for sustainable extractive industries in Finland. Retrieved from

https://www.tem.fi/en/current_issues/pending_projects/project_and_programme_archive/strategic_programme_for_the_clean_tech_business/sustainable_mining

7) Other aspects of the mining industry

There are many other aspects of energy extraction and mining; extracting shale gas and oil by means of fracking; nuclear energy; development of distilleries to convert grain crops into fuel for cars - biofuels; offshore drilling, particularly in the Arctic; mineral mining; asbestos and uranium mining; etc. The issues facing each of these different mining industries are fundamentally the same as that of the coal industry. Of these, there are a few aspects that are worth mentioning separately.

Hydraulic fracturing of deep layers of shale rock to release the trapped gas has equally severe drawbacks and consequences. The most important issues are: it is a 'dirty' fossil fuel that cannot serve as a 'bridge' fuel; fracturing uses huge amounts of water that is permanently withdrawn from the water cycle and presents major water issues in different parts of the world; methane gas emissions and leakage; air pollution, especially of particulates from heavy machinery and trucking; potential contamination from toxic chemicals in the groundwater and surface water; tremors and earthquakes; disposal of waste water; it kills or slows down the development of renewables; leads to community disruption, noise, traffic, damage to roads; unplanned development; decline of property values; violation of First Nations

rights; overestimation of the amount of shale gas; large financial investments and speculation. No amount of technical improvements can begin to make-up for these drawbacks and problems. The frenzy in shale gas developments and exports, especially in the US will contribute to further global warming and climate change.

The *asbestos industry* is another disturbing and heart wrenching story. Both the asbestos mining executives and the Canadian government are complicit in the deaths of thousands of citizens both in Canada and abroad. There will be more deaths in the future because of the longevity of asbestos in the body. The effects of anyone that has been in contact with asbestos may not show up until some 40 years later, which leaves many children and teenagers in fear of their future health. Already in 2008 there was a damning report by Kathleen Ruff, "*Exporting Harm; How Canada markets asbestos to the developing world*", including a strong letter to the prime minister, "*World Call of Conscience to Prime Minister Harper to stop obstructing the Rotterdam Convention*", which was signed by a large number of people. In 2013 at the Asbestos Conference, Kathleen Ruff made another presentation, "*A failure of ethics by McGill University*". Many organizations, including the major national and international health associations have objected to the mining, use and export of asbestos. Asbestos is still present in many homes, schools and public buildings, continuing the risk of exposure, especially as buildings age. Although Canada's last two mines were closed in 2011, large quantities of asbestos and products containing asbestos are still being imported and used, like replacement brake pads, pipes, tiles, and clothing. The politicians stubbornly keep repeating their mantra, if asbestos is used safely there is no danger. Tell that to the little girl, now young woman, who sat on her father's lap after work. As it turned out he had been exposed to asbestos in his office many years earlier. Most people would consider such Canadian attitudes and practices as gross negligence resulting in bodily harm.

Much could be said about *uranium mining* especially in developing countries like Namibia, Malawi, Niger and other African countries for use in nuclear power plants. In those countries the risk of exposure to radiation from uranium is high for the workers and people living in the vicinity of a mine. In Niger for example 270 billion litres of contaminated water were dumped in rivers and lakes over a forty year period. Protests are often of no avail, like those in Niger and Malawi. Even in Canada there are many conflicts about opening up new uranium mines and cleaning up old mines.

In spite of environmental and social concerns mining developments continue unabated. The U.S. just gave permission to explore the eastern coastal seabed for oil and gas deposits. From Delaware to Florida, the Mid-Atlantic states want to open up their waters to off-shore drilling. Ironically these states are the first to suffer the effects of global warming, giving rise to severe storms, flooding and rising sea levels. Some U.S. politicians want to open up all national parks and all public lands for mining and cattle grazing, including Yellowstone National Park. Canada, not to be left behind, wants to open up the Gulf of St. Lawrence for oil and gas exploration and drilling. Fortunately there is a strong group of fishermen, First Nations, conservation and other citizens' organizations that are opposing the plans and demanding more environmental studies. In 2012 the province of Ontario called on Ottawa to help open up its northern areas for mining exploration. The province pledged that it will support an overhaul of the law for environmental assessments and help develop a controversial, more 'streamlined approach to environmental reviews'. Both the federal and provincial governments know, like the missionaries before, that they have to 'convert' the First Nations to their plans if these projects are to go ahead. Regrettably, some First Nations will be tempted, betrayed and disillusioned over time. There are any number of mining companies wanting to explore and develop the Arctic region, both on land and off-shore as the Arctic Ocean opens up for longer periods of time.

Another example is Nova Scotia's contradictory approach to phasing out its 4 coal-fired power plants *and, at the same time*, reclaiming and excavating an old coal mine site for potential strip mining. Since 2006 there had been a moratorium on strip mining in Cape Breton, but with coal prices changing the province called for new proposals. They received

almost a dozen applications. Earlier in 1999 and 2001 the last of the underground coal mines were closed and Nova Scotia started importing coal with lower sulphur content from Columbia. This change in policy devastated the local economy. Retraining and call centres were to provide new jobs for the miners. In 2012 it seemed using local coal was once more a viable economic option (saving transport costs; higher energy than Columbian coal; etc). The environmental and health costs of coal mining for both Cape Breton and Columbia have been enormous. Gibbs and Leech (2009) have provided a careful and detailed description of Cape Breton's sordid coal mining history. In the meantime Nova Scotia has received a reprieve from the federal government's deadline for phasing out its coal-fired power plants. They can continue operating them for their planned life-time as long as they develop an 'equivalency' plan (buy credits; energy from renewables; etc.). The schedule for meeting emission standards has also been relaxed. In the end profitability and short-term gains win out over ecological sustainability and social concerns. These are just a few examples that could be multiplied for every region and every country. There are no limits, if it can be exploited, whether the many new dams proposed in the Brazilian tropical rainforest or Arctic resources, it should be developed; it would be a 'waste' not to do so.

Given this strong critique of the mining industry, are there any redeeming features of mining during the last two centuries? There are, but whatever benefits there may be, they could have been gained in a very different way. The mining process could have been done in an ecologically sustainable way and with long-term benefits for the communities as the artisanal gold mining supported by the *Artisanal Gold Council* illustrates. Technology could have focused on energy saving and lasting and re-cyclable products that serve life. A limited number of car models, for example, could have been made to last for more than 20 years with replaceable parts, long lasting batteries and very limited emissions. The same would be true for most other products.

To become responsible and sustainable, companies would have to embrace a different vision of life; a vision that gives expression to a *structural change*, that is, to a different *way of life*. In such a fundamentally different approach economic activities would be embedded in the whole of life and local people would be directly involved and share responsibilities and benefits. It would become a cooperative venture (see Chapters 4,5,6). Given an alternative vision with a multi-dimensional and integral view of economics there are many other sources of energy and many ways of saving energy that are just waiting to be implemented or developed further. Many authors have spelled out in some detail how alternative energies could begin to replace fossil fuels within the coming decade (see Chapter 11). To give just one exiting example from Denmark; they plan to produce 70% of their energy from renewable sources by 2020 and 100% by 2050. Last December wind power accounted for over 50% of the country's electricity consumption for the first time. By 2016 new onshore wind farms will provide energy for half the price of coal and natural gas and will cost about 5 cents per kilowatt hour. They have also come up with innovative ways to deal with local concerns about encroachment on their property. Residents are directly compensated for any loss in property value from nearby wind turbines; 20% of the shares of any project must be offered to local residents; and communities receive a direct allocation per megawatt of power generated. In this way people have a direct stake in these developments. There will be no new utility poles and power lines; instead most of the cables are being laid underground. Denmark is also looking for ways to store excess energy. According to Lester Brown's account, renewables could generate 40% of electricity within 20 years and when we add to this more efficient ways of using and saving energy, including clean cars we are a long way toward replacing fossil fuels.

Abandoned Mines in Northern Canada. (May 27, 2014). The ring of fire strikes a familiar tune. Retrieved from <http://www.abandonedminesnc.com/?p=644>

Brown, L. R. (2009). *Plan B 4.0: mobilizing to save civilization*, (chapters 4 and 5). Retrieved from http://www.earth-policy.org/images/uploads/book_files/pb4book.pdf

CBC News. (June 9, 2014). Coalition calls for independent review, public consultation on oil and gas exploration. Retrieved from <http://www.cbc.ca/news/canada/nova-scotia/groups-call-for-gulf-of-st-lawrence-oil-and-gas-moratorium-1.2669369>

Climate Change Adaptation: A Priorities Plan for Canada. Report. Retrieved from <https://uwaterloo.ca/environment/sites/ca.environment/files/uploads/files/CCAP-Report-30May-Final.pdf>

ClimateProgress. (July 16, 2014). Wyoming gubernatorial candidate calls for drilling in Yellowstone National Park. Retrieved from <http://thinkprogress.org/climate/2014/07/16/3460799/drilling-yellowstone/>

ClimateProgress. (July 18, 2014). Obama administration opens eastern seaboard to oil drilling surveys. Retrieved from <http://thinkprogress.org/climate/2014/07/18/3461738/eastern-seaboard-open-to-oil-drilling-surveys/>

ClimateProgress. (July 22, 2014). Onshore wind power is now cheapest form of new electricity in Denmark. Retrieved from <http://thinkprogress.org/climate/2014/07/22/3462852/onshore-wind-cheapest-denmark/>

ClimateProgress. (July 23, 2014). Why a jury's historic \$3M awards to a family sickened by fracking may never be paid. Retrieved from <http://thinkprogress.org/climate/2014/07/23/3434385/texas-fracking-verdict/>

ClimateProgress. (July 31, 2014). Retired coal miner to EPA: 'We're dying, literally dying for you to help us'. Retrieved from <http://thinkprogress.org/climate/2014/07/31/3465941/health-concern-epa-hearings/>

ClimateProgress. (May 12, 2014). Rallying at Koch-owned facility, nurses experience petcoke pollution firsthand. Retrieved from <http://thinkprogress.org/climate/2014/05/12/3436920/nurses-petcoke-rally/>

Deccan Herald. (July 31, 2014). Rich countries encourage uranium mining in poor countries. Retrieved from <http://www.deccanherald.com/content/182070/rich-countries-encourage-uranium-mining.html>

EcoWatch. (July 31, 2014). The slow death of nuclear power and the rise of renewable. Retrieved from

Gibbs, T. and Leech, G. (2009). *The failure of global capitalism from Cape Breton to Columbia and beyond*, chapters 1-3. Cape Breton University Press. doi: <http://dx.doi.org/10.18740/S4H30>

Harding, J. (2007). Canada's deadly secret: Saskatchewan uranium and the global nuclear system. Fernwood Publishing; First Edition edition.

MiningWatch Canada. (February 6, 2012). Retrieved from <http://miningwatch.ca/news/2012/2/6/quebec-coalition-appalled-minister-kents-approval-matoush-uranium-exploration-project>

MiningWatch Canada. (June 6, 2012). MiningWatch welcomes Cree call for uranium moratorium. Retrieved from <http://miningwatch.ca/news/2012/6/6/miningwatch-welcomes-cree-call-uranium-moratorium>

MiningWatch Canada, (July 17, 2015). "Red light for uranium mining in Quebec; Qubec meillure mine coalition welcomes the independent panel conclusions". Retrieved from, <http://miningwatch.ca/news/2015/7/17/red-light-uranium-mining-quebec-quebec-meillure-mine-coalition-welcomes-independent>

Pembina Institute. (2012). The high cost of cheap power; emissions from coal-fired electricity in Canada. Retrieved from <https://www.pembina.org/reports/high-costs-of-cheap-power.pdf>

Ruff, K. (2008) Exporting Harm, How Canada markets asbestos to the developing world. Retrieved from <http://worldasbestosreport.org/articles/exportharm/index.php>

Ruff, K. (2013). A failure of ethics by McGill University. Retrieved from https://www.mcgill.ca/asbestosconf13/files/asbestosconf13/a_failure_of_ethics_by_mcgill_university.pdf

Save Our Seas and Shores Coalition (for articles and list of participants). Retrieved from <http://saveourseasandshores.ca/>

Sovacool, B.K. (2011). Contesting the future of nuclear power, a critical assessment of atomic energy. Retrieved from <http://www.worldscientific.com/worldscibooks/10.1142/7895>

The Globe and Mail. (June 14, 2014). No safe use. Retrieved from <http://www.theglobeandmail.com/report-on-business/no-safe-use-as-the-top-workplace-killer-asbestos-leaves-a-deadly-legacy/article19151351/>

8) Governing and the mining industry

At this point it is helpful to consider the role of governments in the development of the mining industry. There is a fundamental distortion that plagues most present governments, which goes beyond corruption, bribery and enriching themselves. It concerns the issue of justice and who has jurisdiction over resources, land, rivers, lakes, water, coastal waters and the air. From the beginning the Nigerian government declared itself legally to be sole owner of all minerals and oil and gas both on land and the sea. Perhaps at its inception that was seen as a protection against the power of global corporations, international banks, lending institutions, foreign takeovers, or any other neo-colonial policies. This approach has given rise to many debates and conflicts. In Peru, the Awajun and Wampis tribes in the north eastern region bordering Ecuador had established that they had full rights to their territory, including the forests, rivers and minerals. They had acquired all the documents and maps; everything seemed in order. The government had agreed but then, at the last moment, they went back on their promises and adopted the dominant viewpoint: the subsoil belongs to the state, which can override any other considerations. This change in viewpoint gave Canadian mining companies free access to Peru's resources. It involves a clash of two views of justice and jurisdiction, and particularly of 'ownership', property rights vs. customary laws.

To jump ahead for a moment (see chapter 7), in usurping this power the Nigerian and Peruvian governments violated a *fundamental phenomenological guideline for governing*, namely, *doing justice for all*. Governments do not have the *inherent legal right to own* lands, water, forests, fishing grounds, and resources. They belong to the people that occupy them, even they are not the owners. They are to make a living and use these different resources in ways that are

ecologically sustainable and socially fair for all. Crown lands and crown corporations cannot or ought not to be *owned* by governments; their task, on behalf of the people, is to make sure that they are used for the well-being of all, including the environment. Any decisions regarding the use of resources must be made with 'the free, prior and informed consent' of all involved and if rivers can't speak up, they must be given independent legal status. Governments do not have the *inherent right* to give concessions, tax privileges, subsidies, etc. to mining, agricultural, forestry and fishing companies. They are the caretakers on behalf of the people to see to it that justice is done with regard to the use of any resources.

When the Canadian government violates this fundamental guideline of doing justice, as they do repeatedly, to that extent they are not true governors. They may be the elected government but they are not true governors when they ignore this fundamental guideline of doing justice. To make things worse, Canadian politicians are often elected by a minority of the population (less than 50%) and by means of an outdated and unfair voting system. No wonder many people have no confidence in the 'democratic process' and do not vote or void their ballot. In many instances the *David Suzuki Foundation, the Council of Canadians, Friends of the Earth, CCPA, First Nations, Fair Vote Canada, MiningWatch Canada, the National Farmers Union, and all the other watchdog organizations* that stand guard by the use of any resources, whether the oceans, rivers, fish, forests, lands, waters, peoples, etc.; in all those instances are the *real governors* of Canada. *They are doing what any legitimate government ought to be doing, to seek justice for all. To the extent that these organizations are committed to this guideline they are true governors.* Many governments world-wide *violate* this fundamental guideline and they are being judged accordingly (see the next section on the Peoples' Movements).

In contrast to these true governors, whenever the prime minister and his cabinet support and enforce the policies of the more than a thousand global mining corporations based in Canada, they have no legitimacy. To the extent that they are guided in their decisions by the neoliberal ideology, they have lost their right to govern. On a fundamental level it is not guided by doing justice for all. Subsidizing, promoting and protecting the Alberta oil sands or the northern Gateway pipeline project, for example, violates both eco-justice and social justice. No doubt none of the alternative and watchdog organizations are perfect, but to the extent that they are committed to seek justice for all and can be held accountable to this fundamental guideline, *they are true governors. No governing body is 'above the law', that is, beyond this basic directive of doing justice.* It may be difficult in particular situations to know exactly what that entails or how that can be worked out, but it is the commitment to and struggle with this fundamental directive that counts. In that sense paving the way by funding and subsidizing research and exploration for opening the Arctic regions for off-shore drilling wherever possible is *against the law, that is, the guideline of doing justice.*

When governments follow neoliberal economic policies, governing becomes controlled by corporate interests. In this respect the Canadian government, along with many other ones, is in the service of global corporations, especially those based in Canada. Through trade agreements like NAFTA and others, even those not based in Canada ultimately have jurisdiction over Canadian policies and regulations as many instances in the past decades have shown. Governing as well as scientific research and technology get pulled into and become part of the economic sphere. That also means that the military and police are used to defend the interests of the global corporations and to control any mass demonstrations and protests. Happily First Nations can still set up blockades to defend their rights, but there are no guarantees for future conflicts between two opposing ways of life. Unions have long since lost a lot of their bargaining power and can be legislated back to work at any time or face large fines. No doubt, there are degrees of abuse of power. In Peru oil companies were able to hire and pay army units to defend their mining 'properties'. In Nigeria Shell and other oil companies could call on the army to come and defend their pipelines and wells. It can be called, the politicization of justice. The latest report by *MiningWatch Canada* (2015) called, "In the National Interest? Criminalization of Land and

Environment Defenders in the Americas” once more confirms Canada’s complicity in violence against many indigenous peoples and the disintegration of their homelands. In many places, including Canada, the Canadian government is a danger to humanity and the environment.

In the same way when any court, including the Supreme Court of Canada makes decisions that are unjust, because they violate basic ecological and social guidelines, *their pronouncements are invalid*. Instead, when other legal organizations stand up for and defend the rights of individuals, local communities, indigenous people or the environment, they are true judges. *Ecojustice* in Canada and the *Community Environmental Defense Fund* in the US are two examples of such true legal bodies. They speak up for justice and against injustice. Nigeria and Peru both have several of such legal defense organizations as well as many alternative and watchdog associations. This does not mean that a particular government never enacts good laws or that the courts never make just pronouncements. In spite of ideological commitments good things happen, to a degree and at times. However, it is the fundamental directive that guides their policies and decisions that disqualifies much of what they do.

In many countries and instances courts have been politicized. One blatant example is the Texas court decision against Aruba Petroleum. A jury decided that their fracking operations were responsible for the pollution that caused the illness of the Parr family and especially their little girl. However there is no guarantee that the Parr’s will actually be compensated. Everyone expects the supreme court of Texas to overrule the decision as they have done in the past. In 83% of cases against corporations they ruled in favor of the corporation. As one article states, ‘we do not have the rule of law in Texas, we have the rule of big business and big government’. It takes non-profit, advocacy organizations like the *Texas Watch Foundation* to speak for justice. In this instance they are the real judges and not the supreme court of Texas. There are many similar cases like that in the U.S. and elsewhere. In most instances it takes civil society to bring about justice in the face of government and corporate opposition, intimidation, finding legal loopholes, stalling, etc. It’s a topsy-turvy world when citizen organizations have to call the government to task, to do what is right and just.

9) Peoples Movements: international summits and forums

Besides the divesting movement, there is another growing international movement that is challenging current neoliberal practices. They are providing a radical alternative vision and way of life to the present mining, agricultural, forestry and fishing practices. In 2001 the first *World Social Forum* met in Brazil and has been meeting on a yearly basis ever since. The forums are open meeting places for reflection, debate and sharing experiences of all groups opposed to neo-liberalism. It stands in opposition to the corporate *World Economic Forum* held in Davos. The slogan of the movement is “Another World Is Possible”. As a global justice movement solidarity and respect for universal human rights are a fundamental part of its Charter of Principles. It started primarily as a movement of the Global South but from there the movement has spread to most other parts of the world. Many countries have held *Regional Social Forums*, including Canada, first in 2010 and again in 2014 in Ottawa. As part of the World Social Forum the *International Peoples’ Tribunal on Debt* was organized in 2000 and remains active and relevant in many countries burdened by international debt. In 2012 a *Peoples’ Treaty to Dismantle Corporate Power and Stop Impunity* was launched as part of the *Peoples’ Summit* in Rio de Janeiro. Another group, the *International Work Group for Indigenous Affairs (IWGIA)* met in 2014 as a side event to the U.N. Human Rights Council meeting in Geneva, in relation to the development of *Guiding Principles on Business and Human Rights*.

A particularly inspiring conference was held in 2010 in Bolivia, called the *Worlds People’s Conference on Climate Change and the Rights of Mother Earth*. It is worth quoting the topics of various sections of the working groups that were presented for study and consideration: *Preamble, the People’s Agreement; 1) Universal Declaration of the Rights of Mother Earth; 2) Shared Visions, Harmony with Nature to Live Well; 3) Structural Causes; 4) Referendum on Climate*

Change; 5) Agriculture and Food Sovereignty; 6) Climate Debt, Climate Change and Migration; 7) Climate Finance; 8) Indigenous People; 9) International Tribunal of Climate and Environmental Justice; 10) Dangers of the Carbon Market; 11) Kyoto Protocol and Greenhouse Gas Emissions, Reduction, Adaptation – Confronting Climate Change; 12) Intercultural Dialogue, Knowledge Sharing, Knowledge and Technology; 13) Strategies of Action; and more forthcoming.

There are many challenging and instructive statements in the various conclusions. Some that stand out are: “The capitalist system has imposed on us an ideology of Progress and unlimited growth. This regime of production and consumption is guided by the search for maximum gain, forgetting completely the implications of an infinite growth pattern on a finite planet. This pattern of development has separated human beings from nature, establishing a rationale of domination over nature and leading to the destruction of nature”; “Capitalism pretends to satisfy all the deficiencies and dissatisfactions of human beings through the consumption of things”; “The political, economic, military and communications power structure, along with the current legal-institutional administration, legitimize, promote and deepen destructive ideologies. Current international financial and commercial institutions (WB, IMF, IDB, WTO and others) with their rules, regulations and secured funding systematically impose predatory growth. Main stream media and the culture industry promote individualism and irrational and unsustainable consumerism, and help cement them as the only possible way to exist”; “We are in the presence of an imperialistic system of re-colonialization of the planet”; “Capitalism responds through militarization, repression and war to the resistance of the people”; “Cultural patterns, personal opinions and the aspirations of the planet’s populations have been greatly penetrated by the values of the individualistic capitalist consumer identity”; “For the planet, every alternative for life must necessarily be anticapitalist. But not only this, it must be more than anticapitalist; the alternatives must lead to a profound transformation of civilization. Without this profound transformation, it will not be possible to continue life on planet Earth. Humanity is faced with a huge dilemma: continue down the road of capitalism, patriarchy, Progress, and death, or embark on the path of harmony with nature and respect for life;” (excerpts from the section on Structural Causes).

The international summits and forums are gaining momentum and giving over 200 millions of people a voice. They help many different social movements to unite and find power and support in joint action. Together they represent the great majority of the world’s population. It brings home that the global elite constitute only a small percentage of the global population. It is interesting to speculate how a global *Tribunal of Peoples* like the one held in Madrid, 2011 and the years following, would pronounce judgment on mining executives and government officials that have been *directly responsible or complicit* in wide-spread disruption, dispossession, violence, burning of villages, rape, murder, opening the way for new migrants clearing the forests, bringing in large machinery, stimulating the development of frontier towns; in short plundering natural resources from developing countries and devastating the land and the people. We do know how *Cultural Survival* has responded, the *World Social Forum; the Peoples’ Treaty; the Work Group on Mining and Human Rights in Latin America; the World Council of Churches; Justice Transnationales Extractives* and many other organizations: *guilty on all scores*. The global community has pronounced judgment on the many documented situations that have resulted in human rights violations, crimes against humanity and ecocide.

b. Agricultural practices

Introduction

- 1) Corporate power in agricultural
- 2) The industrialization of agriculture
- 3) Climate change and agriculture
- 4) Agriculture in Mozambique; an illustration

5) Alternatives

Introduction

In view of environmental decline and the suffering of millions of people, it is hard to tell which of the three following sectors of the economy, industrial agriculture, forestry or fishing, is the most destructive to the land and local people. Each of these unsustainable economic practices has its disintegrative effect on the well-being of society and the environment. Similar to the mining industry, my *basic premise is that corporate agribusiness is ecologically unsustainable and socially unjust*. Industrial agriculture needs *a radical and total transformation* if we are going to survive as a people and if the land on which we depend is to regenerate itself.

Many may find this hard to accept. People in the developed world and wealthy urban centres may find it difficult to believe that there is something radically wrong with the agricultural industry. They see the supermarkets filled with food, plenty of produce and an abundance of meat and fish. They may notice that their grocery bill seems to have gone up, but that is all. There are fast-food outlets along the way wherever they travel and eating out is a common practice. On the surface, all seems well for those who can afford it. They may take note of the occasional news items about failed harvests and food riots, but those events tend to be far away. In spite of this surface appearance, all is not well with regard to the environmental and social 'externalities'; that is, the ecological devastation and social injustice caused by the corporate production and processing of food. It is a *systemic* problem that cannot be fixed by a number of improvements, better governance or technical innovations. What is required is a radical transformation of industrial agriculture.

Environmentally, chemical agriculture, which means the intense use of fertilizers, pesticides, herbicides, fungicides, antibiotics and growth hormones, results in the contamination and depletion of the soil and water. Many of these chemicals are a threat to bees, insects and microorganisms. Their uncontrolled use builds up resistance in pests giving rise to superbugs and weeds that are immune to pesticides and herbicides. Monocultures and large livestock farms lead to a drastic decline in the gene pool and the genetic variety of plant and animal species. The increase in land use for industrial agriculture has led to the loss of marshes and wetlands; depletion of water sources; loss of forest cover and mangrove coastal forests. Increased use of synthetic fertilizers and pesticides has led to the chemical pollution of food and loss of food quality, posing a real threat to public health. The ongoing expansion of corporate agribusinesses will keep contributing to global warming, to changes in regional climates and the contamination of the environment, including our food supply. In turn, the changes in regional ecosystems and weather patterns will have an increasingly adverse effect on the world's food production, reducing crop yields.

Socially, the continued expansion, control and domination of corporate agriculture will lead to more and more displacements, evictions, expropriations, protests, violence, deaths, poverty and hunger. Corporate agribusinesses will continue to lead to the enrichment of the few and the further impoverishment of millions of peasant farmers and indigenous people. In developed countries industrial agriculture will further the decline of family farms and their reduction to producers of raw materials for the processing and distribution industry. Food has become a mere *commodity* and farmers have become 'contract workers' controlled by the demands and speculations of the global market. Access to land, water and food are no longer treated as basic human rights, but as commodities to be traded freely without restrictions. With increasing control over the entire chain of food production and processing by a dozen or so global corporations, many people are losing their food security and food sovereignty. With the integration of the supply of seeds, fertilizers, pesticides, machinery, processing plants, slaughter houses, storing facilities, packaging, global and continent-wide transportation and distribution, global agribusinesses can control prices at every step, increase

profits, speculate on food prices and harvests, create artificial food shortages, resist or bypass regulations and keep inspections to a minimum. Only a radical transformation of the food industry will be sufficient to stop and reverse this trend. Like the mining industry, a radical change requires a change at the root, a *systemic* change; it requires a change in direction and another worldview.

Taking the first step to such a radical change will require *phasing out all present agricultural subsidies* that mostly benefit the corporate and large family owned farms and re-directing the subsidies to the development of ecologically sustainable forms of farming and the fair distribution and supply of food. Secondly, for most climate regions such a transformation will mean the global development of different forms of ecological farming, agro-forestry, small-scale cooperatives, community enterprises, urban food and community gardens and local and regional forms of distribution. *There are few other areas of the economy that are so promising in terms of readily available alternatives as agriculture.* Sustainable farming practices have been with us from the beginning of human history. We do not have to re-invent the wheel, we only need to build on ancient and present wisdom and practices and expand various technical ways to enhance existing practices. Most important of all, together these alternative practices can provide more than enough food for the world's growing population and the healing of the planet. This is contrary to the common myth that only industrial agriculture can relieve world hunger and poverty.

In spite of the crisis in food production as a result of agricultural policies and practices, it is evident from many of the official reports and publications that there is still a widespread belief that *slow incremental change by means of technical solutions and better governance can solve the global food problem and poverty. Few accounts address the issue of corporate/political power and their resistance to any structural changes.* Global food corporations now outsize many nation-states. Food security and food sovereignty is about restoring the ecological link between the land, the soil, water, seed, biodiversity, farmers, unprocessed food, public health, equality, and social justice. It is about ecological sustainability and local and regional control. What we need is 'greenhouse gas- efficient farming' and land management based on eco-agricultural practices.

Air temperatures, dependable weather patterns, soil quality, water supply, biodiversity of domesticated plants, livestock and farmlands are all of crucial importance to the growth of food. They are the very foundation of our food supply. Without all these factors working together growth does not happen and the food supply will dwindle. Regardless of the importance of each of these factors, they have become primarily *a means to an end; something to adapt to or manage.* The production of food has become just *one part of the entire production system* of processing, transporting, distributing, marketing, and advertising of the modern food industry. Agriculture has become *one cog in a vast network of operations* and lost much of its relative independence. Farmers have become 'food producers' or 'managers' of large corporate or family operations; they have become skillful operators of big computer directed machines and mixers of chemicals. The aim of industrial agriculture as one part of the food industry is to intensify production, expand its export markets, attract financial investors and produce double digit profits. Vertical and horizontal integration of the various related and supporting industries are the order of the day.

None of these factors of the food industry can be changed or addressed by themselves. Retailers and supermarkets shape what and how things are grown, processed and sold. Food seasons have largely disappeared in the grocery stores; just-in-time deliveries from around the world give the appearance of a global abundance, at least in the well-to-do neighbourhoods in both the global north and the global south. It hides the decline in rural populations and the poverty and hunger that exists in almost every country, including North-America. Urban centres now account for over half of the world's population. Many have become disconnected from the land and are unaware of the corporate power of the food industry and the government policies and subsidies that support the industry.

There is a wealth of material, annual reports, studies, articles, news items on each aspect of the food industry from many institutes and watchdog organizations. These materials cover a wide range of topics, including: the decline of topsoil, intensive use of water, increase in irrigation, air pollution, loss of biodiversity, changing climate and crop yields, the impact of mono cultures, mass production of meat, synthetic fertilizers and pesticides, use of growth hormones and antibiotics, chemical pollution of the air and water, health impacts, decline of pollinators, storage facilities, slaughterhouses, refrigeration, packaging, worldwide transportation, various kinds of processing, food additives, food-borne diseases, limited food inspection, marketing, advertizing, conditioning consumer's tastes, financing, government policies and subsidies, research, genetic engineering, the rise of synthetic biology and nano technology, financial speculation in the global trading of food commodities, land and water acquisitions ('land grabbing'), palm oil industry, use of slaves and indebted labourers, hunger and food shortages, and other aspects.

Each of these aspects of the food industry deserves separate attention, because they are an inseparable, interconnected part of the total food industry. However, *for our purpose we will only focus on a number of key aspects that highlight the need for a radical transformation of the entire food industry.* We will focus on the power of the global food corporations, the role of the WB, IMF, WTO and trade agreements in furthering the ideology and spread of neoliberal economic policies, the industrialization of agriculture, the growth of factory farms and the decline of family farms, the effect of agribusinesses on climate change and the ecological erosion of the very foundation of our food system.

British Medical Journal. (December 3, 2005) Obesity, hunger, and agriculture: the damaging role of subsidies. 331 (7528), 1333-1336. Retrieved from [doi: 10.1136/bmj.331.7528.1333](https://doi.org/10.1136/bmj.331.7528.1333)

Corporate Europe Observatory. (January 23, 2012). What are bankers doing inside EU summits? Retrieved from <http://corporateeurope.org/financial-lobby/2012/01/what-are-bankers-doing-inside-eu-summits>

Global Policy Forum. (March 25, 2014). *Subsidy reform and economic and social rights.* Retrieved from <https://www.globalpolicy.org/component/content/article/252-the-millennium-development-goals/52593-subsidy-reform-and-economic-and-social-rights.html>

Global Policy Forum. (March 30, 2010). After the crisis, is now the moment to cut Western farm subsidies? Retrieved from <https://www.globalpolicy.org/social-and-economic-policy/international-trade-and-development-1-57/general-analysis-on-international-trade-and-development/48887-after-the-crisis-is-now-the-moment-to-cut-western-farm-subsidies.html>

Global Policy Report. (October 28, 2014). Trade unions and campaigners slam 'strongly flawed' Doing Business report, after

WB snubs call by two independent panels for root and branch reform. Retrieved from <https://www.globalpolicy.org/global-taxes/52703-doing-business-report-strongly-flawed.html>

Grist. (March 25, 2010). Why are we propping up corn production, again? Retrieved from <http://grist.org/article/2010-03-25-corn-ethanol-meat-hfcs/>

Mises Daily. (May 22, 2014). Cartels and subsidies in Canadian agriculture. Retrieved from <https://mises.org/library/cartels-and-subsidies-canadian-agriculture>

Mises Daily. (October 1, 2014). Subsidies, market prices, and the 2014 farm bill. Retrieved from <https://mises.org/library/subsidies-market-prices-and-2014-farm-bill>

Myers, N. and Kent, J. (2001). *Perverse subsidies.* Island Press. Chapter 3, pp. 39-61.

OECD. (November 7, 2002). Subsidies and the environment, an overview of the state of knowledge. Retrieved from

http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwid6PKldDMAhVJw4MKHfbK BakQFgggMAA&url=http%3A%2F%2Fwww.oecd.org%2Fsite%2Fagreh%2F35217961.ppt&usq=AFOjCNE_TQOjEoOn_LCe7Jo2KaBxXN1z3A

Science. (December 12, 2003). Global food security: challenges and policies. Vol. 302, Issue 5652, pp. 1917-1919 doi: [10.1126/science.1092958](https://doi.org/10.1126/science.1092958)

The Guardian. (August 8, 2013). Are agricultural subsidies causing more harm than good? Retrieved from <http://www.theguardian.com/sustainable-business/agricultural-subsidies-reform-government-support>

Transnational Institute. (March 8, 2012). The fiscal compact bypasses democracy and the rule of law. Retrieved from <https://www.tni.org/en/article/the-fiscal-compact-bypasses-democracy-and-the-rule-of-law>

World Resources Institute. (September 2006). Reforming agricultural subsidies: 'no regrets' policies for livelihoods and the environment. Retrieved from

http://pdf.wri.org/reforming_ag_subsidies.pdf

Worldwatch Institute. (February 28, 2014). Agricultural subsidies remain a staple in the industrial world. Retrieved from <http://www.worldwatch.org/agricultural-subsidies-remain-staple-industrial-world-0>

1) Corporate power in the food industry

During the last decades corporate power has increased in every sector of the economy. *Oligarchies*, that is, the rule by a small number of powerful persons in industrial mining, agriculture, forestry, fishing, and many other industries constitute *the neo-colonial imperialism of today.* The face of this new colonialism is different from the old, but the effects are equally devastating. Their powers are vast and reinforced by the WB, IMF, WTO, international banks, other financial institutions and international trade agreements. They are supported and protected by both 'democratic' and 'undemocratic' governments with the aid of their police and military forces. This power is evident everywhere, in the

developed world, in Canada, in Great Britain, in Germany, and in most of the developing countries that have fertile soil and water.

Power, domination, imperialism, control and violation take on different forms at different times. Religious domination that seeks to control every aspect of life is of a different nature than the power of political dictatorships enforced by secret police. Cultural power and value systems are often manipulated and in the service of the ruling elite. However, cultural traditions can also have a force of their own and linger long after there has been a change in regime. Each of the different power structures, whether religious, political, cultural or economic, has a force of its own and cannot be reduced to another, even though there are many interconnections. What they have in common is *using one's or a group's position, knowledge or ability, to dominate and control others. The absolutization and distortion of power of whatever kind, macro or micro, is the opposite of participatory, egalitarian, shared, communal, democratic, inclusive, 'horizontal' relations and not hierarchical.* True 'power' in this context is based on knowledge and experience and shows itself in leadership and taking initiative and responsibility. As we stated in the last section on mining, 'political power' exists for the sake of establishing justice and care; it requires courage and commitment; it is to be of service; it is transparent and resistant to all usurpation and misuse of position and ability. This issue will come up again and again in different contexts.

The domination and imperialism of the corporate food industry has its own characteristics; it is first and uppermost economic power and hegemony. By means of relentless advertizing involving billions of dollars annually, the food industry seeks to manipulate tastes and consumption even if it is to the detriment and health of the 'consumer'. People are made to buy and consume products they did not know they needed or liked. The 'choice' between fifty varieties of sugared cereals and other similar choices is a fraud; they contain the same basic empty nutritional ingredients. Catch phrases like 'consumer demand', 'consumer preference', 'acquired tastes' and many similar words hide the reality of consumer manipulation and behavioral conditioning. Consumer 'freedom' and consumer 'choice' are subject to the market power of the corporations. 'Changing food preferences' do not happen by themselves; they are the result of intensive, relentless behavioral conditioning. The food industry has a tremendous influence on what people eat and what they spend on food. More recently, there is a growing awareness and opposition to this kind of marketing manipulation. On the other end of the food chain, that of the 'producers', the power of the food industry tends to be by direct monopoly and control, leaving farmers few options. The thin veneer of scientific research and technology adds to the domination and power. It gives the impression that a rotation of a few monocultures with ample chemical fertilizers and preventative pesticides and antibiotics is the only scientific and economically productive way to farm

The world's food production is dominated by a small number of global corporations who control more and more of the agribusiness' related industries. Food production is primarily about making a profit by increasing market power and market share. The fact that it is about food is incidental or secondary; food happens to be the commodity. Market power and monopoly are used to achieve maximum profitability. The quality and the chemical pollution of food only become important if it impacts the corporate image and profitability. Intensive use of energy and water and other environmental costs are treated primarily as 'externalities' that are left for governments to worry about and for citizens to pay. The ideal is a vertical integration in which a global corporation owns and controls the entire chain of production and distribution, from owning the land, controlling water for irrigation, machinery, seeds, fertilizers, pesticides, labourers, loans, contracts, processing plants, food additives companies, warehouses, transportation systems, distribution, research labs for genetic engineering, advertising, marketing and financing. Such total, or even partial, vertical integration gives agribusinesses tremendous power over the market and pricing on all levels.

The concentration of power and control is not unique to the agricultural sector, but corporate domination in this sector has to do with one of the basic needs for survival: food. For this reason, corporate power and control in this area is all the more alarming and devastating. What is at stake is who has control over the world's food supply, a small number of corporate industries or local farmers everywhere. People have the right to food security and food sovereignty. The aim of global agribusinesses is not to increase and safeguard the world-wide availability of food, but rather to make a profit and to expand their market power. *Industrial farming is widely seen as the solution to world poverty and hunger. That is the myth, but the reality is quite different.* Industrial agriculture is a threat to the over two billion food and water deprived people and, ultimately, to the health of all people world-wide.

The role of WB, IMF, WTO, world trade agreements and national governments

Many of the developments in industrial food production and corporate food retailing *have been made possible and advanced by the economic policies of the WB, IMF, WTO and international trade agreements.* The *official aim* of these institutions was and still is to alleviate poverty and hunger by the rapid development of industrial agriculture with its technical advances, market liberalization and international trade. However, the more than 40 year efforts to alleviate poverty through economic growth have been a dismal failure. Instead of alleviating poverty and hunger their policies have done the opposite. These institutions have contributed to environmental destruction, social degradation and inflicted more suffering on already vulnerable people. The corporate-led economic globalization of agriculture has failed to improve the living standards and health of the most impoverished populations. Genuine grassroots improvements from the bottom up on a local and regional scale have been largely ignored or opposed. These alternative approaches that have been successful are widely known and readily available. The only thing 'wrong' with alternative ways of farming is that they are not 'economically profitable' in the narrow sense of the word. However, they serve the total well-being of the people: their communities, their health, education, food and their fields, forests and sources of water.

The requirements for obtaining loans from these international institutions, the so-called *structural adjustment programs*, have contributed to the loss of control over national economies, reduced social spending on health care, sanitation and education, neglected the development and maintenance of infrastructures, and led to the privatization and decline of water and waste services and the introduction of user fees. Government subsidies in many developing countries for seeds and fertilizers as well as staple foods were cut and control over prices and supplies were dismantled. Interest rates were raised to keep inflation under control. General wage restraints were introduced and the power of trade unions was weakened; all in an effort to promote increased 'labour flexibility'. The measures that were forced on many nations have led to deregulation and removal of tariffs, quotas and other financial obstacles, so that capital could move freely from one continent to another. Currencies were allowed to float freely in international markets, which resulted in the devaluation of national currencies. Regulations for the private sector were reduced or eliminated. Restrictions on foreign imports and investments were lifted. All these measures were to encourage free trade and provide incentives for foreign investments. Most states receiving loans lost the authority to govern their own economies.

These economic policies have led to the weakening of environmental regulations and national government departments have been unable or unwilling to enforce whatever regulations remained. The loans and investments have tended to favor macro-economic mining, agricultural, forestry, fishing and hydro electric projects. The WB continues to support and finance mega projects like large dams for generating hydro-electric power and extensive agricultural and mining developments. Many of these projects have contributed to the displacement of tens of thousands of people.

Perhaps the most damaging projects the WB has supported by its loans are the coal burning power plants. Various climate investment funds are at its disposal to invest in environmental projects. In spite of these clearly designated

funds, the organization has managed to use them to finance the dirtiest fossil fuel possible that will add large amounts of CO₂ to the atmosphere for decades to come. The WB has done so with a veneer of rationalizations and fancy arithmetic. Add to this the subsidizing of large dams, forest projects, carbon trading schemes and the stage is set for environmental disintegration. The WB and associates along with national governments world-wide are complicit in the destruction of the environment and global warming, the brunt of which will be borne by the poorest people everywhere and the generations to come.

The most direct way to pay back the debts incurred from the foreign loans in US dollars was to produce and sell agricultural goods to countries with dollars. The phasing out of tariffs, quotas, price controls and other export restrictions, along with the devaluation of national currencies, made homegrown foods much cheaper for foreign countries. Growing food for export became the new guideline and demand, at least for countries with the right climate and soil. Rather than growing staple foods for their own populations many countries ended up growing 'luxury' foods for the global North, like ornamental plants, flowers, melons, red peppers, asparagus, strawberries, etc. In barely a decade the food system was changed and rebuilt to serve the global North rather than to feed their own people. Many countries that were self-sufficient before have become dependent on food imports.

The rationalization behind this macro-economic approach has been the idea of 'buying low and selling high', also known as the *comparative advantage doctrine*. This neoliberal economic doctrine has forced developing and emerging nations to focus on non-traditional foods for export and import 'cheap' staple foods such as wheat, corn or rice. Mexico is a famous example of this international free market approach. Mexico could buy cheaper (heavily subsidized) corn from the US than growing it domestically. As a result it was advised and forced to abandon growing domestic corn and sell products for exports like tomatoes and other prized vegetables that can't be produced as cheaply in the US. Basic food crops were phased out to devote land to 'higher value' export products for the US. Mexico, the homeland of corn, has been converted to a corn importing nation. It is now dependent on US subsidized corn imports that have flooded the country. Meanwhile the price of tortillas continues to rise. Cheap surplus imports flooded the markets resulting in as many as 1.3 million peasant farmers going under. Hundreds of thousands of peasant farmers were no longer able to make a living from their staple products. They not only lost their land but also their food security and food sovereignty.

Millions of peasant farmers have become cogs in a large international economic system as low-paid farm workers, or they have become landless and excluded from the economic system. All this could not have happened without the cooperation of the Mexican government, the political and financial elite, the large land-owners, and the international organizations. More and more countries, to a greater or lesser extent are integrated into the global food market with its volatile food prices and speculation. The Philippines once had a rice surplus; now it is the largest importer of rice. Malawi used to have a national surplus of corn, but the IMF insisted that the government sell off most of its surplus. When a famine struck in 2001-2002 there were no reserves and many people starved to death.

As a result of the cutbacks in social services, health care, sanitation, water and waste services, there has been an increase and deepening of poverty among large segments of populations. Malnutrition has increased and the general health of numerous people has declined. Infant mortality rates have increased and there are hundreds of thousands of malnourished children with stunted development. Roads, schools, hospitals and housing have deteriorated, especially in the rural areas. Unemployment has skyrocketed because of changes in agricultural policies. All these changing conditions have been particularly devastating for women, youth, orphans, the elderly, disabled and chronically ill. Millions of indigenous people have been driven from their homelands by large land owners, ranchers, loggers, by mining developments and dams for generating hydro-electric power. This unrestrained development of lands held in common has been called the 'tragedy of enclosure'.

Within the global economy peasant farmers and villagers are primarily needed as cheap labour if there is valuable land and water to develop and exploit. Millions of other peasant farmers, fishers and indigenous people are considered part of a large army of 'surplus' or 'expendable' people that are no longer needed in the new economy. It is only a minority that has advanced to lower middle class level in the major cities of the developing and emerging world. They have become the target of a growing market as the new consumers of disposable products and processed foods.

Bello, W. (July 2008). World Bank and IMF destroying Third World Agriculture. *CCPA Monitor*, Jul/Aug2008, Vol. 15 Issue 3, p25.

Bloomberg. (June 27, 2013). Coal-power financing minimized in World Bank energy policy. Retrieved from <http://www.bloomberg.com/news/articles/2013-06-26/world-bank-to-limit-coal-power-financing-to-rare-circumstances>

Bretton Woods Project. (October 13, 2014). A new dawn for climate finance as Climate Investment Funds sunset? Retrieved from <http://www.brettonwoodsproject.org/2014/10/new-dawn-climate-finance-climate-investment-funds-sunset/>

Bretton Woods Project. (September 29, 2014). Dangers of dilution: World Bank's new weak environmental and social framework. Retrieved from <http://www.brettonwoodsproject.org/2014/09/dangers-dilution-world-banks-new-weak-environmental-social-framework/>

Bretton Woods Project. (September 29, 2014). Where is the public in PPPs? Analysing the World Bank's support for public-private partnerships. Retrieved from <http://www.brettonwoodsproject.org/2014/09/public-ppps-analysing-world-banks-support-public-private-partnerships/>

Foreign Policy in Focus. (April 9, 2011). World Bank horning its way into UN fund for helping poor nations deal with climate change. Retrieved from <http://fpif.org/world-bank-horning-its-way-into-un-fund-for-helping-poor-nations-deal-with-climate-change/>

Foreign Policy in Focus. (November 21, 2014). What 'free trade' has done to Central America. Retrieved from <http://fpif.org/free-trade-done-central-america/>

Global Policy Forum. (June 14, 2011). Conflict of interest? World Bank's role in Global Climate Fund causes outcry. Retrieved from <https://www.globalpolicy.org/social-and-economic-policy/the-three-sisters-and-other-institutions/ngos-and-the-bretton-woods-institutions/50329-conflict-of-interest-world-banks-role-in-global-climate-fund-causes-outcry.html>

Global Policy Forum. (October 21, 2011). NGO's criticise World Bank's new lending plan for poorer countries. Retrieved from <http://www.theguardian.com/global-development/poverty-matters/2011/oct/21/ngos-criticise-world-bank-lending>

Hunger Notes. (July 20, 2008). How the World Bank, IMF and WTO destroyed African agriculture. Retrieved from http://www.worldhunger.org/articles/08/editorials/bello_afag.htm

Oil Change International. (October 10, 2014). Adding to miscues, World Bank-supported Indonesian coal plant at legal risk. Retrieved from <http://priceofoil.org/2014/10/10/adding-miscues-missed-deadline-puts-world-bank-supported-indonesian-coal-plant-legal-risk/>

RTCC. (November 7, 2014). India aims to double coal production in five years. Retrieved from <http://www.climatechangenews.com/2014/11/07/india-aims-to-double-coal-production-in-five-years/>

RTCC. (November 8, 2013). World Bank chief condemned for backing 4000MW India coal plant. Retrieved from <http://www.climatechangenews.com/2013/11/08/world-bank-chief-condemned-for-backing-4000mw-india-coal-plant/>

RTCC. (October 30, 2014). Banks invest record E66bn in coal sector. Retrieved from <http://www.climatechangenews.com/2014/10/30/banks-invest-record-e66bn-in-coal-sector/>

RTCC. (September 17, 2014). Coal sector eyes salvation in green bond market. Retrieved from <http://www.climatechangenews.com/2014/09/17/coal-sector-eyes-salvation-in-green-bond-market/>

The Brookings Institution. (July 16, 2014). Retrofitting coal-fired power plants in middle-income countries: what role for the World Bank? Retrieved from <http://www.brookings.edu/research/papers/2014/07/coal-fired-power-plants-middle-income-countries-world-bank-purvis>

The Guardian. (April 4, 2011). World Bank to limit funding for coal-fired power stations. Retrieved from <http://www.theguardian.com/environment/2011/apr/04/world-bank-funding-coal-power>

The Oakland Institute. (2014). Unfolding Truth: dismantling the World Bank's myths on agriculture and development. Retrieved from <http://www.oaklandinstitute.org/unfolding-truth>

The WB, IMF, WTO and other institutions have undermined the development of more democratic procedures and the rule of law and enabled corruption by public officials. They have worked hand in hand with global corporations and with corrupt and weak governments. There has been a disproportionate growth of corruption in developing countries, resulting in massive outflows of stolen funds, laundered through international tax havens. The WB and IMF did not develop any effective regulations to counteract these abuses. They have knowingly provided large loans to dictators and corrupt governments and actively supported them. Even within their own organization there has been well-documented corruption in the bank's lending practices and particularly in the financing of major dam projects. In spite of many failures and difficulties they continue to support the development of new, massive dams in Ethiopia, India, DR Congo, the Amazon basin and other countries.

Basically they have fostered and supported the development of corporate-led, neoliberal macroeconomic policies. In spite of repeated appeals for reform by many organizations they have not made fundamental changes. Most disturbing of all, they have not been able to learn from their mistakes, in spite of careful documentation of its many failed projects. The entrenched bureaucracies and the inertia of their organizational structures, especially of the WB, have made it impossible to change their approach. As some have said, the WB suffers from 'institutional amnesia'. Several attempts

were made at renewal and change; they adopted a new rhetoric and made some adaptations but without ever giving up on its basic goals of the global expansion of free trade and macro economic developments. Poverty reduction was never a primary goal. If it was pursued at all it was within the context of growth oriented strategies.

From the early 1990's onward, there have been many detailed evaluations and critiques of the WB, IMF and WTO and their policies, providing many concrete examples. To give a sampling of the critical evaluations: from 1994, *50 Years is Enough, a case against the World Bank and International Monetary Fund*, edited by Kevin Donaher; 2001, *The World Bank and the Process Reduction Strategy Paper (PRSP): flawed thinking and failing experiences*, by Shalmali Guttal, et al. (with the support of the World Council of Churches); 2004, *Whose Trade Organization? A comprehensive guide to the WTO*, by Lori Wallach and Patrick Woodall; 2006/2008, *The World Bank; a critical primer*, by Eric Toussaint; *The World Trade Organization, Fair Trade and the Body Politics of Saint Paul*, by Michael Northcott, in *Through the Eye of the Needle*, ed. J. Asherton; 2007/2012, *Stuffed and Starved, The Hidden Battle for the World's Food System*, by Raj Patel; 2013, *Foreclosing the Future; The World Bank and the politics of environmental destruction*, by Bruce Rich (largely based on the internal records of the WB itself).

The WB is a microcosm of all that is wrong with macro-economic global development, including industrial agricultural. The WB itself is to blame for its dysfunction, but so are the national governments both in the global North and South, the finance ministers of individual countries, national export credit agencies, and other international finance institutions and banks. They have created and supported dysfunctional institutions of which the WB is a prime example. Some have characterized the WB and IMF as fostering a *loan approval culture with a failed governance structure at all levels*. The WB, IMF, WTO have a one-sided, weighted membership and voting system. It is dominated by corporate representatives and government officials from the US and EU. They are undemocratic institutions that are not accountable to the citizens of the supporting countries that provide the funding. The WB offers a disturbing picture of the direction in which our world is developing. It provides a view of the larger battle that is happening in our world, a battle for the kind of global society that future generations will inherit.

From a larger and more fundamental perspective the structural adjustments programmes of the WB and IMF *laid the economic and political foundation* for the policies that the WTO and free trade agreements could *institutionalize*. In this way they did much more than provide loans for specific mega projects. They set the stage for the implementation of the neoliberal free market ideology throughout the global South. The corporate-led economic developments and free market strategies had easy entry in the developing countries. All nations, including the global North, and all players, were to be incorporated in one global free trade system. 'Development' in this context means the ideology of unlimited economic growth.

The language is often deceptive like 'poverty reduction' (through macro economic development), modernization, new technologies, greater prosperity and freedom, new job opportunities, progress, efficiency, and so on. These slogans are the mask that hides the neo-colonialism of the global corporations. The monopoly capitalism of the colonial era is replayed in a subtler way. The soldiers and missionaries have made way for loans, restructuring the economy, privatization, export oriented development, access to the global market, but little has changed from previous eras. The global South once more supplies the resources for the global North; cheap labor is exploited, profits are expatriated, and opposition is repressed. 'Comparative advantage' basically means that the developed nations exploit the other nations. More money flows from the global South in terms of debt payments and interests (about 6.5 billion each year) than they ever received in aid. National developments are now shaped by their creditors and many have lost ownership of their internal economies. There was no economic necessity to impose any of the austerity measures. Other countries like

Japan, China, India and South Korea achieved a high level of economic growth through strong state-directed economies, regardless of whether these approaches were a good alternative.

The privileges that the global North enjoyed for hundreds of years were denied to the global South. The US and EU protectionist measures, particularly for agriculture, although changing, are still in place. The rules imposed on the south did not hold for the north. Many developing countries had functioning economies before the WB started investing in them. They had sustainable self-sufficient traditions of rural peasant farming that provided the basic staples for the country. Economies were diverse and based on ecological niches their land and climate provided. The conditions imposed on many developing countries are nothing short of criminal because of the suffering, dispossession, deaths and ecological destruction they brought about. The WB, IMF, WTO and other international organizations are complicit in this structural evil of imposing macro-economic developments. There is another way that is just, democratic, communal, participatory, and ecologically sustainable.

Bello, W. (September 3, 2009). The Virtues of Deglobalization: has the time finally come to reverse and end globalization. *Foreign Policies in Focus*. Retrieved from http://fpif.org/the_virtues_of_deglobalization/

Corbacho, F. (June 26, 2014). The World Bank's Dam Dilemma in Tajikistan. *Foreign Policy in Focus*. Retrieved from <http://fpif.org/world-banks-dam-dilemma-tajikistan/>

DESMOG Canada. (September 12, 2014). Harper government ratifies controversial Canada-China Foreign Investment Deal. Retrieved from <http://www.desmog.ca/2014/09/12/harper-government-ratifies-controversial-canada-china-foreign-investment-deal>

European Commission, *Green Paper*. (January 1, 2013). On unfair trading practices in the business-to-business food and non-food supply chain in Europe. Retrieved from http://ec.europa.eu/internal_market/consultations/2013/unfair-trading-practices/index_en.htm

Global Issues. (March 31, 2006). Criticisms of current forms of free trade. Retrieved from <http://www.globalissues.org/article/40/criticisms-of-current-forms-of-free-trade>

International Rivers. (May 15, 2012). Infrastructure for Whom? Retrieved from <https://www.internationalrivers.org/resources/infrastructure-for-whom-7454>

IPS. (December 19, 2014). Changes to World Bank safeguards risk 'race to the bottom', UN experts warn. Retrieved from <http://www.ipsnews.net/2014/12/changes-to-world-bank-safeguards-risk-race-to-the-bottom-u-n-experts-warn/>

Nelson, J. (October 2011). Canadian Companies active in Brazil's ruinous mega-projects. *CCPA Monitor*. Oct2011, Vol. 18 Issue 5, p10 .

Shah, A. (March 31, 2006). Criticisms of Current Forms of Free Trade. *Global Issues*. Retrieved from <http://www.globalissues.org/article/40/criticisms-of-current-forms-of-free-trade>

The Canadian Progressive. (September 28, 2014). 130 civil society organizations reject Canada-EU CETA. Retrieved from <http://www.canadianprogressiveworld.com/2014/09/28/130-civil-society-organizations-reject-canada-eu-ceta-deal/>

The Council of Canadians. (January 30, 2014). No more NAFTAs! No to CETA-TPP-FIPA-FTA... Retrieved from <http://canadians.org/sites/default/files/publications/no-more-NAFTAs.pdf>

The Ecologist. (February 24, 2014). Foreclosing the Future – can the World Bank ever reform? Retrieved from http://www.theecologist.org/reviews/2295818/foreclosing_the_future_can_the_world_bank_ever_reform.html

The Oakland Institute. (2014). Unfolding Truth, dismantling the World Bank's myths on agriculture and development. Retrieved from <http://www.oaklandinstitute.org/unfolding-truth>

The Oakland Institute. (July 2013). Ignoring abuse in Ethiopia: DFID and USAID in the lower Omo Valley. Retrieved from <http://www.oaklandinstitute.org/ignoring-abuse-ethiopia>

The Thistle. (Sept.Oct. 2000). The IMF and the WORLD BANK: Puppets of the Neoliberal Onslaught. Retrieved from <http://www.mit.edu/~thistle/v13/2/imf.html>

Transnational Institute. (March 2012). The fiscal compact bypasses democracy and the rule of law. Retrieved from <http://www.tni.org/en/briefing/big-corporations-bali-package-and-beyond>

Transnational Institute. (November 11, 2014). Big corporations, the Bali package and beyond, deepening TNC's gains from the WTO. Retrieved from <https://www.tni.org/en/briefing/trading-away-democracy>

Transnational Institute. (November 18, 2014). How CETA's Investor Protection Rules threaten the Public Good in Canada and the EU. Retrieved from <https://www.tni.org/en/briefing/trading-away-democracy>

Tsikata, D. Effects of structural adjustment on women, and the poor. *Third World Network*, Sept./Oct. 1995. Retrieved from <http://www.earthsummit2002.org/wcaucus/Caucus%20Position%20Papers/finance%20%26%20trade/sap.html>

Welch, C. (October 12, 2005). Structural Adjustment Programs & Poverty Reduction Strategy. *Foreign Policy in Focus*. Retrieved from http://fpif.org/structural_adjustment_programs_poverty_reduction_strategy/

Woodworth, G. (May 2010). Main obstacles to climate action are in trade agreements. *CCPA Monitor*. Retrieved from <https://www.policyalternatives.ca/publications/monitor/trade-vs-fossil-fuel-reductions>

2) The industrialization of agriculture

The present-day global development in agriculture is the culmination of the industrial revolution that had its start in the mid to late 1800's in Europe. From the very beginning, as mentioned earlier, this Euro-centered industrialization became a way to dominate other peoples and cultures. Like the rapid development in coal mining was made possible by new technologies, the *agricultural industrialization* had its beginning during this same period. Today's global world trade and

agricultural expansion and intensification have a 150-year-old history. During the 1920's and 1930's new agricultural machinery was developed that allowed for seeding and harvesting of large acreages. After WW II and especially since the 1970's this process of industrialization increased rapidly, culminating during the last two decades in the world-wide development of animal factory farms and large plantations with mono cultures.

The technological innovations that made these developments possible were and are today in the service of corporate agribusinesses. The same holds true for the advances in the bio-technical and genetic sciences. They have lost much of their independence and are largely financed by the global corporations. Instead of serving and enriching all of life, science and technology are primarily in the service of very narrow corporate controlled economic interests. Political power, legal concerns and government regulations have gone hand in hand with these developments. *This triad of government support, scientific research and advanced technology serve the advancement of industrial agriculture.* The driving spirit and motivating force behind these historical trends are the ideals of the Enlightenment: Human Progress by means of Science and Technology, leading to Growth and Prosperity for All.

When the economic dimension of life becomes the primary focus, not only technological development and political power, *but every area of life is pulled into its service.* The development of the land, the use of the soil and water, irrigation systems, the biodiversity and enhancement of seeds, the increased use of synthetic fertilizers, the rotation of a few mono cultures, they must all serve economic developments. Soil, land, water, air, biodiversity, changes in climate, all become secondary concerns. They are no longer seen as an integral part of a complex ecological system that has its own requirements and dynamics. When they are pulled into the service of economic interests without regard for the delicate balance of the entire system, the whole environment suffers and deteriorates.

When the primary concern becomes profitability, life becomes one-dimensional. Then every aspect of life becomes distorted, not just agriculture, forestry, fishing, mining, and manufacturing. Then every area of life must serve economic development. Then urban developments, road construction and transportation systems, water and waste management, electrical services, education and training programs, development of the arts, social services, health care, hospitals and senior homes; all become dominated by economic concerns. The primary question becomes, are they profitable? Do they serve economic development? Can these services become more 'efficient' and 'pay their own way'? If not, can they be privatized, amalgamated, reduced or eliminated?

Of course everything has its economic dimension, but none of the other areas of life can be reduced to mere economic dynamics. Although inter-connected, they all have their relative autonomy. Urban and rural developments do not exist for the sake of economic profit. They ought to be guided by the development of community and the inter-relationship and interaction of people. Hospitals ought not to be for profit, but be guided by whatever makes for healing and restoring well-being. A one-dimensional economic approach disrupts and distorts all of life. These oughts are not moral 'oughts' that we can adhere to or believe in; they are 'built-in' phenomenological guidelines that we can only ignore or violate at our peril.

Horizontal and vertical integration; mergers, acquisitions and collaboration

The vast interconnected web of agricultural industries has been described and illustrated by many watchdog organizations and authors. Whether we look at the grain and cereal companies, the beef, pork or chicken producers, dairy companies, the seed and agrochemical industry, farm equipment companies, soybean oil refineries, transportation systems, produce marketing and distribution companies, the transnational supermarkets, or the biotech and synthetic biology companies, everywhere it is the same story. Two to ten corporations and their subsidiaries in each sector control 40% to 80% or more of the market. During the last decades large conglomerates have developed through horizontal

integration by means of acquisitions, mergers and joint ventures, and through vertical integration by gaining control of the entire chain of production. Many multinational companies have diversified their holdings, including food companies. Already in the early 90's, the Philip Morris tobacco company, a subsidiary of the American holding company, Altria, acquired Miller Foods, Kraft Foods, Nabisco and Miller Brewing Company. Countless banks, insurance, real estate, investment companies, brokerage firms, pension funds, and other large holding companies have become major shareholders in agricultural related corporations. Together the top agricultural corporations in each sector with their many subsidiaries, holding companies and shareholders form an extensive web of interconnections. Executives of these corporations tend to serve on government advisory committees and boards that shape policies and regulations further extending their influence.

Philip Howard's picture of the seed industry structure illustrates the domination of the 6 major seed corporations: Monsanto, Dupont, Syngenta, Bayer, Dow, and Basf with all their subsidiaries and cross-licencing agreements for genetically engineered seed traits. The top ten companies control over 50% of the seed market and, often intertwined with them, over 80% of the pesticide market. The same domination by two to ten corporations is true for the grain and cereal companies, meat packers, dairy companies, food and beverage processing, food retail and supermarkets, as well as animal pharmaceuticals and synthetic biology. According to ETC Group, Dupont is the world's second largest seed company, sixth largest chemical company and sixth largest pesticide company. It is now emerging as a major player in biotech, biofuels and bioplastics, synthetic biology, seaweed, ingredient and enzyme companies while partnering with the world's third largest energy company BP. The large *energy and chemical* corporations Dow, Dupont, BP, Shell, Exxon, Chevron, and Total are teaming up with the giant *grain, forestry and seed* companies, Monsanto, Cargill, Bunge, Weyerhaeuser and ADM, along with *synthetic biology* companies, Life Technologies Inc., Amyris, Solazyme and Evolva. These new intertwinements and collaborations between energy, chemical, grain, forestry, seed, biotech and synthetic biology companies push global corporate domination and control to a whole new level. It presents a vivid picture of corporate oligopolies.

This domination and increasing control of the food-related industries, clarifies why the National Farmers Union of Canada, for example, has been vigorously opposing new government legislation that would give more exclusive rights to seed companies. The new legislation would severely limit farmers' control over their own seeds. Corporate control over seeds is the beginning of a long chain in the food production that leads to being forced to use genetically modified seeds that are resistant to the neonicotinoid group of pesticides, Round-Up and new more complex pesticides. In turn this leads to more impoverishment of the soil's micro-organisms, which will require more fertilizer; which will lead to the further loss of pollinators, development of superbugs and superweeds becoming resistant to pesticides and herbicides requiring stronger chemicals and more genetic modification. These developments strengthen the corporations' control over synthetic chemicals, genetically modified seeds and research. Their extended powers allow them to buy up and centralize grain elevators, transportation systems, and so on. Losing control over one's seeds is the beginning of loss of control over one's entire way of farming. With no or very limited availability of non-GMO seeds requiring poisonous pesticides, more and more fields will be contaminated, leaving less and less room for organic or ecologically guided farming.

The right to the preservation of local seeds is listed next to the right to food sovereignty in the declarations and the demands of the peasant farmers' organizations throughout the global South. Without control over their seeds they stand to lose control over their food, their land, and their water, which would make them dependent on genetically modified seeds, synthetic fertilizers and pesticides, at least for common staple crops. Without such protection their seeds could be taken over, (slightly) genetically modified and patented. The result would be that they would no longer be able to use their own varieties of maize, wheat, rice, potatoes, sorghum, and so on. Some would call this 'genetic

piracy' or 'theft' of the 'intellectual property rights' to their own seeds, which they have perfected over many centuries and adapted for different climate regions. The peasant farmers of the high lands in Peru, for example, have modified their seed potatoes for centuries to adapt them to the many micro-climates of the high Andes. More recently they have come together to exchange experiences and select varieties that can withstand the changing climate. Research companies have taken over potato varieties to modify them genetically, they have 'stolen' corn varieties from Mexico, modified them and declared them their private intellectual property; likewise with varieties of rice from India and unique varieties of livestock from Africa.

The report *Who will control the Green Economy?* lists the top ten players and their interconnections in 14 sectors of the economy related to the green economy: synthetic biology; bioinformatics and genome data generation; marine and other aquatic biomass; seeds and pesticides; plant gene banks; fertilizer and mining industries; forestry and paper; oilseed, grain and sugar processors and traders; industrial animal feed producers, animal pharmaceutical industry; livestock genetics industry; food retail industry; food and beverage processors; and the pharmaceutical and biotech industries.

One industry that is worth highlighting is the *global food retail industry* because it relates directly *how, where and by whom the world's food is produced, processed and sold*. This concentration of power illustrates why local producers, independent seed companies, family farms, small slaughterhouses, grain elevators, fruit growers, dairies, etc. are squeezed out of business. The large family farms that are surviving have to keep expanding, acquire more acreage, invest in more expensive machinery, computerize their operation, gamble on pre-selling their crops, hope there will be no droughts or flash floods. Our food system is in danger of becoming totally managed and controlled by global corporations with little accountability or transparency and without direct citizens' involvement and farmers' control.

NFU. (April 4, 2014). Local 344 Bill C-18 a tool for global seed companies to 'pry yet more money from the farmer's pocket'. Retrieved from

<http://www.nfuontario.ca/wpr/bill-c-18-a-tool-for-global-seed-companies-to-pry-yet-more-money-from-the-farmers-pocket/>

NFU. (February 1, 2011). Investing in rural local economies: energy, the environment, and infrastructure. Retrieved from

<http://www.farms.com/farmspages/enews/newsdetails/tabid/189/default.aspx?newsid=38595>

NFU. (July 25, 2013). Farmers seek environmental assessment of GM alfalfa from Ontario government – CBAN Media

Release. Retrieved from <http://es.cban.ca/Press/Press-Releases/Farmers-Seek-Environmental-Assessment-of-GM-Alfalfa-from-Ontario-Government>

NFU. (July 27, 2012). Submission by the National Farmers Union in Ontario to the Ontario Minister of Agriculture, Food and Rural Affairs on the Proposed Local Food

Act. Retrieved from http://www.nfu.ca/sites/www.nfu.ca/files/NFU%20submission_Local%20Food.pdf

NFU. (June 7, 2010). Losing our grip: How a corporate farmland buy-up, rising farm debt, and agribusiness financing of inputs threaten family farms and food

sovereignty (or 'Serfdom 2.0"). Retrieved from http://www.nfu.ca/sites/www.nfu.ca/files/06-07-losing_grip.pdf

NFU. (May 17, 2012). Presentation by the National Farmers Union, a member of Food Secure Canada, to the House of Commons Standing Committee on International

Trade on the Proposed Comprehensive and High-Level Economic Partnership Agreement with Japan. Retrieved from [http://www.nfu.ca/story/proposed-](http://www.nfu.ca/story/proposed-comprehensive-and-high%E2%80%90level-economic-partnership-agreement-japan)

[comprehensive-and-high%E2%80%90level-economic-partnership-agreement-japan](http://www.nfu.ca/story/proposed-comprehensive-and-high%E2%80%90level-economic-partnership-agreement-japan)

NFU. (May 2011). Farms, farmers and agriculture in Ontario, an overview of the situation in 2011. Retrieved from

http://www.nfu.ca/sites/www.nfu.ca/files/farm_ontario.pdf

NFU. (May 2012). Farmers, the food chain and agricultural policies in Canada in relation to the right to food. Retrieved from [http://www.nfu.ca/story/farmers-food-](http://www.nfu.ca/story/farmers-food-chain-and-agriculture-policies-canada-relation-right-food)

[chain-and-agriculture-policies-canada-relation-right-food](http://www.nfu.ca/story/farmers-food-chain-and-agriculture-policies-canada-relation-right-food)

NFU. (November 30, 2005). The farm crisis and corporate profits. Retrieved from http://www.nfu.ca/sites/www.nfu.ca/files/corporate_profits.pdf

NFU. (October 11, 2012). The livestock crisis, toward a new analysis and new solutions. Retrieved from <http://www.nfu.ca/issues/livestock-crisis>

NFU. Bill C-18 backgrounder, a corporate agri-business promotion act. Retrieved from [http://www.nfu.ca/story/corporate-agri-business-promotion-act-bill-c-18-](http://www.nfu.ca/story/corporate-agri-business-promotion-act-bill-c-18-backgrounder)

[backgrounder](http://www.nfu.ca/story/corporate-agri-business-promotion-act-bill-c-18-backgrounder)

The rise and expansion of supermarkets

The rise and rapid development of the supermarket phenomena in the 20th century highlights the extent of the monopolies in the food sector. Whatever the major supermarkets do affects the entire food chain from the farmers that grow the food to the processing companies to the distributors to the retailers and to the people that eat the food. Because of their market power they are able to bargain down distributors' prices, who in turn are forced to bargain down the suppliers, and so on down the supply line along with their support systems, including transportation companies, storage facilities, slaughterhouses, and so on. This market power means that supermarkets are effectively

deciding *what* we eat, *where*, *when* and in *what way* it is grown, and *what price* farmers get for their crops - a very small part of the pie.

Equally significant, supermarkets symbolize the tremendous gap that has developed between 'producers' and 'consumers'. Apart from a hike in a conservation park on weekends, many have become disconnected from nature and certainly from the farming community. The *label* on the package has become the only point of contact between the farmers who have grown the food and the customers buying the processed food. Even the label may be misleading as to where the food came from, how it was grown and what is in it. As ordinary shoppers we virtually know nothing about the origin of the food we buy, unless we make a special effort to find out. Nowadays it takes non-profit organizations like Cornucopia and many others to help us unravel the various sources of our food, the subsidiaries of the major food companies and their brand names. One of the first challenges of an alternative food system is to restore a more direct connection between growers and customers. Fortunately such a direct connection has already been established in many places.

ECT Group. (December 2010). The big downturn? Nanogeopolitics. Retrieved from http://www.etcgroup.org/sites/www.etcgroup.org/files/publication/pdf_file/nano_big4web.pdf

ECT Group. (August 14, 2014). Why genetically modified crops pose a threat to peasants, food sovereignty, health, and biodiversity on the planet. Retrieved from <http://www.etcgroup.org/content/why-genetically-modified-crops-pose-threat-peasants-food-sovereignty-health-and-biodiversity>

ECT Group. (November 1, 2011). Who will control the green economy? Retrieved from <http://www.etcgroup.org/content/who-will-control-green-economy-0>

ECT Group. (September 6, 2013). With climate change...Who will feed us? The industrial food chain/the peasant food web. Retrieved from <http://www.etcgroup.org/content/poster-who-will-feed-us-industrial-food-chain-or-peasant-food-webs>

ECT Group. (December 1, 2005). Oligopoly, Inc. Concentration in Corporate Power. Retrieved from <http://www.etcgroup.org/content/oligopoly-inc-concentration-corporate-power-2005>

FAO. (2009). Livestock keepers, guardians of biodiversity. Retrieved from <ftp://ftp.fao.org/docrep/fao/012/i1034e/i1034e.pdf>

Global Policy Forum. (October 31, 2014). Stronger plant variety protection may threaten the right to food. Retrieved from <https://www.globalpolicy.org/component/content/article/217-hunger/52704-stronger-plant-variety-protection-may-threaten-the-right-to-food.html>

Howard, P. H. (2013/2014). Organic processing industry structure. Retrieved from <https://msu.edu/~howardp/organicindustry.html>

Howard, P. H. (2013). Visualizing consolidation in the global seed industry, 1996-2013. Retrieved from <https://msu.edu/~howardp/seedindustry.html>

IPS. (April 28, 2008). Peru: preserving the potato in its birthplace. Retrieved from <http://www.ipsnews.net/2008/04/peru-preserving-the-potato-in-its-birthplace/>

IPS. (January 17, 2008). Development: Potato capital of the world offers up a new recipe. Retrieved from <http://www.ipsnews.net/2005/01/development-potato-capital-of-the-world-offers-up-new-recipe/>

IPS. (May 16, 2008). Peru: Women – the guardians of potato biodiversity. Retrieved from <http://www.ipsnews.net/2008/05/peru-women-the-guardians-of-potato-biodiversity/>

Krebs, A. and Lehman, K. (1996). Control of the world's food supply *CONVERGE*. Retrieved from <http://www.converge.org.nz/pirm/ctrlfood.htm>

New Internationalist. (October 20, 2014). Battling the 'Monsanto law' in Ghana. Retrieved from <http://newint.org/blog/2014/10/20/plant-breeders-bill-ghana/>

New Solutions, #13. *Food, Feed and Fuel*. (July 2007). Retrieved from <http://www.communitysolution.org/newsolutionsreports/new-solutions-13-food-feed-and-fuel>

Nourishing the Planet. (November 10, 2009). The keepers of genetic diversity: meeting with pastoralist communities in Kenya. Retrieved from <http://blogs.worldwatch.org/nourishingtheplanet/the-keepers-of-genetic-diversity-meeting-with-pastoralist-communities-in-kenya-advisory-group-africa-agriculture-biodiversity-climate-change-drought-hunger-kenya-livestock-state-of-the-world-2011-past/>

Oxfam. (February 26, 2013). Behind the brands, Food justice and the 'big 10' food and beverage companies. Retrieved from <https://www.oxfam.org/sites/www.oxfam.org/files/bp166-behind-the-brands-260213-en.pdf>

The Bern Declaration (BD). (October 7, 2014). Owing seeds, accessing food: a human rights impact account of UPOV 1991 based on case studies in Kenya, Peru and the Philippines. Retrieved from https://www.evb.ch/fileadmin/files/documents/Saatgut/2014_07_10_Owning_Seed_-_Accessing_Food_report_def.pdf

Third World Network. (October 7, 2014). Acquisition of Africa's SeedCo by Monsanto, Groupe Limagrain: neo-colonial occupation of Africa's seed systems. Retrieved from <http://afsafira.org/acquisition-of-africas-seedco-by-monsanto-groupe-limagrain-neo-colonial-occupation-of-africas-seed-systems/>

Wilkinson, J. The Globalization of Agribusiness and Developing World Food Systems. *Monthly Review*, 2009, Volume 61, Issue 04 (September). <http://monthlyreview.org/2009/09/01/globalization-of-agribusiness-and-developing-world-food-systems/>

World Food Day. (Oct 16, 2014). Family Farming: guardian of the planet and Peru's biodiversity. Retrieved from http://www.worldfooddayusa.org/nadine_heredia

WorldWatch Institute. (2013/2014). Agribusinesses Consolidate Power. Retrieved from <http://www.worldwatch.org/node/5468>

Wal-Mart; an example and symbol

Wal-Mart is a prime example of consolidation, cutthroat competition and aggressive global expansion into China, Latin America, Asia, and Africa. It is the largest private corporation in the US and Mexico with 1.7 million employees, it controls over 25% of the market share in the US and operates in more than 15 countries. The three top retailers, Wal-Mart (USA), Carrefour (France, 34 countries) and the Schwarz Group (Germany, 23 countries), together control over 48% of the market share. We don't tend to think of China as out-consuming the US and becoming the world's largest grocery market, nor of Brazil, Russia, and India. Wal-Mart's income from groceries accounts for over half of its total revenues. As

sales become stagnant in the developed world, the focus is shifting to the emerging and developing countries that provide a new lucrative market. Countries that have an emerging middle class which can go to the supermarkets and can afford to buy processed food are becoming the new consumers. The millions of impoverished people living in the slums around the mega cities do not count for the supermarkets, since they have no buying power; they are considered part of an expendable group of people that have no place in global economy. The ones that can afford to go to the supermarkets are all in line for processed food, unhealthy diets, and an increase in high blood pressure, heart attacks, high cholesterol, diabetes and other food related diseases.

Since Wal-Mart is high on the economic food chain, it wields extraordinary economic and trade power. Its domination of the retail market forces consolidations and mergers of smaller businesses up and down the food chain. These kinds of consolidations are survival strategies in order to compete with the few giant retailers. On the top of the food chain, Wal-Mart can dictate the standards, prices, delivery schedules, labeling, inventory management, labour practices, and force others to fall in line. It exerts a relentless downward pressure on all suppliers to provide it with increasingly lower prices that are not sustainable. Its 'lowest common denominator' labour practices not only affect their own workers but all workers up and down the supply line. It pays its workers less than the minimum wage and many can't afford the health insurance it provides. They have even had a foodbank to provide for their own workers.

Wal-Mart has the most advanced logistical control of its inventory, including product numbers, manufacturer identifiers and the details of its customers' buying habits, including the routes they take through the store. It is a giant IT company with one of the largest computer systems in the world that happens to specialize in retail. Because of its size, it has been able to force Electronic Data Interchange on all companies that want to do business with them. A big part of its success is based on this elaborate logistical control of its inventory, suppliers and customers. It has allowed the company to cut back on the number of its employees. The workers it does need, women and young people, are closely timed. Not surprisingly Wal-Mart is repeatedly charged with sexism, excluding women from management positions, discrimination, child labour law violations, illegal hiring practices and anti-union actions. In spite of these practices many local and state governments provide millions of dollars in tax breaks and subsidies to fund big box developments and deferment of tax payments. It is estimated that the US Wal-Mart stores alone costs the American taxpayers 2 billion dollars a year in subsidies for social assistance, housing and health care because of the low wages of their employees.

Wal-Mart expects that its stores will buy food from over one million Chinese farmers for its more than 338 stores in over 124 Chinese cities. It is an example of the pressure Wal-Mart can exert. The farmers can either comply or find themselves excluded from the supply system and become marginalized. More than 80% of the over 6,000 factories that supply Wal-Mart with its products are based in China. With 1.3 billion potential customers, China is a promising market, not only for groceries but beverages as well. Proctor & Gamble, Unilever, Kraft, and Budweiser are making a quick and early entry to cultivate and secure their brand. This means more sugar from soft drinks for the Chinese people, with hamburgers, Coca-cola and French-fries not far off. At the same time US Wal-Mart stores are flooded with Chinese products of unknown and sometimes dubious quality.

Wal-Mart is developing its own private label brands which can hide the kind and source of its ingredients, especially of its 'organic' foods. It is estimated that 40% of Wal-Mart's sales are private label items. It continues to lobby for official approval of adding ingredients and additives without having to list its source, or they add non-organics to 'organic' foods regardless of official approval. Wal-Mart's venturing out in 'organic' foods is a threat to organic food standards, undermining the integrity of the organic label. Its prices for 'organic' foods have been lowered to be similar to conventional foods. Usually organics are considered 30% more expensive than non-organics. It is only by bargaining down the prices organic growers can charge and pressuring them to cut corners and by hiding its sources and adding

non-organics that Wal-Mart can lower its prices. Given the hidden costs, organic foods generally are cheaper or equal in price to conventional foods, especially the organics that are provided locally. Most important of all, genuine organic foods are not a threat to our health. Of course if all the costs of the *externals* are added, conventional foods would be prohibitively expensive and unaffordable for most people.

Convenience, choice and low prices come at a very high cost: the destruction and demise of local economies and communities; the decline of the nutritional quality of the food and the impact on the community's health; the loss of food sovereignty and continued dependence on fossil fuels at every stage of the food supply. Ultimately we pay the price of the influence of the supermarkets over our entire way of living, working and eating habits. In all this Wal-Mart is not an exception but an example that can be multiplied by many other global retailers and food related corporations. Along with fast food outlets they are a symbol of our untenable and destructive agricultural practices and food consumption. It is sad to see the inroads processed foods are making in Africa, Asia, Brazil, China and Eastern Europe. There is a huge price tag attached to their convenience foods that will demand payment in the years to come.

Business Day LIVE. (September 2, 2013). Nigeria's middle class offers big rewards for global retailers. Retrieved from <http://www.bdlive.co.za/africa/africanbusiness/2013/09/02/nigerias-middle-class-offers-big-rewards-for-global-retailers>

CNBC. (January 8, 2014). A growing taste for US fast food in India. Retrieved from <http://www.cnn.com/2014/01/08/a-growing-taste-for-us-fast-food-in-india.html>

Cornucopia Institute. (February 14, 2014). Horizon 'organic' factory farm accused of improprieties, again. Retrieved from <http://www.cornucopia.org/2014/02/horizon-organic-factory-farm-accused-improprieties/>

Cornucopia Institute. (April 2016). Carrageenan, How a 'natural' food additive is making us sick. Retrieved from <http://www.cornucopia.org/carrageenan-how-a-natural-food-additive-is-making-us-sick/>

Cornucopia Institute. (May, 2009). Behind the bean; The Heroes and charlatans of the natural and organic soy food industry. Retrieved from http://www.cornucopia.org/soysurvey/OrganicSoyReport/behindthebean_color_final.pdf

Cornucopia Institute. (October 3, 2014). Nanomaterials in organic Food? The USDA is looking the other way. Retrieved from <http://www.cornucopia.org/2014/10/nanomaterials-in-organic-food-the-usda-is-looking-the-other-way/>

Daily News Archive. (November 14, 2006). Wal-Mart charged with selling non-organic food as organic. Retrieved from <https://www.organicconsumers.org/news/wal-mart-charged-selling-nonorganic-food-organic>

Dr. Mercola. (May 20, 2012) Discover what they're hiding in your organic food. Retrieved from <http://articles.mercola.com/sites/articles/archive/2012/05/20/kastel-organic-foods.aspx>

Gupta, A. (June 23, 2014). How Walmart threatens organic food. *Toward Freedom*. Retrieved from http://inthesetimes.com/article/16785/how_walmart_threatens_organic_food

Irving, S. (November 11, 2006). Don't believe the hypermarket. *New Internationalist*. Retrieved from <http://newint.org/features/2006/11/01/supermarkets/>

Kastel, M. A. (February 14, 2014). Horizon'organic' factory farm accused of improprieties, again. *Cornucopia Institute*. Retrieved from <http://www.cornucopia.org/2014/02/horizon-organic-factory-farm-accused-improprieties/>

Kastel, M. A. (July 22, 2014). Walmarting organics; will the growth of 'big organic' lower food quality, weaken standards, and destroy farmers livelihoods? *Cornucopia Institute*. Retrieved from <http://www.cornucopia.org/2014/07/walmarting-organics-will-growth-big-organic-lower-food-quality-weaken-standards-destroy-farmers-livelihoods/>

Kastel, M. A. (September 27, 2006). Wal-Mart; the nation's largest grocer rolls-out organic products, market expansion or market delusion? *Cornucopia Institute*. Retrieved from http://www.cornucopia.org/WalMart/WalMart_White_Paper.pdf

Kastel, M. A. (September 28, 2006). Wal-Mart declares war on organic farmers, partners with agribusiness for corporate power. *Cornucopia Institute*. Retrieved from http://www.cornucopia.org/WalMart/WalMart_News_Release.pdf

Panisi0s, A. (November 20, 2014). Report exposes Walmart's dirty energy secret. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/11/20/walmart-dirty-energy-secret/>

Patel, R. (2007). *Stuffed and Starved, the hidden battle for the world's food system*. Chapter 8. Checking out of Supermarkets. Melville House. pp. 215-252.

Raabe, S. (January 16, 2005). Mega-dairy Aurora Organic admits it's an intensive confinement organic feedlot. *Organic Consumers Association*. Retrieved from https://www.organicconsumers.org/old_articles/organic/aurora012405.php

Commodification in the food industry

When the *profit motive becomes the guiding principle* for food production then the land, water, seeds, crops, animals, labourers, consumers, all become *commodified*. They become *economic objects* to be controlled and manipulated to secure the greatest possible profit and growth. Then land, water and seeds become mere commodities for investment or speculation. If suburban development is more profitable than rich farmland, so be it. If watersheds have to be altered and wetlands have to be filled, so be it. In the end, expansion and profits are what counts. Whether urban development could be done very differently, so that it fosters community and saves energy that is of no concern. Farm laborers have become a part of the cost of production that has to be kept to a minimum. And if money can be saved on protective

gear when applying chemicals, especially in developing countries, so be it. The competition is fierce and someone else might produce it more cheaply.

Commodification of consumers

The people that buy food in the supermarket or 'eat out' have also become commodified. They have become 'consumers' that have to be motivated and manipulated to be loyal to certain company brands. People are treated as one-dimensional beings, as economic creatures that have unlimited wants and need to be relentlessly bombarded with commercials and advertisements on TV, in the mail, on billboards, in the subway, in the hospital waiting room, on the computer. No matter where we turn, the message is there: *consume*. All our needs are treated as one-dimensional as well. There is a product, a commodity, a technical device, a medication, an insurance policy, a luxury we deserve, a service, a trip, or an event for every need. It is called, prosperity, a higher standard of living, happiness, freedom and well-being. The reality is very different, family income in North America has declined over the years; it takes two family members to buy and maintain a home; family debt keeps increasing year after year. The concentration of power in the hands of a few large corporations cannot be trusted with the world's food supply. Their aim is not food security and food sovereignty for all but profitability for the few. Rather than the solution to world hunger corporate agriculture contributes to food shortages, hunger, undernourishment and poverty.

The commodification of food and its impact on human health is worth a study in itself. The partial list of references gives an idea of the many aspects of our food production that can affect our health: the effects of residues from fertilizers, pesticides, hormones, antibiotics on our health; the large number of people affected by food-borne diseases each year and food poisoning; the countless food additives, many of them untested; the chemical treatments of food to secure longer shelf life; etc.

- Canadian Medical Association Journal*. (October 2, 2012). Farm-grown superbugs: while the world acts, Canada dawdles. Retrieved from <http://www.cmaj.ca/content/184/14/1553.full.pdf>
- CARD. (2012). The protectionism of food safety standards in international agricultural trade. Retrieved from http://www.card.iastate.edu/ag_policy_review/display.aspx?id=15
- CDC. (September 16, 2013). Untreatable: report by CDC details today's drug-resistant health threats. Retrieved from <http://www.cdc.gov/media/releases/2013/p0916-untreatable.html>
- Center for Food Safety*. (2006). Food irradiation: a gross failure. Retrieved from http://www.centerforfoodsafety.org/files/food_irradiation_gross_failure.pdf
- Center for Food Safety*. (May 1, 2013). Animal Factories: arsenic. Retrieved from <http://www.centerforfoodsafety.org/fact-sheets/2165/animal-factories-arsenic#>
- Cornucopia*. (September 19, 2013). Food Safety Theater, the Food and Drug Administration's proposed rule for the implementation of the Food Safety Modernization Act. Retrieved from <http://www.cornucopia.org/FoodSafety/FoodSafetyWhitePaper.pdf>
- EcoWatch*. (July 25, 2014). Court rules rampant misuse of antibiotics on factory farms can continue. Retrieved from <http://ecowatch.com/2014/07/25/court-rampant-misuse-of-antibiotics-factory-farms-continue/>
- EcoWatch*. (May 21, 2014). Will Free Trade Agreements allow chlorinated Canadian beef to be exported to Europe. Retrieved from <http://ecowatch.com/2014/05/23/ttip-free-trade-agreements-chlorinated-beef-eu/>
- EcoWatch*. (November 25, 2014). The truth about artificial sweeteners. Retrieved from <http://ecowatch.com/2014/11/25/truth-artificial-sweeteners/>
- EcoWatch*. (October 24, 2014). WTO says U.S. consumers don't need to know where meat comes from. Retrieved from <http://ecowatch.com/2014/10/24/wto-cool-meat-label/>
- EcoWatch*. (September 20, 2013). Proposed FDA Food Safety Rules support factory farming, threaten family farms. Retrieved from <http://ecowatch.com/2013/09/20/fda-food-safety-support-factory-farming/>
- Food Politics*. (September 19, 2014). Do artificial sweeteners cause – not cure – glucose intolerance? Retrieved from <http://www.foodpolitics.com/2014/09/do-artificial-sweeteners-cause-not-cure-glucose-intolerance/>
- Huffington Post*. (January 11, 2011). Hormones in food: should you worry? Retrieved from http://www.huffingtonpost.com/2011/01/31/hormones-in-food-should-y_n_815385.html
- LiveStrong*. (August 16, 2013). The effects of growth hormones in food. Retrieved from <http://www.livestrong.com/article/98816-effects-growth-hormones/>
- Mercola*. (November 5, 2011). Never buy meat, potatoes, and herbs with 'treated by radiation' on the label. Retrieved from <http://articles.mercola.com/sites/articles/archive/2011/11/05/why-are-your-spices--seasonings-exposed-to-half-a-billion-chest-xrays-worth-of-radiation.aspx>
- Organic Consumers Association*. (May 2007). Growth hormone fed to beef cattle damage human health. Retrieved from <https://www.organicconsumers.org/scientific/growth-hormones-fed-beef-cattle-damage-human-health>

Pediatric Endocrinol Review. (August 1, 2004). Effect of growth hormone (GH) on the immune system. 1 Suppl 3:490-5.
SPIEGELONLINE. (January 27, 2012). Resistant bacteria: antibiotics prove powerless as super-germs spread. Retrieved from <http://www.spiegel.de/international/world/resistant-bacteria-antibiotics-prove-powerless-as-super-germs-spread-a-811560.html>
The Bovine. (February 28, 2014). Dutch curb subclinical antibiotics for livestock, now what about the U.S.? Retrieved from <https://thebovine.wordpress.com/2014/02/28/dutch-curb-subclinical-antibiotics-for-livestock-now-what-about-the-u-s/>
The Organic Center. (March 18, 2014). Health effects of dietary exposure to pesticides. Retrieved from <https://www.organic-center.org/uncategorized/health-effects-of-dietary-exposure-to-pesticides/>
Union of Concerned Scientists. Prescription for trouble: using antibiotics to fatten livestock. Retrieved from http://www.ucsusa.org/food_and_agriculture/our-failing-food-system/industrial-agriculture/prescription-for-trouble.html#.VzOHAMXvaRM

Commodification of animals; an example

Within a narrow economic perspective, breeding sows are no longer animals but mere breeding machines that produce 2.1 to 2.5 litters a year. They are inseminated at seven months and from there on they are kept in gestation and farrowing crates in an endless cycle of pregnancy, birth and nursing piglets (for 17 to 20 days) and then all over again until they are spent. The crates are only slightly bigger than their bodies and leave very little room for movement or lying down comfortably. They cannot see the piglets or much of the other sows. The smell of ammonia from the urine and feces that drop through the slats surrounds them day and night. It is a life of extreme confinement, great stress and suffering. During the last few years in the U.S. there are about 6 million sows kept under those conditions in large buildings. When pigs and other farm animals become mere commodities, the factory farm workers, drivers and processing workers are *objectified* as well, mere cogs in the larger production machinery. They become *dehumanized*, as the cruel treatment in some slaughter houses and transportation practices illustrate. The full-length documentary by *Nation Earth Organization*, 2005, called “Earthlings, Make the Connection”, shows how far this process of dehumanization goes. One does not have to be an animal activist to be appalled and outraged at this kind of treatment not only of sows but many other animals as well. It makes all involved inhumane. Most disconcerting it has become accepted practice in the industry. Canada, by exception, has recently (2014) banned the practice of crated sows, which does not change the mass production of hogs in Manitoba. Undercover investigation is now in the process of being challenged by the industry in court in the US.

APECSEC. (March 21, 2014). Factory Farming Pros and Cons. Retrieved from <http://apecsec.org/factory-farming-pros-and-cons/>
CTV News. (December 7, 2012). Undercover investigation reveals disturbing and inhumane treatment of factory farm animals. Retrieved from <http://www.ctvnews.ca/w5/undercover-investigation-reveals-disturbing-and-inhumane-treatment-of-factory-farm-animals-1.1070919>
EcoWatch. (November 7, 2014). Chicken imports from China a raw deal for U.S. consumers. Retrieved from <http://ecowatch.com/2014/11/07/chicken-imports-china/>
EcoWatch. (July 31, 2014). USDA releases final rule to privatize poultry inspection. Retrieved from <http://ecowatch.com/2014/07/31/usda-final-rule-privatize-poultry-inspection/>
EcoWatch. (March 5, 2014). USDA to allow chickens from U.S. to be shipped to China for processing and back to U.S. for consumption, just like seafood. Retrieved from <http://ecowatch.com/2014/03/05/usda-chickens-shipped-china/>
Factory Farming. Pork production on Factory Farms. Retrieved from <http://www.farmsanctuary.org/learn/factory-farming/pigs-used-for-pork/#>
Food Empowerment Project. (2014). Pigs; Sheep and Goats; Turkeys; Hens raised for eggs; Chickens raised for ‘meat’. Retrieved from <http://www.foodispower.org/chickens-raised-for-meat/>
New Harvest. (2013). 3 Alarming Factory Facts that You Should Know. Retrieved from <http://www.new-harvest.org/>
PRI. (November 13, 2012). Blogger Wu Heng, a champion for food safety in China. Retrieved from <http://www.pri.org/stories/2012-11-13/blogger-wu-heng-champion-food-safety-china>
Salon. (September 16, 2013). Chicken is killing the planet. Retrieved from http://www.salon.com/2013/09/16/chicken_is_killing_the_planet/
Schlosser, E. (October 22, 2001). *Fast Food Nation, the dark side of the all-American meal*. *Agribusiness*. Volume 17, Issue 4, pages 571–574. doi: 10.1002/agr.1036
The Guardian. (February 5, 2014). A regulator that serves the food industry rather than the consumer. Retrieved from <http://www.theguardian.com/commentisfree/2014/feb/05/food-standards-agency-leadership-regulator-industry>
The Guardian. (July 24, 2014). Jeremy Hunt demands urgent inspections of chicken factories. Retrieved from <http://www.theguardian.com/world/2014/jul/24/health-secretary-demands-investigation-chicken-industry>
Union of Concerned Scientists, Food & Agriculture. (2008). CAFOs Uncovered: The untold costs of confined animal feeding operations. Retrieved from http://www.ucsusa.org/sites/default/files/legacy/assets/documents/food_and_agriculture/cafos-uncovered.pdf
World Society for the Protection of Animals. Animals in Farming. Retrieved from <http://www.worldanimalprotection.ca/our-work/animals-farming>

Declining family farms and increasing industrial farms

Family farms have been declining steadily in the US, Canada, Great Britain, Germany and many other countries. In the US family farms have declined from almost 7 million in 1935 to below 2 million in 2012. This decrease in the number of

farms is partly the result of the growing number of large industrial farms, whether family-owned or not. Smaller farms can barely break even because of dwindling returns and high debt loads. Their expenses may be around \$47,000 and their income \$50,000, hardly enough to survive. Around 60% of farms have gross sales of under \$10,000 and produce less than 2% of food and fibre. The majority of farmers have a second job to support their families. Only about 6% of all farmers are under 35 years of age.

Each year the farming industry becomes more centralized and the proportion of farms owned by investors has increased. Fewer farmers grow most of the food in the US. The largest 4% of farms produce 66% of all farm product sales. It is a startling decline of mid-sized and small-scale family farms and increase in large farm operations. As we will see, the picture for dairy farms is even worse. This trend towards the development of more and more corporate farms, including in animal production, has strong implications for food security and food sovereignty in the US. More and more of the food that is grown is destined for ethanol, animal feed and for export. Only about 50% or less of the food that is produced is for peoples' consumption. In spite of the abundance of food produced in 2014 there were 49 million Americans (about 15 %) living in poverty with almost 16 million children (about 20%) being undernourished. Food prices continue to go up in the supermarkets. In times of crises this means that they will be out of reach for those already living in poverty.

The picture for Canada is much the same. In 2001 there were over 245,000 farms in Canada with an average size of 670 acres. In about ten years Canada has gone from over 245,000 farms to just over 200,000 farms. At the same time the average size of farms has increased by 7%. In the province of Saskatchewan the change has been even more drastic with a decline of 17% and an increase in average size of 15% with farms of over 1600 acres. The government of Canada spends about 8 billion dollars each year on direct income support payments or income stabilization programs and ad hoc support to deal with floods and droughts. In spite of this massive yearly financial support, the debt levels of the majority of farmers have soared and farm incomes have not increased. It is a misguided effort that tends to maintain struggling farmers who barely break even and need to have a second job to survive. It does secure the conservative vote. Like in the US a small number of large farms, about 10,000, produce over 50% of gross farm income. The number of large industrial farms with paid employees and with revenues of over one million has increased by 36%. Many of these are family-owned corporations; others are owned by investment companies, since industrial farms are profitable. Although profits of the mega-farms have increased, food prices in the supermarkets have not gone down, they continue to increase.

One can only imagine what would happen if there was a five year subsidized program that would allow farmers to switch from conventional farming to an ecologically sustainable form of farming. It would certainly provide an opening and opportunity for younger persons to become farmers. At the same time such a change in direction would require strict standards and inspection of 'organic' foods in the supermarkets and banning of the patenting of traditional seeds. It would begin to return food security and food sovereignty to Canada.

Agriculture and Agri-Food Canada. An overview of the Canadian agriculture and agri-food system, 2014. Retrieved from <http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2015/?id=142843911783>

Coalition. (October 1, 2013). Farmland conservation 2.0: how land trusts can save America's working farms. Retrieved from <http://www.youngfarmers.org/affordablefarms/>

Common Ground. (2014). Family Farms vs. Corporate Farms. Retrieved from <http://commongroundnebraska.com/family-farms-vs-corporate-farms/>

CountryGuide. (November 6, 2014). The Paradox of off-farm income. Retrieved from <http://www.country-guide.ca/2014/11/06/the-paradox-of-off-farm-income/45068/>

EPA Agriculture. (April 15, 2013). Demographics. Retrieved from https://www.epa.gov/sites/production/files/2015-07/documents/ag_101_agriculture_us_epa_0.pdf

Farm Aid. (2012). 10 things the 2012 census of agriculture tells us about family farmers and our food system. Retrieved from <https://www.farmaid.org/blog/10-things-the-2012-census-of-agriculture-tells-us-about-family-farmers-and-our-food-system/>

Farm Credit Canada. Canadian agriculture and agri-food in the global economy, 2013-14. Retrieved from <https://www.fcc-fac.ca/fcc/about-fcc/corporate-profile/reports/cage-report/cage-report-2013.pdf>

FarmStart. Learning to become a farmer. Retrieved from <http://www.farmstart.ca/wp-content/uploads/Learning-to-Become-a-Farmer-2012.pdf>

FarmStart. Supporting a new generation of farmers, assessing land for farming in Ontario, and our farms. Retrieved from <http://www.farmstart.ca/resources/>

Feeding America. (2013). Hunger and poverty facts and statistics. Retrieved from <http://www.feedingamerica.org/hunger-in-america/impact-of-hunger/hunger-and-poverty/hunger-and-poverty-fact-sheet.html>

Global Research. (August 30, 2012). Famine, global poverty and the destruction of the family farm. Retrieved from <http://www.globalresearch.ca/famine-global-poverty-and-the-destruction-of-the-family-farm/5302666>

Global Research. (August 5, 2014). The worldwide destruction of the family farm. Wall Street's unprecedented land grab. Retrieved from <http://www.globalresearch.ca/the-worldwide-destruction-of-the-family-farm-wall-streets-unprecedented-land-grab/5394833>

Global Research. (December 9, 2011). The destruction of Canada's family farm. Retrieved from <http://www.globalresearch.ca/the-destruction-of-canada-s-family-farm/28118>

Harder, D. (May 2014). Farmers paying the price of dismantling the Wheat Board. *CCPA Monitor*. Retrieved from <https://www.policyalternatives.ca/publications/commentary/fast-facts-grain-trains-and-autocrats-farmers-pay-price-dismantling-wheat>

Macklin, A. W. (December 8, 2011). The destruction of Canada's family farm. *Global Research*. Retrieved from <http://www.globalresearch.ca/the-destruction-of-canada-s-family-farm/28118>

Modern Farmer. (April 16, 2014). How new legislation in Boston gave fresh life to urban farms. Retrieved from <http://modernfarmer.com/2014/04/legislation-boston-article-89-urban-farms/>

On Earth Magazine. (July 7, 2014). The future of food. Retrieved from <http://www.thefutureoffood.com/>

Statistics Canada. (2014). Canadian Agriculture at a Glance. Retrieved from <http://www.statcan.gc.ca/pub/96-325-x/96-325-x2014001-eng.htm>

The Economic Collapse. (April 20, 2012). The Family Farm is being systematically wiped out of existence in America. Retrieved from <http://theeconomiccollapseblog.com/archives/the-family-farm-is-being-systematically-wiped-out-of-existence-in-america>

The Globe and Mail. (August 23, 2012). The growing problem: Canada slips from agricultural superpower status. Retrieved from <http://www.theglobeandmail.com/news/national/time-to-lead/the-growing-problem-canada-slips-from-agricultural-superpower-status/article1316188/>

The Globe and Mail. (May 10, 2012). Family farms are fewer and larger, StatsCan says. Retrieved from <http://www.theglobeandmail.com/news/national/family-farms-are-fewer-and-larger-statscan-says/article4106102/>

The Oakland Institute. (2014). Down on the farm, Wall Street: America's new farmer. Retrieved from <http://www.oaklandinstitute.org/down-on-the-farm>

The Stanford Center on Poverty and Inequality. (2014). The poverty and inequality report, 2014. *National Young Farmers*. Retrieved from http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwic5cjbmtXMAhVrw4MKHdPyDccQFggqMAA&url=http%3A%2F%2Ffinequality.stanford.edu%2Fsotu%2FSOTU_2014_CPI.pdf&usq=AFQjCNGdxWzvHUnX-ZUkklq_ce6G3gnnmA

Union of Concerned Scientists, Food & Agriculture. (2012). Industrial Agriculture. Retrieved from <http://www.ucsusa.org/our-work/food-agriculture/our-failing-food-system/industrial-agriculture#.VzTRisXvaRM>

World Hunger Education Service. (July 20, 2014). Hunger in America: 2014 Unites States hunger and poverty facts. Retrieved from http://www.worldhunger.org/articles/us_hunger_facts.htm

Yes! (September 5, 2014). To save family farms from corporate buyout, retiring farmers connect with a new generation. Retrieved from <http://www.yesmagazine.org/planet/to-save-family-farms-from-corporate-buyout-retiring-farmers-connect-with-a-new-generation>

Dairy farming crisis; an example

Dairy farms have decreased at alarming rates: in the US they dropped from 640.000 in 1970 to under 60.000 in 2009; in Canada dairy farms have gone from 140.000 in 1970 to about 10.000 in 2014; British dairy farms from 30.000 to 11.000; in Germany from 379.000 to 100.000; similar declines have happened in other countries in Europe. Each year more and more dairy farmers give up the struggle and go bankrupt or sell their herd. As a result of this decrease in the number of dairy farms, many countries are developing a trade deficit and import more dairy products than they export. Large industrial farms with over 1000 dairy cows and giant milk processors are able to cut corners with additives and processes that compromise the quality and safety of the milk. In the US the two largest dairy companies, Dean Foods and DFA, control 33% of the raw milk produced and 90% of the processed milk. They are both subject to pending lawsuits for suppressing milk prices and unfair business practices through contract arrangements, making it hard for other companies to enter the market. Buyers and processors can suppress prices farmers are being paid, forcing them to get big or get out.

In the large factory farms the famous Holstein Friesian cows are milked three times a day and produce about 9000 litres a year each. The amounts are registered automatically and any cow underproducing has to be culled. The optimum amount of milk is 10.000 liters per cow; 10 years ago it used to be 5000 litres and in the 1970's 3500 litres. Dairy cows have become mere milk producing machines because they have this capacity to convert hay and feed into milk. If it could be done by chemical and mechanical means, there would be no need of dairy cows anymore. Many of them don't last more than 2 or 3 years. On smaller dairy farms cows used to have up to ten lactations, were milked less intensively and remained productive much longer. To produce milk for 10 months they have to have a calf each year. Ordinarily they produce 10 litres of milk a day for their calf. In contrast, intensely fed cows are expected to produce 70 litres a day. In order to produce that much milk they have to eat huge amounts of feed with lots of protein. They are like overworked

mothers and are operating at the limits of their physiology. Many go lame from standing on concrete as well as the weight of their udders or because they cannot lie down comfortably in their cramped cubicles. They require frequent use of antibiotics because of mastitis and infertility. The male calves, which comprise half of the births, are of limited use and most of them are shot at birth. Within such a reductionistic approach animal cruelty is never far away. The animals remain who they are, but it is the people who become dehumanized. See the vivid account by Felicity Lawrence, *Eat Your Heart Out*, 2008, (pp. 68-99) and *Food Empowerment Project*, 2014, (“Cows raised for ‘milk’”).

Alberta Farmer. (February 16, 2009). U.S. dairy farms in crisis as milk prices turn sour. Retrieved from <http://www.albertafarmexpress.ca/2009/02/16/u-s-dairy-farms-in-crisis-as-milk-prices-turn-sour-for-feb-16-2009/>

Bloomberg News. (July 25, 2012). Dean’s organic milk claims draw criticism from cited scientist. Retrieved from <http://www.bloomberg.com/news/articles/2012-07-25/dean-s-organic-milk-claims-draw-criticism-from-cited-scientist>

Bunting, J. *Dairy Farm Crisis 2009 a look beyond conventional analysis*. Retrieved from <http://www.nffc.net/Pressroom/Press%20Releases/2009/Bunting%20-%20Dairy%20Farm%20Crisis%202009.pdf>

Canadian Dairy Farm Industry. (2014). Number of farms, dairy cows and heifers. Retrieved from http://www.dairyinfo.gc.ca/index_e.php?s1=dff-fcil&s2=farm-ferme&s3=nb

Cornwall Standard Freeholder. (February 19, 2014). Farmgate: is dairy farming a dying industry? Retrieved from <http://www.standard-freeholder.com/2014/02/19/farmgate-is-dairy-farming-a-dying-industry>

Dairy Farmers of Canada, Update. (October, 2009). *President’s Message*. Retrieved from www.dairyfarmers.ca

Farm Aid. (February, 2009). Dairy farmers are struggling for survival right now – why? Retrieved from <https://www.farmaid.org/issues/industrial-agriculture/dairy-farmers-are-struggling-for-survival-right-now-why/>

Farmers Forum. Our tax money to process U.S. milk shows lack of federal support for supply management. Retrieved from <http://farmersforum.com/news/>

Mussell, Al. (June 2014). Modernizing milk supply management: an independent view. *George Morris Centre*. Retrieved from http://www.georgemorris.org/publications/Milk_SM_Modernization_June_14.pdf

Spiegelonline. (January 23, 2009). The new milk crisis: German dairy farms in decline. Retrieved from <http://www.spiegel.de/international/germany/the-new-milk-crisis-german-dairy-farms-in-decline-a-603222.html>

The Guardian. (March 16, 2013). Britain’s farming crisis: ‘people don’t realize how tough everything is’. Retrieved from <http://www.theguardian.com/environment/2013/mar/16/britain-farming-crisis-how-tough>

The Guardian. (March 16, 2013). UK farmers face disaster as ‘perfect storm’ strikes. Retrieved from <http://www.theguardian.com/environment/2013/mar/16/uk-farmers-face-disaster>

The Guardian. (November 21, 2010). British dairy industry becoming unsustainable, warns farmers’ union. Retrieved from <https://www.theguardian.com/business/2010/nov/21/british-dairy-industry-crisis>

The Guardian. (September 9, 2011). Mega-dairy factory farms are economically unsustainable. Retrieved from <http://www.theguardian.com/environment/2011/sep/09/mega-dairy-farms-unsustainable>

The Independent. (July 18, 2012). Milk crisis turns sour as dairy farmers reveal plans to blockade supermarkets. Retrieved from

<http://www.independent.co.uk/news/business/news/milk-crisis-turns-sour-as-dairy-farmers-reveal-plans-to-blockade-supermarkets-7953496.html>

The Telegraph. (January 9, 2010). The dairy farmer reduced to tears. Retrieved from <http://www.telegraph.co.uk/news/earth/agriculture/farming/6958013/The-dairy-farmer-reduced-to-tears.html>

The Telegraph. (July, 12, 2012). Dairy farming crisis will have ‘dire consequences’ for the countryside unless they are paid a fair price for their milk, campaigners warn this morning. Retrieved from <http://www.telegraph.co.uk/news/uknews/9392849/Dairy-farming-crisis-will-have-dire-consequences-for-countryside-campaigners-say.html>

Wall Street Journal. (December 11, 2012). America’s Milk Business in ‘Crisis’.

Retrieved from <http://www.wsj.com/articles/SB10001424127887323316804578165503947704328>

Droughts, floods, storms, poor crops, the recession in 2008 and the rising cost of feed have all added to the dairy crisis. Poor harvests as well as large portions of corn and soya being used for the production of ethanol have spiked the price of animal feed. However, the basic reason for the decline in dairy farms is the result of huge imports of cheap Milk Protein Concentrates (MPC) and Milk Protein Isolates (MPI) that have become substitutes for protein in raw milk and many other products. Because of a loophole in the WTO regulations large processors can circumvent existing quotas for no-fat dry milk and outsource their need for dairy protein to foreign producers of MPC’s and MPI’s. MPC’s are generally produced as a dry powder that can be shipped long-distance very cheaply. The imported MPC’s come from countries that have lower sanitation standards, lax inspections, and poor safety records, such as China, India, Mexico, Poland, Ukraine, and Siberia. The milk used to produce MPC’s is usually not cow’s milk but more often from water buffalo, yaks, and other animals. They may contain traces of heavy metals, dioxins, organic chlorides, radioactive isotopes, and may come from areas with foot and mouth disease and other infectious diseases, which the pasteurization process may not eliminate. Because of this uncertain origin and the fact that MPC’s were not considered a food, MPC’s have never been officially tested and approved by the US Food and Drug administration.

The concentrated milk proteins are used in a great variety of products: as an additive to milk (re-constituted milk like orange juice), in the production of yogurt, ice cream, coffee creamers, infant formulas, crackers, frozen dairy desserts, energy bars, probiotic nutritional drinks, processed cheese, candies, and countless other processed foods, as well as stabilizers, solubles and dispersants in meringues, cakes, soufflés, vinaigrettes, sausages, soups, glues and other non-food products. In spite of cheaper production costs, supermarket prices for milk products have declined only slightly. With growth and market power as a priority it is not surprising that massive amounts of MPC's are imported, regardless what it does to dairy farmers in North America and Europe, to food safety, and to national and regional food security and sovereignty.

Baily, K. W. (2003). *Milk Protein Concentrate Imports: implications for the North American Dairy Industry*. Retrieved from <http://www.wcds.ca/proc/2003/Manuscripts/Chapter%2011%20Bailey.pdf>

Cancer Prevention Coalition. Book Review of Samuel S. Epstein, 2006. What is in your milk? Retrieved from <http://www.healthy-communications.com/cpc.html>

Center for Food Safety. (February 15, 2013). Groups file lawsuits to stop groundwater pollution from industrial dairies. Retrieved from <http://www.centerforfoodsafety.org/issues/307/animal-factories/press-releases/1244/groups-file-lawsuits-to-stop-groundwater-pollution-from-industrial-dairies>

Cornucopia Institute. (February 16, 2012). Organic milk low as demand up and farmers struggle. Retrieved from <http://www.cornucopia.org/2012/02/organic-milk-low-as-demand-up-and-farmers-struggle/>

Food and Water Watch. Milk Protein Concentrates. Retrieved from <http://www.foodandwaterwatch.org/insight/milk-protein-concentrates>

Food Empowerment Project. (2009). Cows raised for 'milk'. Retrieved from <http://www.foodispower.org/cows-raised-for-milk/>

Health. (September 22, 2010). Scary reasons to buy organic milk. Retrieved from <http://www.health.com/health/article/0,,20428001,00.html>

Huffington Post. (September 15, 2010). Aurora Organic Dairy, several national chains face lawsuit for allegedly falsely labeling milk. Retrieved from <http://www.huffingtonpost.com/denver/the-news/2010/09/15/>

International Business Times. (May 21, 2013). Aspartame in milk: big business wants to sneak in sweeteners without labels, but there's one last chance to comment on FDA petition. Retrieved from <http://www.ibtimes.com/aspartame-milk-big-dairy-wants-sneak-sweeteners-without-labels-theres-one-last-chance-comment-fda>

Rural Vermont Policy Network News. (October 2002). Is there glue in those cheese slices? (or is it MPC?). Retrieved from <http://www.vce.org/mpc.html>

The Bovine. (August 7, 2009). NY senator wants crackdown on foreign Milk Protein Concentrate that's driving American dairy farmers out of business. Retrieved from <https://thebovine.wordpress.com/2009/08/07/ny-senator-wants-crackdown-on-foreign-milk-protein-concentrate-thats-driving-american-dairy-farmers-out-of-business/>

Consequences of the decline of family farms

The decline in the number of smaller family farms has had a ripple effect throughout rural communities. It has led to depopulation, loss of jobs, loss of local food processing facilities and abattoirs, fewer farm machinery dealers and repair shops, and so on. With fewer farmers there is less re-investment in the farming economy and supporting businesses. A web of small family farms used to support whole rural communities. They had a deep emotional investment in the land and their animals. It provided a stabilizing environment for children and the entire life of the surrounding community. A farm was a place where farmers had roots for two or more generations. This is not to idealize farm and rural life, on the contrary, there were many hardships and difficult times, but it was their life and their communities for good and ill. It is this fabric of life that has been broken. This kind of development has very little to do with change and modernizing, like some inevitable evolutionary process. Rather it is the result of the outworking of an ideology. Dairy farming could have changed and developed in an integral way without this massive upheaval and decline.

Many that have had to sell their land or their herd of cows have been deeply traumatized by the experience, especially if it involved a homestead that had been in the family for a number of generations. Statistics of the decrease in smaller farms do not begin to express the trauma of having to sell your farm or going bankrupt. For many it has created a sense of shame, failure and despair; for some it has led to suicide both in North America and Europe. Much of the social fabric of rural areas has been damaged and torn apart. Even though there are many new initiatives around local foods, protection of the environment, the arts, and tourism, it will take decades to build a new sense of community and a vibrant, sustainable way of life. The profits of industrial farms go to the investors and not to local communities and businesses. As a result many municipalities have a lower tax base, which makes it hard to maintain roads, water and waste management and local municipality offices and services. Rural people have become equally dependent on the supermarkets filled with processed food for their weekly supply of food. At the same time they are more directly

exposed to synthetic chemicals and bacteria from factory farms with large monocultures and herds of cattle in confined yards.

Not only the global North is affected by these changes but even more the global South. Countless rural economies and livelihoods have been ruined by the development of industrial agriculture. Unfair trading systems, supported by the WTO; mega-projects co-financed by the WB and the IMF; taking over of ancestral lands and waters for corporate plantations and beef cattle companies; dumping of subsidized food from the North killing indigenous farming; the penetration and influence of global food companies; the effects of climate change affecting productivity; food crises and the lack of food security and food sovereignty; widespread degradation of the environment; they have all contributed to the decline of peasant farming and their mass exodus to the fringes of the mega-cities. The remaining impoverished peasant farmers have been pressured to become 'contract farmers', which often means becoming indebted for life. There is a concerted effort to incorporate peasant farmers into the global food systems as cheap laborers on large plantations. The mega-agricultural projects in Mozambique illustrate how devious such arrangements can be (see below).

Desmarais, A. and Wittman, H. (2014). *Farmers, Foodies and First Nations: Getting to food sovereignty in Canada*. Journal of Peasant Studies. Volume 41, Issue 6. doi:10.1080/03066150.2013.876623

FU. (February 1, 2011). Investing in rural local economies: energy, the environment and infrastructure. Retrieved from <http://www.farms.com/farmspages/enews/newsdetails/tabid/189/default.aspx?newsid=38595>

NFU. (June 7, 2010). Losing our grip: how a corporate farmland buy-up, rising farm debt, and agribusiness financing of inputs threaten family farms and food sovereignty. Retrieved from http://www.nfu.ca/sites/www.nfu.ca/files/06-07-losing_grip.pdf

NFU. (May 2011). Farms, farmers and agriculture in Ontario; an overview of the situation in 2011. Retrieved from http://www.nfu.ca/sites/www.nfu.ca/files/farm_ontario.pdf

NFU. (November 19, 2008). The farm crisis and the cattle sector: toward a new analysis and new solutions. Retrieved from <http://www.nfu.ca/sites/www.nfu.ca/files/LivestockEXECSUMFINAL.pdf>

Reimer, B. (May 2009). Rural Canada by the numbers and Rural challenges and opportunities. *Federation of Canadian Municipalities*. Retrieved from https://www.fcm.ca/Documents/reports/Rural_Canada_Challenges_and_Opportunities_EN.pdf

Statistics Canada. (December 2013). Canada's rural population since 1851. Retrieved from https://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-310-x/98-310-x2011003_2-eng.cfm

The Journal of Peasant Studies. Food crises, food regimes and food movements: rumblings of reform or tides of transformation? 2011. Volume 38, Issue 1:109-44. doi: 10.1080/03066150.2010.538578.

3) Climate change, agriculture, the environment and food supply

All the environmental issues raised in the first chapter about the decline and disintegration of the land, soil, water, air, oceans, fish populations, forests, biodiversity and human health are intensified by each sector of the economy. Present-day corporate-led agricultural development is no exception. It is destructive to the environment and adds its part to extreme weather events like flash floods, violent storms and flooding. Industrial agriculture is the second largest contributor to the increase in greenhouse gasses. Only a radical or *structural change* can begin to reduce its ecological impact, its affect on climate change and bring about social justice and food sovereignty.

AgDM. (October 2008). Global warming – impact of climate change on global agriculture. Retrieved from <http://www.extension.iastate.edu/agdm/articles/others/takoct08.html>

CBC News. (May 7, 2014). Rising CO2 levels threaten human nutrition, study says. Retrieved from <http://www.cbc.ca/news/technology/rising-co2-levels-threaten-human-nutrition-study-says-1.2635112>

Earth Policy Institute. (August 18, 2014). Effect of rising temperatures on grain production. Retrieved from http://www.earth-policy.org/books/pb3/PB3ch3_ss3

Earth Policy Institute. (January 8, 2013). How China's rising soybean consumption is reshaping Western agriculture. Retrieved from http://www.earth-policy.org/data_highlights/2013/highlights34

EcoWatch. (April 28, 2014). Climate change causes spike in coffee price. Retrieved from <http://ecowatch.com/2014/04/28/climate-change-coffee-prices-spike/>

EPA. (2011). Climate Change, Agriculture and Food Supply. Retrieved from <https://www3.epa.gov/climatechange/impacts/agriculture.html>

FAO. (March 27, 2014). Food security, nutrition, and sustainable agriculture in the post 2015 agenda: priority targets and indicators identified by FAO, IFAD and WFP. Retrieved from http://www.fao.org/fileadmin/user_upload/post-2015/Targets_and_indicators_RBA_joint_proposal.pdf

Finance and Development. (March 2008). Global warming and agriculture. Retrieved from <https://www.imf.org/external/pubs/ft/fandd/2008/03/pdf/cline.pdf>

Government of Canada. (June 2010). *Research Paper*, Status of climate change adaptation in Canada's agricultural sector. Retrieved from <http://www.horizons.gc.ca/sites/default/files/Publication-alt-format/2010-0040-eng.pdf>

State of the Planet, the Earth Institute. (December 17, 2013). New predictions of climate change's impact on agriculture. Retrieved from <http://blogs.ei.columbia.edu/2013/12/17/multi-model-assessments-predict-effects-of-climate-change-on-agriculture/>

USA Today. (February 5, 2013). Report: Climate change could devastate agriculture. Retrieved from <http://www.usatoday.com/story/news/nation/2013/02/05/climate-change-agriculture-study/1893455/>
USDA. (2012). Climate change and Agriculture in the US: effects and adaptation. Retrieved from http://www.usda.gov/oce/climate_change/effects_2012/effects_agriculture.htm

Agriculture's GHG emissions

The industrial food industry total greenhouse gas emissions are second only to those of the extraction and burning of fossil fuels. A large part of agricultural emissions are nitrous oxide and methane gas both of which are more damaging to the earth's atmosphere than carbon dioxide. The N₂O emissions are primarily the result of the extensive and increasing use of nitrogen fertilizers, while livestock is responsible for large amounts of methane gas as part of their digestive process (enteric fermentation). When all the energy required at each stage of the food production, transportation, storage, refrigeration, processing, packing, distribution as well as fertilizer and pesticide production and the amount of pollution and waste at each stage; when all these factors are taken into account the total GHG emissions from agriculture may be much higher than is often suggested. Even all this does not take into account many other environmental and social costs of food production and consumption, including health costs.

Change in land use, deforestation, burning of savannahs, feed production, energy use of farm machinery, irrigation pumps; all add their part to the total amount of agricultural greenhouse gasses. Instead of absorbing and storing carbon, savannahs, forests, mangrove coastal peat lands and forests, swamps, marshes that are converted to farm land all become large sources of carbon emissions. The number of palm oil plantations has more than doubled during the last decade using environmentally valuable lands and coastal areas and requiring large amounts of fertilizer and pesticides. Industrial soybean and corn plantations for the production of animal feed and biofuel have put even more pressure on deforestation in the Amazon region and the Brazilian and African savannahs. Commercial agriculture, including livestock production and global timber companies are the primary cause of tropical deforestation. Added to this are the many degraded lands that no longer absorb CO₂. For all practical purposes they are dead zones.

Agricultural emissions from crop and livestock have doubled from 1961 to 2010. By 2050 they are estimated to rise another 30% or more, if investment banks, corporate trading companies and global food and processing corporations have their way. Given these increases in GHG the total impact of food production on climate change will become even larger than it is now. Much of the increase in GHG comes from 'developing countries', which, translated, means from the advance of industrial agricultural developments in the global South.

Center for Climate and Energy Solutions. (2013). Agricultural Emissions in the United States. Retrieved from <http://www.c2es.org/technology/overview/agriculture>
David Suzuki Foundation. Food and climate change. Retrieved from <http://www.davidsuzuki.org/what-you-can-do/food-and-our-planet/food-and-climate-change/>
EcoWatch. (April 11, 2014). UN predicts 30% rise in agriculture's greenhouse gas emissions by 2050. Retrieved from <http://ecowatch.com/2014/04/11/agricultures-greenhouse-gas-emissions-2050/>
EcoWatch. (July 25, 2014). Court rules rampant misuse of antibiotics on factory farms can continue. Retrieved from <http://ecowatch.com/2014/07/25/court-rampant-misuse-of-antibiotics-factory-farms-continue/>
EcoWatch. (November 28, 2014). Stunning aerial photos show how factory farms ravage the earth. Retrieved from <http://ecowatch.com/2014/11/28/factory-farms-photos-mishka-henner/>
FAO. (September, 2014). Towards climate-responsible peatland management. Retrieved from <http://www.fao.org/3/a-i4029e.pdf>
FCRN. (September 2008). Cooking up a storm: food, greenhouse gas emissions and our changing climate. Retrieved from http://www.fcrn.org.uk/sites/default/files/CuaS_web.pdf
Food Empowerment Project. (2013). Pollution (water, air, chemicals). Retrieved from <http://www.foodispower.org/pollution-water-air-chemicals/>
Iowa State University, Ag Decision Maker. (April 2008). Global warming – agriculture's impact on greenhouse gas emissions. Retrieved from <https://www.extension.iastate.edu/agdm/articles/others/TakApr08.html>
Nature. (October 31, 2012). One-third of our greenhouse gas emissions come from agriculture. Retrieved from One-third of our greenhouse gas emissions come from agriculture
Treehugger. (November 19, 2009). 6 ways agriculture impacts global warming. Retrieved from <http://www.treehugger.com/green-food/6-ways-agriculture-impacts-global-warming.html>
United Nations News Centre. (April 11, 2014). Agriculture's greenhouse gas emissions on the rise, warns UN agency. Retrieved from <http://www.un.org/apps/news/story.asp?NewsID=47563#.VzZ1V8XvaRM>

GHG emissions from livestock; an example

The FAO (2013) estimated that the huge number of beef and dairy cattle (around 1.5 billion) accounts for the largest percentage, between 40% to 50%, of total greenhouse gas emissions from agriculture. This percentage keeps increasing with the expansion of the cattle industry. New estimates claim that livestock production *alone* accounts for over 40% to 50% of GHG emissions, depending on what is included or excluded and not the 18% or 14.5% quoted in many reports. Factors that are usually included in the GHG emission estimates are: fertilizer and feed production, land clearing with its loss of carbon from soil and vegetation, manure management, enteric fermentation, transportation of livestock and feed. Some factors that are not included or disputed are: the impact of methane emissions that should be calculated on a 20-year basis and not a hundred years; the imbalance that has developed between photosynthesis and the respiration of livestock and the on-going loss of carbon sequestration from land clearing and not a onetime loss.

It is estimated that there are about 1.5 billion beef and milk cows, a little over 1 billion pigs and sheep each, and over 19 billion chickens. These large numbers of livestock put tremendous pressure on the use of land, soil, water and biodiversity of stocks. With the expected rise in meat consumption of 70 % by 2050, we can only fear the worst for global warming and the displacement of more and more peasant farmers. The numbers are particularly revealing for individual countries. Nigeria for example, with a population of around 167 million people has over 17 million head of cattle and 92 million sheep and goats for a total of 109 million. Its population is expected to double by 2050 and we can only speculate how fast its livestock will grow. Given these numbers, it is not surprising that the loss of rangeland and cropland due to desertification is Nigeria's number one environmental problem. The growth in goat populations in many countries in Asia and Africa in comparison to cattle and sheep is particularly indicative of the deterioration and loss of grasslands. The US by comparison has around 33 million beef cattle, 9 million dairy cows, 60 million pigs and 9 billion chickens. In every society in which income has risen, the consumption of meat has increased and with it the pressure to produce more grains for animal feed. In view of these figures the global push by supermarkets and food companies to condition people to consume more meat, or in the global South, to add meat to their diets seems short of criminal. Emissions from livestock production will continue to increase and not decrease as the FAO would like to believe. Livestock's impact on GHG emissions and the environment is generally underreported in many official documents.

Chatham House. (December 2014). Livestock – Climate change's forgotten sector, Global public opinion on meat and dairy consumption. Retrieved from https://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20141203LivestockClimateChangeBaileyFroggattWellesley.pdf

Earth Island Journal. (September 27, 2013). FAO underplays impact of livestock industry emissions. Retrieved from http://www.earthisland.org/journal/index.php/elist/eListRead/fao_underplays_impact_of_livestock_industry_emissions/

EcoWatch. (December 5, 2014). Eating less meat and dairy essential to curb climate change. Retrieved from <http://ecowatch.com/2014/12/05/eat-less-meat-dairy-curb-climate-change/>

EcoWatch. (September 14, 2014). How diet and climate change are intrinsically linked. Retrieved from <http://ecowatch.com/2014/09/14/diet-climate-change-linked/>

Forbes. (April 4, 2012). Eating less meat is the world's best chance for timely climate change, say experts. Retrieved from <http://www.forbes.com/sites/michellemaisto/2012/04/28/eating-less-meat-is-worlds-best-chance-for-timely-climate-change-say-experts/#5b50185644b9>

Goodland, R. (April 19, 2014). A fresh look at livestock greenhouse gas emissions and mitigation potential in Europe. *Global Change Biology*. Volume 20, Issue 7: 2042-44. doi: 10.1111/gcb.12454

Goodland, R. (November/December 2009). What if the key actors in climate change are cows, pigs and chickens? *World Watch*. Retrieved from <https://www.worldwatch.org/files/pdf/Livestock%20and%20Climate%20Change.pdf>

Ontario Ministry of Agriculture, Food and Rural Affairs. (2013). Beef cattle and greenhouse gas production. Retrieved from http://www.omafra.gov.on.ca/english/livestock/beef/news/info_vbn1013a4.htm

Rural 21. *The International Journal for Rural Development*. (November 17, 2014). The insatiable hunger for cheap meat. Retrieved from http://www.rural21.com/uploads/media/rural2014_04-S34-35.pdf

Sentience Politics. (2013). Sustainable Food: more resource efficient, fairer, more independent, healthier, more animal friendly. Retrieved from <http://sentience-politics.org/en/activities/position-papers/sustainable-food-2020/>

Terrastendo. (February 9, 2013). Omissions of emissions: a critical climate change issue. Retrieved from <https://terrastendo.net/2013/02/09/omissions-of-emissions-a-critical-climate-change-issue/>

Terrastendo. (November 15, 2014). Livestock and climate: do percentages matter? Retrieved from <https://terrastendo.net/2014/11/15/livestock-and-climate-do-percentages-matter/>

The Guardian. (April 13, 2012). Eat less meat to prevent climate disaster, study warns. Retrieved from <http://www.theguardian.com/environment/2012/apr/13/less-meat-prevent-climate-change>

The Guardian. (June 2, 2010). UN urges global move to meat and dairy-free diet. Retrieved from <http://www.theguardian.com/environment/2010/jun/02/un-report-meat-free-diet>

The Guardian. (September 26, 2013). Greenhouse gas emissions from livestock can be cut by 30%, says FAO. Retrieved from <http://www.theguardian.com/global-development/2013/sep/26/greenhouse-gas-emissions-livestock>

UNEP. (October 2012). Growing greenhouse gas emissions due to meat production. Retrieved from http://www.unep.org/pdf/unep-geas_oct_2012.pdf

World Watch. (March/April, 2010). 'Livestock and climate change', critical comments and responses by Robert Goodland. Retrieved from <https://www.worldwatch.org/files/pdf/Livestock%20and%20Climate%20Change.pdf>

Boucher, D. (2016). "Is there a vast conspiracy about climate change?", *Climate & Capitalism*, June 22, 2016. Retrieved from, <http://climateandcapitalism.com/2016/06/22/is-there-a-vast-cowspiracy-about-climate-change/>

Mitigation through more efficient livestock production?

All the suggestions for mitigation measures to lessen the impact of livestock production on the environment and global warming are unrealistic. Three reports by the UN's Food and Agriculture Organization, can serve as an example: *Livestock's long shadow, environmental issues and options, 2006*; *The state of food and agriculture, livestock in the balance, 2009*; *Tackling climate change through livestock, a global assessment of emissions and mitigation opportunities, 2013*. These reports make many good suggestions, which if they were implemented would move things in the right direction. Given the nature of the livestock industry however they are an illusion. The third report about cutting livestock GHG emissions by 30% end with statements about the need for *better policies, better regulations, better and more efficient technologies* and *most of all the political will to make radical changes*. It is as if livestock production happens in a political and economic vacuum, disregarding the power structures of global corporations and their political allies. The assumption is that corporations will either voluntarily increase efficiency or that governments will enact strict and binding policies that will foster better herd productivity, use better animal feed to reduce methane gas release, recycle emissions-producing manure and so on. Neither of the two is very likely. It is a fairytale scenario.

Boucher, D. et.al., (2012). "Grade A choice? Solution for deforestation-free meat", *Union of Concerned Scientists*. Retrieved from, http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/Solutions-for-Deforestation-Free-Meat.pdf

Boucher, D. (May 4, 2016). "Beef and the Paris Agreement: changing what we eat to stop causing climate change", *Union of Concerned Scientists*. Retrieved from, <http://blog.ucsusa.org/doug-boucher/beef-and-the-paris-agreement-changing-what-we-eat-to-stop-causing-climate-change>

Boucher, D. 2016, "Is there a vast conspiracy about climate change?", *Climate & Capitalism*, June 22, 2016. <https://blu183.mail.live.com/?tid=cmlwutUx5E5hGifAAeC8m70g2&fid=fltrash>

Explore Beef. (November 2006). Critical analysis of livestock's long shadow, fact sheet. Retrieved from http://www.explorebeef.org/cmdocs/explorebeef/factsheet_livestockslongshadow.pdf

FAO. (2006). Livestock's long shadow, environmental issues and options. Retrieved from <http://www.fao.org/docrep/010/a0701e/a0701e00.HTM>

FAO. (2009). The state of food and agriculture, livestock in the balance. Retrieved from <http://www.fao.org/docrep/012/i0680e/i0680e.pdf>

FAO. (2013). Tackling climate change through livestock, a global assessment of emissions and mitigation opportunities. Retrieved from <http://www.fao.org/3/i3437e.pdf>

FAO. (September 26, 2013). Major cuts of greenhouse gas emissions from livestock within reach. Retrieved from <http://www.fao.org/news/story/en/item/197608/icode/>

Geiling, N. (June 30, 2016). "5 big meat companies produce a combined 162 million tons of manure each year", *Climate Progress*. Retrieved from, <http://thinkprogress.org/climate/2016/06/30/3794632/factory-farms-manure-pollution-footprint/>

Ripple, W.J. et.al., (January 3, 2014). "Ruminants, climate change and climate policy", *Nature Climate Change* 4, 2-5 (2014). Retrieved from, http://health.gov/dietaryguidelines/dga2015/comments/uploads/CID230_Ripple_2014_NatureClimateChange-Ruminants.pdf

A reinforcing cycle: climate change – industrial agriculture – environmental decline – more climate change

More expansion and more intensive agricultural practices lead to further degradation of the soil, more conversion of forests and grasslands, more expansion of irrigation, more depletion of groundwater, further loss of biodiversity, more chemical pollution, leading to a further increase in climate change, which in turn has its effect on crop yields and available water. This requires the use of new genetically engineered seeds, more intensive use of fertilizers and pesticides, more irrigation, more land change, which leads to more degradation of the environment, and so on, a reinforcing cycle. Not only does the food industry have a profound effect on climate change, the accumulation of

greenhouse gasses in turn has an equally strong effect on industrial agriculture. Water shortages, soil erosion, plateauing crop yields and climate change all limit and threaten the world's food supply.

Agriculture has its own complexity and each aspect deserves separate attention, from the beef, pork, chicken, sheep and goat industry, the production of biofuels, the development of palm oil plantations, processing and packaging food, world-wide transportation of food, contamination, health impacts, food-borne diseases, world hunger and much more. For our purposes we will only highlight the impact industrial agriculture has on the very basis of growing food and raising livestock. *It serves as a reminder of the irreplaceable, intricate interrelationship that exists between the soil, the land, water, air, different species and varieties of plants and animals, pollinators, changing weather patterns and temperatures.* It underscores the precariousness of our food supply. We cannot continue to violate the very basis of life without suffering the consequences.

ALJAZEERA. (July 4, 2011). The decline of agriculture? Retrieved from <http://www.aljazeera.com/indepth/features/2011/07/201173114451998370.html>

Brown, L. R. (2012). *Full Plates, Empty Stomachs*. Retrieved from http://www.earth-policy.org/images/uploads/book_images/FullPlanetAllChaps.pdf

CCPA Monitor. (February 2011). Corporate food charity keeps hunger off political agenda. Retrieved from <http://www.cwp-csp.ca/resources/sites/default/files/resources/2011%20CCPA%20Critique%20of%20food%20banks.pdf>

CCPA Monitor. (September 2011). Canada's poorest people are facing a frightful food crisis. Retrieved from <https://www.policyalternatives.ca/publications/monitor/less-their-plate>

ClimateProgress. (July 28, 2014). As the planet warms, scientists say more people will go without food and water. Retrieved from <http://thinkprogress.org/climate/2014/07/28/3464687/chinese-farmland-drought-hunger/>

FAO. (2012). The state of food insecurity in the world, Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition. Retrieved from <http://www.fao.org/docrep/016/i3027e/i3027e.pdf>

Global Research. (May 7, 2009). Poverty and food insecurity in the developing world: for us, tolls the bell. Retrieved from <http://www.globalresearch.ca/poverty-and-food-insecurity-in-the-developing-world-for-us-tolls-the-bell/13527>

Global Research. (May 27, 2014). We are the soil. The destructive impacts of industrial agriculture. Retrieved from <http://www.globalresearch.ca/we-are-the-soil-the-destructive-impacts-of-industrial-agriculture/5384056>

IFAD. (2014). Small farms, big impacts: mainstreaming climate change for resilience and food security. Retrieved from <https://www.ifad.org/documents/10180/9fa4f004-59f2-4fda-a1cb-4e639037eb6c>

Lang, T. Crisis? What crisis? The normality of the current food crisis. *Journal of Agrarian Change*, Vol.10, No 1, January 2010, pp. 87-97. doi: 10.1111/j.1471-0366.2009.00250.x

MIT News. (July 27, 2014). Study: climate change and air pollution will combine to curb food supplies. Retrieved from <http://news.mit.edu/2014/climate-change-air-pollution-will-combine-curb-food-supplies-0727>

Mute. (August 28, 2008). Descrambling the food crisis. Retrieved from <http://www.metamute.org/editorial/articles/descrambling-food-crisis>

Rural 21, *The International Journal for Rural Development*. (December 15, 2014). Pricing the priceless – economic valuation of nature. Retrieved from <http://www.rural21.com/english/news/detail/article/pricing-the-priceless-economic-valuation-of-nature-00001339/>

The Guardian. (March 31, 2014). Climate change 'already affecting food supply' – UN. Retrieved from <http://www.theguardian.com/environment/2014/mar/31/climate-change-food-supply-un>

UNEP. (2009). The environmental food crisis: the environmental role in averting future food crises. Retrieved from http://www.grida.no/files/publications/FoodCrisis_lores.pdf

Yes! (March 15, 2011). The coming global food fight. Retrieved from <http://www.yesmagazine.org/blogs/john-cavanagh-and-robin-broad/the-coming-global-food-fight>

Changing weather patterns and temperatures; reduced crop yields

Extreme heat and drought has increased the lack of food and water in many regions, especially in China. Ground level ozone pollution, the main component of smog, together with warmer temperatures can have a strong effect on crop yields. They could reduce crop yields by more than 10% in the decades to come. Irrigated wheat yields could drop by as much as 13% and irrigated rice by 15%. Wheat seems to be more sensitive to ozone exposure and corn to heat. However, rising temperatures during the night can affect wheat as well, especially in India. A reduction in yields of any of the staple crops will increase the number of India's 60 million underweight children and the many malnourished adults. Given these trends it is not surprising that China and India along with other countries are 'outsourcing' their food production by buying up or leasing land elsewhere. There has been a strong increase in land and water investment. Especially countries that rely on food imports like China, global warming will put increasing demands on the world food supply. Already China imports a staggering 60% of all soybeans that are traded worldwide. It is projected that by the year 2030 China will need to import 240 million tonnes of food annually. Presently the total world agricultural trade in

grains and its equivalents is just 200 million tonnes. With many people moving up the food chain, they are also consuming more beef, pork, chickens and farmed fish. The major share of soybean meal is used for livestock feed.

FAO. (2014). Global Alliance for climate-smart agriculture action plan. Retrieved from <http://www.fao.org/gacsa/en/>

FAO. (November 2014). Science to support climate-smart agricultural development – concepts and results from the MICCA pilot project in East Africa. Retrieved from <http://www.fao.org/3/a-i4167e.pdf>

GDAE. (January 2012). Resolving the food crisis, assessing global policy reforms since 2007. Retrieved from http://iatp.org/files/2012_01_17_ResolvingFoodCrisis_SM_TW.pdf

Global Issues. (September 24, 2014). Climate-Smart agriculture is corporate green-washing, warn NGOs. Retrieved from <http://www.ipsnews.net/2014/09/climate-smart-agriculture-is-corporate-green-washing-warn-ngos/>

Global Research. (May 7, 2009). Poverty and food insecurity in the developing world: for us, tolls the bell. Retrieved from <http://www.globalresearch.ca/poverty-and-food-insecurity-in-the-developing-world-for-us-tolls-the-bell/13527>

GRID, ARENDAL. (2009). Impacts on environmental degradation on yield and area. Retrieved from <http://www.grida.no/publications/rr/food-crisis/page/3567.aspx>

IPS. (October 9, 2014). Family farmers don't need climate-smart agriculture. Retrieved from <http://www.ipsnews.net/2014/10/family-farmers-dont-need-climate-smart-agriculture/>

The Guardian. (October 17, 2014). Why 'climate-smart agriculture' isn't all it's cracked up to be. Retrieved from <http://www.theguardian.com/global-development-professionals-network/2014/oct/17/climate-change-agriculture-bad-isnt-good>

The Journal of Peasant Studies. Food crises, food regimes and food movements: rumblings of reform or tides of transformation? Volume 38, Issue 1, 2011. doi:10.1080/03066150.2010.538578

UNCTAD. (September 18, 2012). Trade and environment review 2013, Wake up before it is too late, make agriculture truly sustainable now for food security in a changing climate. Retrieved from http://unctad.org/en/PublicationsLibrary/ditcted2012d3_en.pdf

UNCTAD. The least developed countries Report 2013, Growth with employment for inclusive and sustainable development. Retrieved from http://unctad.org/en/PublicationsLibrary/ldc2013_en.pdf

UNEP. (2009). The environmental food crisis: the environment's role in averting future food crises. Retrieved from http://www.grida.no/files/publications/FoodCrisis_lores.pdf

Via Campesina News Updates. (December 8, 2014). Fight climate change with food sovereignty. Retrieved from <http://viacampesina.org/en/index.php/actions-and-events-mainmenu-26/-climate-change-and-agrofuels-mainmenu-75/1710-fight-climate-change-with-food-sovereignty>

Via Campesina News Updates. UN-masking climate smart agriculture. Retrieved from <http://viacampesina.org/en/index.php/main-issues-mainmenu-27/sustainable-peasants-agriculture-mainmenu-42/1670-un-masking-climate-smart-agriculture>

Via Campesina. (December 3, 2014). Position Paper of La Via Campesina: Environmental and climate justice now! Retrieved from <http://viacampesina.org/en/index.php/actions-and-events-mainmenu-26/-climate-change-and-agrofuels-mainmenu-75/1707-environmental-and-climate-justice-now-position-paper-of-la-via-campesina>

Soil

As the many reports indicate, the disappearance and decline of topsoil worldwide has become a major global problem that threatens the world's food supply. In many places soils have become impoverished or are on artificial chemical 'life support'. Chemical fertilizers and pesticides destroy the fertility of soil by killing the number and biodiversity of soil organisms along with many insects that control pests and pollinators like bees and butterflies. In regions across the globe soils lack many of the trace elements necessary for growing healthy foods. The solution to malnutrition begins with the preservation of the soil. It is estimated that about 33% of the world's soil is moderately or highly degraded as a result of erosion, desertification, acidification, alkalisation, salinization, nutrient depletion, chemical pollution and other factors. The rate of the global soil depletion continues to escalate. The increased use of fertilizers has its limits and at some point does not increase productivity. We are mining 'non-renewable' topsoil. It takes time and concerted efforts to restore and replenish degraded topsoil. Wind and water erosion, deforestation, overplowing and overgrazing from the billions of livestock all play their part in the decline and degradation of the soil. Countries that lose more and more of their topsoil eventually lose their capacity to feed themselves. Especially in the global South the degradation of soil is a major concern. At the same time, solutions for building up organic matter and restoring the fertility of the soil are well-known and near-at-hand. They have been practiced for thousands of years by many small-scale farmers. More sophisticated and technical solutions although useful in themselves have not been able to stop the global erosion of topsoil.

ALJAZEERA. (January 18, 2012). The world can't afford to keep wasting soil. Retrieved from <http://www.aljazeera.com/indepth/opinion/2012/01/20121992725118465.html>

Circle, UBC. (January 1, 2011). Ongoing soil degradation in Canada and its impacts on the future of soil productivity. Retrieved from <https://open.library.ubc.ca/cIRcle/collections/undergraduateresearch/1037/items/1.0075518>

Environment 360. (March 4, 2014). Soil as carbon storehouse: new weapon in climate fight? Retrieved from http://e360.yale.edu/feature/soil_as_carbon_storehouse_new_weapon_in_climate_fight/2744/

Environmental Commissioner of Ontario, Annual Report 2008/2009. Soil: our eroding asset, building resilience. Retrieved from <http://www.ecoissues.ca/Soil: Our Eroding Asset>

FAO. (2004). Carbon sequestration in dryland soils. Retrieved from <http://www.fao.org/3/a-y5738e.pdf>

FAO. (August 19, 2008). The carbon sequestration potential in agricultural soil. Retrieved from <http://www.fao.org/soils-portal/soil-management/soil-carbon-sequestration/en/>

IFAD. (2014). Neglecting African soil could derail development and climate goals, says new Montpellier panel report. Retrieved from <https://wca.ifpri.info/2015/06/21/neglecting-african-soil-could-derail-development-and-climate-goals-says-montpellier-panel-report/>

ISRIC *Bi-Annual Report 1991-1992*. Global extent of soil degradation. Pg 19-36. Retrieved from <http://www.isric.org/content/global-extent-soil-degradation>

ISRIC. *World Soil Information*, 2014. Combatting land degradation. Retrieved from <http://www.isric.org/global%20issues/combating-land-degradation>

Misereor. (November 28, 2011). No-till agriculture – a climate smart solution? Retrieved from http://www.misereor.org/fileadmin/redaktion/MISEREOR_Paper_3_No-Till_final.pdf

Parliamentary Research Branch. (August 27, 1998). Agriculture soil conservation in Canada. Retrieved from <http://publications.gc.ca/Collection-R/LoPBdP/MR/mr151-e.htm>

Rodale Institute. (December 8, 2005). Organic no-till. Retrieved from <http://rodaleinstitute.org/our-work/organic-no-till/>

Scherr, S. J. (February 1999). Soil degradation: a threat to developing-country food security by 2020? *International Food Policy Research Institute*. Retrieved from <http://www.env-edu.gr/Documents/Soil%20Degradation%20-%20A%20Threat%20to%20Developing-Country%20-%20Food%20Security%20by%202020.pdf>

Soil Conservation Council of Canada. (2013). Zero tillage a cornerstone to healthy soils and healthy food. Retrieved from http://www.soilcc.ca/feature_articles/champions/2013-01_e.php

Standing Senate Committee on Agriculture, Fisheries and Forestry. (February 7, 1984). Soil at risk, Canada's eroding future. Government of Canada.

Stonehouse, P. and Bohl, M. *Land degradation issues in Canadian agriculture. Canadian Public Policy – Analyse de Politiques*, XVI 4: 418-431, 1990. Retrieved from <http://qed.econ.queensu.ca/pub/cpp/Dec1990/Stonehouse.pdf>

Treehugger. (May 17, 2008). Carbon sequestration and storage in soils could solve global warming. Retrieved from <http://www.treehugger.com/corporate-responsibility/carbon-sequestration-and-storage-in-soils-could-solve-global-warming.html>

UN News Centre. (July 24, 2014). UN agency calls for urgent action to protect global soil from depletion, degradation. Retrieved from <http://www.un.org/apps/news/story.asp?NewsID=48342#.VzjKG8XvaRM>

Water

The studies and reports on the state of the world's fresh water supply should in itself be sufficient to recommend a radical change in corporate agricultural practices. But the WB, IMF, WTO, the UN FAO and other international bodies continue to support and finance new dams and irrigation projects. The hope is that more advanced technical solutions and better governance can solve growing water shortages. Agriculture is the greatest user of water, accounting for about 70% of all water withdrawals, mostly for irrigation. Freshwater is a renewable resource but a finite one. It takes about 2000 litres to produce the food we eat each day. A future water shortage means future food shortages, because the two are inseparably connected. Crops that are dependent on irrigation use large quantities of water, much of it from groundwater. Countries that already struggle with water shortages like Australia, Mexico, southwest US, and parts of Africa can only expect more crop failures in the coming decades. Global decline of glaciers, damming of many of the world's major rivers, changing river basins, depletion of groundwater, draining of wetlands, increase in irrigation, less precipitation, flash rain storms which the soil cannot absorb, coastal flooding with seawater polluting groundwater, all these factors will have their affect on the availability of water for the production of food, both rain-dependent and irrigated crops. Already many countries face a drop in water tables as a result of irrigation and water demanded by growing cities. In many places there is a competition between farmers' need for water and cities with the farmers usually losing out. The shortage of irrigation water means that more countries will be dependent on grain imports, which will further tax global food supply. Since it takes about 1000 tons of water to produce 1 ton of grain, importing grain is the most effective way to import water. Trading in grain futures is becoming trading in water. There are many ways in which water could be conserved and recycled and irrigation could be done more efficiently, especially by means of local small-scale drip irrigation and other conservation methods. It would require a change from industrial agriculture to local ecological farming.

BBC News. (June 24, 2014). Growing pains of China's agricultural water needs. Retrieved from <http://www.bbc.com/news/science-environment-27978124>

Bloomberg Businessweek. (June 26, 2014). Scientists say water shortages threaten China's agriculture. Retrieved from <http://www.bloomberg.com/news/articles/2014-06-26/scientists-say-water-shortages-threaten-china-s-agriculture>

ChinaWaterRisk. (April 9, 2014). Global agriculture & water scarcity. Retrieved from <http://chinawaterrisk.org/resources/analysis-reviews/global-agriculture-water-scarcity-exposure/>

EcoWatch. (December 15, 2014). 8 shocking facts about water consumption. Retrieved from <http://ecowatch.com/2014/12/15/water-footprint/>

Environment Canada. (July 23, 2013). Threats to water availability in Canada – a perspective. Retrieved from https://www.ec.gc.ca/inre-nwri/OC66675-AD25-4B23-892C-5396F7876F65/ThreatsEN_03web.pdf

European Commission. (January 12, 2012). Water saving potential in agriculture in Europe: findings from the existing studies and application to case studies, final report. Retrieved from http://ec.europa.eu/environment/water/quantity/pdf/BIO_Water%20savings%20in%20agriculture_Final%20report.pdf

FAO, *Water Rights*. (2012). Coping with water scarcity, an action framework for agriculture and food security. Retrieved from <http://www.fao.org/docrep/016/i3015e/i3015e.pdf>

Futurity. (December 18, 2013). For crops: water shortage could double effect of climate change. Retrieved from <http://www.futurity.org/less-water-may-double-climate-changes-punch/>

Global Research. (June 8, 2014). Top ten countries at risk of water shortages. Retrieved from <http://www.globalresearch.ca/top-ten-countries-at-risk-of-water-shortages/19996>

IRIN. (March 25, 2010). Syria: why the water shortages? Retrieved from <http://www.irinnews.org/report/88554/syria-why-water-shortages>

IWMI. (2014). Strategy 2014-2018, Solutions for a water-secure world. Retrieved from <http://www.iwmi.cgiar.org/about/iwmi-strategy-2014-2018/>

John Hopkins Water Institute. (July 25, 2010). Agriculture – meeting the water challenge. Retrieved from <http://water.jhu.edu/index.php/magazine/agriculturemeeting-the-water-challenge>

John Hopkins Water Institute. (September 26, 2014). Latin American experts need good data to plan for water stress and a changing climate. Retrieved from <http://water.jhu.edu/magazine/latin-american-experts-need-good-data-to-plan-for-water-stress-and-a-changing-climate>

Kola, M. (September 30, 2013). Warning: many watersheds in the failing ‘stress test’. *CNBC*. Retrieved from <http://www.cnb.com/2013/09/27/water-shortages-many-watersheds-in-us-failing-stress-test.html>

LRG. (September, 2012). An unexpected water crisis: Canada’s changing climate means more droughts, floods and storms –along with less ability to predict them. Retrieved from <http://reviewcanada.ca/magazine/2012/09/an-unexpected-water-crisis/>

Molden, D. ed. (2007). Summary: Water for food, Water for life. *IWMI*. Retrieved from <http://www.iwmi.cgiar.org/assessment/Publications/books.htm>

Ontario, Ministry of Agriculture, Food and Rural Affairs. (January 17, 2014). How to prepare for irrigation during water shortages. Retrieved from <http://www.omafra.gov.on.ca/english/engineer/facts/99-023.htm>

Ouzts, E. & Rimpler, J., (June 30, 2016). Report: Tyson #1 water polluter among agribusinesses”, *Environment America*. Retrieved from, <http://www.environmentamerica.org/news/ame/report-tyson-1-water-polluter-among-agribusinesses>

The Arlington Institute. (April, 2007). Global water crisis overview. Retrieved from <http://www.arlingtoninstitute.org/wbp/global-water-crisis/441>

The Diplomat. (April 19, 2014). India’s worsening water crisis. Retrieved from <http://thediplomat.com/2014/04/indias-worsening-water-crisis/>

The Economist. (September 18, 2008). Water for farming, running dry. Retrieved from <http://www.economist.com/node/12260907>

UCDavis, Center for Watershed Sciences. (July 15, 2014). Economic analysis of the 2014 drought for California agriculture. Retrieved from https://watershed.ucdavis.edu/files/content/news/Economic_Impact_of_the_2014_California_Water_Drought.pdf

UN, *Water*. (January 27, 2014). Water recommendations for a global goal on water. Retrieved from http://www.un.org/waterforlifedecade/waterandsustainabledevelopment2015/open_working_group_sdg.shtml

UN, *Water*. (March, 2013). Water in the post-2015 development agenda beyond 2015. Retrieved from http://www.un.org/waterforlifedecade/water_and_sustainable_development.shtml

USAID. (2013). USAID Water Development Strategy: 2013-2018. Retrieved from https://www.usaid.gov/sites/default/files/documents/1865/USAID_Water_Strategy_3.pdf

USAID. (November 26, 2013). Sustainable agriculture and water management. Retrieved from <https://www.usaid.gov/jordan/sustainable-agriculture-and-water-management>

Decline in biodiversity and genetic pool

Changes in climate are causing a widespread decline in the number of species. Rising temperatures will force many plants and animals to migrate in order to survive and adapt to new weather patterns. Many species will not be able to keep up with the rate of change of climate warming. Regionally high temperatures will exceed the survival threshold of many crops and fish species. The great variety of cereals, meats, fish, vegetables, fruits and other foods in the stores hides general decline in biodiversity. It is estimated that since the beginning of the 1900’s about three quarters of the genetic diversity of plants and animals have been lost. The largely invisible organisms of the soil alone, which represent about a quarter of global biodiversity, have undergone a drastic decline in cultivated soils. The concentration on a small number of genetically modified crops endangers the diversification and varieties of crops grown. The production of basic staple crops and a few kinds of main animals makes them vulnerable to disease or epidemic hitting one particular stock. Genetically modified organisms and its effect on biodiversity raise many basic questions that deserve a separate study because of its risks to humans that are only beginning to be known.

Unless drastic measures are taken and kept in place, North America and Europe will face a further decline of the honey and bumble bee populations and many other insects. These pollinators are essential for many crops from grains, beans, fruits and vegetables. The massive application of poisonous pesticides, herbicides and fungicides are turning out to be the deciding factor in the large die-off of bees and other pollinators, as well as micro-organisms in the soil, birds and amphibians.

Center for Biological Diversity. The extinction crisis. Retrieved from http://www.biologicaldiversity.org/programs/biodiversity/elements_of_biodiversity/extinction_crisis/

Convention on Biological Diversity. (July 2013). Biodiversity for food security and nutrition. Retrieved from <https://www.cbd.int/doc/newsletters/development/news-dev-2015-2013-07-en.pdf>

EcoWatch. (July 27, 2012) Growing threats to biodiversity 'Arks'. Retrieved from <http://ecowatch.com/2012/07/27/biodiversity-arks/>

FAO, AGP. (2014). Biodiversity and ecosystem services. Retrieved from <http://www.fao.org/ecosystem-services-biodiversity/en/>

FAO, PAR. (April 14, 2010). Biodiversity for Food and Agriculture. Retrieved from http://www.fao.org/fileadmin/templates/biodiversity_paia/PAR-FAO-book_lr.pdf

Fargione, D.S. et.al. (August 15, 2006). Biodiversity loss threatens human well-being. *PLoS Biol.* 4 (8). doi: 10.1371/journal.pbio.0040277

Global Issues. (January 19, 2014). Loss of biodiversity and extinctions. Retrieved from <http://www.globalissues.org/article/171/loss-of-biodiversity-and-extinctions>

Hooper, D. U. et.al. (May 2, 2012). A global synthesis reveals biodiversity loss as a major driver of ecosystem change. *Nature*, 486, 106-108. doi: 10.1038/nature11118

Naidoo, K. (May 23, 2014). Agriculture at a crossroads: how food systems affect biodiversity. *EcoWatch*. Retrieved from <http://ecowatch.com/2014/05/23/food-systems-affect-biodiversity/>

Nature. (May 11, 2000). 405, 234-242. Consequences of changing biodiversity. Retrieved from doi:10.1038/35012241

Philos Trans R Soc Lond B Biol Sci. (July 20, 2005). Climate change, species – area curves and the extinction crisis. Retrieved from doi: 10.1098/rstb.2005.1712

Rainforest Conservation Fund. (2014). Rainforest Primer: Recent losses in biodiversity. Retrieved from <http://www.rainforestconservation.org/rainforest-primer/>

RTCC. (May 3, 2012). Biodiversity impacts ecosystems as much as climate change. Retrieved from <http://www.climatechangenews.com/2012/05/03/biodiversity-loss-impacts-ecosystems-as-much-as-climate-change/>

Science. (March 2, 2011). Humans on verge of causing 6th Great Mass Extinction. Retrieved from <http://www.livescience.com/13038-humans-causing-sixth-mass-extinction.html>

Science. (November 3, 2006). Impacts of biodiversity loss on ocean ecosystem services. Retrieved from doi: 10.1126/science.1132294

The Guardian. (March 7, 2010). Humans driving extinction faster than species can evolve, say experts. Retrieved from <http://www.theguardian.com/environment/2010/mar/07/extinction-species-evolve>

Tilman, D. (May 2000). Causes, consequences and ethics of biodiversity. *Nature* 405. 208-211. doi:10.1038/35012217

Worm, B. et.al. (November 3, 2006). Impacts of biodiversity loss on ocean ecosystem services. *Science*. doi: 10.1126/science.1132294

WWF. (August 1, 2000). Global warming and terrestrial biodiversity decline. Retrieved from http://wwf.panda.org/wwf_news/?5864/global-warming-and-terrestrial-biodiversity-decline

WWF. (August 30, 2000). One-third of the world's habitat at risk from global warming. Retrieved from http://wwf.panda.org/wwf_news/?2141/Un-tiers-des-habitats-de-la-planete-gravement-menacees-par-le-rechauffement-du-climat

WWF. (September 1, 2000). Speed kills: rates of climate change are threatening biodiversity. Retrieved from http://wwf.panda.org/wwf_news/?2143/Speed-Kills-Rates-of-Climate-Change-are-Threatening-Biodiversity

Conclusion

Corporate agriculture is ecologically unsustainable and its practices contribute to the on-going global land, water and food crisis. It erodes the very foundation of life on our planet. Without fertile soil, adequate water, unpolluted air, a wide diversity of plants and animals, an abundance of pollinators, and stable weather, the quality and supply of food will continue to decline. The increased use of synthetic chemicals, genetically modified seeds, monocultures and raising livestock in feedlots or large enclosures can only add to ecological disintegration and a decrease in the world's food supply. Corporate farming is unable to provide food for the growing world population. The increasing number of floods and droughts can quickly lead to food shortages, riots and starvation in certain regions. Food supplies and surpluses are limited. As the consumption of meat continues to rise across the globe more and more crops will be used for the production of high protein feed for animals. The rising number of global fish farms puts further pressure on the limited supply of feed. The ongoing expansion of the ethanol and biofuels industry will demand its portion of the limited supply of corn, soybeans and sugarbeets. All these factors, including political unrest, volatile markets and financial speculation influence food stocks and drive up prices. The focus on growing food for exports both in the global South and North makes more and more countries dependent on imports of staple foods, which add to the insecurity of the supply of food and food sovereignty.

The only hope for the over two billion hungry and underfed people in the world are the millions of small-hold farmers and the local, small-scale family farmers across the globe that practice different forms of eco-agriculture and agro-forestry. The countless fisherfolk on every continent that engage in ecologically sustainable fishing add their part to the food supply. It is these millions of folks in different regions that supply from 65% to 85% of the world's food; they are the hope for reducing world hunger and poverty and not the global food corporations. This is a hard fact for global corporations, executives, government officials and international organizations to accept. In fact the global food

corporations, the WB, IMF, WTO and international trade agreements that protect investors and not farmers, add to world hunger and poverty. They are a danger to the world's food supply and peoples' food sovereignty.

More and more peasant farmers, smallhold farmers and fisherfolk are demanding their ancestral rights to land, water, seeds and coastal fishing grounds in opposition to the encroachment and take-over by corporate food companies and their political allies. They are rightly demanding access to technical knowledge and support to enhance their present practices. The rise of various kinds of organic growers in the developing countries are adding their part to the local supply of food and re-gaining local and regional food sovereignty. They do so in the face of the attempts at the take-over of the 'organic' market by the large supermarkets and the refusal of many governments to enforce existing regulations and safe-guards. We will return to this issue at the end of the section on Mozambique.

4) Agriculture in Mozambique

Agriculture in Mozambique can serve as an example of all that is wrong with modern industrial agricultural developments and practices in the global South. This example is somewhat arbitrary; we could have focused on almost any other country to illustrate the ecological devastation brought about by modern agriculture and the effects of the domination of corporate power on the local communities.

In 2013 the *World Bank* published a special report called *Growing Africa: Unlocking the Potential of Agribusiness*. It projects that agribusiness from its present *313 billion* could become a *1 trillion-dollar* business in Africa by 2030. The report claims that Mozambique has huge untapped water resources and an abundance of fertile land that is not used (at least 450 million hectares). Africa has a low percentage of irrigated land (only 3% compared to Asia's 47%) in spite of huge untapped water resources. The report acknowledges that there are a number of difficulties to overcome before this goal can be realized, like the need for more infrastructure, irrigation, roads, markets, information and communication technology and more investment money both national and international. It acknowledges that there is a need for environmental and social safeguards, better forest governance, more consultation with local communities, resolving issues of land rights, following ethical standards and paying fair market price for land so that acquisitions do not threaten people's livelihoods. It mentions that there is a problem with land degradation and water scarcity, but, regardless, Africa has both water and land in abundance.

The report sounds like a cruel joke or at best like a fantasy that can never be realized without great social injustice, human rights violations and irreparable damage to the environment. Regrettably the report was meant as a serious recommendation and plan of action. The social and environmental 'externalities' were primarily considered as problems to be solved and overcome, not as signals that would indicate the need for a radical change in direction.

The *Comprehensive African Agriculture Development Programme (CAADP)* declared 2014 the *Year of Agriculture and Food Security in Africa* hoping that 'new commitments and initiatives could help to eliminate hunger and reduce poverty through agriculture'. Almost all African countries committed themselves to invest at least 10% of their national budgets to agricultural development. So far only nine countries out of 54 have reached that goal. To inspire the other countries, Ethiopia, Ghana, Mozambique and Zambia are mentioned as African success stories in terms of having made strong increases in their share of the export market. 2014 was also the year that African leaders were guests at the Whitehouse to discuss increasing US investments in Africa, more public and private partnerships and more mutual imports and exports. The conference was considered a success. Corporate economic development and growth in agricultural exports was seen as the hope for the millions of urban and rural poor all across Africa.

Africa Renewal. (2014). All eyes on \$1 trillion. Retrieved from <http://www.un.org/africarenewal/magazine/special-edition-agriculture-2014/all-eyes-1-trillion>

AllAfrica. (September 9, 2014). Mozambique: Guebuza describes U.S. – Africa Summit as ‘success’. Retrieved from <http://allafrica.com/stories/201408080318.html>

BBC News. (April 2, 2013). Quelimane: One square mile of Mozambique. Retrieved from <http://www.bbc.com/news/world-radio-and-tv-21831810>

BBC News. (March 24, 2013). Mozambique: From Marxism to market. Retrieved from <http://www.bbc.com/news/world-africa-21655680>

Foreign Policy in Focus. (September 9, 2014). Ethiopian activists fight U.S.-backed land seizures. Retrieved from <http://fpif.org/ethiopian-activists-fight-u-s-funded-land-seizures/>

Fortune. (August 6, 2014). U.S. in Africa: there’s no race with China. Retrieved from <http://fortune.com/2014/08/06/africa-us-china/>

Global Financial Integrity. (December 16, 2014). Illicit financial flows from developing countries: 2003-2012. Retrieved from <http://www.gfintegrity.org/report/2014-global-report-illicit-financial-flows-from-developing-countries-2003-2012/>

Global Policy Forum. (July 1, 2011). Africa’s biggest market lies within. Retrieved from <https://www.globalpolicy.org/social-and-economic-policy/poverty-and-development/poverty-and-development-in-africa/50414-africas-biggest-market-lies-within.html>

Global Policy Forum. (July 16, 2014). Development aid to Africa negligible in comparison to illicit outflows. Retrieved from <https://www.globalpolicy.org/global-taxes/52662-development-aid-to-africa-negligible-in-comparison-to-illicit-outflows-.html>

Global Policy Forum. (June 10, 2014). Africa: Poor excluded from benefits if high economic growth. Retrieved from <https://www.globalpolicy.org/social-and-economic-policy/poverty-and-development/poverty-and-development-in-africa/50363-africa-poor-excluded-from-benefits-of-high-economic-growth.html>

Matunhu, J. (June 2011). A critique of modernization and dependency theories in Africa: critical assessment”, *African Journal of History and Culture*, Vol. 3(5), pp. 65-72.

Obeng-Odoom, F. (June 2013). Africa’s failed economic development trajectory: a critique. *African Review of Economics and Finance*, Vol. 4, No. 2. Retrieved from <http://www.african-review.com/Vol.%204%20%282%29/Africa%27s%20Failed%20Economic%20Development%20Trajectory.pdf>

Oxfam. (May 7, 2014). Growth in Africa undermined by rapidly increasing inequality. Retrieved from <https://www.oxfam.org/en/pressroom/pressreleases/2014-05-07/growth-africa-undermined-rapidly-increasing-inequality>

Peter, O. (September 2013). An ethical critique of neoliberal development in Africa. *Covenant Journal of Politics and International Affairs (CUJPIA)*, Vol. 1, No. 1.

The Guardian. (December 16, 2013). Mozambique on the edge: violence threatens to reverse progress. Retrieved from <http://www.theguardian.com/global-development-professionals-network/2013/dec/16/mozambique-risk-civil-war-pressure>

The Guardian. (June 10, 2013). Africa, let us help – just like in 1884. Retrieved from <http://www.theguardian.com/commentisfree/2013/jun/10/african-hunger-help-g8-grab>

The Guardian. (May 30, 2014). Africa’s rising – but poverty is stalling progress, warns IMF chief. Retrieved from <http://www.theguardian.com/global-development/2014/may/30/africa-rising-poverty-stalling-progress>

The Observers. (January 9, 2014). Mozambique residents flee homes amid fears of a return to civil war. Retrieved from <http://observers.france24.com/en/20140109-residents-flee-villages-mozambique-violence>

The Observers. (September 2, 2010). Bloody protests against soaring living costs: ‘It’s a struggle just to get by’. Retrieved from <http://observers.france24.com/en/20100902-bloody-protests-against-soaring-living-costs-mozambique-maputo>

Think Africa Press. (August 18, 2014). Africa rising: ‘in economics, the majority is always wrong’. Retrieved from <http://allafrica.com/stories/201408191012.html>

Think Africa Press. (June 4, 2013). Mozambique’s elite development and mass poverty. Retrieved from <http://allafrica.com/stories/201306050220.html>

UNCTAD. (2014). Least developed countries report 2014 – growth with structural transformation: a post-2015 development agenda. Retrieved from http://unctad.org/en/PublicationsLibrary/ldc2014_en.pdf

UNCTAD. (July 4, 2014). Africa must broaden sources of growth and investment to create jobs and reduce poverty, UNCTAD report argues. Retrieved from <http://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=197>

UNCTAD. Economic Development in Africa Report 2014. Retrieved from http://unctad.org/en/PublicationsLibrary/aldcafrica2014_en.pdf

Mozambique: the setting

It is instructive to look a little closer at one of those four success stories, because the reality of the situation in all four of these countries is quite different from the account of their growth in agricultural exports. Earlier we already highlighted the many difficulties Ghana faces. Presently (2014) Zambia’s crops are being devoured by an invasive pest, the army worm, which is spreading to neighboring countries. Ethiopia is perhaps the most disturbing story of the four, with its development of a huge dam that will have devastating consequences for millions of tribal and rural people, the environment and other aspects of its social and economic conditions.

The situation in Mozambique is quite different from the optimistic picture that the WB paints. Mozambique is generally considered one of the poorest countries in the world, even though it has a growth rate of 8% GDP. It has a population of *over 24 million people* and about one third of the population (about 8 million) lives in urban areas. During the last decades there has been a rapid urbanization. In the cities there is a stark contrast between the better-off living in million dollar mansions and gated communities and the great majority of the people living in slum-like conditions. Street crime, poverty, chronic child malnutrition, sanitation, access to clean drinking water, garbage disposal and low school attendance, are all major social problems. The widely used open three-stone fire places for cooking cause respiratory problems and deaths from carbon dioxide poisoning. They are fire hazards, especially in the slums. Maputo is the largest city with over 1.75 million people with large slum areas. The majority of the people (about 16 million) live in the country-

side and survive from subsistence farming, charcoal making and fishing. The life-size Coca Cola bottle 'statue' in a large city square in Maputo says it all; coca cola for the better off and polluted drinking water for the rest.

Infant mortality is high, life-expectancy is low (around 54) and there is a high birth rate (around 5.5). Many children die of malaria, about 36.000 each year, and about 50.000 people die of malaria in total. There is a very high rate of HIV/AIDS (16%). About 1.7 million people are HIV positive and about 190.000 children between 0 and 14 are living with HIV. There are approximately 800.000 children who have lost one or both parents to AIDS in Mozambique, out of a total of 15 million orphans in sub-Saharan Africa. It is hard to imagine how a country cares for what soon will be a million orphans and almost 200.000 children living with HIV, especially when about 45% of the population is under 15 years of age. Poverty remains a major problem. Half of the population, about 12 million people, live on less than 1 dollar a day. Many children are underweight and suffer from stunted development. About 1 million children do not go to school. Forced child labour, bonded labour and sex trafficking of both children and women is an on-going issue. Different forms of female circumcision are still widely practiced and forced upon girls creating untold suffering and severe health problems for many child-bearing women.

As in many African countries, lack of infrastructure, health care, sanitation, safe drinking water, water-borne diseases, education, unemployment, extreme poverty, corruption, are all major difficulties. Many agencies and local organizations are working hard to bring about change in these conditions with many promising results. Mozambique receives a lot of aid and is presented by the World Bank as a model for other countries of how to take advantage of different aid programs.

Avert. (March 27, 2014). Children orphaned by HIV and AIDS. Retrieved from <http://www.avert.org/professionals/hiv-social-issues/key-affected-populations/children>

AVSI. (October 2011). Improved energy efficiency in Chamanculo and Xipamanine slum areas municipality of Maputo, Mozambique. Retrieved from <http://www.avsi.org/wp-content/uploads/2011/10/AVSI-Energy-efficiency-Mozambique-en.pdf>

BBC News. (December 28, 1997). Female circumcision: facts and myths. Retrieved from <http://news.bbc.co.uk/2/hi/42924.stm>

Borgen Magazine. (December 2, 2014). Indoor air pollution: a silent killer. Retrieved from <http://www.borgenmagazine.com/indoor-air-pollution-silent-killer/>

Care for Life. Mozambique, villages. Retrieved from <http://www.careforlife.org/mozambique/>

CRI. (February 20, 2012). UN warns the increase of female genital mutilation in Mozambique. Retrieved from <http://english.cri.cn/6966/2012/02/20/3124s682210.htm>

Fast Company. (June 1, 2008). China surpasses U.S. as leader in sub-Sahara. Retrieved from <http://www.fastcompany.com/849681/china-surpasses-us-leader-sub-sahara>

IFAD. Rural poverty in Mozambique. Retrieved from <http://operations.ifad.org/web/ifad/operations/country/home/tags/mozambique>

NPR. (July 6, 2011). In Mozambique, a fight to keep babies HIV free. Retrieved from <http://www.npr.org/2011/07/06/137536170/in-mozambique-a-fight-to-keep-babies-hiv-free>

Salon. (July 14, 2003). Living with death in Mozambique. Retrieved from http://www.salon.com/2003/07/14/mozambique_2/

SpiegelOnline. (March 24, 2008). Digging for survival: the gold slaves of Mozambique. Retrieved from <http://www.spiegel.de/international/world/digging-for-survival-the-gold-slaves-of-mozambique-a-543047.html>

The Guardian. (February 2, 2005). Maputo: an African 'success story' but 80 per cent still live in slums. Retrieved from <http://www.theguardian.com/world/2005/feb/02/hearfrica05.development4>

Think Africa Press. (April 17, 2014). Mozambique: a new hub in the global drugs trade? Retrieved from <http://allafrica.com/stories/201404180691.html>

Think Africa Press. (December 7, 2012). Lifting the lid on Africa's toilet crisis. Retrieved from <http://allafrica.com/stories/201212071641.html>

Think Africa Press. (February 13, 2013). Down in the dumps: Maputo's mighty municipal landfill. Retrieved from <http://allafrica.com/stories/201302131018.html>

UNICEF. (June 23, 2011). Child protection. Retrieved from <http://www.unicef.org/protection/>

UNICEF. Child survival – malaria. Retrieved from http://www.unicef.org/health/index_malaria.html

UNICEF. HIV/AIDS and children. Retrieved from <http://www.unicef.org/aids/>

US Department of State. (June 19, 2013). 2013 trafficking in persons report – Mozambique. Retrieved from <http://www.state.gov/j/tip/rls/tiprpt/countries/2014/226783.htm>

Worldviews. (March 15, 2014). Family planning program in Senegal drawn into conflict with religious leaders. Retrieved from https://www.washingtonpost.com/world/africa/family-planning-program-in-senegal-drawn-into-conflict-with-religious-leaders/2014/03/15/8c33b692-860e-11e3-b85b-b305db87fb90_story.html

WorldWatch. (September 21, 2013). Innovation of the week: a low-cost composting toilet. Retrieved from <http://blogs.worldwatch.org/innovation-of-the-week-a-low-cost-composting-toilet/>

With the rise in global warming and climate change Mozambique faces many environmental difficulties. Devastating floods have been on the increase as a result of heavy and unpredictable rains. Mozambique has 5 major rivers and many smaller ones. Both the Zambezi river basin in the northern part and the Limpopo river basin in the south have repeatedly flooded. Since 2000 there have been five major floods, destroying roads, bridges, dikes, water systems, schools, health

centres and homes. During each flood tens of thousands of people have been displaced and left without land, homes and possessions. The floods have given rise to outbreaks of disease. Many dams in the large rivers have been mismanaged and add further environmental stress and danger. Seasonal flows have been interrupted, drying out coastal marshes allowing for uncontrolled hunting and poaching in the floodplains. At the same time, the central and southern parts have been plagued by severe droughts that have led to an increase in forest fires. Along the long coast-line tropical storms and hurricane strength cyclones have been on the increase, repeatedly destroying infrastructures, eroding the coastline and pushing it inland. Rising sea levels will become more and more of a threat to the coastal communities and cities, especially Maputo. These environmental effects have been catastrophic for millions of people.

- Africa Portal*. (May 4, 2012). Hits and misses in Mozambique's climate change action plans. Retrieved from <https://www.africaportal.org/dspace/articles/hits-and-misses-mozambique-climate-change-action-plans>
- BBC*. (January 25, 2013). UN: Floods displace 70.000 and kill 36 in Mozambique. Retrieved from <http://www.bbc.com/news/world-africa-21206347>
- BBC News*. (July 29, 2014). Mozambique profile. Retrieved from <http://www.bbc.com/news/world-africa-13890416>
- CAI*. (May 16, 2013). Floods in Mozambique: the need for a rights-based approach to climate change. Retrieved from http://www.consultancyafrica.com/index.php?option=com_content&view=article&id=1302:floods-in-mozambique-the-need-for-a-rights-based-approach-to-climate-change-&catid=91:rights-in-focus&Itemid=379
- Climate Policy*. (2007). Why different interpretations of vulnerability matter in climate change discourses. Vol. 7, Issue 1. doi:10.1080/14693062.2007.9685639
- COWI Africa*. (May 19, 2014). Climate change management in Maputo, Mozambique. Retrieved from <http://www.cowi-africa.com/menu/projects/water-and-environment/climate-change-management-in-maputo-mozambique>
- FAO*. (August 2012). Climate change adaptation in Mozambique. Retrieved from <http://www.fao.org/climatechange/77271/en/>
- FAO*. (May 2012). Adaptation to climate change in semi-arid environments: experience and lessons from Mozambique. Retrieved from <http://www.fao.org/3/a-i2581e.pdf>
- FPRI*. (December 2012). Southern African agriculture and climate change: a comprehensive analysis – Mozambique. Retrieved from <https://www.ifpri.org/publication/southern-african-agriculture-and-climate-change-comprehensive-analysis>
- Heinrich Boll Foundation*. (2010). Gender and climate change: Mozambique, a case study. Retrieved from <https://za.boell.org/2014/02/03/gender-and-climate-change-mozambique-case-study-climate-change>
- International Rivers*. (2005). The Zambezi Valley, damned by dams. Retrieved from <https://www.internationalrivers.org/files/attached-files/damnedbydams.pdf>
- International Rivers*. (April 7, 2014). Batoka Gorge Dam, Zambezi River. Retrieved from <https://www.internationalrivers.org/resources/batoka-gorge-dam-zambezi-river-8291>
- International Rivers*. (June 13, 2013). Zambezi basin dam boom threatens delta. Retrieved from <https://www.internationalrivers.org/resources/zambezi-basin-dam-boom-threatens-delta-8014>
- International Rivers*. (September 18, 2012). Dam-dependent Zambezi Basin unprepared for climate change. Retrieved from <https://www.internationalrivers.org/resources/dam-dependent-zambezi-basin-unprepared-for-climate-change-7677>
- International Rivers*. (September 25, 2012). Climate change: new urgency to rethink dam projects. Retrieved from <https://www.internationalrivers.org/resources/climate-change-new-urgency-to-rethink-dam-projects-7684>
- IRIN*. (May 28, 2009). Mozambique: climate change adaptation can't wait. Retrieved from <http://www.irinnews.org/news/2009/05/28>
- MCC*. (September 30, 2010). Support for sand dams in Mozambique grows. Retrieved from <http://mcc.org/stories/support-sand-dams-mozambique-grows>
- PreventionWeb*. Mozambique – Disaster Statistics: Natural disasters from 1980 – 2010. Retrieved from <http://www.preventionweb.net/countries/moz/data/>
- Relief Web*. Mozambique: storms and floods – Jan 2012. Retrieved from <http://reliefweb.int/disaster/tc-2012-000008-moz>
- UN HABITAT*. (2010). Climate change assessment for Maputo. Retrieved from <http://unhabitat.org/books/climate-change-assessment-for-maputo-mozambique/>
- UNU-WIDER*. (2010). The price of inaction – climate change in Mozambique. Retrieved from <http://www1.wider.unu.edu/recomenvironment/article/price-inaction-climate-change-mozambique>
- Urban Gateway*. Adverse impacts of climate change and development challenges: integrating adaptation in policy and development in Mozambique. Retrieved from <http://www.urbangateway.org/system/files/documents/urbangateway/Summary%20of%20Mozambique%20CLACC%20NAPA%20report.doc>
- VOA*. (February 1, 2013). Deadly floods hit Mozambique. Retrieved from <http://www.voanews.com/content/united-nations-reports-devastating-damages-after-mozambique-flood/1595319.html>
- WB*. (2013). Flooding and a changing climate in Mozambique. Retrieved from <http://blogs.worldbank.org/nasikiliza/flooding-and-a-changing-climate-in-mozambique>

Developments in agriculture have been primarily focused on export and technological advances, giving rise to new plantations with more mono cultures and the use of more synthetic fertilizers and pesticides. The new interest in the development of corporate agriculture in Mozambique will be devastating to the environment and lead to the displacement of tens of thousands of people. Commercial farms grow tobacco and cotton on contract. Other cash crops are sugar, tea, sesame, coconut and cashew. Livestock production on a large scale is limited because of diseases. Currently most of the food is produced on over 3 million small-scale farms with shifting cultivation on multiple small plots supplemented by livestock. Historically peasant farmers have always been able to provide for themselves. They grow maize and in some areas cassava as staple crops and a variety of other foods, depending on the regional climate. The most fertile region is in the northern and central provinces, which are the areas selected for huge corporate agricultural developments.

ACORD, "Lending small-scale farmers a hand in improving farming methods in Mozambique". Retrieved from, <http://www.acordinternational.org/tags/?tag=mozambique>

AlertNet, June 13, 2014, "Mozambique: with rains unpredictable, Mozambique's farmers cling to traditional maize". Retrieved from, <http://news.trust.org/item/20140613093032-cr6d3/>

Alliance for Food Sovereignty in Africa (AFSA), October 7, 2014, "Acquisition of Africa's SeedCo by Monsanto, Groupe Limagrain – neo-colonial occupation of Africa's seed system". Retrieved from, <http://afsafrica.org/acquisition-of-africas-seedco-by-monsanto-groupe-limagrain-neo-colonial-occupation-of-africas-seed-systems/>

Benson, T. et.al.(May, 2013), The supply of inorganic fertilizers to smallholder farmers in Mozambique. *IFPRI, Mozambique, Strategy Support Program*. Retrieved from, <https://www.ifpri.org/program/mozambique-strategy-support-program-mozssp>

FAO, 2014, "Mozambique prohibits highly hazardous pesticides". Retrieved from, <http://www.fao.org/in-action/mozambique-prohibits-highly-hazardous-pesticides/en/>

Global Voice On Line, October 24, 2011, "Mozambique: uniting small farmers for a better tomorrow". Retrieved from, <https://globalvoices.org/2011/10/24/mozambique-uniting-small-farmers-for-a-better-tomorrow/>

Grain, May 28, 2014, "Hungry for Land, small farmers feed the world with less than quarter of all farmland". Retrieved from, <https://www.grain.org/article/entries/4929-hungry-for-land-small-farmers-feed-the-world-with-less-than-a-quarter-of-all-farmland>

IFPRI, May 2013, "The supply of inorganic fertilizers to smallholder farmers in Mozambique". Retrieved from, http://fsg.afre.msu.edu/mozambique/Cunguara_Policy_brief_fertilizers.pdf

IRIN, May 23, 2011, "Mozambique: coconut, cashew projects offer hope for small farmers". Retrieved from, <http://www.speroforum.com/a/54258/Mozambique---Coconut-cashew-projects-offer-hope-for-small-farmers#.V6o0QPrKcM>

IRIN, February 7, 2014, "Crop-eating pests plague southern African farmers". Retrieved from, <http://www.irinnews.org/news/2014/02/07/crop-eating-pests-plague-southern-african-farmers>

Pauw, C. et.al. (November, 2012). Agricultural growth and poverty in Mozambique. *IFPRI, Mozambique Strategy Support Program*. Retrieved from, <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127359>

The Guardian, February 1, 2013, "Beyond the farm: promoting agribusiness as a way out of poverty". Retrieved from, <https://www.theguardian.com/global-development-professionals-network/2013/feb/01/agribusiness-mozambique-cashew-farming>

USAID, January 27, 2014, "Agriculture and food security". Retrieved from, <https://www.usaid.gov/what-we-do/agriculture-and-food-security/food-assistance/programs>

War on Want, "Small farmers in Mozambique". Retrieved from, <https://www.google.ca/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=War+on+Want%2C+%E2%80%9Csmall+farmer>

Mozambique is one of the more forested countries in Africa but the shifting rainfall pattern has given rise to a loss in soil humidity, to erosion and geographic shifts in pests and diseases. About 50% is still under forest cover but illegal logging has increased during the past number of years. It is estimated that two-thirds of all logging is illegal, much of it for export to China. China is 'exporting deforestation' not only to Mozambique but to many other African and Asian countries. The illegal logging blazes trails for the large number of people that earn a living making charcoal. As in many other countries, about 80% of the population relies on charcoal for cooking. Half of Africa's loss of forests is due to the need for charcoal and firewood. Even though there are simple and readily available solutions to this problem of fuel for cooking very few development and aid agencies have consistently focused on this issue. Deforestation has a devastating effect on subsistence farming leading to further impoverishment.

CS Monitor. (April 2, 2008). Charcoal fuels the economy and deforestation of Mozambique. Retrieved from <http://www.csmonitor.com/World/Africa/2008/0402/p20s01-woaf.html>

CS Monitor. (December 3, 2012). Clean cookstoves in Mozambique lure big investors. Retrieved from <http://www.csmonitor.com/World/Making-a-difference/Change-Agent/2012/1203/Clean-cookstoves-in-Mozambique-lure-big-investors>

EIA. (February 7, 2013). Mozambique loses a fortune to illegal timber exports. Retrieved from <https://eia-international.org/mozambique-loses-a-fortune-to-illegal-timber-exports>

EIA. (February, 2013). First Class Connections: Log smuggling, Illegal logging and corruption in Mozambique. Retrieved from <http://www.eia-international.org/wp-content/uploads/EIA-First-Class-Connections.pdf>

EIA. (July, 2014). First Class Crisis, China's criminal and unsustainable intervention in Mozambique's Miombo forests. Retrieved from <https://eia-international.org/wp-content/uploads/First-Class-Crisis-English-FINAL.pdf>

Fast Company. (June 1, 2008). China saps Mozambique of timber resources. Retrieved from <http://www.fastcompany.com/849679/china-saps-mozambique-timber-resources>

INFO ADO. (July 23, 2014). China's illegal timber imports 'ransacking Mozambique forests'. Retrieved from <http://www.infoado.org/2014/07/21/chinas-illegal-timber-imports-ransacking-mozambique-forests/>

Mongabay. (February 25, 2014). Illegal logging surges in Mozambique. Retrieved from <https://news.mongabay.com/2014/02/illegal-logging-surges-in-mozambique/>

Mongabay. (February 7, 2013). Report: nearly half the timber from Mozambique to China is illegal. Retrieved from <https://news.mongabay.com/2013/02/report-nearly-half-the-timber-from-mozambique-to-china-is-illegal/>

Mongabay. (November 29, 2012). Exporting deforestation: China is the kingpin of illegal logging. Retrieved from <https://news.mongabay.com/2012/11/exporting-deforestation-china-is-the-kingpin-of-illegal-logging/>

Treehugger. (May 21, 2012). The charcoal bicyclists of deforestation-ravaged Mozambique. Retrieved from <http://www.treehugger.com/fossil-fuels/charcoal-bicyclists-deforestation-ravaged-mozambique.html>

Small-scale fishermen have had to cope with diminishing catches as a result of overfishing. Many species are over-exploited or fully exploited. The prized local prawns are being replaced by a less valuable invasive species of Rainbow

prawns from Asia. The dams have altered the coastal marshes and mangrove forests and disrupted spawning beds. About a 1/4 of a million people rely on fishing along the 2700 km coastline. Foreign trawlers from South Africa, Europe, Japan and China are allowed to fish within Mozambique's waters further depleting fish stocks. Here too there are ready-made alternatives that could begin to make a significant change.

Africa Portal. (August, 2013). *Small-scale fisheries in a modernizing economy: opportunities and challenges in Mozambique.* Retrieved from <http://www.saiia.org.za/research-reports/small-scale-fisheries-in-a-modernising-economy-opportunities-and-challenges-in-mozambique>
AllAfrica. (September 10, 2014). Mozambique and China sign Beira fishing port agreement. Retrieved from <http://allafrica.com/stories/201409101596.html>
FISHFOREVER. (2014). Why Mozambique? Retrieved from <http://www.fishforever.org/where/mozambique/>
IRIN. (January 22, 2014). Mozambique's small-scale fishermen battle headwinds. Retrieved from <http://www.irinnews.org/report/99513/mozambique%E2%80%99s-small-scale-fishermen-battle-headwinds>
Think Africa Press. (November 22, 2012). Will Mozambique's coastal riches pay? Retrieved from <http://allafrica.com/stories/201211230622.html>
WWF. (July 8, 2014). Mozambique, crafting a new kind of marine sanctuary. Retrieved from <https://www.worldwildlife.org/magazine/issues/winter-2013/articles/primeiras-e-segundas>

In recent years there has been new interest in expanding the coal mines and the export of coking and thermal coal. However, the lack of large, expensive infrastructures like roads, railways, and harbour facilities has slowed down these developments. Large reserves of oil and gas have been discovered both on-shore and off-shore and the government has issued many new licences for further development and exploration. In some areas this has led to displacement and 'resettlement' of communities regardless of objections and protests. In spite of the effects climate change already has on Mozambique, fossil fuel developments, including coal mining, are set to go full-steam ahead.

Guernica. (May 15, 2013). Mozambique's mining boomtown. Retrieved from <https://www.guernicamag.com/features/mozambiques-mining-boomtown/>
Macauhub. (January 6, 2014). Mozambique due to become oil producer in 2014. Retrieved from <http://www.macauhub.com.mo/en/2014/01/06/mozambique-due-to-become-oil-producer-in-2014/>
MBendi. Coal mining in Mozambique. Retrieved from <https://www.mbendi.com/indy/ming/coal/af/mz/p0005.htm>
The Africa Report. (March 18, 2013). Mozambique's poor infrastructure slows coal exports. Retrieved from <http://www.theafricareport.com/Society-and-Culture/mozambiques-poor-infrastructure-slows-coal-exports.html>
The Economic Times. (September 8, 2014). Coal India assessing reserves of Mozambique mines to ramp up production. Retrieved from http://articles.economictimes.indiatimes.com/2014-09-08/news/53691163_1_tete-province-twin-mines-motaize
The Mozambique Mining & Energy Post. (July 29, 2014). Mozambique oil and gas industry: Gov aims increase in power production from natural gas. Retrieved from <https://mozambiqueiningpost.wordpress.com/2014/07/29/mozambique-oil-and-gas-industry-gov-aims-increase-in-power-production-from-natural-gas/>
The Mozambique Mining & Energy Post. (July 29, 2014). Mozambique extractive industry fueling the country with more US\$32 billion funding this year. Retrieved from <https://mozambiqueiningpost.wordpress.com/2014/07/29/mozambique-extractive-industry-fueling-the-country-with-more-us32-billion-funding-this-year/>
Think Africa Press. (July 24, 2012). East Africa: Who will benefit from East Africa's oil and gas? Retrieved from <http://allafrica.com/stories/201207250126.html>
TMSA. (2012). Don't hold your breath waiting for Mozambique coal, Clyde Russell. Retrieved from <http://www.trademarksa.org/news/dont-hold-your-breath-waiting-mozambique-coal-clyde-russell>
Ventures Africa. (April 5, 2013). What does oil and gas discoveries mean for Mozambique? Retrieved from <http://venturesafrica.com/what-does-oil-and-gas-discoveries-mean-for-mozambique/>

Given even this brief summary of the difficulties Mozambique faces, no ecologically and socially responsible company should want to be involved in any large-scale mining, fishing, forestry and agricultural projects, which have minimal benefits for the majority of Mozambique's people.

There are many solutions to deal with Mozambique's difficulties in spite of the added challenges of climate change. During the last decades a great number of inspiring examples of small-scale solutions have been developed that heal and empower local communities. Many agencies and organizations are engaged in bringing about changes in health care, sanitation, community development, rescuing children from slave labour and sexual exploitation. There are educational developments, alternative stoves requiring less charcoal and wood, ecological farming, sustainable forestry and fishing, conservation of water, etc. In contrast, the WB, IMF, WTO, other lending institutions, international development programs and the Mozambique government are all promoting and following the neoliberal agenda of free trade, with the elimination of tariffs, trade barriers, reduction of custom duties, low royalties, agriculture for export and so on. These neoliberal economic practices will continue to lead to the further impoverishment and environmental decline of Mozambique.

The ProSavana project

In spite of this precarious environmental and social situation a new Brazilian agricultural megaproject is being developed together with Japan and the support of the government called the *ProSavana* project. It is a mega project that will require billions of dollars in investment and when completed will involve millions of hectares of land. Companies are being offered large sections of land on a long-term lease basis for \$1/ha per year. The project will cover an area of 10 to 14 million hectares spread out over three provinces in the fertile Nacala Corridor. The area is densely populated and is home to millions of farming families (about 4.3 million people) which have made a living there for generations. It is the most productive area in Mozambique. The peasant farmers practice a form of rotating or shifting cultivation on small plots of land.

The corporations involved claim that there is plenty of unused land and that only abandoned areas are being targeted for agricultural development. They claim there is room for several mega projects of 30.000 to 40.000 ha that will not have any major social impacts. Already one large 60.000 ha plantation is planned for growing maize, soybeans, sunflowers and a poultry section. The new plantations will be used to produce low cost commodity crops for export. According to the 20-year program, 'emerging' peasant farmers will be selected to become 'leading' farmers that can inspire others to adopt the new farming methods. They will be enticed with initial subsidies for fertilizers and private land titles. Selected small-scale peasant farmers will be able to become 'contract' farmers. The government claims that with this approach no peasant communities will be dispossessed and resettled and that no land will be expropriated.

The consortium will develop a large web of infrastructures, rehabilitating 912 km of railroads and upgrading 650 km of roads and modernizing the Nacala Port facility. Brazilian experts and farmers will share technological expertise and develop several research and training places. Brazilian and Japanese companies developed a similar project in the savannahs of Brazil, the large agricultural Carrado development. The foreign consultants that produced the Master Plan represent and have close ties to agribusiness corporations. There seems to be no consideration of possible environmental problems and the need for safeguards and new regulations. The rules that do exist are weak and are voluntary.

The protest: No-to-ProSavana

There has been a strong protest by the peasant farmers, especially the women against this massive project with the slogan *No-to-ProSavana*. As one farmer commented about this project, we provide the land, Brazil does the farming and Japan takes the food. Many consider it a 'land grab' by multinational agricultural corporations. There have been no meaningful consultations with local communities and the plan does not take into account their history, knowledge and hopes for the future. Nor does it reflect an appreciation of local farming methods and their way of letting the land lay fallow on a rotational basis. Peasant farmers will be pressured to abandon their traditional shifting cultivation and land management practices. They will need to adopt intensive cultivation methods using commercial seeds, synthetic fertilizers and pesticides and grow mono crops for the export market. They will be forced to accept private land titles at least for those that are willing to switch. The land will be privatized and made available to outside investors. Farmers will be limited to a fixed parcel of land which will mark off lands and allow the government to establish land banks for commercial use by private investors. This approach allows investors to bypass negotiations with communities to access land. It has been called a business plan for the corporate takeover of agriculture in Mozambique. Throughout the planning of this project there has been no transparency and openness and no consultation, only secrecy. On all accounts, this is a devious plan.

The Nacala Corridor will be divided into different regions according to climate, which will determine which crops will be grown where and by whom: small farmers, medium farmers or corporations. Some products will be grown exclusively on large corporate farms as mono cultures for export and some on large and medium sized farms. Small farmers will be on contract and will be required to grow 5 ha (out of 5.5 ha) of cassava for the investor. Peasant farmers will become employees on large plantations and rural labourers. Only a small part of the total area has been designated for small-scale farmers and family food production. Those that don't qualify for a small designated plot have a choice to become a hired farm labourer or become landless and homeless.

The plan will destroy peasant agriculture and wipe out the preservation of local seeds, local knowledge, local food cultures and traditional systems of land management. It will displace peasants from their land or force them on to fixed parcels where they have to produce under contract and go into debt for seeds, fertilizers and pesticides. Those that get private land titles will be at risk of losing their lands to big farmers and corporations if they are not able to pay their debts whenever world food prices take a down-turn. They will be completely dependent on a single corporation for everything from the seeds to the sale of their crops. In essence they will become 'bonded labourers' as has happened in so many other areas. The only choice that peasant farmers will have is to become 'contract farmers', or become dispossessed and displaced. Then they will have to move away to other more infertile and dry areas or move to the slums of the cities. It is not only a devious but also a cruel and inhumane plan in terms of social justice and ecologically sustainable agriculture.

In the Brazilian Cerrado a similar massive project has led to the degradation of the environment and the near extinction of the indigenous communities living in that region. It has become an area of large-scale industrial farming for growing mono cultures, primarily soybeans. As a result there are about 65 million people that have no access to land and suffer from food insecurity. This development has been devastating for the land, forests and the loss of the diversity of plants and animals. Brazil has become a promoter of land usurpation, turning over land to foreigners. The mega project planned for Mozambique will be of a similar nature and will be developed by the same Brazilian and Japanese companies. Their policies are marketed as a program of 'sustainable agricultural development'.

The only ones profiting from this development will be the agribusinesses, who anticipate a 20% to 30% rate of return on their investment and a payback period of 9 years. To add to the appeal, in special designated economic zones companies will not have to pay taxes and custom duties and will be able to make use of offshore financial arrangements. Investors will have access to the *Africa Opportunity Fund* in the 'fiscal paradise' of Luxembourg. The government will forego the revenues from this part of the development. In the end it is the corporations that will benefit from this Master Plan. They will control the land, production, trade; they will export the food along the roads, railways and the Nacala port that other foreign companies will construct with public funds. Through these kinds of land acquisitions ('land grabs') that are happening in many parts of Africa, foreign-owned plantations and foreign seed, fertilizer and pesticide companies will all stand to make large profits from this massive expansion of industrial agriculture in Africa, including Mozambique.

Many farmers' organizations, especially the members of the *National Peasants' Union (UNAC)*, *Via Campesina Africa*, *Grain and EJOLT*, *Justica Ambiental*, *Landless Peoples Movement*, *Agrarian Reform for Food Sovereignty*, *Friends of the Earth International*, *Groundwork*, *Environmental Rights Action*, *Environmental Justice (JA)*, *Woman Forum (FM)*, *Livango*, *Kulima*, *Mozambiquan Human Rights League*, *Universite de Geneve*, and many other civil rights and environmental groups are protesting against this mega project. They claim that the project will result in social upheaval and conflict, give rise to landless communities as a result of expropriation and resettlement, will increase corruption and conflicts of interest, will pollute water resources, degrade the soil and add to deforestation.

Instead of further implementing this mega project, they plead for the development of peasant farming and a peasant economy as the only farming capable of creating dignified and lasting livelihoods. Only the further development of peasant farming with appropriate technical support can stop the rural exodus and produce high quality foods for the entire Mozambican nation. Only such an approach can lead towards food security and food sovereignty, regardless of world food prices and shortages. Peasant farming is the pillar of the local economy and contributes to maintaining and increasing rural employment as well as allowing towns and villages to survive. Peasants are the guardians of life, of nature and the planet. The different groups call for respect and conservation of the soil, the use of adapted and appropriate technologies and an extension of rural communities that will be participatory and interactive. They appeal to the government to give priority to the production of food for domestic consumption by family farmers, as well as the potential development of other segments of the rural communities.

Already in 2012 at a conference of various organizations peasant farmers expressed their objections to the ProSavana project. They condemned the top-down way the program was drafted, excluding civil society and peasant organizations throughout the process. They vehemently condemned any initiative that would result in the resettlement of communities and the expropriation of the land of peasants in order to make room for mega farming projects. They opposed the idea that there were large, unused lands available. Land surveys by Mozambique's National Research Institute shows that nearly all the agricultural land is used by local communities. They objected to the arrival of masses of Brazilian farmers to establish agribusinesses that would transform Mozambican peasant farmers into their employees and rural labourers. The aim of this project and that of many others like it is to integrate the peasant farmers and peasant economy everywhere into the global food system.

Agrarian South. (April 2013). Land grabbing, agribusiness and the peasantry in Brazil and Mozambique. Retrieved from

<http://ags.sagepub.com/content/2/1/41.short?rss=1&ssource=mfc>

Dr. Sayaka Funada Classen. (January 20, 2013). Analysis of the discourse and background of the ProSAVANA programme in Mozambique – focussing on Japan's role. Retrieved from

<http://www.open.ac.uk/technology/mozambique/sites/www.open.ac.uk.technology.mozambique/files/files/ProSavana%20Analysis%20based%20on%20Japanese%20source%20%28FUNADA2013%29.pdf>

Farmlandgrab.org. (December 20, 2013). Japanese experts' analysis, 'the concept note for formulation of agricultural development master plan in the Nacala corridor'. Retrieved from <http://www.farmlandgrab.org/post/view/22964-japanese-experts-analysis-the-concept-note-for-formulation-of-agricultural-development-master-plan-in-the-nacala-corridor>

Grain. (May 28, 2013). Open letter from Mozambican civil society organisations and movements to the presidents of Mozambique and Brazil and the Prime Minister of Japan. Retrieved from https://www.grain.org/es/bulletin_board/entries/4738-open-letter-from-mozambican-civil-society-organisations-and-movements-to-the-presidents-of-mozambique-and-brazil-and-the-prime-minister-of-japan

Grain. (September 30, 2013). Mozambique: Nampula civil society reaffirms call to halt ProSavanna. Retrieved from

https://www.grain.org/es/bulletin_board/entries/4798-mozambique-nampula-civil-society-reaffirms-call-to-halt-prosavana

Grain, (May 28, 2014). Hungry for land. Retrieved from, <https://www.grain.org/article/entries/4929-hungry-for-land-small-farmers-feed-the-world-with-less-than-a-quarter-of-all-farmland>

Grain, (February 19, 2015). The land grabbers of the Nacala corridor. Retrieved from, <https://www.grain.org/article/entries/5137-the-land-grabbers-of-the-nacala-corridor>

Justica Ambiental! et al. (April 30, 2013). Leaked ProSAVANA master plan confirms worst fears. Retrieved from <https://www.grain.org/article/entries/4703-leaked-prosavana-master-plan-confirms-worst-fears>

The Guardian. (January 1, 2014). Mozambique's small farmers fear Brazilian-style agriculture. Retrieved from <http://www.theguardian.com/global-development/2014/jan/01/mozambique-small-farmers-fear-brazilian-style-agriculture>

UNAC, *Via Campesina Africa*, GRAIN. (November 29, 2012). Brazilian megaproject in Mozambique set to displace millions of peasants. Retrieved from

<https://www.grain.org/article/entries/4626-brazilian-megaproject-in-mozambique-set-to-displace-millions-of-peasants>

Universite De Geneve. (September 20, 2013). Agricultural systems with pro-poor orientation in Mozambique? ProSAVANA and the forgotten risks of contract farming. Retrieved from <http://www.farmlandgrab.org/post/view/23962-agricultural-systems-with-pro-poor-orientation-in-mozambique-prosavana-and-the-forgotten-risks-of-contract-farming>

Via Campesina News Update. (October 25, 2012). Landgrabbing for agribusiness in Mozambique: UNAC statement on the ProSavana programme. Retrieved from <http://viacampesina.org/en/index.php/main-issues-mainmenu-27/agrarian-reform-mainmenu-36/1321-land-grabbing-for-agribusiness-on-mozambique-unac-statement-on-the-prosavana-programme>

International protest and condemnation

A year later the campaign was internationalized and an Open Letter (August 2013) was sent by civil society organizations from all three countries to the governments of Mozambique, Brazil and Japan. Since they received no response they decided at the next conference to look for and actively pursue legal mechanisms at the national and United Nations level to hold those who might cause damage to the peasants responsible. Already 3000 hectares had been taken from local farmers to produce soybeans and another 4000 hectares have been expropriated to make way for two Japanese companies, Hoyohoyo and Mosaco. In another area 10.000 families were dispossessed of their land to clear the way for soy production. These 'expropriations' or taking over people's land happened without community consultation as required by the *Law of the Land*. The foreign companies operating in this region have connections with powerful political elites most of who are shareholders in these 'Joint Venture' companies.

The second *Triangular Conference of the Peoples* was held in Maputo on July 24, 2014. In a panel discussion called, "*Structural challenges to development of peasant agriculture in Mozambique: peoples' demands in regard to ProSavana*" several basic concerns were raised. During the discussion there were many reports of violation of access rights to land and forests. Women who work the land and fetch firewood were forbidden to use the land, which is a clear violation of the *Law of the Land*. This Law requires that the community be consulted before lands are granted to companies. As one woman said, "We women are suffering from grabbing of the land. As women, we can't even pass through the lands where the project is based to fetch firewood, or to take roots from the soil to use for medicines for our families. As a result, we are going through really hard times because of these companies that are using the land in Nampula and in other areas" (see *Via Campesina News Update*, July 30, 2014). They called on the government to stop the production of soy and other crops for export that bring agro-toxins and cause diseases as happened in Brazil in the Cerado region. They also appealed to the governments of Brazil and Japan to stop thinking that there are large portions of available and abandoned land in the Nampula region.

Although there may be poverty and many other difficulties in Mozambique, these reactions by peasant farmers and civil rights organizations make it clear that they want a very different kind of development for their region. Their vision is one of peasant ecofarming and a peasant economy that is ecologically sustainable and socially just. This alternative approach stands in sharp contrast to that of the neoliberal vision of industrial agriculture under corporate control. Another way is possible.

ACRA. (March 22, 2013). Tanzanian civil society statement on farmers' rights. Retrieved from <http://www.ip-watch.org/weblog/wp-content/uploads/2013/03/UPOV-Tanzania-CSO-Statement-1.pdf>

ActionAid. (May 2012.) Critiques of the G8 New Alliance on Food Security and Nutrition. Retrieved from <http://www.actionaidusa.org/critiques-g8-new-alliance-food-security-and-nutrition>

African Center for Biosafety. (2012). Modernizing African agriculture: who benefits? Retrieved from <http://acbio.org.za/modernising-african-agriculture-who-benefits-civil-society-statement-on-the-g8-agra-and-the-african-unions-caadp/>

AllAfrica. (June 5, 2014). Mozambique: civil society tries to fight ProSavana. Retrieved from <http://allafrica.com/stories/201406110993.html>

EJOLT. (March 10, 2014). The many faces of land grabbing; cases from Africa and Latin America. Retrieved from <http://www.ejolt.org/2014/03/the-many-faces-of-land-grabbing-cases-from-africa-and-latin-america/>

Farmlandgrab.org. (August 18, 2014). Land grabs and the false promise of food security. Retrieved from <http://www.farmlandgrab.org/post/view/23846-land-grab-and-the-false-promise-of-food-security>

Farmlandgrab.org. (August 4, 2014). 'Land grabs' and responsible agricultural investment in Africa. Retrieved from <http://www.farmlandgrab.org/post/view/23794-land-grabs-and-responsible-agricultural-investment-in-africa>

Farmlandgrab.org. (October 18, 2014). Dakar declaration against water and land grabbing. Retrieved from <http://www.farmlandgrab.org/24085>

FIAN. (April 2010). Land grabbing in Kenya and Mozambique. Retrieved from http://www.fian.org/fileadmin/media/publications/2010_4_Landgrabbing_Kenya_Mozambique_e.pdf

Global Policy Forum. (August 2, 2013). Mozambican civil society mobilizes for defending resources and land. Retrieved from <https://www.globalpolicy.org/social-and-economic-policy/poverty-and-development/poverty-and-development-in-africa.html>

Government of Canada. (June 8, 2013). Canada takes a leadership role in helping Senegal join the G-8 New Alliance for Food Security and Nutrition. Retrieved from <http://www.acdi-cida.gc.ca/acdi-cida/acdi-cida.nsf/eng/FRA-6874617-FTG>

GRAIN. (March 11, 2013). The G8 and land grabs in Africa. Retrieved from <https://www.grain.org/article/entries/4663-the-g8-and-land-grabs-in-africa>

Huffington Post. (July 23, 2012). The new alliance for food security and nutrition: nothing new about ignoring Africa's farmers. Retrieved from http://www.huffingtonpost.com/eric-holt-gimenez/africa-food-security_b_1537279.html

IRIN. (March 12, 2014). An alarming outlook for Senegal's hungry. Retrieved from <http://www.irinnews.org/report/99773/alarming-outlook-senegal%E2%80%99s-hungry>

IRIN. Unravelling Zimbabwe's 'food crisis'. Retrieved from <http://www.irinnews.org/news/2014/03/04/unravelling-zimbabwes-food-crisis>

Liberation Afrique. (January 27, 2014). *Justica Ambiental/FOE* Mozambique's position on the Prosavana program. Retrieved from http://www.liberationafrique.org/IMG/article_PDF/article_2972.pdf

NPR. (June 14, 2012). Mozambique farmland is prize in land grab fever. Retrieved from <http://www.npr.org/2012/06/14/155036821/mozambique-farmland-is-prize-in-land-grab-fever>

The Guardian. (August 7, 2014). US criticised over increased private sector investment in Africa. Retrieved from <http://www.theguardian.com/global-development/2014/aug/07/us-criticised-private-sector-investment-africav>

The Guardian. (February 18, 2014). G8 New Alliance condemned as new wave of colonialism in Africa. Retrieved from <http://www.theguardian.com/global-development/2014/feb/18/g8-new-alliance-condemned-new-colonialism>

The Guardian. (February 18, 2014). Tanzania: 'large-scale farming turns small farmers into mere labourers'. Retrieved from <http://www.theguardian.com/global-development/2014/feb/18/tanzania-large-scale-farming-small-farmers-labourers>

The Guardian. (June 7, 2013). G8's new alliance for food security and nutrition is a flawed project. Retrieved from <http://www.theguardian.com/global-development/poverty-matters/2013/jun/07/g8-new-alliance-flawed-project>

Via Campesina News Update. (August 2, 2013). Mozambique: Joint mobilization by civil society for the defense of resources and against the privatization of the land. Retrieved from <http://viacampesina.org/en/index.php/main-issues-mainmenu-27/human-rights-mainmenu-40/peasants-right-resources/1466-mozambique-joint-mobilization-by-civil-society-for-the-defence-of-resources-and-against-the-privatization-of-the-land>

Via Campesina News Update. (July 25, 2014). Mozambique: civil society organizations decided to globalize the 'No to ProSavana' campaign and promise to give legal responsibility to 'perpetrators'. Retrieved from <http://viacampesina.org/en/index.php/actions-and-events-mainmenu-26/stop-transnational-corporations-mainmenu-76/1643-mozambique-civil-society-organizations-decided-to-globalize-the-no-to-prosavana-campaign-and-promise-to-give-legal-responsibility-to-perpetrators>

Via Campesina News Update. (July 28, 2014). Mozambique: Peasants report land grabbing in Nacala corridor. Retrieved from <http://viacampesina.org/en/index.php/actions-and-events-mainmenu-26/stop-transnational-corporations-mainmenu-76/1644-mozambique-peasants-report-land-grabbing-in-nacala-corridor>

Via Campesina News Update. (July 30, 2014). Mozambique: Women prevented from fetching firewood and other forest products in Nacala Corridor. Retrieved from <http://viacampesina.org/en/index.php/main-issues-mainmenu-27/women-mainmenu-39/1646-mozambique-women-prevented-from-fetching-firewood-and-other-forest-products-in-nacala-corridor>

Via Campesina. (August 8, 2014). Farmers, rural women and mining impacted communities at the 2014 SADC People's Summit to propose people-based regionalism. Retrieved from <http://viacampesina.org/en/index.php/news-from-the-regions-mainmenu-29/1647-farmers-rural-women-and-mining-impacted-communities-at-the-2014-sadc-people-s-summit-to-propose-people-based-regionalism>

Via Campesina. (August 19, 2014). 'No to ProSavana Campaign': Mozambicans seek regional solidarity. Retrieved from <http://viacampesina.org/en/index.php/actions-and-events-mainmenu-26/stop-transnational-corporations-mainmenu-76/1650-no-to-prosavana-campaign-mozambicans-seek-regional-solidarity>

5) Alternatives

As stated at the beginning of this section on industrial agriculture, agribusinesses do not exist to provide food for the world's population. Their primary business is not to help eradicate hunger for the millions of undernourished children and adults. The corporate food industry exists first of all to make as much profit as possible and to provide their investors with a large return within the shortest possible time-frame. To do so they continually need to expand their markets and secure suppliers and producers on every continent. To achieve these goals they need to use the most advanced technologies and negotiate the most advantageous trade agreements. Environmental and social impacts are at best secondary considerations given the *actual practices* of the global food industry. Difficulties are to be overcome by technological solutions and adjustments as long as they do not interfere with the bottom line. If a market is not profitable it is to be abandoned, regardless of what happens to the people and the pollution that is left behind. As we have highlighted throughout this section, corporate agricultural practices continually violate the soil, land, water, air, seeds, plants, animals, food and people.

The illusion that industrial agriculture is essential to overcome the global food crisis and the needs of a growing world population is maintained by all the 'stakeholders'. This myth is repeated over and over again by all those that have a stake in it. Those who profit from the present food production arrangements from corporate executives, investors, banks, insurance companies, governments officials, policy advisors, researchers, and a host of other people foster the illusion. The food industry is guided by a one dimensional view of growing food and raising animals, which means a one-dimensional view of the soil, land, water, air, seeds, plants, animals, food, farmers, and all of us that require food and drink to survive and flourish. This reductionistic approach of industrial agriculture is a violation of Mother Earth, as indigenous people put it. In many instances, like in Mozambique, it involves crimes against humanity and crimes against the people of Mozambique. For what else would we call new coal and gas developments, building a new mega-dam, allowing large fishing trawlers and factory boats in coastal waters, tolerating illegal logging, actively supporting the

ProSavana mega-project and other foreign land acquisitions, neglecting health care, sanitation, waste management, education, local and regional food growing, rural development, and so on? All this in the face of the urgency of climate change and the readily available alternatives in every area of life and the economy. In another era such practices would have been called 'treason', selling off a peoples' land, water and resources and withholding basic care and services. It makes many corporations, executives, governments and officials complicit in violations of human rights.

In contrast to the *illusion*, the *reality* is that the food industry provides food for only a small portion of the global population, primarily for those that can afford to pay. The majority of the world's food, from 60% to 80%, is provided by peasant farmers, smallhold farmers and small-scale fishers everywhere. That is an astounding reality. In the developed world, it is the small family farmers and growers that follow ecologically sustainable methods that provide unprocessed, healthy food. Especially in view of the impact of climate change, many peasant farmers and fisherfolk can be helped with technologies that build on their traditional knowledge and experience. By their very nature these developments will be small-scale, local, regional, participatory and communal. It is at this point that peasant organizations and indigenous people from the global South *and* farmers, growers and committed food groups in the global North come together and hold hands. This becomes apparent in the joining together, for example, of Via Campesina and the National Farmers Union of Canada and many other groups. The NFU is a co-founder of La Via Campesina. The international conference on Food sovereignty held at Yale University in 2013 illustrates the importance of these developments.

In 2010 the *World People's Conference on Climate Change and the Rights of Mother Earth* the participants from around the globe set out their fundamental viewpoint. In 2013 these views were reiterated by the *World Conference on Indigenous Peoples* in the *Alta Outcome Document's* collective recommendations. It is worth quoting some of their statements and recommendations in full. They serve as a summary of all that is wrong with corporate agriculture and instead they articulate healing and restorative alternatives.

Working Group 17 on Agriculture and Food Sovereignty declares that:

We declare and denounce that agribusiness and the inherent logic of production of foods oriented towards the market and not for the right to food, is one of the main causes of climate change through changes in the use of land (deforestation and the expansion of the agricultural frontier), monocrops, the excessive use of products derived from the petrochemical industry, food processing, and all the logistic involved in the transportation of food towards the consumer and also through the model of society, economy and culture of production and consumption.

We demand that governments commit themselves to uphold the model of agriculture of peasant farmers and indigenous/originary practices, and other ecological models and practices that contribute to solving the problem of climate change and ensure food sovereignty, understood as the right of peoples to control their own seeds, lands, water and the production of food, ensuring, through agro-ecological, local, and culturally appropriate production, the peoples access to sufficient, varied and nutritious foods complementary to the Mother Earth emphasizing autonomous (participative, communitarian and shared) production of all nations and people.

Finally, the Alto Outcome Document declares that:

As the original and distinct Peoples and Nations of our territories we abide by natural laws and have our own laws, spirituality and world views. We have our own governance structure, knowledge systems, values and the love, respect and lifeways, which form the basis of our identity as Indigenous Peoples and our relationship with the natural world.

Recommend that States implement a comprehensive human rights and ecosystem based approach into all climate change measures and initiatives recognizing and valuing indigenous world views including knowledge systems, technologies, innovations and practices, customary institutions and indigenous governance, lands and resources with enforceable safeguards in all climate agreements. We further recommend the urgent transition away from fossil fuel dependence towards decentralized, locally controlled, clean, renewable energy systems and infrastructures; and

Recommend that States develop and enforce in conjunction with Indigenous Peoples legislation or policies to acknowledge and protect indigenous People' traditional and subsistence livelihoods and other customary and culturally based land and resource uses

and indigenous economies and that such legislation or policies be adopted with the free, prior and informed consent of Indigenous Peoples.

Recommend that States adopt public policies which guarantee the right to food, food sovereignty, food security and safety and the right to water and clean air for Indigenous Peoples. Further, that States cease subsidizing the expansion of industrial, commercial agriculture plantations which promote toxic chemical fertilizers and pesticides as well as genetically modified organisms (GMO's) in indigenous lands and territories.

There are other statements on agriculture that identify the destructive consequences of the food industry and highlight an alternative vision and approach. In the end it represents a clash of two opposite worldviews and values that cannot be harmonized or integrated. The one is based on the capitalist ideology of Power, Domination, Progress, Unlimited Growth and Maximum Gain; the other on an integrated, multi-dimensional view of life that seeks to be in harmony with nature and all peoples. "The capitalist system turns everything into a commodity; water, earth, the human genome, ancestral cultures, biodiversity, justice, ethics and life itself. Everything must be extracted, transformed and consumed, thus negating the sacred character of nature" (in the section on Structural Causes). There is no common ground between these two visions and ways of life.

Compliance with the recommendations of the Peoples by the Mozambique government and global corporations would effectively stop the ProSavana project, other land grabbing, the development of new coal mines, oil and gas wells, dams, large scale commercial fishing in coastal waters, legal and illegal logging projects within local people's lands to which they have customary rights. It would radically transform Mozambique and open up its future.

The emphasis on peasant farmers and indigenous people is not to idealize their lives or situations. They too encounter many difficulties, face many perplexing problems, have leadership struggles, engage in some cultural practices that violate human rights, suffer many diseases, despair of corporate inroads; in short, they experience all the limitations, failures and successes of people everywhere. The key point for our purposes is that they, along with many others, have preserved another way of life, another vision that stands in opposition to and provides a viable alternative to the capitalist neoliberal ideology. That worldview and way of living beckons to be developed, advanced, and lived in many different places across the globe by all those that share that vision and seek life, healing and well-being for all. Another way is possible.

ETC Group. (September 3, 2013). New Report: putting the cartel before the horse...and farm, seeds, soil, peasants. Retrieved from

http://www.etcgroup.org/putting_the_cartel_before_the_horse_2013

Food First. (February 20, 2014). Burkina Faso's farmer-to-farmer movement helps smallholders cope with climate change. Retrieved from

<http://foodfirst.org/burkina-fasos-farmer-to-farmer-movement/>

Global Preparatory Conference for the UN High Level Plenary Meeting of the General Assembly to be known as the World Conference on Indigenous Peoples. (2013).

Alta Outcome Declaration. Retrieved from http://www.iwgia.org/iwgia_files_news_files/0805_Adopted_Alta_outcome_document_ith_logo_ENG.pdf

Grassroots International. (2010). Towards a green food system, how food sovereignty can save the environment and feed the world. Retrieved from

<http://www.grassrootsonline.org/sites/default/files/Towards-Green-Food-System.pdf>

Grassroots International. (March 2, 2011). We are the Solution: celebrating African family agriculture! Retrieved from

<http://www.grassrootsonline.org/news/blog/we-are-solution-celebrating-african-family-agriculture>

IFAD. (2014). Fulfilling the promise of African agriculture. Retrieved from <https://www.ifad.org/documents/10180/cb0aad9b-c24a-44cc-a321-4ce48f01953d>

IFAD. (2014). Smallholder farmers are more than climate victims – says IFAD report. Retrieved from https://www.ifad.org/asset?id=6860725&locale=es_ES

Indian Country. (September 25, 2014). What did Indigenous Peoples get out of the World Conference? Retrieved from

<http://indiancountrytodaymedianetwork.com/2014/09/25/what-did-indigenous-peoples-get-out-world-conference-157042>

The Guardian. (October 21, 2013). Small-scale agriculture holds big promise for Africa. Retrieved from <http://www.theguardian.com/global-development-professionals-network/2013/oct/23/irrigation-systems-agriculture-farm>

UN General Assembly. Resolution adopted by the General Assembly on 22 September 2014. Outcome document of the

high-level plenary meeting of the General Assembly on the World Conference on Indigenous Peoples. Retrieved from

<http://www.un.org/en/ga/69/meetings/indigenous/documents.shtml>

World People's Conference on Climate Change and the Rights of Mother Earth. (2010). Structural Causes, Agriculture and Food Sovereignty.

Yes! (April 17, 2014). Think you know what a farmer looks like? Think again. Retrieved from <http://www.yesmagazine.org/new-economy/think-you-know-what-a-farmer-looks-like-think-again>

<http://www.yesmagazine.org/new-economy/think-you-know-what-a-farmer-looks-like-think-again>

c. Forestry practices

Irina Gray (2007/2008) quotes from the eminent tropical forest scholar, E. G. Leigh, who referred to the tropical forest as “a victim of a spiritual crisis in humanity”; nothing could be more appropriate than this statement. Forests along with the oceans, more than any other areas of the earth, are the victims of the destructive policies and practices of the ‘free market’ ideology. Perhaps the word ‘victim’ is appropriate because both are quietly being destroyed. In a few decades many tropical forests will be gone or much diminished with all the consequences for the environment and climate change. As a result of global warming the oceans will continue to warm and become more acidic and fish stocks will continue to decline. Seawater levels will keep rising and threaten to inundate mega-cities. Illegal logging will continue on with China leading the pack. The strict guidelines for harvesting the northern hardwood forests will continue to be violated or ignored. Illegal logs and many wood products, like wood pellets, plywood, wood panels, flooring, mouldings and paper will continue to be laundered through the system. Tax fraud, deception, and corruption on every level, along with violence, displacement, dispossession, and pollution will continue in many tropical areas. The forest industry will remain an attractive source for investment by international investment banks, pension funds, insurance companies and corporations, regardless of illegal or unsustainable practices.

This quiet demise of both tropical and boreal forests is not because of a lack of watchdog, advocacy, and protection agencies or a lack of knowledge about ecologically sustainable harvesting and conservation practices. On the contrary, there are dozens and dozens of local, national and international organizations speaking up for the plight of the forests. No one can claim ignorance or not be aware of the severe limitations of the international attempts to develop sustainable practices, limit illegal logging, and provide for simple stoves and plant-based briquettes for millions of rural people. There is a constant stream of detailed reports that give us up-to-date information about the state of the worlds’ forests and the corporate forest industry. In spite of this overwhelming evidence, deforestation continues on. International institutions and organizations are impotent to bring about a fundamental change, primarily because they do not address the core of the problem. That does not mean that, piecemeal and here and there, some good changes are being made that benefit many local communities, but these efforts are too limited in scope. They are certainly not sufficient to stop global deforestation.

However, the decline of the forests and oceans are far from peoples’ consciousness and awareness. Locally, we often have no idea where the sheet of paper or the panel of plywood we buy comes from. Even though millions of people are very directly affected by these on-going declines, there are only a limited number of fisher and forest people that can organise themselves to protest and set up blockades. One day large fishing boats just appear along the coast, like in Mozambique, or bulldozers just move in on unsuspecting villagers and level the area. Greed and power are insidious, and involve many corporations, governments, elites, and international agencies. Officially they pay lip service to conservation, sustainability and best practices. Of the many who are well-intentioned and do good work, it is too little and piecemeal. Their efforts seldom directly address the *structural* cause of the problem: the prevalent neoliberal free market ideology. The state of the forests and oceans are symbols of ‘the spiritual crisis of humanity’.

Diaz, N. R. (November 27, 2008). Paraguay: Uncontacted Ayoreo threatened by deforestation. *IPS*. Retrieved from <http://www.ipsnews.net/2008/11/paraguay-uncontacted-ayoreo-threatened-by-deforestation/>

FAO, (July 2016). State of the world’s forests. Retrieved from, <http://www.fao.org/3/a-i5588e.pdf>

Gray, I. (July 2008). Rainforest Destruction, One of humanity’s deepest spiritual crises of modern times. *Tropical Rainforest-Animals*. Retrieved from <http://www.tropical-rainforest-animals.com/Rain-Forest-Destruction.html>

Gray, I. (November 2007). Tropical Rainforests, Why we all have a stake in them. *Tropical Rainforest-Animals*. Retrieved from <http://www.tropical-rainforest-animals.com/Tropical-Rain-Forests.html>

It is instructive to look at one of these international reports more closely. The recent *International Sustainability Unit, Tropical Forest: A Review* (2015) can serve as an example. The report is very clear about the present state of tropical forests: “Tropical forests once covered 3.6 billion hectares: half of all of the world’s forests. Almost a third has been lost

as a result of deforestation. Of the remaining area, 46% is fragmented, 30% degraded, and only 24% (600 million hectares) is in a mature and relatively undisturbed state. Currently, about 8.5 million hectares are deforested in the tropics annually, with the rate of loss increasing by 200.000 hectares a year". These are arresting statistics, reflecting the progressive deterioration in the condition of vast areas of forest, as well as the largely irreversible clearance and conversion (mostly for agriculture) of more than 250 million hectares of tropical forest since the 1992 Rio Summit. The report also highlights the amount of carbon emissions from tropical deforestation (8%) and degradation (6-14%). Together these emissions account for 14-21% of the annual additions to greenhouse gas concentrations. A significant reduction in deforestation and degradation "could have a profound effect on limiting carbon emissions and carbon storage, for a combined effect of 24-33% of all carbon mitigation" (p.121). As it stands now, "there are no signs yet that overall rates of deforestation or degradation are decreasing...at the overall level, the annual area lost remains very significant" (p.3). "Perhaps the starkest conclusion is that, despite all that has been done, it is still not enough and the rate of deforestation is still increasing" (p.7).

By means of a common euphemism, 'the drivers of deforestation' the report takes a 'neutral' position and limits itself to listing the main causes of the decline. It simply lists the various factors that contribute to deforestation: "There is a consensus that global commodity supply chains (principally palm oil, beef, soy, pulp and paper, maize, rice and sugar cane) are major drivers of deforestation, with oil and gas extraction, mining, roads, smallholder agriculture, fuelwood collection and charcoal production all also contributing significantly to forest loss. Logging is widely recognized as the principal driver of forest degradation. While the prevention of illegal logging remains a priority, a range of studies find that legally permitted selective logging is also triggering significant emissions and extensive degradation across a large part of the tropics, indicating the need for a re-evaluation of forest policy at national and international levels" (p. 122). Nowhere does the report consider and analyse the structural root causes of deforestation: the macro-economic policies and practices of industrial mining, agriculture and forestry supported by most governments and fueling an unsustainable consumer culture. All the suggestions for change stay within the global free market framework.

The report recognizes that solutions need to go beyond the favored REDD+ (Reducing Emissions from Deforestation and Forest Degradation) implementations. "Security of land tenure and effective land-use planning are essential prerequisites, which in turn rest on recognition and respect for rights, and strong and accessible institutions and processes. Over-arching conditions include good governance and economic growth, and the existence of mechanisms and markets which provide investors with confidence that positive environmental and social outcomes can be obtained effectively and legally" (p.4). "The key conditions include better land use planning, land tenure reform, strong governance, community rights and livelihoods, effective management, donor and investor confidence in forest financing schemes, and the effective utilization of technology" (p.7). Very few of these conditions actually exist. They are paid lip-service to or are strongly resisted, as the discussions and critiques of the REDD+ initiatives indicate. In many places giving land tenure and legal rights to local forest communities remains a contested issue as well as their full and effective participation. Nor does the report seriously consider the widely recommended development of community and village forestry as the most important alternative to industrial forestry. Generally, there is little awareness of the driving force and the reality of global corporate control and government compliance. In spite of many good overviews and suggestions, the report stays within the confines of an imaginary world that does not exist, using a language that distances us from reality.

The conclusions are telling: "Science has demonstrated beyond doubt that the carbon, water and other ecosystem services provided by tropical forests are essential for human wellbeing. This confers a shared responsibility to act, especially by countries with the resources to help the many tropical countries that cannot achieve forest protection unaided. Perhaps the most pressing need of all is to communicate the message, by all possible means, that tropical

forests are essential for our survival” (p.125). Indeed, they are, but the causes and solutions are quite the opposite of the reports’ suggestions.

Similar to my view of industrial farming, my basic premise is that any form of corporate forestry is ecologically unsustainable and invariably leads to injustice and violence. The use of fuel, heavy machinery, large transport trucks, construction of access roads, accumulation of waste, chemical pollution, lack of re-forestation, violations of treaty rights and dispossession of indigenous people, etc.; are all unsustainable. Most international forestry companies, if not all, do not maintain the integrity of the forest when harvesting trees. Tropical rain forests are compromised by access roads that keep expanding by settlers moving in. The few valuable old forest species that remain will soon be depleted. Control and enforcement of regulations are weak or non-existent. Second growth forests are crisscrossed with logging roads and broken up by blocks of forest concessions, which change the pattern of animal migration and diversity of species. Illegal logging continues unabated with the cooperation of many levels of government and financial institutions. ‘Reduced-impact logging methods’ are not adopted and implemented. The ‘selection silviculture system’ to be followed for harvesting in the northern hardwood forests exists primarily on paper. Paper mills continue to pollute the environment and shut down as soon as profits go down, taking no social responsibility for the affected one-industry communities. Certification standards are agreed upon but compromised. Given these forestry practices, it is evident that there is not an ecologically sustainable forestry industry.

Even if companies subscribe to strict guidelines for so-called ‘selective harvesting’ or ‘sustainable managed forestry practices’, these ‘best practices’ guidelines are not followed or continually violated. International efforts, like REDD+, have been subverted and compromised, or are at very beginning stages of implementation. Corruption can undo any honest efforts. International certifying agencies face similar problems. Illegally and unsustainably harvested trees can enter the system of approved logs in any number of ways. The on-going illegal logging can only happen with the cooperation, tolerance, and awareness of many governments, international organizations, and financial institutions. The illegal logs are ‘laundered’, processed and the wood products sold in Europe, the U.S, and other countries as building materials, furniture and wood pellets. The one thing that may have changed during the last decade is that apart from forests as stands of two-by-fours they have also become desirable and tradable stocks of carbon.

Butler, R. (July 22, 2012). Sustainable logging in the rainforest. *Mongabay*. Retrieved from <http://rainforests.mongabay.com/1009.htm>

Cortesi, L. (June 10, 2013). Asia Pulp and Paper caught clearing rainforest: credibility of APP deforestation moratorium in doubt. Retrieved from http://www.ran.org/asia_pulp_and_paper_caught_clearing_rainforest_credibility_of_app_deforestation_moratorium_in_doubt

FAO. (February 2010). Guidelines on sustainable forest management in drylands of sub-Saharan Africa. Retrieved from <http://www.fao.org/docrep/012/i1628e/i1628e00.pdf>

Global Justice Ecology Project. (February 3, 2014). Kenya: preparing for REDD in the Embobut Forest and forcing Sengwer people ‘into extinction’. Retrieved from <http://www.iearth.org/kenya-preparing-for-redd-in-the-embobut-forest-and-forcing-sengwer-people-into-extinction/>

Hance, J. (July 19, 2012). Experts: sustainable logging in rainforests impossible. *Mongabay*. Retrieved from <https://news.mongabay.com/2012/07/experts-sustainable-logging-in-rainforests-impossible/>

Hance, J. (November 29, 2012). ‘Exporting deforestation’: China is the kingpin of illegal logging. *Mongabay*. Retrieved from <https://news.mongabay.com/2012/11/exporting-deforestation-china-is-the-kingpin-of-illegal-logging/>

Lang, C. (February 28, 2014). Global Forest Watch tracks deforestation in near-real time. What’s not to like? *Redd-Monitor*. Retrieved from <http://www.redd-monitor.org/2014/02/28/global-forest-watch-tracks-deforestation-in-near-real-time-whats-not-to-like/>

McCarthy, S. (February 2014). Democratic change and forest governance in the Asia Pacific: implications for Myanmar. *East-West Center, Asia Pacific Issues*, No. 112. Retrieved from <http://www.eastwestcenter.org/system/tdf/private/api112.pdf?file=1&type=node&id=34443>

Mongabay. (May 6, 2014). Almost 90 percent of Republic of the Congo’s lowland forest open to logging. Retrieved from <https://news.mongabay.com/2014/05/almost-90-percent-of-republic-of-the-congos-lowland-forests-open-to-logging/>

Phillip, S. and Parfitt, B. (November 4, 2013). Proposed forest policy leaves First Nations bereft. *CCPA*. Retrieved from <https://www.policyalternatives.ca/publications/commentary/proposed-forest-policy-leaves-first-nations-bereft>

Putz, F. E. et al. (August 2000). Why poor logging practices persist in the tropics. *Conservation Biology*, Volume 14, No 4. Retrieved from http://www.eebweb.arizona.edu/courses/ecol406r_506r/putzea2000-logging3.pdf

Saunders, J. (April 2014). Certified products and EUTR compliance in the furniture sector. *Chatham House*. Retrieved from http://www.illegal-logging.info/sites/default/files/Saunders_Certification_PP_FINAL.pdf

Shwartz, M. (October 21, 2005). Selective logging causes widespread destruction, study finds. *Stanford University News*. Retrieved from <http://news.stanford.edu/news/2005/october26/select-102605.html>

Tennery-Spalding, C. (January 31, 2014). APRIL misses the mark with new forest management policy. *Rainforest Action Network*. Retrieved from http://www.ran.org/april_misses_the_mark_with_new_forest_management_policy

The ongoing de-forestation and illegal logging make for a despairing picture. Clearing forests for agricultural lands to grow more maize, soybeans, sugar cane, palm oil, or clearing lands for raising more beef cattle, does not bode well for the world's forests. Industrial logging will keep destroying the rich biodiversity of the forests, of plants, animals, insects, micro-organisms and trees. Many ecosystems and micro-climates will be deeply compromised or destroyed. More and more forest peoples will be driven from their homelands and be in danger of extinction. Villages will be displaced and deprived of the many forest products local people make use of to survive and supplement their income. Traditional knowledge of the forest ecosystems and medicinal plants will be lost. Given all this, there is little hope for the forests as long as the neoliberal economic policies and practices hold sway. To save the remaining forests will require local and regional opposition and the support of international watchdogs and protest movements.

Most of the world's forests are *publicly* owned (about 80%). This *could* lead towards more community control and management of the forests, or it *could* lead to governments signing away more logging licenses and to illegal logging on lands held in common. South-East Asia, and particularly Indonesia, Cambodia and Myanmar are good examples of the interplay of international finance and development institutions like the WB, complicit governments, powerful families and local elites, military business interests, and corruption. Deeply vested interests in these countries, regardless of the transition toward democracy, frustrate attempts by concerned people inside the government and by civil society groups to arrest the conversion of forests to palm oil plantations, stop granting new concessions to foreign investors and corporations, and prevent illegal logging. In spite of good intentions and concerns WB policies and those of other financial institutions have condoned and actually furthered these developments.

Many national governments both in the global South and North are complicit in deforestation, illegal logging and laundering of the proceeds. By means of its trade agreements with Peru, for example, Canada has openly supported the incursions by mining companies into the tropical forests and protected areas of indigenous people. In spite of strong protests, Canada has provided large subsidies for the extractive industries in Peru. These agreements and policies make Canada indirectly responsible and complicit in the devastation of the Peruvian tropical forests and the violence against indigenous peoples. The dispossessed villagers and local leaders who have been assassinated stand as silent witnesses to those complicit in crimes against humanity. These indigenous peoples are the 'true guardians of the Amazon'.

The main debates about certification and sustainable practices do not reflect the core problem of neoliberal capitalism versus an alternative, local, cooperative, egalitarian way of life and worldview. Similar to fossil fuel extraction and agriculture, there are many alternatives to large scale forestry operations. They range from local village or community owned and managed forests, to small, cooperatively owned tree harvesting, milling and processing companies, to the development of alternative building materials and paper products and recycling. Collectively owned and governed village forestry and community forestry present the most promising alternatives to corporate forestry while at the same time providing adaptation to climate change. The only hope for halting the complete deforestation of the Amazon, the Congo Basin and the South Asian countries within the next two decades are the opposition voices both within governments and the protest groups of the local communities. As we will see in the last chapter, village forestry that is not dominated by local elites and power groups are the most hopeful alternative to deforestation, and an important protection against climate change.

AllAfrica. (September 27, 2012). Central Africa: organized crime trade worth over U.S. \$30 billion, responsible for up to 90 percent of tropical deforestation. Retrieved from <http://allafrica.com/stories/201209271378.html>

Boucher, D. et.al. (June 2011). The root of the problem: Drivers of deforestation. *Union of Concerned Scientists & Tropical Forest and Climate Initiative*. Retrieved from http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/UCS_RootoftheProblem_DriversofDeforestation_FullReport.pdf

Cho, R. (August 18, 2011). Is biomass really renewable? Earth Institute, Columbia University. Retrieved from <http://blogs.ei.columbia.edu/2011/08/18/is-biomass-really-renewable/>

Colonos. (September 30, 2008). UN admits its climate change program threatens indigenous peoples. Retrieved from <https://colonos.wordpress.com/2008/09/30/un-admits-its-climate-change-program-threatens-indigenous-peoples/>

EIA. (November 2012). Appetite for destruction: China's trade in illegal timber – Case Study: Mozambique. Retrieved from <https://eia-international.org/wp-content/uploads/EIA-Appetite-for-Destruction-lo-res.pdf>

Gallant, P. (March 5, 2014). Biomass is carbon neutral, and the world is flat! *Energy Probe*. Retrieved from <https://ep.probeinternational.org/2014/03/05/parker-gallant-biomass-is-carbon-neutral-and-the-world-is-flat/>

Global Justice Ecology Project. (April 3, 2014). Air pollutants from biomass burning exceeds coal. Retrieved from <http://archive3.gieparchive.org/stopgetrees.php?ID=678&tabs=2>

Global Justice Ecology Project. (April 9, 2014). Industry hype & misdirected science undercuts real energy/climate solutions: genetically engineering poplars for paper and biofuels condemned. Retrieved from <http://www.cban.ca/Press/Press-Releases/Genetically-Engineering-Poplars-for-Paper-and-Biofuels-Condemned>

Greenpeace International. (July 30, 2013). Preserving Paradise: the value of protecting Papua New Guinea's forests for climate. Retrieved from http://www.greenpeace.org/austria/Global/austria/dokumente/Reports/wald_preserving-paradise-PNG_2008.pdf

Hart, R. (May 28, 2014). Wolf Lake Coalition to press provincial candidates' and leaders' commitment to protecting world's largest old-growth red pine forest. *MiningWatch Canada*. Retrieved from <http://miningwatch.ca/news/2014/5/28/wolf-lake-coalition-press-provincial-candidates-and-leaders-commitment-protecting>

Hill, D. (January 13, 2015). Does Europe's coke habit mean massacring 'uncontacted' indigenous people? *The Guardian*. Retrieved from <https://www.theguardian.com/environment/andes-to-the-amazon/2015/jan/13/european-coke-habit-massacring-uncontacted-indigenous-people>

Hill, D. (September 13, 2014). Assassinations in the Amazon: how will Peru respond? *The Guardian*. Retrieved from <https://www.theguardian.com/environment/andes-to-the-amazon/2014/sep/13/assassinations-amazon-peru-respond>

Jones, S. (September 11, 2014). Tropical forests illegally destroyed for commercial agriculture. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2014/sep/11/tropical-forests-illegally-destroyed-commercial-agriculture>

Lee, P. et.al. (July 15, 2014). Tar sands threaten world's largest boreal forest. *Global Forest Watch Canada*. Retrieved from <http://www.wri.org/blog/2014/07/tar-sands-threaten-world%E2%80%99s-largest-boreal-forest>

MiningWatch Canada. (May 15, 2014). Supreme Court hears Grassy Narrows' case for treaty rights and against clearcut logging. Retrieved from <http://miningwatch.ca/news/2014/5/15/supreme-court-hears-grassy-narrows-legal-case-treaty-rights-and-against-clearcut>

Natural Resources Canada. (2008). Deforestation in Canada – What are the facts? Retrieved from <http://www.nrcan.gc.ca/forests/fire-insects-disturbances/deforestation/13419>

Pashly, A. (August 21, 2015). Brazil's illegal loggers downscale to avoid satellite detection. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2015/aug/21/brazils-illegal-loggers-downscale-to-avoid-satellite-detection>

Ruiz Diaz, N. (November 27, 2008). Paraguay: Uncontacted Ayoreo threatened by deforestation. *IPS*. Retrieved from <http://www.ipsnews.net/2008/11/paraguay-uncontacted-ayoreo-threatened-by-deforestation/>

ScienceDaily. (May 13, 2014). Sustaining northern hardwood forest: are we doing what we think we are doing? Retrieved from <https://www.sciencedaily.com/releases/2014/05/140513175010.htm>

UNEP and Interpol. (2012). Green Carbon, Black Trade: Illegal logging, tax fraud and laundering in the world's tropical forests. Retrieved from http://www.unep.org/pdf/RRALogging_english_scr.pdf

UNESCO. The Indigenous World 2014. Copenhagen, 2014. Retrieved from http://www.iwgia.org/publications/search-pubs?publication_id=671

Vidal, J. (May 10, 2014). Asian logging companies 'use British islands for tax dodging'. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2014/may/10/asian-logging-companies-british-islands-tax-havens>

Vrieze, P. & Htet Naing Zaw. (March 26, 2014). \$5.7 Bln in timber smuggled out of Burma, illegal logging rampant: Report. *The Irrawaddy*. Retrieved from <http://www.irrawaddy.com/burma/5-7bln-timber-smuggled-burma-illegal-logging-rampant-report.html>

Watts, J. and Vidal, J. (May 15, 2014). Brazil laundering illegal timber on a 'massive and growing scale'. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2014/may/15/brazil-laundering-illegal-timber-on-a-massive-and-growing-scale>

d. Corporate fishing practices

- 1) Corporate fishing practices
- 2) Corporate aquaculture
- 3) Fishing Subsidies
- 4) Overfishing and the decline of ocean biodiversity;
- 5) Voluntary Guidelines and small-scale fisheries
- 6) Corporate fishing practices: Africa's west coast, an example
- 7) Marine Reserves: Canada, an example

1) Corporate fishing practices

Commercial fishing and processing constitutes a large industry, employing around 55 million people, directly or indirectly, including a high number of women. It provides for the livelihoods of around 12% of the world population. Most important of all, fish and marine products are a primary source of protein for approximately 17% of the global

population and an even higher percentage, about 25%, for the poorest people. Over half of the world population (4.3 billion) derive 15% of their animal protein from fish and other marine products. These figures underscore the crucial importance of fisheries for employment and daily food for millions of people.

The global fishing corporations jeopardize this source of protein and employment for countless fishing communities. Many reports of international organizations give the impression that the industry is growing and improving. They claim any basic problems that do exist are being confronted and new international agreements and guidelines are being put in place. In this view the future looks promising for the industry, especially with regard to global development in fish farms and other marine products. In spite of these cautiously optimistic reports, all is not well, especially for small-scale fisheries and the oceans.

The story of the fishing industry is similar to that of agriculture and forestry. Large fishing, processing, packaging and distribution corporations control the industry. Like the food industry, a small number of companies dominate the market, especially with regard to certain favorite products like shrimp, tuna, oysters, salmon, etc. By means of vertical and horizontal integration, corporations have been able to extend their economic power and political influence across the globe. Ecologically we could compare the fishing industry's practices to clear-cutting and illegal logging in the forest industry. Corporate control over access, processing, retailing and the so-called 'conservation' of natural resources (marine protected areas; eco-tourism; property rights and tenure systems) has increased rapidly during the last decades. The seafood production chain is more and more in the hands of a few powerful players, with extensive and interrelated ownership patterns and financial holdings. This corporate fishing, processing and seafood chain, including the main supermarkets, is shaping and stimulating the growing 'demand' for certain fish products, not unlike the main food industry. Fresh bluefin tuna, Nile perch, certain kinds of shrimp and salmon, omega rich fish oil, etc. are distributed and promoted through high-end class appropriate labelling. Other seafood is destined for mass consumption by the middle classes and the poor. Generally, the increasing 'demand' for seafood is socially constructed and used to justify the expansion of industrial fishing and 'ocean, land and water grabbing' as the answer to poverty and the growing population.

Catches have increased enormously during the last decades, and so have the number of factory-freezer boats and large trawlers. Worldwide the fishing fleet is more than twice the size of what the ocean and the fish population can sustain. Globally there are over 4 million fishing boats, small and large, with over 3 million engine powered boats. To make a difference at least half of the giant factory vessels would have to be de-commissioned. Although there has been some decrease in the number of vessels, engines have also become more powerful, so that the net effect has been limited. Bigger boats with more powerful engines can pull larger nets, harvest more fish and stay out at sea longer. Large commercial fishing boats with bottom nets take the prized fish. Unwanted species are discarded and life along the ocean bottom is disrupted and destroyed. As a result of these practices fish populations are exhausted and coastal fishing villages are robbed of their livelihood. When stocks are depleted in one area, they move on to more promising coastal waters until those stocks are depleted as well. National governments protect and subsidize their fleets, processing plants, harbour facilities, and exports. There are many reports of illegal fishing, underreported catches, corruption, and complicity of different authorities and inspection agencies. Maximizing profits guides the fishing industry, regardless of the high costs to the oceans and fishing communities on every continent.

Commercial fishing, processing, transportation and distribution is a high energy industry. Fish may be unloaded on one continent, like North America or Europe, be shipped to another continent, like China or other Asian countries and be shipped back to the US, or any of the European countries. Subsidized diesel oil, some of it of the dirtiest kind, allows for 'inexpensive' long-distance transportation. Assembly-like, cheap labour, not counting health costs and human suffering, makes processing fish products very profitable. The ecological and social externalities of harvesting fish and other aquatic foods are not reflected in the price of fish. If they were, fish would be unaffordable, except for the few. Even within the present system there are many alternatives for using better equipment, limiting catches, processing by-

catches for fishmeal, using high quality diesel oil, developing more local processing plants, creating better working conditions, etc. These practices would make the fishing industry more ecologically sustainable and socially just.

As a result of highly commercialized practices, local fishers are squeezed out of existence by corporate fishing companies and government sell-outs. Small-scale fishers are caught between dwindling coastal fish stocks and overfishing by the large factory boats within their territorial waters. Everywhere, whether along the coasts of West Africa, Madagascar, around the Maldivian Islands, the west coast of India, the coasts of Peru, Chile, or any other coasts, the same thing is happening. Complicit, desperate or corrupt governments continue to issue fishing licenses to large factory boats within their territorial waters, jeopardizing the livelihoods and a large part of the food supply of their own local communities. To make things worse, in many places, especially in the global South, local fishers and whole fishing communities are being excluded from access to fishing resources and markets. As a result of privatization and enclosures many fishing villages are suddenly denied access to their traditional fishing grounds and adjacent coastal lands or ports. Without meaningful consultation and their prior, free, and informed consent their use of marine coastal zones is curtailed or they are displaced and left without a livelihood. It is a part of what has been called 'ocean grabbing' and the development of a 'property rights' based approach to fishing. Within this perspective fish and other marine resources, coastal wetlands, deltas, mangrove forests, and prized beaches have been reduced to commodities and private properties that can be bought and sold. The international and corporate response, including the World Bank, to the crises of overfishing and access disputes has been to introduce a far-reaching property rights and tenure system. It is called a 'rights' approach.

In this change-over to 'modern' fishing approaches, centuries-old local governance systems and complex allocation and conservation practices are ignored and violated. Fish have become a 'state-owned' resource; the state can sell 'fishing rights' and allocate quotas to those who can afford them, particularly large foreign companies. Such arrangements may be legally correct, but they are 'immoral' in the sense that they violate human rights and degrade the marine ecosystems. The global fishing industry is one of the more tragic examples of neoliberal economic policies and the complicity of many governments, financial institutions and wealthy investors. Trade liberalization, lowering or abolishing tariffs, globalization of the food market, a flexible labour market, supply and demand pricing, food speculation, they have all done their part in re-structuring the fishing industry. Some have called the fisheries the 'tragedy of the commons', more appropriate would be to call the fishing industry the 'tragedy of the free market', which has no other morality than the morality of the 'free' market: make as much profit as you can and expand your corporate power, regardless of the social and ecological consequences. Putting it bluntly, overfishing and the deterioration of the ocean ecosystems reflect the 'immorality' of corporate fishing practices, supporting governments and investors. 'Immorality' in this context does not mean a violation of some moral principles that one can adhere to or not, but a violation of the thresholds of life in the oceans and a violation of countless fishing communities around the globe.

Neoliberal economic ideology only allows for limited adjustments, in spite of international agreements, standards and commitments. In a competitive, profit driven system, it is only 'rational' to fully exploit a resource and continually expand one's means of production. Climate change, warming of the ocean, changing global air and sea currents, increasing acidity, decline of coral and coastal spawning grounds, rising sea levels, severe pollution of coastal waters, dead zones, etc. will have unexpected and profound effects on global fisheries. International organizations, the fishing industry and supporting governments are 'aware' of these environmental threats as is evident from the many reports. In the face of this threat and stagnated productivity, two fundamental market-based solutions have been promoted during the last few decades. One solution, as we have already indicated, is to privatize access, ownership, and fish quotas; the second is to drastically expand industrial aquaculture. Since many prized species are fished to their sustainable limits or overfished, there is very little room for further expansion of the capture fishing industry. Only careful management, reducing discards, avoiding waste, employing new technologies, etc. can avoid a decline in commercial fishing. For that reason the focus is shifting more and more to the expansion of aqua culture, both inland, coastal and off-the-coast farms.

Africa Progress Report. (2014). Grain Fish Money, Financing Africa's green and blue revolution. Retrieved from <http://www.africaprogresspanel.org/publications/policy-papers/2014-africa-progress-report/>

EcoWatch. (March 20, 2014). 9 of the dirtiest U.S. fisheries exposed. Retrieved from <http://www.ecowatch.com/9-of-the-dirtiest-u-s-fisheries-exposed-1881879251.html>

Franco, J. et.al. (September 2, 2014). The global ocean grab, a primer. *Transnational Institute, Masifundise, Africa Kontakt*. Retrieved from <https://www.tni.org/en/publication/the-global-ocean-grab-a-primer>

Goldenberg, S. (March 2, 2014). Marine mining: underwater gold rush sparks fears of ocean catastrophe. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2014/mar/02/underwater-gold-rush-marine-mining-fears-ocean-threat>

Harvey, F. (June 13, 2012). Fishing discards practice thrown overboard by EU. *EcoWatch*. Retrieved from <https://www.theguardian.com/environment/2012/jun/13/fishing-discards-ban-eu>

Hodel, K. and Kelly, C. (June 10, 2014). Revealed: Asian slave labour producing prawns for supermarkets in US, UK. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2014/jun/10/supermarket-prawns-thailand-produced-slave-labour>

Hodel, K. and Kelly, C. (June 10, 2014). Trafficked into slavery on Thai trawlers to catch food for prawns. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2014/jun/10/-sp-migrant-workers-new-life-enslaved-thai-fishing>

IFFO. Modern slavery in the fishing sector. Retrieved from <http://www.iffonet.net/position-paper/modern-slavery-fishing-sector>

Keledjian, A. et.al. (March 2014). Wasted Catch: unsolved problems in US fisheries. *Oceana*. Retrieved from http://oceana.org/sites/default/files/reports/Bycatch_Report_FINAL.pdf

Lytton, C. (October 2, 2013). It's the small-scale producers who feed the world – promote and protect them. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2013/oct/02/herman-kumara-sri-lanka-fisheries>

May, E. (September 4, 2014). The price of cheap shrimp. *Island Tides*, Vol. 26, No. 17. Retrieved from <http://elizabethmaymp.ca/price-cheap-shrimp>

Meltzer, E. (2009) *The quest for sustainable international fisheries: regional efforts to implement the 1995 United Nations Fish Stocks Agreement*. Retrieved from https://books.google.ca/books?id=1LJa0mF54h0C&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

Ollstein, A. (January 23, 2013). The 'sacrifice zone': Life as a fisherman along Louisiana's vanishing coastline. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2015/01/23/3612513/life-as-a-louisiana-fisherman/>

Palmer, B. (August 14, 2014). Mercury in seafood: how much is too much? *EcoWatch*. Retrieved from <http://www.ecowatch.com/mercury-in-seafood-how-much-is-too-much-1881943337.html>

Pembrokeshire County Council, UK. (2012). Approval of factory & freezer vessels. Retrieved from <http://www.pembrokeshire.gov.uk/content.asp?nav=1626,2380,110,202,1904>

Renton, A. (February 10, 2013). War on the seabed. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2013/feb/10/scallop-wars-on-britains-west-coast>

Service, S. and Palmstrom, B. (June 19, 2012). Confined to a Thai fishing boat, for three years. *NPR*. Retrieved from <http://www.npr.org/2012/06/19/155045295/confined-to-a-thai-fishing-boat-for-three-years>

The Guardian. (July 31, 2014). US west coast awash in millions of jellyfish-like Velella velella. Retrieved from <https://fayssalkafi85.wordpress.com/2014/07/31/us-west-coast-awash-in-millions-of-jellyfish-like-velella-velella/>

Vidal, J. (March 2009). Saving the seven seas: factory fishing is turning the world's seas into dead zones. *CCPA Monitor*. Vol. 15 Issue 9, p18.

2) Industrial aquaculture

Small and large scale fish farms, both inland and coastal, have expanded dramatically during the last few decades, especially in Asia. Aquaculture fisheries now supply almost 50% of the total fish and other aqua products for direct consumption. Most of these farmed products are for high-end and middle class consumption in developed and emerging countries and not for local consumption by rural and coastal communities. Aquaculture provides a great variety of fish from bluefin tuna, salmon, tilapia, eel, catfish, etc., to oysters, crabs, mussels, lobsters, seahorses, sea cucumbers, to kelp and many other kinds of seaweeds or sea vegetables. Since they require a high input of capital, regular supplies of seed stock, fish meal and fish oil, medicated antibiotic laden feed, etc., most large-scale fish farms are part of a large, complex network of fishing and food corporations. Small-scale fish farms, particularly in south-east Asia are also tied into the global market via middlemen and large suppliers. Struggling local fishers, men, women and children try to survive and adapt to a fluctuating market. In Thailand there is a direct link between slave labour, fishing for trashfish used to make fishmeal and shrimp farms. Much of the shrimp sold at the main supermarkets comes from these sources using forced labour. Years ago, Elizabeth May, member of parliament representing the Green Party of Canada, used to stamp serviettes next to the shrimp cocktail dishes at international biodiversity meetings with the words, "Stop the Mangrove Massacre" around a red shrimp. She wanted to call attention to the tragedy of cutting down coastal mangrove forests to make room for shrimp farms. Today she could substitute the words, "Stop the Slave Labour" at political gatherings along with other choice slogans for various fish dishes.

Industrial aquaculture too, unless tightly controlled, has very negative effects on both inland and coastal ecosystems, modifying entire habitats. Nutrients and wastes pollute waters and cause eutrophication; large populations of fish can give rise to viral epidemics and spread diseases and parasites. Perhaps the most serious effect is on the genetic biodiversity of fish stocks, since breeding is based on a small number of species. This monoculture of fish production is similar to

agricultural monocultures and will affect the resilience and adaptability of many marine species and ecosystems. The constant and uncontrolled spillovers of farm organisms may alter or displace wild species and disrupt local and regional ecosystems. These are only some of the ecological effects of industrial fish farming. As the aquaculture fishing industry expands to replace dwindling captured fish supplies, the need for fishmeal will also keep expanding. When trashfish and discards for making fishmeal diminish, other sources like soybeans will increasingly supplement fish meal and fish oil in fish food. As a result there will be more chemical and other contamination from GMO soybeans as residues from fish food flowing into rivers, lakes and oceans. Monsanto, Cargill and the American Soybean Association are actively promoting soybean ingredients in fish food. Unfortunately oceans and fish, like bees and people are not Round-Up Ready. This development will give rise to more conversion of tropical forests to soybean plantations, with increased use of synthetic fertilizers, pesticides, herbicides, fossil fuel, land and water grabbing and displacement of indigenous and local people.

Further development of aquaculture will be affected by limitations of water and optimal locations, the rising cost of fishmeal, fish oil and other feeds, cost of energy, availability of seed stock and nurseries, containment of diseases, etc. There are many well-run and controlled land based fish farms, especially in Europe, and some completely closed-in containment systems. All of them will face the growing problem of the limited supply and growing cost of high-grade fish food. Aqua culture will not easily make up for a stagnant capture fishery. Fish and other marine products for consumption are not cheap, whether environmentally or socially. There is another way that is not destructive to the environment and that does not violate the lives of millions families: a non-capitalist way of local, ecologically sustainable, egalitarian cooperative fisheries.

Agricultural Research Magazine. (February 2009). Growing premium seafood – inland! Retrieved from <https://agresearchmag.ars.usda.gov/AR/archive/2009/Feb/seafood0209.pdf>

Bush, S. R. and Marschke, M. J. (2014). Making social sense of aquaculture transitions. *Ecology and Society*, Vol. 19, issue 3, art. 50. Retrieved from <http://www.ecologyandsociety.org/vol19/iss3/art50/>

Chamberlain, A. (February 1, 2011). Fishmeal and fish oil – the facts, figures, trends, and IFFO’s responsible supply standards. *IFFO*. Retrieved from http://www.iffonet.net/system/files/FMFOF2011_0.pdf

FAO. (2012). The State of World Fisheries and Aquaculture: opportunities and challenges. Retrieved from <http://www.fao.org/docrep/016/i2727e/i2727e.pdf>

FAO. (2014). The State of World Fisheries and Aquaculture: Opportunities and challenges. Retrieved from <http://www.fao.org/3/a-i3720e.pdf>

Food and Water Watch. (July 2, 2012). Factory-fed fish: how the soy industry is expanding into the sea. Retrieved from <http://www.foodandwaterwatch.org/insight/factory-fed-fish>

IFFO. Fish as Food or Feed? Retrieved from <http://www.iffonet.net/position-paper/fish-food-or-feed>

McLeod, C. et.al. (July 2006). Super salmon: the industrialization of fish farming and the drive towards GM technologies in salmon production. *CSAFE, Discussion Paper NO. 5*. Retrieved from <http://www.conversations.canterbury.ac.nz/documents/Salmon%20Report.pdf>

MercoPress. (January 31, 2011). Fisheries, aquaculture support livelihoods of 8% of world population, says FAO. Retrieved from <http://en.mercopress.com/2011/01/31/fisheries-aquaculture-support-livelihoods-of-8-of-world-population-says-fao>

Nelson, J. (March 13, 2015). Fish-farm madness: why does industry receive preference under Fisheries Act? *Rabble, Canada*. Retrieved from <http://rabble.ca/news/2015/03/fish-farm-madness-why-does-industry-receive-preference-under-fisheries-act>

Parker, R. (2012). Review of life cycle assessment research on products derived from fisheries and aquaculture. *Sea Fish Industry Authority*. Retrieved from http://www.seafish.org/media/583639/seafish_lca_review_report_final.pdf

Report of the Standing Committee on Fisheries and Oceans, Rodney Weston, chair. (March, 2013). Closed containment salmon aquaculture. Retrieved from <http://www.tidescanada.org/wp-content/uploads/2015/03/Report-on-the-Standing-Committee.pdf>

Reviews and synthesis. Retrieved from <http://www.fao.org/3/a-i0970e/i0970e01f.pdf>

Sharratt, L. (October 2010). Biotech gets fishy with GE salmon. *CBAN*. Retrieved from <http://www.cban.ca/Resources/Topics/GE-Fish/Biotech-Gets-Fishy-with-GE-Salmon2>

Sota, D. et.al. (2012). Addressing aquaculture-fisheries interactions through the implementation of the ecosystem approach to aquaculture (EAA). *FAO. Expert Panel Review 3.2*. Retrieved from https://www.researchgate.net/publication/259263485_Addressing_aquaculture-fisheries_interactions_through_the_implementation_of_the_ecosystem_approach_to_aquaculture_EAA

Subasinghe, R. P. et.al. eds. (2012). Farming the Waters for People and Food: Proceedings of the Global Conference on Aquaculture 1210. *FAO and Network of Aquaculture Centres in Asia-Pacific*. Retrieved from <http://www.fao.org/docrep/015/i2734e/i2734e00.htm>

UndercurrentNews. (April 27, 2015). VASEP warns exporters to limit antibiotics seafood, find new markets. Retrieved from <https://www.undercurrentnews.com/2015/04/27/vasep-warns-exporters-to-limit-antibiotics-seafood-find-new-markets/>

UNEP Year Book. (2014). *Emerging Issues*. Fish and shellfish, farming in marine ecosystems. Retrieved from <http://www.unep.org/yearbook/2014/PDF/chapt3.pdf>

VASEP. (May 21, 2015). Shrimp farming area narrowed. Retrieved from http://seafood.vasep.com.vn/seafood/50_10635/shrimp-farming-area-narrowed.htm

Watershed Watch Salmon Society. Closed containment. Retrieved from <https://www.watershed-watch.org/issues/salmon-farming/reducing-the-impacts/closed-containment/>

3) Fishing subsidies

Corporate fishing practices are depleting the world's fish stocks, diminishing the ocean's and inland's biodiversity and disrupting marine eco-systems everywhere. Although there have been some successes and improvements in curtailing overfishing and illegal fishing, all the yearly reports, recommendations and official declarations have had only limited impact. Ocean and other water eco-systems and fish stocks are still declining. As long as the corporate fishing industry is not radically re-structured, relatively little will change. Large subsidies, primarily from taxpayer's money, continue to support an oversized fleet and although there have been some reductions, there are no signs that they will be phased out any time soon. Subsidies may range from transfer funds, grants, loans, forgone government revenues, tax incentives, fuel tax credits, discounted or free marine insurance, price and income support, social assistance or benefits for fishers, export promotion programs, foreign access agreements and payments to foreign countries for access to their fishing grounds, marketing, port facilities, housing and infra-structure, support payments for large-size boats, research and development, and other hidden subsidies. It is estimated that worldwide subsidies amount to 30 or 34 billion dollars a year.

Fisheries' worth at dockside is estimated to be about 105 billion dollars and catches are sold for 80 billion. Taxpayers and consumers make up the shortfall. A typical taxpayer and consumer pay around 3000 dollars a year to fund these 'hidden' subsidies to the fishing industry. In the US there are as many as 40 lobbyists for each member of congress. The figures for Canada and the EU are not much different. The subsidies for the industrial fishing industry are not larger than those for the energy sector, corporate agriculture, forestry, or transportation. The consequences of overfishing and the decline of marine life and ecological balance are as devastating as de-forestation, mono culture farming and the mining industry. We need to keep reminding ourselves that the oceans cover more than two-thirds of the globe's surface and that the health of the oceans are essential for life on earth. The demand for fish products, fish meal and fish oil continues to grow, which in turn stimulates overfishing as prices go up. Tax payers and consumers from many countries are effectively funding the extreme overexploitation of marine resources. In some countries fishing fleets are totally subsidized by the government, in others 25% to 50%. These estimated costs do not even include the externalities, the social and ecological costs. Unless the international community and the many states that actively support the corporate fishing industry are ready to confront, fine and ban corporate fishing practices, the major fish stocks will continue to dwindle and the ocean's biodiversity will continue to decline.

The real hope for the regeneration of the fish populations and the healing of the oceans are the small-scale and communal fisheries everywhere and the re-direction of the huge subsidies to the re-development of coastal fisheries and their governance of coastal 'marine reserves'. It is estimated that there are 20 million small-scale fishers worldwide that depend on fishing for their livelihood and provide a large part of protein for at least 1 billion people. The subsidies to the fishing industry alone could pay for the development and protection of locally managed fishing grounds or 'marine reserves'. Thirty percent of the coastal waters of every country is the number that has been recommended for the global recovery of fish stocks. However, such initiatives and structural changes require a radically different direction and economic vision for the world's fisheries.

Global Subsidies Initiative. (June 19, 2012). GSI Side-Event – Overcoming barriers to subsidy reform for a greener economy. Retrieved from

<https://www.iisd.org/gsi/news/gsi-side-event-overcoming-barriers-subsidy-reform-greener-economy>

Goldenberg, S. (June 24, 2014). Fuel subsidies 'drive fishing industry's plunder of the high seas'. *The Guardian*. Retrieved from

<https://www.theguardian.com/environment/2014/jun/24/fuel-subsidies-drive-fishing-industrys-plunder-of-the-high-seas>

Myers, N. And Kent, J. (2001) *Perverse Subsidies: How tax dollars can undercut the environment and the economy*, Chapter7. Retrieved from

http://dieoff.org/Economics/perverse_subsidies.pdf

Oceana. (July 9, 2013). The good, the bad, and the ugly: EU Fishing Subsidies. Retrieved from <http://usa.oceana.org/blog/good-bad-and-ugly-eu-fishing-subsidies>

Sumaila, U. R. and Pauly, D eds., (2006). Catching more bait: A bottom-up re-estimation of global subsidies. *Fisheries Centre Research Reports* Vol. 14(6). doi:

[10.14288/1.0074773](https://doi.org/10.14288/1.0074773)

Sumaila, U.R. (2012). How to make progress in disciplining overfishing subsidies. *ICES Journal of Marine Science*. Retrieved from doi: [10.1093/icesjms/fss173](https://doi.org/10.1093/icesjms/fss173)

3) Overfishing and the decline of the oceans' biodiversity

There is general agreement that globally fish stocks are declining, especially when compared to 50 years ago. During this period the total fish catch increased dramatically because of significant changes in the fishing industry. Bigger and better equipped boats with stronger engines, subsidized fuel, doubling of the fishing fleet, improved fishing gear, vast driftnets, deep sea fishing, sonar equipment for tracking schools of fish, satellite data, global positioning systems, venturing out to new areas, and other innovations have all contributed to this increase in the total catch. Bottom trawling and scallop dredges and other high impact gear disturb and degrade many sensitive fish habitats. It is the opposite of an 'eco-system fisheries management' approach, which takes into account how fish interact as a part of an intricate food web. Bottom trawling is also one of the most fuel-intensive fishing methods. Low or subsidized fuel prices allow trawlers to explore new fishing grounds or targeting species that otherwise would not be profitable. Roberts in his *The Ocean of Life, The Fate of Man and the Sea* (2012) makes the point that per unit of fishing power the fishing fleet landed over five times as much fish many decades ago as today. It gives us some idea how much energy fishing companies have to expand for proportionally much lower catches. As specific species decline, fisheries start to 'fish down the food web', or rather, 'fishing down the value chain'.

In spite of the increased inputs and outputs, about 75% of commercial fish are being fished at or beyond capacity or are recovering from over-exploitation. These numbers are larger for some species and some areas and smaller for other species. Although the exact percentages are debated, since the 1900's many species have been fully exploited or over-exploited from less than 10% to 90%. It is estimated that one third of the oceans and two thirds of the continental shelves are over-exploited. Even when fish stocks are recovering in some places in Europe and the US, it is primarily in well-managed fisheries in richer countries. These stocks make up just 16% of the global catch. The more than 80% catches from elsewhere face serious declines. Even in the US where things have improved since 2006, more than 90% of seafood is imported from regions not closely monitored and with unsustainable fishing practices. This is true for Europe as well where 80% of fish sold are caught in non-European waters. Fish quotas for different species are set much too high, about 1/3 above what marine scientists recommend to sustain a species. The FAO estimates that 75% of the species that have been fished since 1950's have 'experienced collapse', meaning that catches have fallen 10% below the quotas allowed. These rates are accelerating. In most places things are getting worse. Modern fishing fleets operate at the margins of profitability. Without large subsidies many would not survive. They are artificially propped up by taxpayers' money.

All in all catch rates of the large predatory fishes (marlin, tuna, billfish, swordfish, sharks, etc.) have diminished drastically. When top predators are removed, this reverberates throughout the food chain. Entire ecological communities are affected by these changes with an over-abundance of smaller animals at the mid and lower levels of the food chain, because of lack of predators. In turn this over-abundance of smaller marine animals and fish impacts the growth of algae, sponges, seagrass, corals, phytoplankton and other micro-organisms. Life is concentrated in the top layers of the oceans where nutrient-rich currents well up to the surface and provide abundant food for marine life. When this intricate web of life is disturbed on a massive scale, all organisms, plants and fishes suffer the consequences. When a particular population of fish is exploited, the average size of the fish gets smaller. Eventually the balance between young and old is altered. Big old fish take a long time to mature but produce far more offspring than the young ones. Younger fish produce fewer eggs, which means fewer offspring.

The Cree fishers (see Chapter 7), like many traditional fishing communities, knew about this delicate balance long ago and adjusted their fishing practices accordingly. Several times a season they would catch a sufficient amount of small fish that mature and reproduce more quickly and limit their catch of other bigger and older fish that mature more slowly. They would fish certain lakes and inlets only every so many years, sometimes even as long as every ten years. Such practices count double in colder, Arctic waters. Many Arctic fisheries have not learned this lesson yet. They fish primarily for the big fish and move on to the next fishing ground when they have exploited the area. Given present practices they will quickly fully exploit several species in the Arctic oceans, including the Canadian arctic. Ecosystems with a high diversity of species and a more balanced food web will have more resilience to cope with environmental changes as well. The Cree fishers would regularly inspect their catches and look for any changes in size, fatness and general health of the fish and adjust their practices accordingly. In this way they protected the well-being and food supply of their communities. In their eyes commercial fisheries are foolish and do not know how to live within the limits of annual and fluctuating production. The irony is that just like the small-scale farmers, local fishers and small fisheries supply more than half of the world's fish for local communities everywhere, providing a living for many millions of people.

- Baker, P. (August 6, 2014). New England's cod in crisis. *EcoWatch*. Retrieved from <http://www.ecowatch.com/new-englands-cod-in-crisis-1881940817.html>
- Brown, L. R. (2008). *Plan B 3.0: Mobilizing to Save Civilization: Collapsing Fisheries*. Retrieved from http://www.earth-policy.org/images/uploads/book_files/pb3book.pdf
- FAO. (April 25, 2014). Summit commits to concrete actions to turn around ocean health and secure food security for millions of people. Retrieved from <http://www.fao.org/news/story/en/item/230743/icode/>
- Heithaus, M. R. et.al., (August 5, 2014). Seagrasses in the age of sea turtle conservation and shark overfishing. *Frontiers in Marine Science*. Retrieved from <http://journal.frontiersin.org/article/10.3389/fmars.2014.00028/full>
- Jackson, J. B. C. et.al., (July 27, 2001). Historical overfishing and the recent collapse of coastal ecosystems. *Science* Vol. 293, No. 5530, pp. 629-638. doi: [10.1126/science.1059199](https://doi.org/10.1126/science.1059199)
- Lohman, J. and van Vucht, M. (July 27, 2014). De Middellandse Zee is bijna leeg. *Trouw*. Retrieved from <http://www.trouw.nl/tr/nl/12744/Youth-Food-Movement/article/detail/3699882/2014/07/26/De-Middellandse-Zee-is-bijna-leeg.dhtml>
- Nickson, A. (July 11, 2014). Pacific Bluefin tuna at brink of collapse. *EcoWatch*. Retrieved from <http://www.ecowatch.com/pacific-bluefin-tuna-population-at-brink-of-collapse-1881932318.html>
- NOAA Fisheries. (April 29, 2014). NOAA reports show strong economic gains from fishing, continued improvement in fish stocks. Retrieved from http://www.noaanews.noaa.gov/stories2014/20140429_statusofstocks.html
- NOAA Fisheries. (December 2013). NOAA Fisheries Priorities and Annual Guidance for 2014. Retrieved from <http://www.npfmc.org/wp-content/PDFdocuments/CM/cm112713/NOAAFisheriesPriorities2014.pdf>
- Pitcher, T. J. and Cheung, W. I. (2013). Fisheries: hope or despair? *Marine Pollution Bulletin*. DOI: [10.1016/j.marpolbul.2013.05.045](https://doi.org/10.1016/j.marpolbul.2013.05.045)
- Plumer, B. (May 8, 2014). How the US stopped its fisheries from collapsing. *Vox*. Retrieved from <http://www.vox.com/2014/5/8/5669120/how-the-us-stopped-its-fisheries-from-collapsing>
- Plumer, B. (October 29, 2013). Just how badly are we overfishing the oceans? *The Washington Post*. Retrieved from <https://www.washingtonpost.com/news/wonk/wp/2013/10/29/just-how-badly-are-we-overfishing-the-ocean/0/>
- Roberts, C. (2012) *The Ocean of Life: The fate of man and the sea*, Chapter 3: Fewer Fish in the Sea. pp.42-57. London: Penguin.
- WWF, *Living Planet Report (2012)*. Biodiversity, Biocapacity and Better Choices, pp. 84-87 Oceans: Source of food, energy and materials. Retrieved from http://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF_LPR_2012.pdf

4) Voluntary Guidelines

The FAO's reports on the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* (2012; adopted 2014) and *Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication* (adopted 2014) is an attempt to counter the property rights approach. They both favor a human rights rather than a property rights approach. Although carefully phrased, it clearly acknowledges the customary rights of local fishing communities and small-scale fishers in the face of large-scale fishing companies and disputes over access. Civil society organizations officially participated in the consultation processes. In December 2012 they submitted their Synthesis Document to the FAO, "*Towards International Guidelines for Sustainable Small-scale Fisheries*". There have been mixed reactions to these documents from cautiously optimistic to critical and skeptical. The different guidelines touch on all the major issues facing small-scale fishers and their communities, like self-governance, support for local development, honoring existing customary rights, the importance of the role of women, equitable and secure access to fishing grounds, using locally suitable technologies

based on local fishing practices, access to knowledge, prioritizing the rights of fishers, prevention of corruption, the impact of climate change, and many other issues. With regard to these crucial issues, the reports provide fundamental guidelines.

The biggest limitation of the guidelines is that they are completely voluntary. There are no provisions and agreements about enforceable rights and responsibilities. The implementation of the guidelines is left to individual governments. The 'Tenure' report uses the term "states should" 164 times and the 'Fishery' report at least 50 times. The state is seen as the major body that is responsible for and is assumed to be able and willing to bring about radical social changes. In this respect the reports present primarily 'state-centered' and 'legal-centered' from the 'top-down' guidelines. The difficulty is that most governments are a part of the problem to the extent that they are committed to the same free market ideology as the fishing industry. They provide the fishery subsidies, abolish tariffs, sign import and export agreements, sell coastal land and fishing rights and generally give priority to large commercial fisheries. Governments serve and accommodate the corporate fishing industry at the expense of the small fisheries. Even apart from the tremendous power differential between the large and the small-scale fisheries, the difficulties local fishers face are not just political, legal and economic problems; they are ideological: capitalist economic fishing policies over against local, traditional fishing practices that encompass a whole way of life. The reality is that the UN, other international organizations and most governments involved in the fishing industry have been unable or unwilling to stop overfishing, ban giant factory-freezer boats, retire a big part of their fishing fleet and phase out subsidies for the fishing industries. In spite of international regulations and agreements on overfishing, bottom trawling continues to devastate the continental shelves and long drift nets keep catching everything in sight in the deep oceans. Bycatches are still discarded and many endangered species are still being killed in the process. Climate change and global warming will continue to effect life in the oceans, lakes, rivers and coastal eco-systems.

The one official hint that all is not well is from the UN's FAO, *The State of World Fisheries and Aquaculture, 2014*, "If the capture fisheries projections presented above are to be met, it is essential that the sector implement radical reforms. Continuing with 'business-as-usual' will probably result in the decline of global catches in a not-too-distant future". Radical reforms will have to include such things as: "reducing fishing capacity and effort; establishing area closures (e.g. marine protected areas); improving tenure (resource allocation/user rights); eliminating subsidies; reducing discards, promoting full use of catches and reducing post-harvest losses; and in traducing new technology such as bycatch excluder devices" (p. 209). In the same context they recognize that fisheries are socio-ecological systems whose sustainability depends on all its parts. "'Sustainable' fisheries are those where fishers can generate through their work, sufficient resources to cover, at the very least, all the basic needs for food, health and education, while adopting ecologically sustainable exploitation practices" (p.209). The same point could have been made about aquaculture fisheries. Even though they do not confront the dominant economic ideology and power structures, they do call attention to the fact that all is not well with global fisheries.

Seen from the perspective of two opposing worldviews, the present reports function in a political and economic vacuum as if there are no corporate power structures, accommodating governments and vested interests by banks, lending institutions, international organizations, lobbyists, politicians, private investors and countless others that have a stake in maintaining the status quo. There is a great discrepancy between the reports and the actual reality. And what to think of the many thousands, no doubt well-intended men and women including scientists that wrote these reports and many other ones. La Via Campesina, in their Notebook, Number 4, September 2012, "*The Committee on World Food Security (CFS): a new space for the food policies of the world, opportunities and limitations*", shared what it is like to participate in these kinds of international gatherings and consultations. It requires a tightrope balancing act between having a presence and a voice within the official committees and protesting the procedures from the outside. The best that can

be said is that participating in the development of these reports has given representatives of small-scale fishing communities and indigenous people an official status and a public voice. The end-results provide helpful tools and a legal frame of reference local fishing communities can appeal to. In the end, no one has illusions that in many if not most instances, defending their homelands and fishing grounds will still require collective resistance and massive protests at the risk of injury, forceful displacement, jail or death. Longer term these guidelines lay the foundation and present a vision for a radically different way of life and an economy that serves all aspects of life.

- Allison, E. H. et.al. (2012). Rights-based fisheries governance: from fishing rights to human rights. *Fish and Fisheries*. 13. 14-29. doi: 10.1111/j.1467-2979.2011.00405.x
- Chow, L. (July 8, 2016). "Global fish stocks depleted to 'alarming' levels)", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/one-third-of-commercial-fish-stocks-fished-at-unsustainable-levels-1910593830.html>
- Davis, A. and Ruddle, K. (December 2012). *Massaging the misery: recent approaches to fisheries governance and the betrayal of small-scale fisheries*. SPC Traditional Marine Resource Management and Knowledge Information Bulletin #30. Retrieved from doi: <http://dx.doi.org/10.17730/humo.71.3.205788362x751128>
- Export Inspection Council, New Delhi, India. (March 2012). Executive instructions for approval and monitoring of fish & fishery products for export. Retrieved from http://www.eicindia.gov.in/knowledge-repository/legal/pdf/Exec_Inst_F-n-FP.pdf
- FAO. (2014). *Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication*. Retrieved from <http://www.fao.org/3/a-i4356e.pdf>
- FAO. (2014). *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*. Retrieved from <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>
- FAO. (April 25, 2014). Summit commits to concrete actions to turn around ocean health and secure food security for millions of people. Retrieved from <http://www.fao.org/news/story/en/item/230743/icode/>
- FAO, (2016). "The state of world fisheries and aquaculture; contributing to food security and nutrition for all". Rome: FAO. Retrieved from, <http://www.fao.org/3/a-i5555e.pdf>
- Franco, J. and Feodoroff, T. (April 14, 2014). *Troubled waters of ocean governance under scrutiny*. *Agrarian Justice*. Retrieved from <https://www.tni.org/en/article/troubled-waters-of-ocean-governance-under-scrutiny>
- Franco, J. et.al. (September 2, 2014). *The global ocean grab, a primer*. *Transnational Institute, Masifundise, Africa Kontakt*. Retrieved from <https://www.tni.org/en/publication/the-global-ocean-grab-a-primer>
- Jackson, J. B. C. et.al. (2001). Historical overfishing and the recent collapse of coastal ecosystems. *Science*, (2001) Vol. 23: (5530); pp. 629-637. doi: [10.1126/science.1059199](https://doi.org/10.1126/science.1059199)
- Jentoft, S. (November 5, 2014). Walking the talk: implementing the international voluntary guideline for securing sustainable small-scale fisheries. *Maritime Studies*, 13, 16. Retrieved from doi: [10.1186/s40152-014-0016-3](https://doi.org/10.1186/s40152-014-0016-3)
- La Via Campesina Notebook*, Number 4. (November 2, 2012). The Committee on World Food Security (CFS): a new space for the food policies of the world; opportunities and limitations. Retrieved from <https://viacampesina.org/downloads/pdf/en/report-no.4-EN-2012-comp.pdf>
- Mansfield, B. (May, 2004). Neoliberalism in the oceans: 'rationalization', property rights, and the commons question. *Geoforum* 35. Vol 35: (3); 313-326. doi: [10.1016/j.geoforum.2003.05.002](https://doi.org/10.1016/j.geoforum.2003.05.002)
- Mullea, F. F. (December 2012). *International Guidelines: solutions to problems underlying large-scale land deals? A critical review of the World Bank, FAO and Rights-based guidelines on large-scale land transfers*. *AGTER*. Retrieved from http://www.agter.org/bdf/en/corpus_chemin/fiche-chemin-364.html
- Olson, J. (May, 2011). Understanding and contextualizing social impacts from the privatization of fisheries: an overview. *Ocean and Coastal Management*. Vol. 54: (5); 353-363. doi: [10.1016/j.ocecoaman.2011.02.002](https://doi.org/10.1016/j.ocecoaman.2011.02.002)
- Resource Extraction Monitoring*. (2004). Can independent monitoring help improve law enforcement of the fisheries sector? Retrieved from <http://www.rem.org.uk/Fisheries.html>
- Rogers, A. G. And Gianni, M. (2010). *The Implementation of UNGA Resolutions 61/105 and 64/72 in the Management of Deep-Sea Fisheries on the High Seas*, IPSO, London. Retrieved from <http://www.savethehighseas.org/publicdocs/61105-Implemention-finalreport.pdf>
- Sowman, M. et.al. (December 2012). *Towards International Guidelines for Sustainable Small-scale Fisheries*, submission from Civil Society Organisations to the FAO Consultative process on Small-scale Fisheries, Synthesis Document. Retrieved from <http://www.fao.org/docrep/015/i2719e/i2719e00.pdf>
- UNEPP, Year Book 2014*. Emerging issues update: Fish and Shellfish, farming in marine ecosystems. Retrieved from <http://www.unep.org/yearbook/2014/PDF/chapt3.pdf>
- World Forum of Fisher Peoples*. (April 27, 2014). *Global Fisheries Guidelines promote food security and poverty eradication*. Retrieved from <http://worldfishers.org/2014/08/27/global-fisheries-guidelines-promote-food-security-poverty-eradication/>

5) Corporate fishing practices; Mauritania, an example

The following two examples are included to give a human face to corporate fishing practices and the complicity of most governments. Figures and statistics do not mean a lot unless we are constantly reminded how global fisheries impact people. One telling example that summarizes all that is wrong with the corporate fishing industry is the declining local fisheries along the west coast of Africa, of Mauritania, Senegal, Morocco and other west coast countries. At any one time operating about 20 miles from shore, there is a fleet of giant factory-freezing ships, maybe 20 or more, all heavily subsidized by the EU as well as China, Russia, Iceland, and many other countries. In addition to these ships there are any number of unidentifiable 'pirate' ships. The big factory ships catch as much as 250 tonnes of fish a day, and all together, big and small, they may catch over half a million tonnes of fish of different kinds each year; that is, as long as the supply lasts. The catches are primarily destined for markets in the developed countries. Meanwhile the local fishers with their

small boats have to venture further and further out to sea, endangering their lives. Because of declining fish stocks their catches have become smaller and smaller. What one giant fishing boat catches in a day, takes 50 local fishers a year. Fish is a main source of food and 75% of the protein for the majority of the coastal people. As catches diminish they are becoming more impoverished each year.

Many of the big fishing companies pay 'large' yearly license fees for the right to fish within the territorial waters of these countries. These fishery agreements are often negotiated with corrupt or desperate governments, and without any meaningful consultation or participation with small-scale fishers. Although there have been some 'improvements' in the agreements with the EU, they have not resulted in any significant changes. They have made new commitments, but it seems that few of those conditions are being met. After overfishing and depleting the major species in their own waters the EU along with many other countries now exploit the waters of developing countries. Although *legal* (in some formal and abstract sense), these depleting and destructive fishing practices are *ethically* wrong, because they violate the rights of local people to food and a livelihood. Such practices constitute 'crimes against humanity', since they rob fishing communities of their livelihood and contribute to their hunger and poverty. The lives of millions of people, living in these coastal areas of Africa's west coast, are affected by and suffer because of these corrupt practices. It is only one example of many others all along Africa's coasts.

A small fishing village, Ngaparou in Senegal is held up as an example of how a local community dealt with overfishing both from local fishers and semi-industrial fishing vessels. They established 'co-management areas', set limits to the number of fishing boats that could fish at one time and the quantities of different fish species that could be fished sustainably. They also registered the fishing vessels and enforced legal fishing. There was an increase in fish and several spin-offs like a small fishing supply store, a refrigerated truck for selling their catch at other communities, and there are plans to expand and employ more people at the ice factory. In spite of this local success, the overall picture of Senegal's and Mauritania's small-scale fisheries looks quite different. Overfishing and discarding of bycatch are still huge problems. The new EU discard ban to be introduced gradually in 2015 is only applicable in European waters, not in Africa's territorial waters. The passionate presentation of Sid'Ahmed Abeid, a local fisherman and president of the Mauritanian Artisanal Fisheries Federation to the *Hearing on the EU-Mauritania fishing agreement protocol* speaks louder than any of the formal declarations of the EU parliament.

In recent years, we have been trying to diversify our activities. In particular we want to develop the artisanal fishery for sardinella, as the Mauritanian population is now turning to this fish for their daily diet. As sardinella are a stock shared with our neighbors in West Africa, and as this resource is important for feeding people throughout our region, we are discussing with our Senegalese and Gambian fisher colleagues to see how to promote a joint management arrangement, which would give priority to small-scale fisheries and to the supply of local markets. I am explaining all these ideas we have to you about developing our sector sustainably in order that you, members of European Parliament, understand the challenges of our partnership with Europe. Because Europe is, and will remain, our first partner in fisheries. But this partnership has to be fair. We have been fighting for this since 1996, first at the national level, and then at international level. Thanks to our international reach, today I can come and speak to you directly.

And I also want to tell you this: we have the material resources; we have the human resources to catch our octopus in a sustainable manner, and much of our other resources too. What can be caught by the Mauritanian fishermen must be reserved for them. So, please, LET US CATCH OUR OCTOPUS OURSELVES!

For us, this is non-negotiable, because this is our livelihood, and the food and jobs for our people. To give you an example, do you realize, here in the European Parliament, that half of our stock of

seabream is caught as by-catch by trawlers targeting sardinella? And then we are asked to sustainably manage this resource. How is this possible when so much is taken as by-catch? (*Hearings on the EU-Mauritania Fishing Agreement Protocol*, January 21, 2013)

In an interview, Micheline Dion Somplehi, head of CAOPA's Women's Programme expressed many of the same concerns from the processing point of view:

Q: Senegalese and Mauritanian artisanal fishermen increasingly oppose the exploitation of small Pelagic by foreign boats, especially from Russia and Eastern Europe. Would this create a supply problem in Cote d'Ivoire?

I think that we can develop an alternative supply chain based on artisanal fisheries. At the Cote D'Ivoire level, prospects for developing artisanal fisheries are currently limited: the area reserved for artisanal fishing is reduced, and lately, it's getting even smaller due to offshore oil exploitation. The richest fishing areas are where oil exploitation takes place, and fishermen have difficulty gaining access to these areas. Also, with the large maritime traffic, many have already lost their fishing gear to passing vessels without any compensation. What we need to do is explore how to organize transport by road or by sea between where the small pelagic are in countries where artisanal fishing can develop its ability to catch them – such as Mauritania and Senegal – and fish-hungry countries such as ours. A few months ago, Mauritania signed a fishing agreement with the European Union. In particular, the fishing zone for European pelagic trawlers was pushed out further from the coast. And this new zoning applies to Russian vessels as well, which gives space to small-scale fishing. If Senegalese and Mauritanian artisanal fishermen have priority and secured access to these resources, under a regional management scheme, it may give a boost for the development of trade in artisanal fish for processing in our country.

(*Agritrade*, January 15, 2014, "We should develop an alternative fish supply chain based on artisanal fisheries")

Unfortunately, even though the fishing zone was pushed further out, the local fishers still experienced a large decrease in their catches, since the EU and Russian vessels target the same species in large quantities with a high proportion of bycatch. It may be a long wait before a regular supply of sardinella is available for the fisher women in Cote d'Ivoire. The struggle will continue and so will unemployment, poverty and hunger, in spite of new international guidelines.

Agritrade. (October 28, 2011). The EU responds to Greenpeace accusations of overfishing African waters. Retrieved from <http://agritrade.cta.int/Fisheries/Topics/ACP-EU-relations-FPAs/The-EU-responds-to-Greenpeace-accusations-of-overfishing-African-waters>
AllAfrica. (June 8, 2014). Africa: what future for west African fisheries? Retrieved from <http://allafrica.com/stories/201505081282.html>
BBC News. (October 11, 2012). Pirate fishermen off Sierra Leone 'export to EU'. Retrieved from <http://www.bbc.com/news/world-africa-19905709>
Black, R. (May 28, 2012). EU fishing reforms face weakening. *BBC News*. Retrieved from <http://www.bbc.com/news/science-environment-18208279>
EJF Report. (October 29, 2012). Pirate Fishing Exposed: the fight against illegal fishing in West Africa and the EU. Retrieved from <http://ejfoundation.org/sites/default/files/public/Pirate%20Fishing%20Exposed.pdf>
FAO. (1995). Code of Conduct for Responsible Fisheries. Retrieved from <http://www.fao.org/docrep/005/v9878e/v9878e00.htm>
FCWC – Fish. (October 11, 2013). Africa: Fish from West Africa being illegally shipped to South Korea. Retrieved from <http://www.fcwc-fish.org/publications/news-from-the-region/538-africa-fish-from-west-africa-being-illegally-shipped-to-south-korea,-say-activists>
Fessy, T. (January 9, 2014). The unequal battle over West Africa's rich fish stocks. *BBC News*. Retrieved from <http://www.bbc.com/news/world-africa-25660385>
Greenpeace. (September, 2011). Empty nets, empty future: how overfishing and climate change are taking their toll on the bounty of west African seas. Retrieved from https://www.greenpeace.de/sites/www.greenpeace.de/files/Empty_nets_empty_future_0.pdf
IRIN. (January 22, 2014). Mozambique's small-scale fishermen battle headwinds. Retrieved from <http://www.irinnews.org/report/99513/mozambique%E2%80%99s-small-scale-fishermen-battle-headwinds>
Kende-Robb, C. (June 19, 2014). Why illegal fishing off Africa's coast must be stopped. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/poverty-matters/2014/jun/19/why-illegal-fishing-africa-must-be-stopped>
Ocean Inquirer, Issue #3. (February 2012). The price of plunder: How European taxpayers are subsidising factory trawlers to strip fish from West Africa's waters. Retrieved from <http://www.greenpeace.org/eu-unit/en/Publications/2012/The-Price-of-Plunder/>
Ranta, K. (February 19, 2015). EU fisheries partnerships with Senegal: lessons learned for PCD. *Africa-Europe Relations #Post* 2015. Retrieved from <http://www.africa-eu.com/2015/02/eu-fisheries-partnerships-with-senegal.html>
Steel, N. (January 19, 2015). Global Ocean Commission supports Commissioner Vella and the EU's ongoing campaign against IUU fishing. *Global Ocean Commission, News*. Retrieved from <http://www.globaloceancommission.org/news/page/6/>

Swedish Society for Nature Conservation. (2009). To draw the line - a report about EU fisheries agreements in West Africa. Retrieved from http://ec.europa.eu/fisheries/reform/docs/ssnc_annex_en.pdf

Vidal, J. (March 18, 2012). UK steps in to help West Africa in fight to overturn EU fishing abuses. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2012/mar/18/uk-west-africa-fishing-quotas>

Vidal, J. (April 2, 2012). EU takes its overfishing ways to unmonitored waters. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2012/apr/02/eu-fishing-west-africa-mauritania>

Vidal, J. (April 2, 2012). Is the EU taking its over-fishing habits to west African waters? *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2012/apr/02/eu-fishing-west-africa-mauritania>

Vidal, J. (February 27, 2012). Overfishing by European trawlers could continue if EU exemption agreed. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2012/feb/27/overfishing-european-trawlers-eu-exemption>

Vidal, J. (May 4, 2012). Senegal revokes licences for foreign fishing trawlers. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2012/may/04/senegal-revokes-licences-foreign-fishing-vessels>

Vidal, J. (October 11, 2012). West African fishing communities drive off 'pirate' fishing trawlers. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2012/oct/11/west-africa-fishing-pirate-trawlers>

World Bank. (June 5, 2013). West Africa: fishing communities restore health to ocean habitats. Retrieved from <http://www.worldbank.org/en/news/feature/2013/06/05/west-africa-fishing-communities-restore-health-to-ocean-habitats>

WWF. West Africa, Marine. Retrieved from http://wwf.panda.org/what_we_do/where_we_work/west_africa_marine/

WWF. West African Marine Ecoregion project: supporting local fisheries. Retrieved from http://wwf.panda.org/what_we_do/where_we_work/west_africa_marine/project/artisanal/

WWF. West African Marine Ecoregion protected areas. Retrieved from http://wwf.panda.org/what_we_do/where_we_work/west_africa_marine/project/protected_areas/

6) Marine Reserves: Canada, an example

The global establishment of Marine Protected Areas (MPA), like wilderness parks, seemed like a promising solution for the healing of the oceans and restoring fish populations. Unfortunately in many places they have become another destructive force for local communities and fisheries. Most marine reserves have been established by government decision, from the top-down without the free, informed and prior consent of the local communities that are affected by these restricted areas. In view of this lack of consultation, many MPA's are illegal by international standards, like most mining and forest concessions, and could be challenged in court. In many places they have had a disintegrative effect on the lives of the fishers, taking away their livelihoods and depriving them of their main source of food. In those instances the establishment of MPA's are a violation of their human rights. The MPA's could be organized differently, even now fundamental changes could be made in consultation and cooperation with local fishing villages that are directly affected by these protected areas. There are promising examples of local fishers being helped with relevant information to decide for themselves where restricted areas could be established and given the authority to monitor them. At the same time they could be supported to develop a communal system of fishing in the surrounding areas: how many fishers at a time; how many baskets; what species; what rotations; etc. In those instances where this process was established, catches have increased, which encouraged fishers to take full responsibility for the protected areas and their adjacent fishing waters.

Canada has long since surrendered its fishing industry to the free market with its quota system and 'scientific' monitoring of which fish and how much can be caught. Like many other countries, large subsidies artificially maintain industrial fisheries and there is no shortage of lobbyists representing the industry. A recent report by the *Commissioner of the Environment and Sustainable Development (2012 Fall Report)* illustrates Canada's bungling effort to live up to its international commitment to develop protected 'marine reserves' in its 29 marine regions. These 'marine reserves', if developed globally, could be a crucial interim step to halt and reverse the declining fish stocks, preserve essential coral breeding grounds, mitigate against ocean acidification, store carbon, promote the production of oxygen in the ocean, restore the countless marine creatures, preserve the ocean's biodiversity, and a host of other benefits. The fundamental answer is to stop the destructive fishing practices and drastically diminish our CO₂ emissions. However, these world-wide marine reserves could be an important step in the process of restoring the life of the ocean and replenishing fish stocks everywhere. Like everywhere else, for their success it is crucial that local communities that are directly affected by these protected areas have a fundamental say in their establishment and management. It is telling to follow what Canada has

done about its international commitment. Ultimately marine reserves do not fit Canada's business-as-usual approach to 'sustainable' fisheries.

Canada agreed to conserve 10 percent of its marine regions by 2020 through an interrelated network of protected areas. The International Union for the Conservation of Nature and others recommended the strict protection of 20 to 40 percent of each marine habitat. In view of this, 10 percent is an absolute minimum. The reserves that have been established in the world so far have shown to be highly successful, even beyond expectation and in some instances have led to the support and cooperation of local fishing communities. What has Canada done so far? Very little. To date, the marine protected areas currently cover only 1 percent of Canada's marine environment. At this rate of progress it will take many decades to establish even the minimum 10 percent of a fully functioning network of marine reserves, far beyond the 2020 target date. As the report emphasizes, the time for action is now. It was 20 years ago that Canada made its first commitments.

The efforts by the two main departments that are involved (*Fisheries and Oceans Canada* and *Parks Canada*) are bogged down in bureaucratic procedures and in (pseudo) research to establish the right balance between economic and environmental concerns. Meanwhile, many reports of meaningful scientific guidelines and examples of established marine protected areas have been available for decades. The real rub seems to be the lack of political will and commitment which shows in the underfunding, cutbacks to the departments responsible and closing of libraries. As a result of this slow progress, there is no overall national plan for a network of protected areas in place. There tends to be is a lack of coordination and cooperation between departments and difficulties in dealing with the various 'stakeholders', which means, translated, primarily the lobbying of the fishing industry and the interests of the oil and gas companies within protected areas. The language of the procedural steps used by each department is something to savor in itself: step 1, the selection of an area of interest; step 2, the assessment of an area of interest; step 3, the development of regulatory intent; and step 4, the development of a regulation and designation of the Marine Protected Area. Translated that basically means, we are bogged down in procedures, lack funding and personnel and the full cooperation of senior management to just go ahead and plan, establish and manage marine protected areas.

Meanwhile Canada's fishery catches are down by 41 percent compared to the late 1980's and will continue to decline. So even from a commercial point of view it would make sense to take measures that will restore the fish populations. The Canadian government and the fishing industry have learned very little from the collapse of the cod fisheries on the East coast during the 1990's. When the driving motivation is to make short term profits, regardless of the consequences, industry and government cannot learn from past mistakes. When a resource runs out, there are always other resources to be exploited; such is the belief in spite of evidence to the contrary. Already in 1997 the Parliament of Canada published an extensive report, *World Fisheries: The Current Crisis*, on the state of the world's fisheries and how to promote sustainable fisheries. As the report states: "it is clear that an unfettered industrial approach to fishing is no longer tenable. Without a fundamental shift in outlook at all levels to one that seriously places conservation of fish and their habitat as the top priority, there is a serious risk that global fish stocks will continue to decline to a much greater extent than has already happened. The consequences for marine ecosystems, the fishing industry, coastal communities, and, not least, the global food supply could be catastrophic" (p17). Not a great deal has changed since that time, except that the state of the world's fisheries has continued to decline.

Only a couple of protected areas are fully developed and monitored. Most of the ones planned so far will not be fully protected and will allow for some degree of commercial fishing and oil and gas exploration. However, to restore the fish population, all the other marine creatures and the devastated sea bottoms, no other activities should be allowed. The evidence from successful marine reserves, compared to the ones that allow some commercial and recreational activities,

is very clear in this respect. The establishment of an interrelated network of marine reserves in Canada's coastal waters within the next five to ten years would be a significant step forward in preserving the marine environment. The key to their success would be the direct involvement of local fishing communities and their management of the restricted areas and the surrounding fishing grounds. These measures would have to be complemented by strict enforcement of quotas for different species of fish, a ban on discards, gear restrictions, banning bottom trawling in Canadian waters and phasing out the huge subsidies to the fishing industry. The solutions are there for all to see and to implement. Such an alternative approach does require a different view of life and a different vision for the economy.

These measures are all the more important when seen in the light of what is happening to the oceans of the world in general: acidification, warming, changing sea currents and upwellings, rising sea levels, and pollution. In view of the critical state of the world's oceans, the development of a world-wide network of marine protected areas, primarily controlled and managed by local communities seems all the more crucial. The disintegration of the oceans will no doubt continue for decades to come because of the forces that already have been set in motion. A network of marine reserves along with other measures could begin to halt and reverse this process and become a part of the healing of the planet.

There are many other aspects of the fishing industry in Canada and the effects of climate change on the ocean and marine life worldwide, like fish farms in Europe; the development of GM salmon; oyster and shrimp fisheries in North America; Arctic and Antarctic fisheries; chemical and sound pollution of coastal waters; invasive species; and many other aspects. But this overview is sufficient to illustrate the ecologically unsustainable practices of the fishing industry, the violation of human rights, and the need for a radical change in practice. Alternative solutions and ways of fishing are begging to be widely implemented. One thing is clear; the expansion of industrial fishing is not the answer to world poverty and hunger. Instead, if it continues on its present course it will keep adding to ecological decline both inland and on the oceans and the ongoing violation of the human rights of small-scale fishers, depriving them of their livelihoods.

Brock, R.J., Kenchington, E. and Martinez-Arroyo, A. eds. (July 2012). Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate. CEC. Retrieved from <http://www3.cec.org/islandora/en/item/10820-scientific-guidelines-designing-resilient-marine-protected-area-networks-in-changing-en.pdf>

Cohen, B. I. Commissioner. (October 2012). The uncertain future of Fraser River Sockeye. *Commission of Inquiry into the decline of sockeye salmon in the Fraser River*. Retrieved from https://www.watershed-watch.org/wordpress/wp-content/uploads/2013/02/CohenCommissionFinalReport_Vol01_Full.pdf

Dolha, L. (August 1, 2013). Namgis pin hopes on closed containment fish farm. *First Nations Drum*. Retrieved from <http://www.firstnationsdrum.com/2013/08/namgis-pin-hopes-on-closed-containment-fish-farm/>

Ecojustice. (May 12, 2015). Legal Backgrounder: Fisheries Act. Retrieved from http://www.ecojustice.ca/reports_publications/fisheries-act-backgrounder/

FAO. (1995). Code of Conduct for Responsible Fisheries. Retrieved from <http://www.fao.org/docrep/005/v9878e/v9878e00.htm>

FAO. *Technical Guidelines for Responsible Fisheries*. (2011). Fisheries and Management: 4. Marine protected areas and fisheries. Retrieved from <http://www.fao.org/docrep/015/i2090e/i2090e.pdf>

Fisheries and Oceans, Canada. (November 10, 2006). Archived – Canada's position on bottom trawling: Frequently asked questions. Retrieved from http://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs41-31-58.pdf

Fisheries and Oceans, Canada. (September 2, 2011). Marine protected areas. Retrieved from <http://www.dfo-mpo.gc.ca/oceans/publications/mpaspotlight/index-eng.html>

Fisheries and Oceans. (2011). National framework for Canada's network of marine protected areas. Retrieved from <http://www.dfo-mpo.gc.ca/oceans/publications/dmpaf-eczpm/framework-cadre2011/page01-eng.html>

Fisheries and Oceans. (February 21, 2014). National framework for establishing and managing marine protected areas. Retrieved from <http://www.dfo-mpo.gc.ca/oceans/publications/mpaframework-cadrezpm/page01-eng.html>

Jessen, S. K. (May 6, 2011). Science-based guidelines for Marine Protected Areas and MPA networks in Canada. *CPAWS*. Retrieved from http://cpaws.org/uploads/mpa_guidelines.pdf

Jessen, S.K. (November 2014). Protecting Canada's ocean ecosystems: Scaling up efforts to complete Canada's network of marine protected areas. *CPAWS-SNAP*. Retrieved from <http://cpaws.org/campaigns/oceans>

Miliband, D. (January 19, 2015). Why we're not protecting half the planet (and how we can change that). *EcoWatch*. Retrieved from <http://www.ecowatch.com/why-were-not-protecting-half-the-planet-and-how-we-can-change-that-1882000562.html>

Nixon, A. (January 1997). World fisheries: the current crisis. *Parliament of Canada*. Retrieved from <http://www.lop.parl.gc.ca/content/lop/researchpublications/bp434-e.htm>

Office of the Auditor General of Canada. 2012 Fall Report of the Commissioner of the Environment and Sustainable Development: Chapter 3 – Marine Protected Areas. Retrieved from http://www.oag-bvg.gc.ca/internet/English/osh_20130205_e_37764.html

Oosterveer, P. (2009). Shrimp: Governing flows of food in the context of globalizing production-consumption chains. pp. 41-54 in *Techonatures: Environments, Technologies, Spaces, and Places in the Twenty-first Century*, Damian White and Chris Albert, eds. Retrieved from http://www.food-culture.org/docs/ASFS-AFHV_2006_Program_Boston.pdf

PISCO. (2007). The Science of Marine Reserves. Retrieved from <http://www.piscoweb.org/publications/outreach-materials/science-of-marine-reserves-0>

Pinkerton, E. et.al., (March/April, 2016). "Who controls Canada's fisheries? How the feds let fishing privileges be sucked up by big money", *Monitor*, pp. 38-39. Retrieved from, https://www.policyalternatives.ca/sites/default/files/uploads/publications/National%20Office/2016/03/CCPA_Monitor_March_April.pdf

Report of the Standing Committee on Fisheries and Oceans, Rodney Weston, chair. (March 2013). Closed containment salmon aquaculture. Retrieved from <http://www.tidescanada.org/wp-content/uploads/2015/03/Report-on-the-Standing-Committee.pdf>

Roney, M. (December 11, 2013). Less than 3 percent of oceans in marine parks despite recent growth. *Earth Policy Institute, Plan B Updates*. Retrieved from http://www.earth-policy.org/plan_b_updates/2013/update120

Vaze, P. (2011). Management of North Sea fisheries. pp. 229-256 in *The political economy of the environment: an interdisciplinary approach*, Dietz, S. et.al. Retrieved from, <https://books.google.ca/books?id=CoOsAgAAQBAJ&pg=PA229&lpg=PA229&dq=Management+of+North+Sea+fisheries.+The+Political+Economy+of+the+environment&source=bl&ots=1xrMDSpnYF&sig=6nZ-WEyBYWTwH7SSy4wiFIt60s&hl=en&sa=X&ved=0ahUKewiu-f6Rv5TOAhXFNT4KHQB5MQ6AEIjAB#v=onepage&q=Management%20of%20North%20Sea%20fisheries.%20The%20Political%20Economy%20of%20the%20environment&f=false>

Walker, B and Salt, D. (2012). *Resilience practice: Building capacity to absorb disturbance and maintain function*. Case Study 4: People and pen shells, marine parks and rules: why governance is central to the resilience of coastal fisheries. pp. 35-144. Island Press.

Wallace, S. (2007).

e. Population increase, poverty and agricultural policies

- 1) Population increase
- 2) Urban over-population and rural de-population
- 3) Poverty, high birth-rates and agricultural policies

1) Population increase

Many authors from different points of view see the increase in population during the coming decades as the most serious problem facing humanity. The expectation is that the population will increase from the present 6.8 billion to 9 billion by 2050 or even 12 billion by the end of this century. This number of a global increase in population to 9 billion by the year 2050, especially in Africa, China and India, is widely quoted and accepted. Unless there is a drastic change in agricultural policies and practices it will be impossible to feed that many more people. There would not be enough arable land and water for irrigation to grow that much food for an extra 2 to 5 billion people. Many fear that any such increases would tax the entire ecological system beyond its carrying capacity. Along with global warming it would lead to increased food and water refugees, food riots, mass migrations, conflicts and countless people dying of hunger. Even now there is extreme poverty and hunger in many parts of the world. Lester R. Brown, the president of *Earth Policy Institute*, in his *Plan B.3 (2008)* and *Plan B.4 (2009)* and many other publications makes a strong case for this point of view. He and others see the growing shortage of food as the primary cause of ecological devastation.

A number of authors, particularly C. Williams in his *Ecology and Socialism (2010)* and F.P. Lappe and P. Rosset in their *World Hunger; Twelve Myths (1998)* strongly disagree with this analysis and for good reasons. They present a more fundamental point of view. First of all, they provide evidence that food shortages are not caused by population growth; that the increase in population is not outpacing food production; and that the ecological decline is not caused by over-population. In their view the *present rate of consumption of food, water, energy and material goods* is leading to environmental degradation, inequality, poverty, hunger and social injustice. Enough food is produced at present to feed the entire world population and the growth in food production has never fallen behind the growth in population. The cause of hunger is not overcrowding or a lack of food. If population growth were indeed the main problem, then a

fundamentally different approach would indeed be needed to address this issue head-on. However that is not the case. The problem is first of all the unsustainable way of production and consumption that is destroying the earth. Poverty and hunger are the result of these economic policies and not over-population.

Williams, (2010) in his *Ecology and Socialism*, gives a very different account of population growth predictions for the coming decades. According to him, the *rate* of population growth peaked in the 1960's and has been declining ever since. The present steep growth comes from a decline in death rates, while leveling off is the result of a decline in birth rates. The over 65 bracket is the fastest growing group of the world's population. They will outnumber children under five within a decade (Pearce, 2010). According to Williams and others, the world's population could peak closer to 7 billion by 2040 rather than 8 or 9 billion. As fertility rates keep declining as they have since the 1950's, each new generation of mothers becomes smaller than the last one. Of course there are strong regional imbalances in population that put severe pressure on the supply of food and the sustainability of the environment, especially during periods of drought or flooding. Even in those stressed regions there are many solutions especially through the use of some forms of agro-forestry and eco-farming that could quite quickly increase smallhold farming and local food growing.

2) Urban over-population and rural de-population

The rapid growth of the world's great urban centres with populations of over 10 million people adds to these problems. Scores of rural farmers have been displaced and dispossessed and lured to the cities looking for work and a better life. Many have ended up in the large slum areas of the major cities, who are trying to survive in whatever way they can on \$2.00 a day or less. The numbers are staggering. Presently 23 cities have a population of over 10 million inhabitants and expanding. In another 10 years there may be 37 of such mega-cities. More than 1 billion of the urban population lives in shanty town areas with its lack of sanitation, clean drinking water, health care, housing, waste management, employment and lack of food. Within a decade that may be 2 billion disenfranchised poor people. Already about 64% of people in the global South live in urban centres. This means that more than 1 billion out of 3.5 billion people living in urban areas live under extremely difficult circumstances and poverty. To add to the problem, at least 15 of the large metropolises, many in the global South, are situated in low-lying delta areas that are at risk of inundation by rising sea levels and storm surges. This concentration of people in the world's mega-cities underscores the need for land reform, the re-development of the rural areas, small-scale farming and the re-connection of urban populations with the land and with growing food in and around cities. There are many excellent plans, projects and suggestions for such re-connecting of cities and rural areas.

3) Poverty, high birth-rates and agricultural policies

Population growth in itself is not the cause of food shortages and hunger, or of ecological devastation (Lester Brown, 2010). In fact, it is the other way around, high population growth rates are a product of hunger (Moore Lappe, 1998). High birth rates are a symptom of powerlessness, especially of women who are denied control over their own fertility, and high rates of infant mortality. The existence of hunger has little to do with the earth's carrying capacity (Williams, 2010). It is the large-scale for profit agricultural system that is unsustainable and incapable of feeding the present global population. The earth's carrying capacity is beyond the present industrial food production system and factory farming. We don't really know what the earth's carrying capacity is. All we know is that the present industrial food production system is ecologically unsustainable and is incapable of feeding the world.

Presently enough food is produced to eliminate world-wide hunger, but much of the food is misused, wasted and unequally available and affordable. As noted before, the WB, IMF and WTO have pressured nations to move away from food self-sufficiency. Structural adjustment programs have been imposed on most developing and transitional economies. They were forced to eliminate trade barriers and reduce their support to farmers. Meanwhile North America and Europe continue to subsidise agricultural products and to dump subsidized surplus foods in the global South. Many international organizations, global corporations and national governments are complicit in these violations that affect billions of people.

The rate of population increase does underscore the urgent need for a radically different approach to growing food in an ecologically sustainable way and in ways that make food easily available to all people. It underscores the need to revitalize rural communities, support and enhance small-scale farming and return land to the landless and urban poor. Rapid population growth, particularly in certain countries is an *urgent problem now and not just at some future time*. It calls for a radical change, a systemic change in free market and profit driven food production. As we described in the section on Agricultural Practices, a systemic change in growing food could restore the soil, preserve water, and stop the decline in biodiversity. There are abundant eco-agricultural and eco-forestry practices and local and regional distribution systems available that could double production and provide food for billions more people.

The difficulties of an 'oversupply' of unemployed people, especially young adults could be helped by new and more open immigration policies by countries that need young workers. Many European countries have rates of fertility at replacement level and many at rates below that. One immediate step that could be taken is to reform and relax immigration rules in the developed countries and bringing young working age people from crowded areas and giant megacities in the global South to where they are needed. Liberalizing immigration policies are often up against racist objections and fears. Opening borders could only be a temporary or partial solution in view of the systemic change that is needed. One way or another, in spite of protectionism many countries will be flooded by food and water refugees and people fleeing war zones, ready or not. Presently there are more than 2 million refugees seeking a safe haven. The fastest growing countries with high birth rates have one thing in common and that is poverty. Much of this poverty and hunger in developing countries is caused by debt repayment, production for external markets, fossil fuel extraction, corporate logging and fishing. The fact that most developed countries have significant numbers of underfed adults and underdeveloped children underscores this point. The US, Canada, and Europe have plenty of food, low birth rates and still millions of poor and undernourished people. The problem lies elsewhere, with industrial agriculture, and ultimately with neoliberal economic policies.

Whichever way the predictions about population increase may actually turn out to be, one thing is clear, overpopulation is not the primary problem when it comes to poverty, hunger, food supply, environmental degradation, and global warming. Williams ends his chapter on population by re-iterating once more, "The richest 7% of the global population are responsible for 50% of the world's CO₂ emissions, whereas the poorest 50% are responsible for a mere 7%. The conclusion is clear: it's capitalism that needs restraining, not people. We must aim for real development that takes social, cultural, and environmental improvement as its primary goal" (p. 72). His next chapter is entitled, "Why capitalism cannot solve the problem"; for all the reasons we have described earlier in this chapter. In the preface to the second edition of their book Lappe and associates wrote, "...our basic arguments are as valid today as they were a dozen years ago" (Lappe, p. 178). Nothing has really changed, the WB, IMF, WTO, NAFTA and other free trade agreements, globalization, tax evasion, land and water grabbing, continue to play their disintegrative role. The so-called Green Revolutions are dismal failures; many peasant farmers and forest people are still being displaced; many landless poor are still waiting for radical land reforms; deforestation and overfishing is still continuing; violence, murder rape, slavery, and epidemics are on-going; soil and water are still being depleted; biodiversity is still diminishing; and greenhouse gas

emissions are still accumulating. The need to leave 80% of fossil fuels in the ground is as relevant now as it was a dozen years ago. And the solutions are still the same: ecologically sustainable development, especially of agroecology. Radical changes still require justice, freedom, equality, compassion and above all courage.

- Anderson, M. (January 29, 2015). Global population set to hit 9.7 billion people by 2050 despite fall in fertility. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2015/jul/29/un-world-population-prospects-the-2015-revision-9-7-billion-2050-fertility>
- Baird, V. (January/February 2010). Too many people? *New Internationalist*. Retrieved from <https://newint.org/features/2010/01/01/keynote-population/>
- Barsamian, D. (March 20, 2012). Ecology and Socialism, Chris Williams interviewed by David Barsamian. *ISR*. Retrieved from <http://isreview.org/issue/84/ecology-and-socialism>
- Brown, L. R. (2009). *Plan B 4.0, Mobilizing to Save Civilization*, New York: Norton. Retrieved from http://www.earth-policy.org/images/uploads/book_files/pb4book.pdf
- Brown, L. R. (2012). *Full Planet, Empty Plates. The new Geopolitics of Food Scarcity*, New York: Norton. Retrieved from http://www.earth-policy.org/images/uploads/book_images/FullPlanetAllChaps.pdf
- Edmonston, B. and Fong, E. eds. (2011). *The changing Canadian population*. Montreal: McGill-Queen's University Press.
- FAO. (2012). *Global Forum on Food Security and Nutrition, online discussions that make a difference*, Rome: FAO. Retrieved from <http://www.fao.org/docrep/016/ap095e/ap095e00.pdf>
- oresight. (2011). The Future of Food and Farming. Challenges and Choices for Global Sustainability, Final Project Report. *The Government Office for Science*, London. Retrieved from <http://www.scp-knowledge.eu/knowledge/foresight-future-food-and-farming>
- George, S.
- Gibson, M. (2012). *The Feeding of Nations: redefining food security for the 21st century*. Boca Raton, Florida: CRC Press.
- Hickman, L. (January 14, 2011). The population explosion. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2011/jan/14/population-explosion-seven-billion>
- Ibbitson, J. (October 23, 2014). A bleak future and population crisis for South Korea. *CIGI*. Retrieved from <http://www.theglobeandmail.com/news/world/a-bleak-future-and-population-crisis-for-south-korea/article21249599/>
- Jha, A. (March 27, 2010). Peoplequake: mass migration, aging nations and the coming population crash by Fred Pearce. *The Guardian*. Retrieved from <https://www.theguardian.com/books/2010/mar/27/peoplequake-population-fred-pearce-review>
- Lappe, F. M., Collins, J. and Rosset, P. with Luis Esparza, *World Hunger: 12 Myths*, Food First. New York: Grove Press, 1998, second edition.
- Larson, J. (June 25, 2014). The Swinging pendulum of population policy in Iran. *Earth Policy Institute, Plan B Updates*. Retrieved from http://www.earth-policy.org/plan_b_updates/2014/update124
- Monbiot, G. (October 27, 2011). Population is just a sidekick to the real big baddie – consumption. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/georgemonbiot/2011/oct/27/population-consumption-threat-to-planet>
- Monbiot, G. (September 29, 2009). The population myth. *The Guardian*. Retrieved from <https://www.theguardian.com/commentisfree/2008/jan/29/politics.greenpolitics>
- OECD. (December 12, 2012). Stat Extracts. Retrieved from <http://stats.oecd.org/>
- OECD. Trends in Urbanisation and Urban Policies in OECD countries; what lessons from China? Retrieved from <https://www.oecd.org/urban/roundtable/45159707.pdf>
- Pantsios, A. (September 19, 2014). World population to hit 12 billion in 2100, new study predicts. *EcoWatch*. Retrieved from <http://www.ecowatch.com/world-population-to-hit-12-billion-in-2100-new-study-predicts-1881954057.html>
- Pearce, F. (2010). *The Coming Population Crash, and our Planet's Surprising Future*. Boston: Beacon Press.
- Ravillious, K. (May 7, 2013). Over half the world's population could rely on food imports by 2050 –study. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2013/may/07/half-population-food-imports-2050>
- Tran, M. (October 28, 2014). Global overpopulation would 'withstand war, disaster and disease'. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2014/oct/28/global-population-science-growth-study-wars-disaster-disease>
- UN FAO, *World Agriculture: Towards 2015/2030, Summary Report*, Rome: UN FAO. Retrieved from <http://www.fao.org/3/a-y3557e.pdf>
- UNFPA, *Annual Report 2013. Realizing the potential*. Retrieved from https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA%20AR%202013_LR_FINAL.pdf
- UNFPA, *State of the World Population 2012. By choice, not by chance: family planning, human rights and development*. Retrieved from <http://www.unfpa.org/publications/state-world-population-2012>
- USBrigid Fitzgerald Reading. (May 12, 2011). Education leads to lower fertility and increased prosperity. *Earth Policy Institute, Data Highlights*. Retrieved from http://www.earth-policy.org/data_highlights/2011/highlights13
- WB. (2014). Urban Development, Data. Retrieved from <http://data.worldbank.org/topic/urban-development>
- WB. (September 30, 2014). Urban Development Overview. Retrieved from <http://www.worldbank.org/en/topic/urbandevelopment/overview>
- Williams, C. (2010). *Ecology and Socialism; Solutions to Capitalist Ecological Crisis*, pp. 32-72, Chicago: Haymarket.
- Williams, S.C.P. (September 18, 2014). Experts be damned: World populations will continue to rise. *Science*. Retrieved from <http://www.sciencemag.org/news/2014/09/experts-be-damned-world-population-will-continue-rise>

f. Other aspects of economic practices

Every aspect of life and society is affected by neoliberal capitalist policies, whether water supply and management, waste products and waste management, transportation systems, diseases and epidemics, emergency measures and disaster preparedness, media control and accessibility of information, library services, civil liberties, police practices, the judicial system, education on all levels, the support of the arts, urban development, sports, social safety nets, child care, social housing, immigration policies, prisons and the treatment of prisoners, war on drugs, etc. Each of these areas

requires separate attention. There is no area of life that is not permeated by neoliberal ideological practices. Neoliberal economic policies are much more than a particular approach to the economy; *it is an all-encompassing way and vision of life. As an ultimate conviction it calls for our allegiance, tempting us to participate in a destructive and disintegrative way of life and to accept the lie about the good life for all.*

Conclusion

This summary of neoliberal economic policies and practices begins to explain why adjustments and technical improvements to our present economic system cannot solve the social and ecological crisis. Every area of the economy is in need of a fundamental change in direction. Nor can technological solutions provide a way out. Technology too is largely in the service of the economy. Something much more fundamental is needed: a change in direction and a new vision. Instead of one-dimensional economic policies and practices, we need an inter-related economic system that does justice to all aspects of life.

Chapter 4: The Global Economic System

- a. The core structure of the economic system
- b. The logic of the system

From the previous two chapters on climate change and the economic violation of nature's and society's thresholds, two basic questions present themselves. What is it about the structure of the present global economy and the neoliberal capitalist ideology that makes corporate and political leaders blind to the ecological and societal consequences? Is this structure inherent to all forms of capitalism? Can it be corrected and changed? (Chapter 4) Secondly, what is it about ideologies and particularly neoliberal ideology that it blinds its adherents to reality? Even in the face of overwhelming evidence they seem to be able to continue with business-as-usual, locking in greenhouse gas emissions for decades and centuries to come. How is that possible? (Chapter 5) It is at that point that we can consider a radical alternative approach to economic activities. (Chapter 6)

a. The core structure of the economic system

Neoliberal global capitalism has a number of core features, regardless of national differences. To understand the underlying reasons behind human-induced climate change we need an over-view of the structure of the present global economic system. In summary, most world leaders are committed to a belief in the myth of progress and unlimited growth, which means a belief in the power of the 'free market', the pursuit of short-term profits, the elimination of trade barriers, open access to resources, free movement of capital, minimum or voluntary regulations, a 'small' pro-business government, a 'flexible' labour market, and, wherever possible, the privatizing of education, health care services, transportation, media, sports, urban development, housing, water and waste management, energy production, and other public services. If it cannot be made profitable, it is not worth the investment and irrelevant. Canadian society has slowly developed in this direction during the last forty years. So much so that by now it seems an irreversible direction or the normal state of affairs. The 'welfare state' or a more 'regulated economy', never very popular except in Europe, and even there, is a thing of the past. Any new form of 'Marxism' or 'Socialism' is seen as a threat to the economy, to progress and the North American way of life.

The morality of the market

Within the present set-up, corporations have no choice but to compete. If they don't cut the costs of production, materials, labour, packaging, transportation, advertising and continually create new products and find new markets; the competition will take over. Within this system they must continually acquire and secure new resources, new land, new forests, new sources of energy and water. It pits different nation empires against each other, aided by their military forces and the threat of economic reprisals. This dilemma can and often does result in ruthless practices. It is a grow-or-die game, no matter what the consequences. The only morality is the morality of the market; no other ethical considerations can be entertained, at least not in any serious way. The only value products and services have is their monetary value or 'utility value'.

The accumulation of wealth for its own sake is the primary driving force of capitalism, which requires unlimited economic growth and a free market. Within this system it is unthinkable not to make surplus profits. The neoliberal form of global capitalism is structurally committed to unlimited capital accumulation. To bring this about, the 'free market' must continually produce excess profits for those in power. This relentless drive to maximize profits anywhere in the world is seen as a sacred right. Why else does a corporation exist but to make as much profit as possible? To do so it must continually expand its operations, always in search of new markets, new resources, new territories, new laborers, new consumers. The expansive nature of capitalism accepts no boundaries to its operations. Any binding regulations or limiting taxations will be opposed.

To achieve that goal of unlimited growth everything and every aspect of life must be made into an economic object. Nothing is off limits, whether it is peoples' personal tragedies, a new product, or an essential service for their pets. Everything must be made profitable. What is produced or how matters little as long as it is profitable. If it can be produced, it must be produced, even if they are useless goods and do not add to the quality of life. To develop yet another toothpaste that is 'new and improved' and endorsed by the dental association, or yet another detergent that leaves your glasses sparkling and cleans your dishwasher at the same time takes a lot of creativity. This approach to life can be called the commodification of everything.

The 'free market'

Given this primary motive of earning as much profit as possible for the (top) managers, and the (well-to-do) stock holders, it is not hard to understand the other aspects of the system. First of all there is the mythology of the 'free market'. In reality there is no free market; a market that, almost mysteriously, corrects any imbalances and distortions that may arise, the so-called 'invisible hand' of the market', and the law of supply and demand. Again and again this myth is repeated by the true believers or paid lip-service to as an important mantra. In reality the market is highly controlled and manipulated. Corporations do not want to be dependent on the uncertainties of the 'market' and will do anything to control the market through developing monopolies of various kinds, using intensive 'marketing techniques', 'branding', deceptive advertising, and so on. Corporations need to control and ensure every step of the process, their investment capital, resources, supplies, labour, production technology, distribution channels and sales.

Moreover, significant government subsidies in almost any area of the economy, favorable regulations and tax rates, 'free' infrastructures (roads, harbours, airports, communication towers, etc.) deeply influence what is developed and produced. Governments interfere hugely in the market in favor of business. As much as possible the uncertainties of the 'market' must be eliminated. The whole process of production from beginning to end must be brought under tight control by vertical integration wherever possible. Capitalism represents a massive failure of the free market.

Short-term planning

Neoliberal capitalism is structurally committed to short-term planning. It needs to make as much profit as possible now and not twenty or fifty years from now. When climate change researchers talk about the rise in CO₂ and global warming with a very high degree of certainty in 2025 or 2050, corporations cannot respond to such 'long-term' predictions. Some mitigation policies and adjustments may be implemented, if they do not affect the bottom-line. The system is not set up for long-term thinking. For that reason any long-term planning with regard to the depletion of resources, pollution, waste, or any other environmental issues cannot be considered, except marginally. It would be in its own corporate interest to take a longer range perspective. However, there is an unshakable faith that there will always be more resources when one supply runs out or some new innovation, or a new kind of material or a technological solution. Society as a whole is no longer geared to think and plan for the long term, especially when it comes to environmental concerns that may seem far-off, or investments in crucial infra-structures, or new building codes for future developments, and many other longer-term considerations.

The structure and power of global corporations

Large corporations have become a world unto themselves, with a tremendous concentration of market power. They are complex, autonomous, multi-divisional organizations with their own financing controlled by a hierarchy of salaried managers. The function of management in planning and coordinating every aspect of the process is crucial to the smooth operation of a corporation. Essentially it is the professional managers that make the basic decisions, not the board of directors or the major shareholders. The major areas of the economy are under the control of a small number of corporate leaders and their top managers. This economic concentration of power has been called 'managerial capitalism'. Their corporate power allows them to take over other companies, add new divisions, downsize, re-structure, outsource, use foreign workers, force conditions on labour and foreign governments, arrange favorable trade agreements, demand opening up of foreign markets, repatriate profits from developing countries, move capital around freely to wherever it is most profitable, acquire exploration rights, buy up land, forests and water resources, negotiate long-term patents on most anything that promises to be profitable, and so on. This concentration of economic and political power, aided by military force and private security forces, can be seen as a form of neo-colonialism and neo-imperialism.

Within this integral system, food, as we highlighted before, is just a by-product. The only important question is whether a factory farm is profitable. If not, if no further corners can be cut or more risks can be taken or if there is no other country with less restrictions to move to, then the business must be ejected. The products themselves are entirely secondary, whether the product is a new energizing drink or power bar, a new gadget that is a 'must buy', a new instant meal that 'allows for more quality time with the children', a new plastic toy that will soon end up in a dump or the ocean, or a new kind of service that we didn't realize we needed. The product or service is basically irrelevant. The only question is, is it profitable? If in the process a company can pay lip service to 'sustainability', provide a (profitable) 'green' product, or sponsor an environmental or humanitarian project in a developing country, so much the better.

'Efficiency' of the market

Although an individual plant or corporation is often highly planned and organized, there is little overall planning within the broader global market. The market system of production, particularly in its deregulated form, results in a lack of global coordination and an endless cycle of overproduction and downsizing. Every company is out for its own interest, profitability and survival in the face of severe competition from rival companies.

To ensure continuous growth they often resort to producing things that break down within a couple of years, produce programs that do not coordinate with previous versions, sell products that are harmful or dangerous, develop copy-cat products, limit the production of a useful product, create artificial scarcities, undercut competitors by temporarily lowering prices, threaten with law suits, trick customers or bombard them with junk mail, and a host of other practices. None of these actions by individual corporations enhance global coordination and planning, the efficient use of resources and development of long-term agreements and enforcements.

If the majority of international agreements were scrapped today, it would have little impact. Mostly they create the illusion that slowly on something is being accomplished in terms of coordination, limits and regulations. The climate accords are a prime example of such agreements. There are hundreds of other (non-binding) agreements for almost every area of the economy and the environment. We could call them 'ornamental' agreements.

From an environmental-social point of view, neo-liberal capitalism is probably the most inefficient and exploitative economic system we can think of. Freshly caught fish in Norwegian waters, for example, may have been frozen and shipped to China to be processed, re-frozen with extra water to add weight, and then finally shipped back to Norway to be sold in local supermarkets. If importing apples from New Zealand is more 'efficient', that is, profitable, than growing them locally in England, that is what must be done. The tremendous inefficiency of all the 'external' costs that are added to the cheaper apples, or fish or lamb or chicken, bottled water, etc. are not taken into account. Such factors as adding more CO₂ and other chemicals to the air, because of trucking on both sides of the ocean are not considered, or the pollution from (dirty) diesel oil used by many container boats, the pesticides used, the working conditions of laborers in New Zealand, or the fate of orchards in England. When in spite of these potential environmental and social costs apples from New Zealand are still 'cheaper' than British apples, we know that something is basically very wrong. In most instances the solution to these kinds of inefficiencies is to develop organic orchards and chicken farms in England and develop cooperatively owned fish processing plants in Norway, and so on. These examples could be multiplied by countless other ones from many countries. Any intelligent, sane person looking at this whole process would marvel at the inefficiency and absurdity of it all. But this is the framework within which governments and corporations must operate to maintain the system. The system leaves very little room to do things truly efficiently with regard to human wellbeing and ecological sustainability.

Externalities

To maintain its short-term approach, corporations must externalize all other considerations. Such externalities are anything that cannot be narrowly described as economic factors. Anything that has no immediate economic value is outside their purview. Whether it is the tailings and pollution left behind by hundreds of thousands abandoned mines, or whether it is the long-term health consequences of particular methods of extraction or production, or the accumulation of plastic particles in the oceans, or the increasing global inequality, poverty, and social decline. Only when these externalities can be made profitable, like water and waste management for example, will they be considered. This externalizing of 'non-economic' factors hides and obscures the real costs of production to society and the environment. It allows companies to vigorously oppose the principle of 'the polluter pays' by claiming that their corporate initiatives benefit everybody and by denying any direct connection between their practices and various health issues, and so on.

Some people have responded to the issue of the externalities by suggesting we need to put a price on all externalities. We need to put a price on air pollution, for example, or on any lands or water sources held in common, in order to force companies to include these costs in their operations. The free use of land, water, air, has been called the 'tragedy of the commons'. The reasoning is that if grasslands, forests or water resources are held in common, it will result in a 'tragedy'. Invariably it will result in the exploitation, decline and mismanagement of these resources. But as opponents of this

simplistic solution have said, the real tragedy is the ‘enclosure of the commons’ as it first took place for example during the industrial revolution in England.

There are many inspiring examples of local communities managing their limited water supply, their grazing lands, forests, or their fish catches communally, some for many centuries and others more recently. Such economic approaches do not fit neoliberal beliefs: if these resources are not privately owned and operated the system cannot work. Only self-interest and ownership can guarantee good management. Private ownership, private capital and private property is the backbone of the present capitalist system. Within this context private property, intellectual property rights, patents, etc. primarily serve to protect corporate interests and the well-to-do. This approach is being forced on local communities and indigenous peoples around the world.

The one good thing about trying to determine a price for all ‘externalities’ is that it highlights the actual or rather, the estimated environmental and social costs of everything. Of course the problem starts with separating and externalizing crucial aspects of the economic process in the first place. The real solution is to develop an economy that is no longer isolated from the rest of life but is an integral part of life; an economy that serves all of life. We will come back to these alternative ways of providing for our needs in the last section. For now it is helpful to begin to imagine an economy that can function without the profit motive and without ‘property rights’. This perspective on the structural limitations of capitalism and an alternative economy will help us to see more clearly the irrationality, inefficiency, and destructiveness of the present system.

The financial industry

The financial market is essential to the working of neoliberal capitalism. It is largely unregulated in spite of the financial collapse in 2008. Bonuses are up again and basic structural changes are slow in coming, if at all. US banks received 700 billion dollars in public bail-out money, with no democratic oversight or control. By comparison, the US spent 664 billion on defense in 2010, while China spent only 78 billion. The top 25 hedge fund managers in the US, who play no useful social role in society, received 25.3 billion in 2009, one year after the financial collapse that had world-wide consequences. The most important issue is that the financial industry and financial speculation in particular, is not inherently productive; it is essentially a ‘paper economy’ that is largely redundant. The ‘financial industry’ could play a subordinate role when it serves the real economy of the production of goods and services. Instead it plays a dominate role rather than a service role. Wall Street, the IMF, accrediting agencies and central banks have a profound effect on all of society. We could call it the *financialization of everything*.

Moreover, corporations tend to invest less and less of their profits in upgrading their own infra-structure, developing new technologies and training their own personnel. Instead of investing in their own companies many have developed financial services and risky financial products that are more profitable in the short run. As long as the bubble does not burst. Another favorite outlet is speculation, through various hedge funds, in food, water, land, electricity, or other resources that may seem profitable. Casino financing would be a better name for this kind of financial gambling, which is to the detriment of billions of people, since it involves the very basics of life: food, water, land.

Tax shelters

Corporations and wealthy individuals can hide their profits in so-called tax shelters. This is made possible through an extensive network of shell companies and secret off-shore accounts. These practices violate any moral sensibility. Not only do the rich and corporations receive all kinds of tax privileges, but on top of that they avoid paying whatever taxes they do owe. No wonder different governments are trying to change this situation since it is offensive, unfair and has

given rise to a lot of public objection. These same wealthy and corporate leaders campaign against welfare abuses and instead advocate 'workfare'. Corporation and wealthy individuals that use clever accounting procedures to hide their profits and income are the real welfare bums. Blaming the down and out for their poverty has become a new (old) tendency, so much so that the Church of England found it necessary to protest against this trend. It is estimated that there are 11.5 trillion dollars in off-shore and hidden accounts by corporations and individuals.

Understanding economic theories

We are not only made to believe that our present economic system is the best possible one, but also that the 'economy' is a very complex enterprise that only experts can understand. Invariably newscasts call on a leading economist to explain a disturbing economic trend or predict future developments. Generally the media unquestioningly repeat the main economic doctrines as if they are gospel truths. The 'investigative reporting' they are still able to do is limited and within strict boundaries. As a result of this indoctrination 'the economy' can indeed seem like a very complex and confusing system. For that reason books like Jim Stanford's *Economics for Everyone* (2008) and others like it are instructive and refreshing. They do not dumb down economics; rather, they bring economic theory down to earth again and in touch with the actual reality of economic life.

Economics as a specialized academic discipline, something of the last centuries, is simply a systematic reflection on how today's complex economy is organized. Economic theories can be helpful if they are based on and in constant interaction with actual experience and practical knowledge. Good theories or better, good generalizations are based on many people's experiences and knowledge. Bad theories, like many of today's main stream neo-classical economic theories, are out of touch with reality. They are abstractions in the bad sense of the word. They live a life of their own in economic textbooks and in the graduate courses of the main schools of economics. Many are based on elaborate mathematical models that have little relation to how the economy actually functions. These kinds of models involve a double abstraction; first the theories are isolated from reality and then they are further reduced to their mathematical dimension. When we think of the reality of the environment and the economic situation in many countries, we can wonder how intelligent and often brilliant academics can be so oblivious to reality. We like to believe that educated people will act rationally and will be open to new information and adjust their ideas accordingly. It highlights how economic theories as a part of an ideology can lead people to be blind to reality.

Many radical economic studies have analysed the details and complexity of the actual economic phenomena. They help us to understand real-world economics and not the make-belief world of the dominant economic theories. Even a small sampling of critical studies illustrates the point. Jim Stanford's experiential *Economics for Everyone; a Short Guide to the Economics of Capitalism* (2008) or John Cassidy's analysis of the rampant financial speculation in his *How Markets Fail; the Logic of Economic Calamities* (2009), or Chris Williams' *Ecology and Socialism* (2010) and a host of other critical studies, give us a clear sense of the dominant economic theories. It took an uprising of graduate students in economics in 1999 in France to begin to bring about some modifications in the one-school-of-economic-thought only approach in graduate schools. This dissatisfaction with the graduate teaching of economics at the main, prestigious schools of economics, soon spread to many other countries and has given rise to a number of changes.

'Autistic economics' is one such reaction to the dominant paradigm. In the Netherlands, as well as many other places, that struggle for change in the teaching of economics continues to the present. The absurdity of teaching economics from primarily one point of view with the rejection and disdain for all other views would be like teaching psychology and psychotherapy from one approach only. It would be like graduate schools in psychology only presenting Classical Freudian theory and not dealing with the following three waves of Ego Psychology, Object Relations, and Self Psychology

Psychoanalysis, and never even hinting at the existence of various kinds of Behavioral, Cognitive and Humanistic Psychotherapies.

Government, science and technology: the three pillars of neoliberal economic practices

In the total neoliberal economic system governments play a crucial role. Governments are basically in the service of industry. The primary role of governments is to support industrial development. Economic growth is the most important political issue in the majority of countries. Corporations finance the election campaigns and support pro-business politicians and in return the role of governments is to create favorable market conditions. Governments, rather than being the custodians of fair play and equal justice for all, have abdicated their responsibility and surrendered to corporate influence. Instead of administering justice they have become advocates of economic development. The same is true for science and technology; they are increasingly in the service of the economy. Especially applied science and technology play an important role in the entire production and distribution process. Political power structures, applied science and technology form the supportive foundation for today's global economy. They are the three pillars on which global capitalism is based (see chapter 7).

In contrast, the power of labour has been greatly diminished. During the last fifty years industry has managed systematically to turn public opinion against the role of labour. They are no longer perceived as the exploited working class that has struggled over many decades for better wages and working conditions that have benefitted everyone. Within the present economic system workers have been reduced to 'economic objects', to one factor in the total production process. A 'flexible workforce', 'continental shifts', 'contract work', 'part-time work', have become the new normal. Governments have repeatedly obliged industry as well as their own public servants with back-to-work legislation and supported the downward pressure on wages and benefits.

b. The logic of the system

If we face such a serious environmental crisis that will affect all aspects of life and may be irreversible in a few years or decades, how come our political and corporate leaders do not take action? How come that instead they vigorously oppose any basic changes or binding regulations? The answer is very simple as well as alarming. The present economic system does not allow for any radical changes that might stabilize the ecological balance. When the core motivating force is to make a profit in order to create wealth to create more wealth, then anything that limits this economic approach is unacceptable. The wealth that is created of course is only for 1% of the richest part of the population and to a much lesser degree for about another 25% of the better off people in developed countries. For the 85 % or more of the developing world population it spells disaster and untold suffering, especially for the approximately 2 billion people that have to survive on about 2 dollars a day or less.

Many of our political representatives here in Canada have read the same major scientific reports, as well as numerous specific reports that relate to the Canadian Arctic, our coastal waters, our boreal forests, our mining practices, our approach to factory fishing and agriculture, our water and waste management, our transportation system, our building practices, etc. Twice a year the prime minister, his cabinet and parliament are reminded by the Commissioner of the Environment and Sustainable Development about the state of our waters, lands, air pollution, the continued increase in CO₂, and many other specific reports. These reports are there for all to read: assessments, things that need urgent attention, lack of follow-up, required time-lines, concrete solutions, and so on. Many of them no doubt have read the same scientific reports and the environmental and social impact studies. The overwhelming number of alternative approaches that have been suggested for almost any area of the economy and society are widely available and easily accessible. Do they just ignore, minimize or rationalize these givens?

Structural evil

Environmental degradation, decline of the quality of life, extreme inequality between people, injustice, oppression, exploitation, hunger, disease; none of these conditions seem to make enough of a difference to the true believers in the present economic system. One could say, as many have, it is against their religion, against their ideology. That is why our political and corporate leaders are 'powerless', they are trapped in a particular economic system. It is a systemic problem that makes most of them complicit in or involved in what many have called, *systemic evil*. Corporate enterprises, with the full support of governments, are involved in countless human rights violations, injustice, exploitation of resources, and environmental destruction. That is what an ideology does. It blinds our leaders and, in the end, all of us, to the facts and it engages everyone in endless rationalizations, repression, denials, and justifications. There are those, I like to think a small minority, that knowingly commit crimes against humanity, who steal, bribe, lie, hire guards that kill, burn, rape and drive people off their land, in short, who are ruthless and operate beyond the law.

The limits of capitalism

Reading in the history of economics is a sobering and instructive experience. It makes us reflect on our present capitalist system that we usually take for granted. For many it is hard to believe that our present-day form of capitalism is not the only or best economic system. In fact the opposite is true. We have been taught to think that capitalism is the most modern, scientific and progressive economic system that has ever been developed. There is an unquestioned faith that over time it can bring prosperity and well-being to all the peoples of the world. The collapse of communism and the decline of socialism and the welfare state are supposed to prove the point. However, the reality is very different. In spite of pockets or degrees of improvements, billions of people suffer hunger, live in extreme poverty, have no access to safe drinking water and sanitation and lack a minimum of health care and education. After more than 40 years of neoliberal policies any improvements are minimal and very relative compared to the global damage that is being done, both in terms of social justice and ecological disintegration.

The limits of material prosperity

Centuries ago, during the industrial revolution manufacturing settled more and more on the production of material goods whether they enhanced the quality of life or not. From then on a materialistic way of life began to take hold of Western society. The possession and consumption of more and more material goods and services has become the order of the day. Consumer spending accounts for about 40% to 50% of the GNP. In times of economic slow-down or recession, spending becomes a 'moral' obligation and a 'national' duty. Shopping at the mall has become a favorite past-time for many, at least in the privileged parts of Western society and the world. This primary focus on the production of material goods at the exclusion of other choices has given rise to a deeply materialistic way of life. Meanwhile consumer debt is becoming a major concern and problem that in time of crises leads to bankruptcies and abandoned homes.

Capitalism has brought material prosperity to a small percentage of the world's population, but at the same time it has brought exploitation, poverty and endless suffering to the great majority of people. One percent of the super-rich enjoy great luxury, obtained mostly by speculation, tax evasion, obscene rewards, unfair practices and exploitation of laborers. Even the material comforts enjoyed by the better-off 'middle class' in the developed countries have been at the expense of the impoverishment of their lives. A materialistic way of life has resulted in the emptiness of work, a general decline in health, and the meaninglessness of much of existence. Material comforts can only provide so much. Most important of all, the level of prosperity that a small minority of the world's population enjoys will be forever out of reach for the great majority. The earth cannot support such a material life-style for everyone.

Alternative economic practices

At its core, 'providing for our needs' is something of all times. Our present highly specialized way of 'investing, producing, distributing and consuming' is not necessarily superior to ancient ways or present-day alternative practices. In fact, if international aid for the last decades had focussed on the actual practices and needs of local people in the sub-Saharan regions, for example, they would have been infinitely better off than they are now. The many examples in the *State of the World, Innovations that Nourish the Planet* (2011) of the Worldwatch Institute illustrate the point. Most of the alternative practices described were developed by and in interaction with local people. They successfully and sustainably built on their experience and depended on local people, primarily women, to spread and promote new practices.

Millions of people would be better off with a 'subsistence' way of life than living in one of the growing number of mega-city slums. Many have been expelled from their land and deprived of water sources, or they have been lured to the cities in hope of employment and a better way of life. The majority would have been far better off if they had been helped to improve their living situation where they came from, especially if they received the right kind of support to improve their way of farming, herding or fishing. There are many examples and reports of such small-scale developments that have greatly changed and enhanced their quality of life, and especially if, at the same time, they were provided with family planning, sanitation and health care information. Structural adjustment programs and foreign aid from the IMF, the WB, the WTO and other organisations have not helped or improved the lives of the billions of dislocated people. This is a hard reality for many of us in the global North to accept, because over and over we have been exposed to the accepted truth about capitalism, namely that things are slowly improving. However, some corrections and adjustments are not sufficient to bring about systemic changes. Nor does it help to 'balance' the picture by looking at some of the positive changes and improvements capitalism has brought about. The accelerating decline of the ecological and social environment world-wide far outweighs any improvements.

Faith in the evolutionary process and the view of human nature

Neoliberal ideology considers the development of the global economy as the outcome of the inevitable progress of humanity. This view is presented as one of the two major rationalizations for the faith in Progress. Modernization is seen as an inevitable evolutionary process. Humankind is pushed forward to its ultimate destiny and fulfillment. There is no use opposing these evolutionary forces. The only alternative is to go back to some previous stage in history, to a more primitive form of life. The second justification for neoliberal ideology is its appeal to 'human nature'. People are fundamentally driven by self-interest; they are inherently selfish, that is the nature of the beast. Egotism makes the system maximally efficient and fair. Social regulations and controls can be at a minimum, because the system corrects itself. This belief is a one-dimensional and reductionistic view of human nature and relationships. In subtle ways we learn that unbridled greed, power, exploitation, and ruthless competition are acceptable and good for society. These are the values we assimilate as we grow up. We have been acculturated to think that capitalism is normal. Given the capitalist vision of life, it is tempting to seek our security in the accumulation of possessions, in power (at whatever level), and in privilege.

Denial of reality

However, to maintain these beliefs, we have to consciously suppress our altruistic tendencies. All we need to do is look at any community to realize that it is altruism, care, cooperation, compassion, volunteering, tolerance and fairness that motivates the majority of people. In spite of selfishness, taking advantage, unfairness, hostility and aggression (our dark sides), it is these other motivations that provide the social glue for communities and neighborhoods everywhere in the

world. This discrepancy between the neoliberal view of life and what motivates the majority of people creates internal contradictions in most of us. It challenges us to let our identity, our sense of self, and our ethical orientation in life to be formed and directed by these basic life-affirming attitudes rather than egotism. The neoliberal views are dehumanizing and alienate us from ourselves, from our bodies, our sensitivities, our creativity, our sociability, and from our natural environment. The neoliberal ideology brings us back to the dehumanizing philosophy of Ayn Rand as adopted by Margaret Thatcher, Ronald Reagan, Alan Greenspan and many other leading figures. In spite of its failure, these views still hold sway in the corporate and political world. Ayn Rand's *Atlas Shrugged* (1957/1993) still sells hundreds of thousands copies in the U.S alone; it is second only to the Bible.

Conclusion

This inner logic of the capitalist system determines what it can and cannot do. There are built-in limits to what it can consider and take into account. Neoliberal capitalism cannot open up to other social dimensions besides the economic sphere. Inherently it cannot address eco-justice and social justice. The economic structural limitations do not allow any consideration of 'external' consequences, no matter how serious and regardless of blatant contradictions. Only very narrowly defined economic issues can be entertained. Of course, as a dynamic system it can and does change over time and in different regions but only within strict limits. When the economy is seen as a separate and independent part of life and the study of economics as a neutral objective social science, then nothing else counts. Absolutizing the economic sphere means that other areas of life cannot be taken into account. An economic system is more than a question of production and consumption, it is a living reality, and as such, it can be changed structurally. But if it does, it will no longer be capitalism.

(For references see Bibliography: Politics and the Economy.)

Chapter 5: The Neoliberal Ideology

- a. Visions of life or worldviews
- b. Congruity between our way and vision of life
- c. The tradition of liberalism
- d. The absolutization of the economic sphere of life

Having looked at the core structure and the inner logic of the capitalist economic system, we need to look more closely at the nature of the ideology or worldview that sustains this approach to economic life. What is it that gives a worldview or vision of life such power, even in the face of overwhelming contradictions and destructive consequences? Worldviews or ultimate convictions are the *expression of a powerful motivating force to follow a certain path*. People are often puzzled why there is not the 'political will' to do things differently. How come that in spite of the overwhelming evidence of ecological decline and social injustice nothing basic seems to change?

Many articles and studies end with, 'we need a radical change', or 'there is an urgent need for an alternative approach', or 'we cannot continue like this for very long', and so on. Except for limited adjustments, nothing changes with regard to the basic direction of economic life. How come? What is this driving force that continues with business-as-usual and opposes any fundamental changes? It is like a run-away train that is headed for disaster; everyone is pointing and screaming, but no one seems to be able to stop the train. This driving force of neoliberal capitalism with its compelling worldview requires closer examination. Unless we can confront that ideology head on with an alternative way and vision all our protests and actions will be limited and will be unable to bring about the necessary basic structural changes. On

this level of the ultimate direction of economic life there are two mutually exclusive directions in life. We either follow the one or the other. We either remain capitalists with all its consequences or we embrace a radically alternative way of life.

In this section we will present a brief explanation of the nature of ultimate visions and ways of life and their role in daily life, whether these are religious or secular convictions. In chapter 8 we will come back to this issue and ask ourselves whether there is a touchstone or fundamental guideline for ultimate beliefs. Is there such a thing as “believing rightly” and, if so, how do we know and does that involve an ‘ultimate truth’ claim?

But first we need to clarify the words ‘worldview’ and ‘vision of life’. Since there is not a good term without a long dubious history, I have used the words worldview, vision of life, ultimate beliefs, core convictions, faith and ideology interchangeably to refer to *the deepest or ultimate direction we live by*. All of these words should be in the form of a verb rather than a noun as if faith is some entity in and by itself, something we can just hold and possess. *Faith as a verb means daily living one’s basic beliefs about life, a lived faith*. The same holds true for the words worldview or vision of life. What they really imply is the daily envisioning of a life by which we seek to live. While we are busy with our activities, we look up at times to see if we are still going in the right direction. Faith, beliefs, basic convictions, worldviews are not separate from life. Historically most of these words assume some separation or duality between a life of faith and ordinary life, between the sacred and the secular. What we need, however, are *words that can apply equally to both religious worldviews and non-religious or so-called secular visions*.

a. Visions of life or worldviews

Generally worldviews or visions of life give *expression to a basic life direction*. Worldviews give expression to a fundamental orientation in life and a total way of living. In our actions or praxis the direction of our life becomes evident. This main project or plan of our life is lived out in the whole range of our experience. Our ultimate convictions involve a daily way of living that provides meaning and satisfaction. As such it is a *motivating force*. We all give a fundamental direction to our lives and live by certain core values, for better or ill. Often people will say, ‘the most important thing in my life is ‘my family’ or ‘my work’, or ‘my art’, or ‘my sport’, and so on. And in times of uncertainty or crisis people may say, ‘I don’t know what I am doing anymore, nothing has any meaning; I don’t know what I am living for’. Such feelings represent an existential crisis. In these situations, we keep searching and we don’t stop until we feel we are back on track and know what we are living for.

Self-awareness

Such ultimate convictions about life are rooted in our sense of self, in our self-awareness and self-relatedness. As self-conscious creatures that can reflect on ourselves, we act from out of the core of our being. We do not understand ourselves as made up of a plurality of selves. On the contrary, we experience ourselves as having a self-identity even in the midst of many social roles. Our self-identity is our centre of reference, of who we are, active on our own behalf and interrelated. Although we have many dimensions there is a multi-dimensional coherence to our existence, a fundamental unity from out of which we live and act. No way of functioning exists or acts by itself. Thinking does not think, *I think*. Breathing does not breathe, *I breathe* and *I can direct my breathing by conscious awareness or meditation*. Because of anxiety, *I can breathe rapidly and shallow, but I can also learn to relax and breathe more deeply*. In the same way believing does not believe. *I have an ultimate conviction about life that expresses my life direction and so on*.

A life direction

Our vision of life is rooted in our sense of self, ourselves as active, free agents. As self-conscious creatures with self-awareness and various degrees of freedom, we make (sub-)conscious choices with regard to ourselves, others and all that is around us. In my ultimate conviction about life, I give expression to that centeredness, to what moves and

motivates me in life from the core of my being. Our ultimate convictions give expression to the inherent intentionality, choice and direction of our lives. They are *ultimate or existential* convictions and not some opinion we hold, however strong, about a new subway line or what is good for our health. Ultimate beliefs are about the foundation of our life, our fundamental stance. In this way our worldview gives expression to our life plan and the life pattern we live by, consciously or subconsciously. Such an interrelation and interaction between our beliefs and our actions assumes that there is a fundamental harmony or congruency between the two. Often this is not the case. We will come back to this with regard to the neoliberal vision of life.

An unfolding vision

From the beginning we have a core sense of self that keeps on unfolding throughout our lives. In interaction with others and our surroundings we keep on developing and re-constituting ourselves. We continually form ourselves. Even though we appear only in our enactments, we also know that we are prior to our actions. In all our developments we have a persisting sense of self. Human activity presupposes the identity of ourselves as subjects, always already in interaction with other subjects. The fact that we are living and interacting subjects does not mean that we have an 'eternal essence' or an 'eternal soul'. Our selfhood only means that we have a self-identity in the midst of our becoming. We live an open, dynamic, unfolding, responding, self-organizing existence from out of which we act with intentionality and give direction to our lives. Even though we are not always conscious of ourselves as active agents, the moment we reflect on ourselves we know that we are the centre of our actions.

A universal human phenomenon

What is crucial to note is that having a particular worldview is a *normal part of our human functioning*. As such it is a distinct aspect of our integral experience, along with our bodily, sensitive, creative, cognitive or social functioning, and so on. All these ways of being are an inseparable part of any concrete interaction or relationship. They are the irreducible moments of our experience. Sometimes one moment stands in the foreground, sometime another, depending on the nature of our activity. Believing is one such irreducible dimension. Having a deep conviction about life is a *universal human phenomenon*; being committed to a certain worldview is a normal part of life. To grasp the significance of this dimension of life we need to compare it to any of the other aspects of our experience.

For example, to go to the other end of the way we function, our physical way of being. Whatever we do it always involves our physical functioning. A lot of times we may not be aware of our body but it is there. We function well or with difficulty. We may feel energetic and alive or tired and pushing ourselves. Our physical well-being forms the foundation of everything we do. The same can be said about every other aspect of our being, whether the emotional, creative, communicative, reflective, relational or any other aspect. They each form a rich and integral part of our existence. The same is true for the ultimate conviction we live by. It is always there, even if it is not in the foreground of our awareness. But every so often we ask ourselves, why are we doing this? Where are we headed? Are we still going in the right direction? Is this really what we have committed ourselves to? What is our basic goal? These are all questions about the basic beliefs we hold about life. *These questions make us reflect upon the direction we are going in life. It clarifies and brings to conscious awareness what we are doing.*

An irreducible dimension

Holding to some ultimate belief about life does refer to a unique and irreducible dimension of life, the 'visioning dimension'. As a 'lived faith' it is embedded in the whole of life and an inseparable part of every activity. Because of this integral relationship it can be looked at from many points of view. For example, how does a lived faith actually function in society; what concrete forms does it take in various cultures and different historical times; what kind of power relations and propaganda does it represent; what kind of group identity or ideology does it foster; what organizational structures does it create; or how does a group, secular or religious, deal with rapid societal changes? Looked at from still

another point of view, the focus may be on what developmental phases a person's convictions goes through; how a particular worldview is passed on from one generation to another; or what level of maturity a person's beliefs or a particular group exhibits; or how a person deals with existential crises in his or her life. Usually these questions are only dealt with in the sociology and psychology of religion, which seems too restrictive.

Although there are many dimensions to a person's or a community's visions of life, ultimate convictions cannot be reduced to any of these dimensions, whether the social, the economic, the political, the cognitive, the aesthetic, the psychological, or the bodily. Many studies about worldviews come from such a limited point of view. As a result they tend to distort and misrepresent the reality of ultimate beliefs in life. Then faith of whatever kind becomes 'nothing but' political or economic power struggles, psychological dynamics, cognitive constructions that help us make sense out of life, or simply a part of the evolutionary process that has survival value. Of course, it has all of these dimensions, but the point is that a person's core convictions cannot be reduced to any of these dimensions. In that sense the faith aspect is a specific, irreducible, normal part of life.

This does not make the faith dimension unique in the sense of some boundary between the sacred and the profane, a place where heaven and earth touch, or where the super-natural breaks into the natural course of life. It is not unique in that sense, but it is one specific and irreducible dimension of our daily experience. In this way it brings all religious or secular faiths, worldviews, visions of life, or ultimate convictions down to earth from the realm of the sacred to everyday life. *Basic convictions give expression to what we value most in life as it becomes manifest in the life we live.* Just as our sensitivity gives colour, vibrancy and intensity to all our actions and relationships, so too *our ultimate beliefs alert us to the depth and meaning we give to our experiences.* As 'meaning-makers', as self-aware and self-reflective persons, we need an existential frame of reference to live by. Such a vision of life makes us conscious of the direction in which we are going in life and the choices we are making. Our ultimate convictions make for passion and commitment to the things we really believe in.

b. Congruity between our way of life and our ultimate convictions

A worldview is not just a unified intellectual system of thought. Even though it has a cognitive side, it gives expression to a deep conviction about how we want to live life. As such it is not just an intellectual assent to a belief system. In our worldview we give an account or a justification of our life choice. It conveys a trust that this is what life is about. This means that as our experience deepens and changes, our worldview is adjusted as well. Our vision of life, if it is meaningful, needs to be in constant interaction with our experience. In this manner our way of life and our vision of life reinforce each other. When this open-endedness and interaction is missing, beliefs become rigid, doctrinaire and out of touch with the reality of life. The actual way we live may be in harmony or congruent with our beliefs or out of sync. It is possible to believe one thing but to act quite differently. This may involve a duality, a compartmentalization, a repression, a contradiction, a denial, a self-deception, or a blatant cover-up. As the saying goes, 'Tell me how you live, and I will tell you what you believe'. When a deep conviction about life hides the reality of one's actual practices, we might reserve the word 'ideology' for such a lie, because of its negative connotations. In that case one is no longer transparent to oneself. The person's beliefs about life become a disguise, a self-deception, an ideology.

The neoliberal capitalist ideology

That was certainly the case with Alan Greenspan, former head of the U.S. Treasury. Because of his beliefs about the economy he was blind to the consequences of his actions. When he realized that his worldview was no longer in keeping with the economic and political reality he was faced with an existential dilemma. His faith had let him down. As he said in an interview, "I do have an ideology. My judgement is that free, competitive markets are by far the unrivaled way to organize economics"; "to exist you need an ideology; the question is whether it is accurate or not"; "I found a flaw in the model that I perceived as the critical functioning structure that defines how the world works, so to speak."; "I made a mistake"; "it was not working"; "that is precisely the reason I was shocked. Because I had been going for forty years, or more, with very considerable evidence that it was working exceptionally well"; (quoted by John Cassidy in his *How*

Markets Fail, pp. 5 and 6). It would be interesting to know how he solved his problem. Did he adopt a new worldview or did he just make some adjustments and settle for a compromise? This is all the more interesting since he was an ardent follower of Ayn Rand's philosophy of life, along with Margaret Thatcher, Ronald Reagan, the present Canadian and Dutch prime ministers and most corporate world leaders.

The neoliberal ideology shows such a discrepancy between beliefs and actual practices. Not only is there a discrepancy, but a *clear and blatant contradiction*. At times the gap between faith and practice tends to be a failure of nerve, of consistency, of a shortcoming. This is true for all of us for no one is perfect. *Ultimate convictions as a fundamental direction in life need to be actualized each day*. It is a matter of the direction in which we are walking, step by step, that is crucial. Ultimate convictions point to a path, not an ideal or a utopia. The neoliberal ideology, however, is more of the nature of a cover-up. It *conceals and hides* the actual political and economic practices of domination, exploitation, repression, violence, disregard for democracy, suppression and manipulation of information, the destruction of the environment and the reckless use of limited resources. This ideology *deceives* its adherents and *hides the true reality* of its practices. With the death of Margaret Thatcher, many have rightly enumerated again the destructive social and ecological consequences of her beliefs and policies and those of her admirers.

The illusion

This kind of ideology amounts to *deception and propaganda*, at the very least it is a *delusion*. Every word comes to mean its opposite. 'Freedom' in this context actually means domination, exploitation, lack of choice. 'Democracy' comes to mean repression of public participation, manipulation of voters and squelching of alternative voices. Fostering 'peace' means selling arms to corrupt and violent regimes; supporting covert aggressive actions against other nations; and voting against new restorative international agreements. 'Equality' means continually increasing the great disparity between rich and poor, exploiting the powerless, maintaining a significant degree of unemployment to create a 'flexible labour' market. 'Prosperity' means providing wealth for a small minority of the world's population and poverty for the rest along with the disintegration and decline of their environment. 'Rule of law' means condoning police brutality, especially at mass rallies; building more jails, particularly for underprivileged and native peoples; being 'tough on crime' regardless of changing statistics; and the politicization of the legal system. Supporting 'family values' means doing everything possible to undermine and isolate families, to support continental work shifts and irregular work hours and turn family members into individual consumers. Every word and slogan used by our political and corporate leaders needs to be translated, whether words like: 'transparency', 'free access of information', 'sustainability', 'prosperity for all', 'the liberating power of the market', 'the balance between the economy and the environment', and a host of other words. One thing is clear that whenever we hear world leaders, prime ministers, presidents or corporate executives use any of these words, we immediately need to 'translate' what they are really saying. It is like learning a new language.

The reality

Their real beliefs, the beliefs that actually dominate their actions are very different. To put it bluntly, ultimately the only thing that matters is short-term profits to keep investors satisfied and ensure the accumulation of wealth. Their primary concern is the protection of their corporations and to keep the competition at bay. These are the main concerns and these goals are pursued with whatever means possible. The end justifies the means, even if it means deception, violence, exploitation, dispossession, creating health hazards, pollution, or the disintegration of the environment. That is the nature of the game and if things backfire there is always a safe haven somewhere, both for their money and themselves. The morality of the free market is the only morality that exists or that is acknowledged. The depletion of natural resources, the ecological breakdown, and what happens to people or future generations is not their concern, that is, as long as it does not interfere with their short-term profits. Political power is there to protect property rights as well as to make sure laws are legislated that are pro-business. They expect generous subsidies, tax cuts, and other favorable measures from the government; after all, they paid for their election and if all else fails they have their lobbyists. For their corporate image they have their public relations people and the control of the media. *This destructive belief system rivals that of any fanatical and violent religious group.*

True believers

Some no doubt are true believers in the neoliberal view of life. But even when they do, they constantly and actively need to suppress the reality and consequences of their policies. The reality stares everyone in the face if they have eyes to see. The malfunctioning and decline is evident everywhere, especially the results of global economic policies on the ecosystems of the world. There are countless counter-voices, in-depth analyses, numerous challenging reports, a host of alternative journals and a countless stream of serious academic studies tucked away at university libraries. No one can claim ignorance, whether it is with regard to the effects of mining, forestry, fishery, agricultural practices, manufacturing, transportation, energy production, or any other area of the economy, society or the environment. There are detailed reports on any one of these aspects of life. This kind of ideology, as so many others, blinds adherents to the facts.

There are others who are very aware of what is happening but endlessly rationalize their actions and cynically profit from their privileged position. They no longer have any scruples and operate in secret, out of reach of international law, or other ethical considerations. Often it is hard to know who the misguided true believers are and who are the cynical profiteers or outright criminals. In practice it matters little, the results are much the same. Both need to be held accountable, challenged and actively resisted. That is not to say that within the present context there are not many dedicated men and women that try their best to do the right thing. For example, in the present school system in Ontario there are many dedicated teachers that realize what is wrong with the educational system and feel severely limited in their teaching. They see what is wrong but feel trapped within the structural limitations of their situation. Many end up being disillusioned or despairing that anything can ever change. They experience a profound sense of powerlessness and do not believe there are any alternatives. Others may try to adjust, make the most of it and try not to think about what is happening. This example can be multiplied by many others from every area of life.

This brings us back to the earlier question of what drives these executives and government leaders to pursue such destructive and ultimately evil policies that involve social injustice and violations of human rights. We have to keep asking what stops world leaders from taking drastic action and making fundamental changes while there is still opportunity. Is their delusion so strong that they would risk the demise of the human species including themselves and their own children and grandchildren? For the most part world leaders are educated, intelligent men and women. They love their families, they enjoy the arts, and they sponsor great charitable projects. They love music, the theatre and the outdoors. Some are Christians and go to church or practice yoga and meditation. They are polite and speak in cultured and appropriate diplomatic language. These are real men and women, think of the prime minister and his cabinet. That is what makes it so disturbing; that one can be totally blind to the consequences of one's actions and can find a rationalization for everything. As many have observed with regard to global warming, scientific facts are irrelevant and make little impact on someone's ideology.

To whatever extent they are directly responsible for and implicated in the systemic evil and violence of the present global economic system, it would be easy to demonize them. Some are indeed power hungry, greedy scoundrels, thieves, accomplices in murder, and people who willfully and callously violate and exploit people and rape and poison the environment. The majority when we hear them speak like our prime minister or some cabinet minister or a prominent business person, sound and look like well-suited respectable persons. They do speak in predictable phrases and familiar slogans, carefully orchestrated by their PR persons, to convince and reassure us that all is well. It is a surreal world, full of dissonance, because we like to believe that they are decent people that have our best interest and our well-being at heart. Nothing could be further from the truth. They are complicit in unspeakable evil. For is it not evil to be part of destroying the very basis of life on this planet for our children and grand children and all other creatures? Is it not evil to deprive coastal fishing communities in western and eastern Africa of their daily intake of protein by the hundreds of factory fishing boats in their territorial waters? Is it not evil to forcefully displace indigenous people and deprive them of their livelihood by numerous mining companies, many of which have their headquarters in Canada? What will they say to their children and grandchildren twenty or thirty years from now?

After a century and a half of capitalism, it is clear that the ‘trickle down’ theory is not working and has not lifted the majority of humankind out of poverty, provided clean drinking water and sanitation, education and health care for most and brought happiness and peace to all. This reality does not stop true adherents from believing that things will slowly get better, in spite of overwhelming evidence to the contrary. Even with regard to the environment they are confident that we will find technological solutions to mitigate climate change and make adjustments where needed. It seems that faith in progress, faith in continual annual growth, in increasing profits, in the ongoing liberation of global markets, in the stability of financial markets, etc. will continue until the bitter end. Unless there is some fundamental structural change, it will be business-as-usual.

Many studies and reports highlight what needs to be done to stop and reverse the present disastrous course. Repeatedly we hear and read the words, ‘we urgently *need* to change direction’, or, ‘we *should* take action now, while there is still time’, or any such phrases. Usually this is followed by: but there is not ‘the political will’ to do so. However, *it is not a lack of ‘political will’ that is preventing us to make radical changes*. Primarily it is because the ‘political will’ is to endorse the status quo of ‘business-as-usual’, of short-term profits and of minor (technical) adjustments that only represent a small portion of their profits. Seldom is the neoliberal ideology confronted on the level of their actual, destructive belief system, except by many neo-Marxists, eco-Socialists, indigenous people, and protest movements. This is regrettable, because it would help us to see more clearly the contrast between two or more different ways of life.

Historical reflection on alternative ways of organizing economic life can also help us to understand that capitalism is not the only way to do business. There is much we can learn from the past, both the positive and the negative, before the present global neoliberal economic system took over during the late 1970’s.

c. The tradition of liberalism

Neoliberalism has deep roots in the Western tradition. Inspired by Ayn Rand’s philosophy, it may have received a new articulation in the 70’s and 80’s by Margaret Thatcher, Ronald Reagan, and many others; but the tradition of liberalism is much older. It goes back to the Renaissance and the Enlightenment. There are many studies and conflicting interpretations of the Enlightenment, from the endless philosophical discussions about the relation between faith and reason to the views of post-modernists and followers of the Frankfurt school. In this context we will primarily focus on the *spirit of the Enlightenment as a cultural force* that has affected every aspect of Western culture, including economic life. At the end of this section we will come back to the great achievements and the abiding values of the Enlightenment, the so-called liberal values and ideals. The following description follows and reflects Bob Goudzwaard’s understanding of the roots of liberalism in *Idols of our Time* (1986) and several other major contributors. It is a critique of the ultimate spiritual direction of the Enlightenment as a driving and motivating force in Western culture. This is not an analysis of the great benefits the Enlightenment has brought about in many areas of society nor of the enduring human values it sought to promote (De Graaff & Smith, 2016).

The structure of medieval society

During the Middle Ages European society was strictly hierarchically organized and was dominated by the ruling clergy of the Christian church. The clergy and the nobility stood at the top of the pyramid, second were the military and the merchants, then the craftsmen and the farmers at the bottom. The bonded farm workers and slaves were without any status even though there were legal obligations on the part of the owners. Everyone, high or low, was to remain in the class they were born. It was a God-ordained order, with social and legal obligations and rights as well as protection and care for each class. Within this order, nature by itself was unredeemed and had to be completed and sanctified by the church through the administration of the sacraments and the blessings of the priest. There was no salvation apart from

the church. Natural life had to be transformed in order to participate in God's grace. This nature-grace duality characterised all of society and provided its spiritual impulse. Even in the present, the small fishing boats along the coast of Belgium have to be blessed by the priest before they venture out to sea and every new Belgian cabinet pays allegiance to the king in a high mass. In this way every dimension of life had to be lifted up to the realm of grace. Within this highly structured society there was little room for innovation and change. There were inventions but they could not gain general acceptance or be widely tolerated. Nothing could violate the divine order. Even music had to be composed according to traditional rules. Any composer who violated this order faced the wrath and condemnation of the church hierarchy. New scientific insights and innovative technical and economic developments were not tolerated. It was a closed society within which each dimension of life was enclosed in itself.

The rise of the Enlightenment

Slowly on the Renaissance, and to some extent the Reformation, began to break the power of this all-pervasive medieval cultural power of the Christian church. These new developments prepared the way for a new spirit that was emerging, the spirit of the Enlightenment. Within this new vision, the world was no longer seen as controlled and directed by God. The Christian view of God's Providence guiding this world was displaced by a Deistic view of God. God was still acknowledged as the divine creator, but a creator who set the world in motion and then left it to its implicit perfect natural order. World history could now unfold according to its own natural order. The law of nature took on the role of Providence. This Deistic view of providence as natural law guaranteed a good outcome for those who took this natural order into account. Through rational insight humans could come to understand the natural laws that governed all of life. God's role in life was pushed back, which freed the way for human initiative, investigation, exploration and development. The investigation of the natural world became the realm where humankind could reach its potential. Natural life was no longer seen as enclosed within God's providence, but as the domain of human investigation. People began to see themselves as free and autonomous, no longer chained to a hierarchical divine order. The vertical direction of life, focused on heaven, had to be overcome and replaced by a horizontal direction, focused on the development and expansion of life on this earth. Only when faith in God's rule over all of life was broken through could the new faith in Progress become a dominant cultural force.

This new vision heralded the birth of a new view of humanity and the natural world, in which humans were free and could control their own destiny and create their own happiness. Earth became the place where people could realise their potential. Through the light of scientific reason humanity could march forward. Fate was now in their own hands and under their control. The great accomplishments of the natural sciences were evidence of Progress. A new society was dawning. Paradise was within reach, not as some utopia but as something that would be ushered in by human accomplishment.

Faith in Progress

An unshakeable and ecstatic faith in Progress developed. Scientific insight and critical investigation would do away with superstition, ignorance and stultifying traditions. The deep trust of Western humanity in scientific rationalism was the guarantee for trust in the future. A better future was dawning for humanity, the betterment of all people, better education, better customs and arts, innovative technical and social improvements, in short, prosperity for all. Even human nature itself would be perfected. Every area of life would be transformed. A new era of freedom, equality, tolerance and prosperity was dawning, except for those at the bottom of society. A radically new cultural direction in life had taken form and was celebrated widely by philosophers, scientists, innovators, explorers, bankers and merchants. A new era had been inaugurated, the era of Enlightenment or the Age of Reason, in contrast to the preceding 'dark ages'

of ignorance, magic, superstition and domination by the church. Faith in human reason was certainly not new. It could be traced back to the Greek philosophers, but in Hellenism it took on a different cultural form. Only when the cultural domination of the church was diminished could the faith in scientific reason become a new cultural force.

However, from the very beginning this deep faith in scientific and cultural progress contained a fundamental contradiction: autonomous human freedom *versus* unlimited control. Through scientific investigation humans could liberate themselves from all external authority and exercise control over all of nature. But freedom of authority and control over nature, including human nature eventually turned against itself: free flourishing human subjects controlling their own *objectified* selves. Over time unlimited control became extended over the entire natural world, over all resources and all creatures large and small. Within this fundamental antinomy, humans ultimately turn on themselves and in the process violate all other creatures.

Since the Enlightenment this basic contradiction between autonomous freedom *and* unlimited control has remained unresolved. Historically the pendulum has swung back and forward between these two poles, whether within the economy (the welfare state *over against* austerity and the free market), in politics (red Tories and social welfare liberals *versus* free market adherents), in psychiatry (humanistic approaches *versus* behavioral ones), in education (holistic *versus* conceptual approaches), and so on. For an extensive discussion of this dilemma and its potential resolution, see De Graaff and Smith (2016), "Reclaiming the Enlightenment and Imagining a New Social World: Grounding Normativity".

In order to retrieve the human values re-asserted during the Enlightenment, the individualism of the free autonomous subject needs to be replaced by an alternative vision of the subject, namely, the subject always, already in inter-relation with all other subjects. This liberating view of the *inter-subjectivity of all creatures* provides a new perspective on nature and all societal relations, in which subjects are not objectified, controlled, manipulated, used or violated.

Achterhuis, H. (2010). *De utopia van de vrije markt*. Amersfoort: Lemniscaat.

Allen, A. (2016). *The end of progress*. New York, Columbia University Press.

Alford, C.F. (1985). "Jurgen Habermas and the Dialectic of Enlightenment: What is theoretically fruitful knowledge?". *Social Research*, Vol. 52, No. 1, (Spring 1985), 119-149.

Bronner, S.E. (1995). "The Great Divide: the Enlightenment and its Critics". *New Politics*, Vol. 56, No. 19. 1995.

Bronner, S.E. (2006). "Interpreting the Enlightenment: Metaphysics, Critique, and Politics". *Logos*, 3.3, Summer 2004.

Bronner, S.E. (2006). *Reclaiming the Enlightenment: Towards a Politics of Radical Engagement*. New York: Columbia University Press.

De Graaff, A.H. & Smith, R. (2016). "Reclaiming the Enlightenment and Imagining a New Social World; Grounding Normativity". Available from *Heathwood Press*. <http://www.heathwoodpress.com/rc-smith-arnold-degraaff-reclaiming-the-enlightenment-grounding-normativity/>

Goudzwaard, B. (1984), *The Idols of Our Time*, Downers Grove: Intervarsity Press.

Habermas, J. (1985). *The Theory of Communicative Action, Vol. I: the rationalization of society*. Boston: Beacon Press.

Horkheimer, M. & Adorno, T.W. (2002) *Dialectic of Enlightenment: Philosophical Fragments*, trans. Edmund Jephcott, Stanford: Stanford University Press.

Laeyendecker, L. (1986). *Brengt de vooruitgang ons verder?* Baarn: Ten Have.

Malik, K. (2014). *The Quest for a Moral Compass; a global history of ethics*. Brooklyn, NY: Melville House Publishing.

Snedeker, G. (2000). "Defending the Enlightenment: Jurgen Habermas and the Theory of Communicative Reason". *Dialectical Anthropology* 251, 239-253, 2000.

Taylor, C. (1989). *Sources of the self; the making of the modern identity*. Cambridge: Harvard University Press.

Wilson, H.T. (2002). *Capitalism after postmodernism*. Leiden: Brill.

Zuidervaart, L. (2007). *Social Philosophy after Adorno*, Cambridge: Cambridge University Press.

Progress and economic developments

This new spirit of Progress found fertile ground in the area of commerce. There were new worlds to be explored and new resources to be found. New banking centres developed. Business enterprises had become autonomous. Capital, land, and work were placed outside social control and influence. It led to a flourishing trade in slaves and the colonial domination of other peoples and their resources. The Golden Age of Europe has two sides, one very bright and full of new discoveries and a very dark side of slavery and domination. The market became a mechanism, a place where one individual could meet other individuals for private transactions. The idea of natural law was used to justify the development of a 'natural price', that is, whatever the market would bear or free competition. Natural law must now serve the economy. The prohibition against usury and other moral guidelines of the Middle Ages had lost their power within the economic realm. Ethical considerations became excluded from economic policies and practices.

Later on the moral philosophy of Utilitarianism (Jeremy Bentham, 1748-1832) would provide a justification and rationalisation for the new morality governing economic life. Striving for utility (which is pleasure) and avoiding disutility (which is pain) became applied to the possession of material goods (pleasure) and work (displeasure). Acquiring as many possessions as possible with as little work as possible was made into a moral good. It was called enlightened self-interest. The early capitalism of the sixteenth and seventeenth century set the stage for the industrial revolution (starting around 1760) and the rise of modern capitalism during the 1800's. The spiritual meaning of life which was focussed on the service of God was replaced by a materialistic vision of life. The meaning of life was now primarily defined in relation to material things. Economic worth was visible in the goods produced and the accumulation of possessions. From here it is not very far to Adam Smith (1723-1790) and the development of classical economics.

It is tragic to see where this new faith in Progress by means of rational insight and new technologies has brought Western civilization today: the degradation of our environment and the decline of human society. Through globalization with its market liberalization this disintegration has spread like a contagious disease across the globe. What started out as a new freedom to investigate, to explore, to understand, to experiment, deteriorated over time in a pragmatic and reductionistic scientism primarily in the service of a distorted economic development.

Exciting new technical advances changed into a narrow technology controlled by economic needs. More efficient ways of doing things became a relentless pressure to produce more. Efficiency, procedures, policies, and time management started to live a life of their own and increasingly replaced human initiative, creativity and responsibility. Assembly lines and computerized systems have made countless people extensions of their machines and computers. Exciting new democratic ways of governing have given way to dictatorships, imperialism, domination, corruption of power, and rule by a small elite group of political and corporate leaders. The military and police forces have been enlisted to promote and protect modern political and economic empires. What started out so well as new legal developments and the establishment of the 'rule of law' has widely resulted in the domination of the legal system over countless areas of life and the politicising of the courts. Participatory democracy, civil society, self-governance and local leadership have been pushed back to the edges of society and small groups. It started out so promising and exciting, freedom, equality, fraternity and tolerance. It was like a beautiful dream that is ending in an ugly nightmare. Within the neoliberal ideology of unlimited growth the inner contradiction of the Enlightenment has come to its ultimate conclusion: the increasingly administered society and the nearly uncontrolled global free market. Control run rampant at the expense of the free human subject.

d. The absolutization of the economic sphere of life

When one dimension of life is absolutized and deified as in the neoliberal ideology, all of life is distorted, including economic life itself. When that happens, the internal coherence of life is broken and every dimension is wrenched out of order. To 'deify' in this context means to put *our ultimate trust* in the economy and its progress. Then the growth of the Gross National Product (GDP) – heaven forbid that it falls below 3% - the rate of inflation, the interest rates, the upward or downward course of the New York stock exchange, the price of gold and oil, the exchange rate of the dollar, the fate of the housing market, the unemployment and inflation levels, the number of bankruptcies, the nightly business reports, become of central concern and dominate the daily news. Then natural disasters are ultimately appraised in terms of the millions of dollars that have been lost and the growing concerns of the insurance companies. Floods and droughts are evaluated in terms of what will happen to the price of grain or corn. Prime ministers and their cabinets become glorified sales representatives to foreign markets. Government officials end up handing out millions of dollars in subsidies from

public money to corporations, providing tax breaks and generally introducing favorable environmental and labor laws for business.

In this process of making the economic dimension the primary focus of life, the applied sciences and technology are pulled into the service of the economy, backed up and protected by political power. As a result the sciences, technology and the political and legal spheres have lost much of their independence. Within academics it is called private-public partnerships between universities and business. Higher education has been enlisted to serve the economy. By comparison, the humanities are more and more underfunded and fewer new appointments are made to their departments. Research and technological developments primarily serve corporate interests. Grants are provided based on the demands of industry. Political power is dominated and controlled by corporate interests. The legal system is increasingly politicized and serves to protect 'intellectual property rights' and the rights of corporations. This threefold dynamic of economics, science and technology, supported and backed up by political power is controlling more and more aspects of life. In this way all dimensions of life are distorted and cannot come to their own. All of society, every family, every person, all our surroundings, and most important of all, our place within the ecological system, all have been deeply affected by this one-dimensional view of life. For no dimension can function in isolation. Every economic activity and relationship affects every other activity and relationship.

Even such a simple human activity as 'playing ball', for example, can become distorted by its economic dimension. 'Playing ball' can be for recreation and social connection, which may involve a small fee to cover costs (its economic dimension), some insurance in case of accidents (its legal dimension), concern for the grass cover requiring little water and free of pesticides (its ecological side), openness to all who want to play regardless of background (the social dimension), and so on. In this case all these other dimensions serve the main purpose, to play, to enjoy, to let down, to relate, to watch each other play, in short, to re-create one self. Local councils are increasingly pressured to raise 'user-fees' or close facilities because of cut-backs in provincial or federal funding. In times of 'austerity' and 'budget deficits' public services are the first to be cut back. 'Stimulation of the economy' by means of tax breaks and export subsidies and a host of other measures take priority. Expenses for the 'common good', such as community centres, gyms, swimming pools, playing fields, and so on, are considered luxuries and a drain on the economy. When public protests become too strong, kids who cannot afford to play are 'generously' provided with uniforms and equipment. 'Playing ball' has also become a corporate enterprise in which expert players are bought and sold to the highest bidder and the fans buy expensive tickets to watch the game. Junior teams are promoted in order to provide new expert players in the future at considerable cost and lots of driving for the parents. In all these instances the economic dimension dominates the recreational aspect. The same is true for figure skating and dancing. If a child shows 'promise' in any of such areas, it does not take long before the economic aspect starts to dominate and parents are expected to sacrifice time and money for their child.

The ultimate driving force

Economic progress has become the *ultimate driving force* in our culture and through economic expansion, exploitation and domination, of all cultures world-wide. Like a fanatical religion, it has left a trail of devastation in almost every country and region. This delusion of endless economic growth has brought about the global decline of the soil, the land, the air, the water, and the oceans. The believers in this ideology have been literally struck blind. It is business-as-usual, pulling us all along to the edge of disaster. In view of the terrible consequences, the real 'terrorists' are the men and women in business suits that promote and serve this economic system. They are a danger to our national security. This does not take away that there are countless 'public servants' in responsible positions who try hard to work within the system and are doing the best they can. But in spite of good intentions they are caught up in the fundamental direction

of the economy. Nor does it mean that nothing good is ever produced or that no helpful policies are ever developed, and so on. Much good still happens, for which we can be grateful. But these limited structural changes and advancements do not alter the basic direction of economic and public life. The train is headed for disaster, even though coffee and dinner are still served, conversations are pleasant and movies and music provide entertainment and inspiration...

In this section we have looked at global capitalism not just as an *economic* ideology, as several studies refer to it, but as an *ultimate faith* with its unquestioned doctrines, its absolutes, its patron saints, its virtues, its accomplishments, its blindness, its destructive world-wide consequences. It is a total, existential, ultimate conviction about life. Describing and evaluating the driving spirit of global capitalism could be seen as a precarious undertaking. But without such a careful description we cannot adequately gauge the *depth and extent of the deep conviction* that undergirds and comes to expression in global capitalism. It is an all-encompassing view of life that has penetrated every aspect of our existence. On this level of ultimate convictions there is a fundamental choice. It is about where we take our stance in life and the direction we seek to follow. We all waver and falter, but following a life direction is not a matter of perfection or absolute authenticity. The important thing is the commitment to the direction we seek to live by and realize each day. At the core it is about a choice between life-enhancing and life-destroying ways.

Three fundamental economic ways of life

The one-sided focus on the economic sphere of life since the Enlightenment and the present global spread of neoliberal economic policies means that peoples' choices have basically become limited to three fundamental ways of life. Because of this economic reductionism there are essentially only three options: *Capitalism* in all its different historical and present-day forms; *Communism* and *Socialism* with its state-controlled economies; and what we shall call, a *Third Alternative*, that seeks to do justice to the integrality of life without privileging any one aspect. Practically, especially in the Global South, we can learn much from eco-Marxism and eco-Socialism in their analysis of concrete situations, both socially and ecologically. In their critique and social action they are an integral part of a Third Way. I am indebted to current writers from both those traditions. In the present situation and in this context there is no need to engage in a critical evaluation of their theoretical frame of reference. The Third Alternative has come to expression particularly in the peasant and indigenous peoples' movements and the many workers' cooperatives as we have already highlighted in the examples from mining, peasant farming, local forestry and fishing cooperatives. Worldwide countless alternative groups and organizations are pursuing and articulating similar goals and ways of living. Together they represent and are actualizing a Third Alternative in all its many variations. The following chapters are intended to provide a greater *foundational* perspective, beginning with the economic sphere, to this Third Alternative. Many of the alternative movements are inspired by various religious faiths, whether indigenous, Jewish, Christian, Islamic, Buddhist, Hindu, or other world religions. Chapter 10 gives an overview of these engaged religious movements and their concern for social justice and the environment. Many people and movements, religious and non-religious, have contributed to our understanding of a Third Alternative and will continue to do so. No one has a corner on the truth. All people of good intent struggle daily to give form to a way of life that is healing and of benefit to all. An alternative vision can inspire and guide us in actualizing the life we want to live.

Resistance and hope

In the face of the dominating and overwhelming power of neoliberal ideology, we can only present a radical "no" to this destructive force and join the growing protest. Often 'civil disobedience' is the only option that we have left. Although the effect of neo-liberal economic policies has devastating and horrifying consequences for billions of people and the environment, *the effects are not yet total, that is, as long as the ecological basis of life maintains itself*. Even those most

responsible have other sides, make exceptions, try to improve their practices, make some adjustments, or compensate. There is still time to change direction and develop a new way of life. There is hope. Throughout history, people have always found ways to oppose tyranny and exploitation, often after great suffering, persecution and death. This is true for today as well. Protestors are jailed, unions are busted, opposition leaders are tortured and killed, indigenous people protest and are forcibly moved or killed, landless peasants and factory workers organise themselves and risk their lives. Everywhere there are opposition groups and protest voices that will not be silenced. Life can be distorted and violated but it also pushes back. Every dimension has its own inherent 'normativity', which means its own *inner structure or givenness* that pushes back and takes revenge if we don't follow its direction. Finally, we can all decide *to live the alternative*, as much as we are able to, communally, locally and regionally within the political space that still exists or that we can claim.

The guidelines that are inherent in life and provide direction are not static 'eternal ordinances' or 'natural laws'. They are of the nature of guideposts in a forest or countryside that indicate a direction to walk; they show us a way, no more and no less. These guidelines as much as we come to know them, provide *a frame of reference for a way of living that is in harmony with all of life, without deification*. In the following chapters I will elaborate these guidelines. They present us with a *phenomenological ethics* that is inherent to life. It is a way of living that is always open-ended, exciting and full of new discoveries. We don't know the half yet of what each subject, including ourselves, is capable of. This kind of openness beckons and invites. The same dynamics are true for economic enterprises and for all other human activities. In chapter 6 we will look more closely at the nature of these guideposts or touchstones.

In previous sections we have called the neoliberal global economy a one-dimensional economy that is not integrated with and opened up to the rest of life. It is an approach to life that absolutizes the economic sphere, as if it can exist for its own sake, for the accumulation of wealth for a minority. The belief is that it can do so by means of the 'free' market and by means of speculative finance. The results are poverty and injustice for a great majority and the increasing destruction of the environment. *This is the idolatry of the present capitalist economic system; the gods in whom they trust.*

Chapter 6: An Alternative View of Economic Activities

- a. Another way is possible
- b. It's the direction that counts
- c. Economic life and its interconnectedness
- d. An economic guideline: providing 'rightly'
- e. Non-economic enterprises

a. Another way is possible

Our modern form of neoliberal, global capitalism is not the only or best way to 'do business'. Capitalism itself has gone through many stages of development over a long period of time. Even today there are many variations, especially in Europe, Asia, China and Latin America. Each nation, depending on its geography, climate, resources and cultural and religious traditions, has developed its own form of capitalism in the developed world and many hybrid forms in the developing world. Many books on economics don't mention the word 'capitalism', assuming that it is the only viable and rational way to organize the economy. That raises the question of alternatives to our current capitalist system. Are there workable economic alternatives and, if so, how can they be developed, or can they only arise out of a radically new direction and new practices, locally and regionally?

Usually 'the economy' is presented as an entity in itself that exists separate from the rest of life. Such an 'economy' is an abstraction and does not exist. By 'the economy' we mean *people working the land, fishing, harvesting trees, extracting minerals, manufacturing tools and machinery, etc.* These are all actions and ways of doing; they are expressed by verbs and not nouns. We will use the word 'economic' in the sense of and synonymous with *providing for our basic needs in an economic manner*. So every time the word 'economic' is used we need to read 'providing in an economic manner'. I have chosen the word 'providing' to indicate that all economic activities are based on constructing, forming, making, organizing, in short, on making it happen or providing. During millions of years, from being gatherers humans have become growers and makers. I will elaborate on this viewpoint of 'providing in an economic manner' in the coming sections.

If the 'economy', that is, our ways of providing, is opened up to all the other dimensions of life; if it is embedded in and functions within its ecological frame of reference; if it serves physical and emotional well-being; if it creates communal living spaces; if it fosters social justice and good governance; if it promotes quality of life; then economic activities and relationships will be radically different than they are today. To develop such an inter-connected economic system, we are not only up against the rich and the powerful, against political and corporate power, but also against the economic structures within which they operate, and within which all of us function in the developed world. For many of us it is difficult to imagine that we can actually develop an alternative economic system. We have grown up with the idea that capitalism is the best way to do business. We are told it may have its flaws, but it is better than the failed forms of communism and socialism with their centralized planning and dictatorships. To some degree we have all internalised the present system. It is part of our lives and we have assimilated its values.

Yet economic life can be organized very differently. This is not an idealistic or utopian vision. It is a new way of looking at the economy. If for no other reason, it is refreshing and inspiring to listen to the witness of peasant farmers, local villagers and indigenous people. They speak very matter of fact and unselfconsciously about how they view life. It is their frame of reference; that is how the world is. Their view of life gives us a sense what it is like to have a different worldview. We do not need to adopt or copy their practices, but their approach to providing for their needs can inspire us in our own situation to develop an alternative way. It is not far from us to implement such an alternative vision. We can develop an economy that is not controlled by making a profit, by unlimited expansion, by the exploitation of resources and people. There is *Another Way*, as the peasant farmers call it; it is a way that is rewarding, meaningful and inspiring. It is not a way without its ups and downs or without difficulties, but it is a way that, step by step, leads to the enrichment and fulfillment of life. It is *Another Way* that gives meaning to our existence.

There are many concrete examples of such alternatives: from the worker owned and operated factories in Venezuela; the communally-run water management in a city in Spain; many local and regional small forestry and hydro-electric cooperatives; and small cooperative fishing enterprises. Crown corporations of whatever kind do not need to make a surplus profit. The workers could have the primary responsibility and supervision of the operation. They can operate for

the common good and invest some of their surplus in training, infra-structure and long-term development. Non-profit organizations could be the order of the day. All financial services could be provided by credit unions. We do not really need any of the present-day corporations or financial and banking institutions. If there are any we do need, they could be cooperatively owned and managed. The alternative practices that exist can serve as an inspiration and general guideline for further developments. There are a host of practical alternatives for every area of life and countless mini-projects and suggestions. Humans are inherently creative, often in astounding and surprising ways. It all implies a different way of life and a different worldview. In Chapter 10 we will elaborate on these alternative ways of providing for our needs. They are glimpses, but enough to build on and to expand.

b. It's the direction that counts

Once we are delivered from the straightjacket of academic economic theory and neoliberal capitalist economic policies and activities, we can once more explore what economic life can be like, and ought to be like from a phenomenological ethics point of view. In the most general sense 'economics' is simply a *particular way of doing things, namely, economically*. Economically in this context means, doing things in a *frugal way*: sparingly, not wasteful, ecologically sustainable; *prudently*: with insight and knowledgeably; *resourceful*: creative, innovative; with *mastery*: know-how, craftsmanship, skillful; with *satisfaction*: accomplishment; with *fairness*: working together, communally *sharing and exchanging*. Together these words describe *structurally* what it means to do things economically. At the same time this description indicates the integral interconnection of our economic way of functioning with all our other ways of being, from the physical, emotional, creative, technical, cognitive, to the social, jural and ethical. Life is both unified and multi-dimensional. This *structural description* does not say anything about the fundamental *direction and focus* of doing things economically. That direction comes from the way of life we are committed to as articulated in our worldview. It guides and gives motivation to our economic way of doing things. This core direction we are committed to can be a Capitalist way, a Marxist vision, a Socialist approach, an egalitarian Peasant Way, Indigenous ways, or it can also be an Islamic, Buddhist, Jewish, Christian, or other religious way. They each have their own different and unique approach to economic life, both for better and for worse.

Providing for our needs is motivated and guided by these fundamental commitments to a vision and way of life. Secondly, providing ought to be guided by the basic phenomenological directives for each dimension of life, whether the physical and organic, sensitive, formative, aesthetic, social, and so on. A particular way of life and worldview may do justice to or distort these guideposts. Usually economic activities take on a *concrete, organized form as in agriculture, husbandry or manufacturing, with its needs for organization, transportation, processing, and distribution*. That primary economic focus on providing for our most essential needs characterizes places of 'work', like farms, fisheries, forest companies, factories, businesses, etc. Their purpose is to provide basic goods and services we need to survive and enhance the quality of life. A 'no-growth economy' or an 'economy of enough', is rich, rewarding and fulfilling, since it involves, as we might put it, 'the simultaneous realization of all needs'. Such a 'non-profit economy' *opens the way to different kinds of exchange and sharing of skills, tools, experience, foods and products*.

Businesses, factories, places of work, farms all exist for the purpose of providing for basic needs and the enhancement and fulfillment of life. *They do not exist to make a profit and create a surplus*, as the Capitalist vision would insist. Creating a surplus of goods beyond what can be shared or used locally and regionally soon becomes a distortion, because an oversupply requires finding new markets and creating new needs. Overproduction sets in motion a vicious cycle of downsizing, unemployment, shortages, new investments and a new oversupply, in an endless cycle that has plagued capitalism from the beginning. Such an approach ends up wasting resources and violating ecological boundaries and human rights. In the next chapter we will present a more detailed account of an 'economy of enough' of a

traditional First Nation's community, the Cree people. In chapter 10 we will explore several other examples of such a 'non-profit' way of providing and enhancing life. These examples will help us to begin to imagine that another way is possible that honors ecological boundaries and leads to the enrichment of life.

c. Economic life in its interconnectedness; a multi-dimensional approach

From the beginning of human history and in all cultures, people have organized themselves to provide for their needs. These needs cover the whole range of human life, from the most basic ones like food, clothing and shelter, to emotional, creative, nurturing, social, intellectual, and spiritual needs. In this way, as an integral part of providing for all human needs, *economic activities and relationships serve all of life*. It is one dimension of the integral coherence of life. Local fishers will say, fishing is not just making a living, it is our way of life. The economic dimension can be the central focus of activities like farming, fishing, manufacturing, and so on. At other times the economic dimension is submerged and part of a different focus like providing for playing ball, teaching, painting, nursing, designing, transportation, exercising, writing, parenting, dancing, researching, socializing, protecting, worshipping, celebrating, inventing, etc. In these instances the 'providing' exists for making those activities possible. In doing so, economic considerations ought to play a very secondary role and serve the primary goal of the activity and organization. What matters is whether these other kinds of activities are supported and done economically, that is, sustainable, insightful, resourceful, skillful, inclusive and benefiting the whole community.

In this *on-going discovery* of what is an ecologically sustainable way of living, the *insights* gained from our *practical experience*, our *technical know-how* or *craftsmanship*, our *creativity* or *resourcefulness*, and our *ways of working together* and *exchanging* can help us. People's knowledge, mastery of materials and ingenuity is a constant source of inspiration whether we look at ancient ways of preserving water or storing grains, or today, how a local gardener is developing new ways of growing vegetables year-round in a northern climate using a minimum of energy. We ought to use and develop the earth's riches rightly, that is, for the benefit of all creatures. *Using and developing the earth's resources, the land, the waters, the forests, the oceans to sustain all creatures, including ourselves and to do so with all our insight, all our ingenuity, working and developing together, that is the guide post and our inspiration to create well-being for all.*

Everything has its economic dimension even though it is not always the dominant focus. This simply means that there is an integral coherence to all human activities and relationships. Every aspect of our life plays its role, no matter what we are doing. It also means that no human activity can ever be reduced to a purely economic actions or relationships. All the other sides of our life play their role when we are at 'work': like our physical stamina, our emotional well-being, our work relationships, the quality of the air, the meaningfulness of the work, etc. *Homo Economicus* does not exist, even though many like to pretend that people can be reduced to mere 'investors', 'managers', 'producers', 'workers', taxpayers, and 'consumers'. It is one of the many absolutizations that humans are prone to. In such views humans *are nothing but* economic, or political, or rational, or aesthetic, or social or spiritual creatures. Each of these ideologies represents a one-dimensional view of human nature. These core features of making a living can be violated or honoured. People can be free to explore, invent, improve, contribute, share and as a result find meaning, satisfaction and fulfillment.

The opposite can also be true, people can be controlled, enslaved, impoverished, subjected to mindless drudgery, feel devalued and end-up hating what they are doing without escape or future. One only needs to think of the millions of enslaved or bonded men and women. Although in better circumstances, millions of better-off workers feel equally trapped by their jobs and hate their jobs. Many live for their 'free time' only to discover they are equally controlled by

the 'entertainment industry'. Within the present system there seems to be little escape. In many work situations today, the phenomenological guidepost for economic activity is violated. People feel pressured, overworked and undervalued, and as result become unhappy, depressed, anxious, or develop chronic illnesses. When employers become worried by the high degree of absenteeism, they may make some adjustments, but they seldom address the core of the problem. They may change the colour of the walls, pipe in different music, provide a gym or yoga classes, and support family counseling; whatever will make for higher productivity. The predominantly capitalist way of organizing work today violates the basic economic guideline and as a result distorts the entire economic sphere. A multi-dimensional integral way of providing for our needs takes all our needs and all dimensions of life into account.

d. An economic guideline: 'providing rightly'

It is only by our actual involvement, by doing, by our openness to new situations, by learning from past experiences and from others, that we become aware of what works and what does not work. Most of all, it is by our awareness of how the economic dimension relates to all the other dimensions and its integral but limited place in the whole of life. It is in that context that we discover what is good economically. Only such awareness and openness to new information and changing situations shows us what is economically workable and makes life flourish. Very concretely it means that we ask ourselves how the work situation is organized, horizontally or vertically; how the responsibility is divided, from the top down or shared by all; what resources are used, ecologically sustainable or not; for what purpose, for useful and durable products or not; how resources are shared, equitable and accessible to all or not; who has 'ownership', communally or not; what needs are provided for, primarily only one or many needs, and so on. In short, unless economic life is opened up to and in harmony with all the other aspects of life, it cannot flourish and becomes distorted.

In providing for our physical needs: food, water, shelter, clothing, certain basic features continue to stand out that provide helpful insights for future developments. Some of these abiding elements we can describe and point to. Together they form an 'economic guideline'. The most important and central question is *what* resources do we make use of and *how* do we use them to provide for our basic physical needs. How do we make use of the land, forests, water, or any other resources? Sometimes the word 'stewardly' is used to describe the way we ought to use the earth's resources. The implication is that we ought to be *good* stewards of whatever 'nature' provides. However, that does not tell us anything about what 'good' means in this context. Good for whom or good for what? It is at this point that we need to broaden our perspective. 'Good' in this context can only mean good for the whole earth and all creatures, including the human community. We are creatures of the earth and an integral part of a complex ecological system.

We cannot place ourselves over against or apart from nature, not even as good stewards. Nor is it sufficient to try to *balance* our economic needs with environmental and social concerns. This fundamental duality has brought us to the brink of ecological breakdown. The same dualism shows itself in the mind-body or the subject-object distinction, humans over against nature. We do have self-consciousness in distinction from many other creatures, but that makes us all the more responsible for how we deal with our place in the total ecological make-up. We are subjects among a host of other subjects that need to be honoured in their own subjectivity and way of functioning. We always live in inter-subjectivity. For many of us that is a new way of thinking about the 'environment' or 'nature', not as something separate from us but as an integral ecological unity that includes us. Chapter 10 will present many examples of alternative way of organizing 'the economy', by which we mean, organizing the way we provide for ourselves in an economic manner.

e. Non-economic enterprises; an example

When we are not engaged in primary 'economic' activities, like farming or manufacturing, the question is, do economic considerations play a secondary and supportive role or do they dominate? In those instances, like a hospital, do the

economic concerns of providing health care take on a subordinate role and serve the well-being of the patients? Hospitals exist first of all for the healing and care of patients. All the relationships and functions within a hospital ought to be guided by that directive, to serve and care, if it is to function well. Hospitals are not economic enterprises. Their primary goal is not to make a profit and function as efficiently as possible, allowing nurses only to perform the computer dictated tasks within a certain monitored time-span. Such openly or disguised forms of efficiently-run, for-profit-hospitals are a distortion and violation of the very nature of health care. They ought not to have to take recourse to having fast food outlets on their main floor or unhealthy food outsourced and brought in for the patients in order to save money and survive. They ought not to have expensive parking fees for emergency patients and visitors in order to make money. Within such a distorted system family members end up bringing healthy food and having to be the patient's advocate, watchdog and caseworker. When there is no time for more integral care mistakes happen which can have deadly consequences. The statistics in this regard speak for themselves.

The accessibility and size of the hospital, the physical facility itself, the spaces on the different floors and in the rooms, the emotional aspect of the care, the organizational structures and time schedules, food and diets, legal concerns, family involvement, openness to existential questions and struggles, all those aspects of a hospital ought to serve the healing and well-being of the patients. That ought to be the fundamental guideline of providing physical care and support for the healing process. In such an integral approach the more basic questions about the nature of physical health and the integration of health care in the whole of the person's life can also be raised. It would fundamentally challenge the objectification or commodification of the health care system along with the pharmaceutical, insurance, medical research and other related industries. The health care system as it exists today in the developed world is complex and divided over many separate services and institutions, all of which requires its own analysis. For our purposes it is sufficient to illustrate that health care would take on a very different form if the fundamental guideline of healing and care were to direct every aspect of hospitals, clinics, treatment centres, and the procedures, accessibility, family involvement, affordability for all, and public ownership, etc. That does not mean that it can't or should not be done economically in the sense of doing things in a *frugal way, prudently, resourcefully, with mastery, satisfaction, fairness and working together*.

The same examples could be given of schools, colleges and universities, of local libraries, recreational facilities, public transportation systems, community developments. None of those exist for the sake of making a profit. Most of those organizations and institutions ought to be communally owned, supported and directed. They are in the 'public interest'. In all those instances the economic aspect ought not to dominate but serve the nature of the organization, whether it is a library, a sports organization, a museum, a political party, a school, a mosque, a chess club or a music festival. None of these institutions and organizations exists for the sake of making a profit. In each instance the economic dimension, the 'providing' part, ought to be guided by the central purpose of the organization, whether that is learning, recreation, worship, doing justice, or any other purpose for which people gather and organize themselves. Even when providing basic physical goods and services are the primary objective, the producing, growing, manufacturing ought to be guided by what serves the whole of life and well-being, including the environment. Such an integrated approach to the economic dimension of life stands in direct opposition to the commercialization, financialization, legalization and commodification of everything. It stands in radical opposition to the dominant capitalist way that seeks to commercialize and privatize every aspect of life in order to make a profit. All the subsidies and other financial supports that are now directed toward corporate mining, agriculture, fishing, etc., could provide sufficient finances for these public services.

There are no recipes or ready-made blueprints for organizing economic activities differently. All we have are the built-in guideposts that show us a direction: go this way and things will work out. It is only in the integration of economic activities and through actual practice and experience that these economic directives or guidelines become visible. And in

each new situation these 'normative' or phenomenological guidelines need to be worked out anew and actualized. Such is our response-ability and in that integral process of responding to concrete situations *economic meaning discloses itself to us* – for a time and a place. It is an ongoing process that provides meaning and purpose. To develop such alternative economic ways of providing for our needs also requires a different view of science, technology, and human governance, since they have been the cornerstone of neoliberal capitalism. Scientism, technicism, efficiency and domination are the outcome of a long tradition of Western rationalism. In the following chapter we will give an overview of an alternative view of human knowledge and science, of technical developments, and of good governance. Instead of 'in science is our trust', science and technology can be an aid in furthering human well-being.

Chapter 7: An Alternative View of Science, Technology and Governing

- a. An alternative to Western rationalism and scientism
 - 1) The integral unity of experience, knowledge, worldviews; some examples
 - 2) A holistic view of human knowing
 - 3) Theoretical knowledge: an alternative to scientism
 - 4) A phenomenological ethics
- b. Technology that serves all of life; an alternative to technicism
- c. Administering justice; an alternative to economic imperialism
- d. Human nature
- e. The meaning of human history; the future is now

a. An Alternative to Western rationalism and scientism

We often hear the criticism that protest movements and organizations have no alternative vision beyond their immediate cause. It may be true that strong protest movements are not always unified and clear about the changes they

want to see. People intuitively know from experience that something is radically wrong even though they may not have articulated an alternative vision to the dominant ideology. In the previous chapters I have tried to describe a different way of life and worldview as an alternative to neoliberal capitalism. In this chapter I want to take this foundational perspective a step further and articulate a radically different view of human knowledge, mastery and of doing justice. The development of a third way of life and a different worldview *can be aided by the articulation of this different foundational perspective.*

We will first look at some remarkable examples of a much more integral way of knowing and technical mastery. In these examples economic activities and relationships have an integral and relative place in the total life of a particular community. They also exhibit an exemplary interaction between their beliefs, their changing experiences and their experiential knowledge. The examples are from both more traditional and modern communities. Following those examples, because of its importance in Western society, I will present an alternative view of science and technology.

Neoliberal capitalism has increasingly enlisted science, technology and political power in the service of economic expansion. An alternative direction needs to come to terms with and find alternatives to the different forms of (neo-)rationalism, technology and power. 'Science-based solutions', 'technological innovations', 'more efficient governance structures'; these phrases give expression to this threefold incorporation into neoliberal economic policies and practices. As we highlighted in previous chapters this rationalistic tendency has a long history in the Western tradition. Ever since the Enlightenment, science, technology, and political power have been increasingly enlisted to serve capitalist economies. Over against this distorted view of human reason and human mastery we need to place a very different view of knowing and technical doing; knowing that is integrated in the whole of life and serves all of life. Within such an alternative vision *theoretical knowing has a limited place and is of service rather than being an ultimate authority.* As an ultimate belief - in science is our trust - it has permeated our entire culture and is fast spreading across the globe. The news, articles, reports are permeated with phrases like 'science-based', 'scientific evidence', 'we need more scientific research', 'technological advances will solve these problems', and so on. If it is not science-based, it has little validity and cannot be trusted, no matter how limited the evidence and how flawed the research. *The absolutization of science has made science into a basis for ultimate trust.* This one-dimensional view of science means it is no longer inter-related to all the dimensions of life. It leads a life of its own, or rather, in this context, it follows the research money. Over against this misplaced trust in science and technology we want to place another view of knowing, scientific theories and technological innovations.

1) The integral unity of experience, knowledge and worldviews; some examples

The first example is from some of the traditional Cree communities in the north-eastern part of Canada, in James Bay. The material is based on the 'field studies' by F. Berkes from the early 1970's until the 1990's, when he lived among them as their 'guest' at different times and accompanied the hunters on their fishing trips. A final report of his observations was discussed extensively, written and summarized by the mature hunters of the community and recorded by Berkes, ([Cree Trappers Speak](#), Bearskin et al. 1989). In his *Sacred Ecology* (2008, Second Edition) Berkes gives a detailed account of the nature of traditional knowledge and the close interrelationship between experience, situational knowledge and beliefs.

Throughout his book he contrasts this adaptable, open, experiential knowledge to scientific knowledge. It is a difference between *knowledge as process* and *knowledge as the thing known*, that is, identity or ontological knowledge. He sees the origin of this last viewpoint in the long rationalistic tradition of the Enlightenment, especially as it came to expression in the Cartesian dualism of culture versus nature, of humans versus the environment, of mind versus matter, of subject versus object. Within this tradition the ecosystem is primarily seen as a machine, as a mechanical system. In

this view science and technology are strictly quantitative and focussed on general laws. It is a reductionistic view with *time and context-free generalizations*. Nature is disembedded and separated from its context to provide a sense of objectivity and of certainty. It is an exploitative instrumental attitude toward nature; nature as a commodity. Nature is essentially seen as non-living, as a machine to be dissected, analysed and manipulated; dominion over nature. It represents instrumental and utilitarian values, and it results in a distortion of science and technology. Such a view alienates people from themselves, each other and nature. People become like aliens because their identity is cut off and separate from the world around them.

Research by government scientists of the subsistence fisheries as well as the policies set by different government departments is often done from this scientific perspective. For the commercial fisheries in the subarctic such guidelines might include restrictions on gill-net mesh size, minimum fish size, catch quotas, seasonal closures and so on. Generally, different governments and the world community have been unable to enforce these rules and monitor the constant violations. From the overall decline of the fisheries world-wide, including Canada, it is evident how inadequate and inappropriate many of these policies and practices have been and are. From the Cree fishers point of view they have been downright foolish, disrespectful, inefficient and ultimately exploitative and destructive. They represent the illusion that fishery departments can maintain and develop sustainable ways of fishing based on a distorted kind of science and technology that is not rooted in experience.

Over against this scientific and technicistic rationalism, Berkes places the integral, holistic, living, open-ended and adaptive view of knowledge of many indigenous and local communities. It is based on a sense of the unity of the biosphere and humanity; a system of interconnected relationships. It is dynamic, based on experience and adaptive to changes. It is not just knowledge of how to live, but the actual living of life. It is action orientated. It is knowledge-as-process, not knowledge of the thing known. This kind of knowledge is localized in space and time and in the life of the community. It is always contextual. There is a deep commitment and attachment to the local environment, without the separation between nature and culture. Their 'systems' of thinking and their 'mental models' are not about the identity and attributes of things, the things in themselves, but about the integral unity and functioning of everything. It constitutes a different way of seeing the world, a holistic view.

Within this integral perspective, their worldview plays a crucial role. Their beliefs validate and reinforce their practice and, vice versa, their practice informs and adjusts their beliefs to new situations. Experience is not restricted or distorted by their beliefs; rather they confirm and reinforce their practice. Their knowledge, practice, and worldview form a unified whole. People are part of the total community of beings; they have a kinship with all creatures. They belong to the land and seek to live in peaceful coexistence with all other beings. Traditional ecological knowledge contains an ethical and belief component, and in their worldview nature pulsates with life and spirit. Hence the title of Berkes' book, *Sacred Ecology*.

It is too simplistic to see such visions of life as remnants of nature religions or a pantheistic mythical worldview. The words 'a transcendental-immanence' already comes a little closer to describe the 'mystery' of life, that is, the ultimacy or foundation of life. There is a depth of meaning to everything and all interactions that continues to reveal itself. Life cannot be captured in reductionistic biological or physical concepts. Such an approach has led to the violation of life. Whether one shares these traditional worldviews is irrelevant at this point. The important thing is that they tried to capture something of the integral unity and the *on-going disclosure* of all creatures and their inter-relationships. In some way, we too need to account for this *phenomenological givenness* and especially the *phenomenological ethics* or signposts inherent in all the dimensions of life. This depth dimension cannot be explained by saying, 'it's just the nature of things', because it contradicts most current views of reality and ethics.

The Cree fishers provide a concrete example of this interconnection between experience, knowledge and worldview. Through a long tradition of hunting, trapping and fishing, they developed a very extensive and rich understanding of their environment. Their knowledge of the subarctic, of the land, the lakes and rivers, the seasons, the animals, the fish, the birds and the plants based on their experience was passed on from one generation to the next. With regard to fishing they learned what fish would be available in abundance at what time of the year, where and when to set their nets, what size gill nets to use for which kind of fish, and so on. With the small size (2 ½ in.) gill nets they would mostly catch smaller cisco fish, with the larger ones (3 ½ in.) they would primarily catch large whitefish. These sizes of nets counted very closely, because different species of fish grow and mature at different sizes. They would catch an abundance of cisco fish close to the village several times during the season. They matured at a smaller size and seemed to be able to withstand the higher fishing pressure. The whitefish which had later maturation times were fished in lakes further away and visited on a rotational basis with rests in between. In this way they solved the problem of fishing for two different kinds of fish without depleting either resource. Although their practices were much more complex and refined, this provides a small example.

They fished for what they needed which was about ten kg a day for an extended family consisting of three nuclear families. This was more than sufficient. They would have enough smoked fish left to exchange with relatives and friends. There was no incentive to create a surplus. They managed their resources in an ecological sustainable way in spite of unpredictable changes from year to year. In fact they were better managers than most Western fishers guided by biological science and technology. Although they did not have quantitative information in order to control and predict sustainable yields, they had qualitative knowledge of the seasons, variations in the weather, and fish populations. Their understanding was experientially based and not on graphs and abstracted concepts. To them to try to control, manage and predict the catch would seem like the immodest aims of immature people and outright foolishness.

The Cree fishers understood, for example, that there are many large fish in the subarctic waters, but that, after maturity, growth rates slow down. They knew that there are populations of *many* small fish, *few* intermediate sized and *many* large fish. This gives the mistaken impression that in many unfished or lightly fished lakes there is an overabundance of large fish. In reality the actual fish production is relatively low. The large subarctic fish take a very long time to renew themselves, which means that only a small proportion of the large fish can be harvested each year for a sustainable fishery. If they are exploited they will decline and are unable to maintain themselves, some more rapidly and others more slowly. Using larger mesh size nets further away in waters fished only intermittently helps to maintain an older and larger fish population. Commercial fisheries tend to do the exact opposite, catch as many large fish as quickly as possible and when depleted, move on to the next lake or bay. One can only fear the worst as the arctic fisheries expand and large foreign fishing boats move in with the opening up of the Arctic ocean. The Cree would call such practices arrogant, playing god, disrespectful and self-defeating because then the fish would no longer make themselves available.

CBC News. (April 15, 2011). Beaufort Sea commercial fishing banned. Retrieved from <http://www.cbc.ca/news/canada/north/beaufort-sea-commercial-fishing-banned-1.1028286>

CBC News. (January 15, 2013). Arctic Fishery Alliance says too many small turbo caught. Retrieved from <http://www.cbc.ca/news/canada/north/arctic-fishery-alliance-says-too-many-small-turbot-caught-1.1379217>

Christie, P. (July 21, 2012). Climate change opens up Arctic fisheries – but should Canada cut bait? *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/climate-change-opens-up-arctic-fisheries-but-should-canada-cut-bait/article4431852/?page=all>

David Suzuki Foundation. (2012). Dragging our assets: Toward an ecosystem approach to bottom trawling in Canada. Retrieved from http://www.davidsuzuki.org/publications/downloads/2007/DSF_DraggingAssets.pdf

Dawson, S. (January 14, 2013). Arctic Fisheries Alliance slams trawlers for catching too many immature fish. *NUNATSIAQ*. Retrieved from <http://www.nunatsiaqonline.ca/stories/article/65674arctic-fisheries-alliance-slams-trawlers-for-catching-too-many-immatur>

Emmerson, C. (March 2, 2010) *The future history of the arctic*. doi: [10.1111/j.1931-0846.2013.00024.x](https://doi.org/10.1111/j.1931-0846.2013.00024.x).

Forsy, H. (November 2011). Chronic fishery mismanagement Confederation's dismal failure: *CCPA Monitor*. Retrieved from <https://www.policyalternatives.ca/publications/monitor/chronic-fishery-mismanagement-confederation%E2%80%99s-dismal-failure>

Huntington, H. P. and Noongwook, G. (August 27, 2013). Traditional knowledge and the arctic environment. *Arctic Science*. Retrieved from <http://www.pewtrusts.org/en/research-and-analysis/reports/2013/08/27/traditional-knowledge-and-the-arctic-environment>

Hutchings, J. (January 4, 2013). Northern cod threatened by new fisheries rules. *Toronto Star*. Retrieved from https://www.thestar.com/opinion/commentary/2013/06/07/northern_cod_threatened_by_new_fisheries_rules.html

Martin, P. (March 17, 2014). Canada's stake in the high seas. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/opinion/canadas-stake-in-the-high-seas/article17499569/>

Petras, J. and Veltmeyer, H. (2003). *Systems in Crisis: The dynamics of free market capitalism*, Chapter 6, Cod, an ecological crisis of industrial capitalism. pp. 132-153; Fernwood Publishing.

PEW. (April 12, 2012). More than 2000 scientists worldwide urge protection of Central Arctic Ocean fisheries. Retrieved from <http://www.pewtrusts.org/en/projects/arctic-ocean-international/solutions/2000-scientists-urge-protection>

Porta, L. and Bankes, N. (September 2011). Becoming arctic ready. *Arctic Science*. Retrieved from <https://www.scribd.com/document/64310035/Becoming-Arctic-Ready>

Report of the Standing Committee on Fisheries and Oceans. (November 2005). Northern Cod: a failure of Canadian fisheries management. Retrieved from <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=2144982&Language=E&Mode=1&Parl=38&Ses=1>

Struzik, E. (May 12, 2009) *The Big Thaw: Travels in the Melting North*. Wiley. doi: [10.14430/arctic655](https://doi.org/10.14430/arctic655)

UBC, Public Affairs. (February 4, 2011). Arctic fisheries catches 75 times higher than previous reports: UBC research. Retrieved from <http://news.ubc.ca/2011/02/04/arctic-fisheries-catches-75-times-higher-than-previous-reports-ubc-research/>

Weber, B. (October 17, 2014). Ottawa restricts possible Arctic fisheries. *The Canadian Press, Metro*. Retrieved from <http://www.metronews.ca/news/canada/2014/10/17/ottawa-restricts-possible-arctic-fisheries.html>

Weber, B. (January 15, 2013). Lack of research threatens Canada's only Arctic fishery: study. *Macleans Canada*. Retrieved from <http://www.macleans.ca/general/lack-of-research-threatens-canadas-only-arctic-fishery-study/>

In contrast, the Cree maintain a wealth of many fine-tuned ecologically sustainable fishing practices. They closely checked their catches: the variety of species, their size, fatness, sex and reproductive condition. They took note of any unusual patterns in behavior or distribution. Together with their different fishing methods, using different gill-net sizes, focusing their efforts on large concentrations of fish, moving on to another area as the catch declined, and rotating their fishing among different lakes; together these practices made them master fishers, living in harmony with their environment and able to adapt to unpredictable changes.

There is no 'tragedy of the commons' here. Lands and waters are shared on a rotational basis and they accept and tolerate the occasional use of their designated fishing area by others. Their awareness of the many cycles of nature, their practice of rotation and their commitment to the well-being of the community has given rise to a unique way of managing their fishing and hunting grounds, their 'commons'. The master hunters and fishers together with the elders help decide and settle community issues. The real tragedy is the 'enclosure of the commons' by mining and forest companies or the violation of ecologically sustainable fishing by commercial fisheries. The 'tragedy of the commons' is primarily a Western invention and is based on a destructive, individualistic view of 'private property'. The communal management of water for irrigation, grazing lands, forest use, rice-field, fisheries, rivers as well as coastal bays for fishing, etc., by countless communities worldwide presents a very different view and practice.

The Cree's worldview reinforces the practice of fishing only for what you need, treating the fish with respect and humility, not wasting any fish, and burying any remains. In approaching their fishing, hunting and trapping in this way, they could provide for a variety of foods and contribute to the social wellbeing of the community. Their deep sense of respect and reciprocity is based on the belief that it is the animals that control the hunt. Hunters have to fulfill their obligations to the animals, maintaining a respectful relationship. This sense of respect applies to all aspects of the hunt. Reciprocity applies to humans and animals as well as all other social relationships. The hunter's obligations are intertwined with social obligations. Humans and animals are related; therefore the hunter is to show respect. They share the same Creator. This *environmental ethic* is an integral part of their philosophy of life.

Humans are part of the *community of beings*. There is a sacred, personal relationship between humans and all other beings. It is a living environment that is both 'supernatural and natural'. Animals have spirits and they are watchful and aware of people's behavior. This belief in animal spirits persists in spite of the missionaries' efforts. We will return to this so-called 'animism' a little later on, because there is a complexity and a depth of meaning that these words do not

convey. Western reductionistic scientific concepts do not begin to explain this multi-dimensional coherence and depth of life.

All the different aspects of the Cree's worldview reinforce, and validate their practice and serve both to maintain a sustainable way of life and the life of their communities. Their *vision* of life is deeply rooted in and gives expression to their *way* of life; they mutually reinforce each other. The two (vision and way of life) together can be described as an 'ecological ethics' or a 'sacred ecology'. It is a view of the ecosystem that pulsates with life and spirit and incorporates all creatures including the people who belong to the land. Such integral views can be represented by myths and stories and danced or sung. It is the way traditional knowledge is celebrated and passed on to the next generation. The wisdom of this kind of worldview gives expression to universal themes. In the threefold interaction between experience-knowledge-worldviews, worldviews play a crucial and reinforcing role.

Berkes, F. and Bearskin et.al., (1989). *Cree Trappers Speak*, Chisasibi: Cree Trappers Association's of Chisasibi.

Berkes, F. (2008, 2nd ed.). *Sacred Ecology*. New York: Routledge. doi.org/10.14430/arctic887

Burnett, K. and Read, B. eds., (2012). *Aboriginal history: a reader*, Oxford: Oxford University Press.

Grand Council of the Crees. (2011). *Cree vision of Plan Nord*, Cree working group on the Plan Nord. Retrieved from <http://www.gcc.ca/pdf/Cree-Vision-of-Plan-Nord.pdf>

Hargrove ed., Athens: University of Georgi.

Kunnie, J. (2003). The future of our world: indigenous peoples, indigenous philosophies, and the preservation of Mother Earth in: *Religion and Global Culture*, Jennifer I.M. Reid, ed. Oxford: Lexington. Retrieved from

<https://books.google.ca/books?id=p6LwocQyz44C&pg=PA125&lpg=PA125&dq=future+of+our+world:+indigenous+peoples,+indigenous+philosophies,+and+the+preservation+of+Mother+Earth+in:+Religion+and+Global+Culture&source=bl&ots=-2N2Z270g4&sig=pSmw5LgbMrDtVJ-c50qC6L9C3pA&hl=en&sa=X&ved=0ahUKFwiB8o37mZfOAhVDcz4KHWMQB7sQ6AEIGzAA#v=onepage&q=future%20of%20our%20world%3A%20indigenous%20peoples%2C%20indigenous%20philosophies%2C%20and%20the%20preservation%20of%20Mother%20Earth%20in%3A%20Religion%20and%20Global%20Culture&f=false>

Laudine, C. (2009). *Aboriginal environmental knowledge, rational reverence*, Surrey: Ashgate.

Lee, L.V. ed., (2013). *Spiritual cry of the earth: a collection of essays*, Point Reyes: The Golden Sufi Center.

Nasr, S. H. (1996). *Religion & the order of nature*, Oxford: Oxford University Press.

Reed, G. (1986). A native American environmental ethic: a homily on Black Elk in: *Religion and environmental crisis*, E.C.

The next examples are from some local communities building on their traditional knowledge and incorporating innovative, new technologies. They highlight many of these same points. One example is of the chain saw tree cutters in the Dominican Republic. Again the summary is based on Berkes' account of his personal involvement with this group and his many references. In the rugged interior with its steep slopes, local tree cutters have found a way to harvest the trees on the hillsides, one tree at a time. They carefully select each individual tree with a view to preserve the integrity of the forest. One favorite tree is the *gommier* tree, a species with exceptionally hard wood, a challenge for any chain sawyer. After cutting down the tree, they saw it into planks with their hand-held chain saws. At the end they carry the planks out of the valley by hand. The whole operation may take two to three people most of a day.

Because of the steep slopes the area is not easily accessible to heavy machinery. Several attempts at logging in the past have failed. Clearing land for agriculture has also not been successful. By harvesting one tree at the time and carrying the wood out by hand, they eliminated the need for access roads. Equally important, they leave very little waste behind, just the branches and some saw dust. It is an ecologically sustainable process. Although there was a tradition of tree cutting with hand drawn saws before, the introduction of the chain saw after Hurricane David in 1987 enabled them to develop a totally new skill. In the process they acquired an intimate knowledge of the terrain, the distribution of tree species, and how to help preserve an endangered species of parrots. With great pride they would demonstrate their chain saw skills at country fairs and talk about the importance of conservation. They enjoyed working in a group and over time they organized themselves and established a cooperative organization. The key is that they were able to develop a different way of life, regardless of whether they were able to maintain their vision in their political and social context.

In spite of the fact that the Dominican Republic is a favorite destination for tourists, there is a lot of poverty in the country. Many people suffer from the effects of neoliberal policies and government corruption. The population is very mixed and there is racial strife. The majority of the people are Roman Catholic; a small minority are Protestants or belong to some other religions. There is a publicly unacknowledged subculture of traditional Voodoo beliefs and practices. Although Berkes does not mention anything about the beliefs of the tree cutters, we can wonder how these new experiences have affected their worldview. All we know is that over the last decades they developed a new sense of *ecological responsibility*, a *new vision of life* they were eager to share with others. It is likely that the various religious worldviews, including the Voodoo beliefs, became part of and reinforced their respect and care for the environment and a sustainable forestry. They saw themselves as involved in community education and they were committed to pass on their skills to the next generation.

There are many other contemporary groups that acquired new skills, incorporated new technologies, gained new experiential knowledge often by trial and error, changed or expanded their worldview and learned to organize themselves and develop fair and equitable rules. Berkes worked with and reported on the long-line fishers in Grenada; different local groups in St. Lucia that made charcoal, collected sea urchins, cultivated sea moss; as well as many remarkable examples of local rice-field and lagoon fisheries; of shifting cultivation and multiple use of small areas in tropical forests; of the intricate rotation of grazing lands among pastoralists; and of the selective use of fire to clear small patches of forest; all in many different parts of the world. In *Innovations that Nourish the Planet* (State of the World, 2011) there are numerous other examples of coastal fisheries and traditional farmers building on their ancient knowledge, incorporating innovative new technologies, and developing their own unique system of governing themselves and passing on their new knowledge to others.

These references to indigenous people and local communities are not an attempt to idealize or romanticise their worldviews and their practices. On the contrary, aboriginal people are neither 'noble savages' who live in harmony with an unspoiled nature, nor are they ignorant, superstitious, primitive, backward people. At times they too have overexploited local or regional resources and driven various species to extinction. Their traditional ecological knowledge has sometimes been in error. Their beliefs have at times overridden their observations and obscured or limited their understanding. They too have their share of thieves, opportunists, scoundrels and murderers. They are not saints. They may have very different ways of dealing with violations and different social sanctions, but these are not necessarily more just. Social customs can be burdensome, unbearable or cruel. Communal rules too can become rigid and unable to deal with new situations. Governance can become less than participatory and communal. Leadership can become exploitative and dictatorial. Some groups have had or do have strong class divisions. Tribes can battle each other for domination and power and enslave each other. Aboriginal people too can be seduced by present-day market values and the unsustainable and destructive development of resources. In short, indigenous and local people share all the foibles, shortcomings, and failures with the rest of humanity. The important thing is that there are indigenous and local communities that have an integral view and way of life that we can learn from and that can remind us that an alternative praxis and vision is possible, even today, in spite of neoliberal ideology and domination.

The many descriptions by Berkes are rich in detail and insight and his references are extensive. It begins to break through the Western contrast between scientific insights and procedures and the knowledge gained from experience and long traditions. On the one hand he is critical of the positivistic, reductionistic scientific paradigm with its scientifically based policies. At the same time he tries to bring the two kinds of knowledge and practices closer together. However, since they start from two very different presuppositions, the government policies based on science often clash with local insights and practices, as Berkes highlights again and again.

Positivist science reduces reality to its physical dimension, which in turn can be broken down into independent parts as so many objects. Each part or variable can then be tested for its role in the complex whole. Such research, based on quantitative methods, is assumed to lead to *value-free and context-free generalizations*. The propositions that are generated are either true or false. Scientific rationalism has gone through many different phases and functions in the Western world. Today's form is primarily in the service of a mechanistic, utilitarian, dominion-over-nature worldview. It is this approach that has and still largely dominates conventional resource management. Fish stocks are like discreet commodities that can be kept in balance and provide a maximum yield by means of certain regulations related to catch sizes, kinds of species, closed seasons, size of nets, etc. It is a very calculated, rational and scientifically managed approach. It is part of the great transformation of treating all lands, forests, natural resources and even peoples' labour as potential commodities for the market; all for the pursuit of private wealth for the few. It involved a radical change in social attitudes, in which people became alienated from themselves, each other and nature. It is this approach that in many instances has displaced or is in conflict with indigenous and local experience and knowledge.

In contrast to Western science and its applications, it is instructive to follow Berkes' description of traditional knowledge. This is important because it can provide a *basis* for a very different view of theoretical knowledge or theorizing than Western scientism. He presents an alternative view that is more current among some present-day ecologists; a view that is holistic, based on systems thinking and evolutionary processes. However, even that more integral approach does not provide a basis for a different view of theorizing. In spite of that limitation his description is worth following.

The experiential knowledge of traditional or local communities reflects a *qualitative* understanding of ecological relations and processes, including human interactions. It is not an exact quantitative knowledge. However, their holistic approach allows them to deal with the ecosystem as a whole and with ecological complexity. They track many dynamic processes like plant succession, seasonal variations, monitoring the number of young, body conditions (fat index), and many other contextual variables. They not only look for bio-physical indicators, but they also assess the human-environment relationship. They look for signs of wellness and signals of problems, and have a mental model of what a healthy environment ought to look like. Their integral knowledge is of a qualitative nature and includes many value judgments, that is, many assessments of a great range of variables.

Their monitoring and assessments are of a *communal* nature and based on the first-hand experiences of many members. This allows them to assess the overall situation, make inferences, note exceptions and unusual conditions, and, in the end, draw conclusions. Their mental model may consist of a long series of *'if-then'* situations, like that of the Grenada fishers, *if* the season is December, and *if* suitable bait is available, *then* prepare a certain kind of long line, that is, *if* the birds are abundant, and *if* the seawater is blue and the current direction is N or NW, and *if* schools of fish have been observed, *then* we should catch sailfish, and so on. Afterwards they reflect on their observations and their decision making process to see what made for a good catch or what went wrong. They learn by trial and error, by experimenting and making changes as needed.

Precise categories and formal generalizations are avoided. Information is classified into broad groupings and approximate values. Membership in a particular class is gradual; they are fluid categories that are open to change. The distinctions are approximations. These *'fuzzy sets'* ('probability sets') are ideal for representing imprecise and changing information in everyday life and a great way of dealing with concepts and systems that do not have sharply defined boundaries. It highlights once again that there are no absolute categories and identities in life, or, for that matter, any absolute knowledge.

Berkes' use of the term 'fuzzy logic' in this context is somewhat pejorative since it is put in contrast to the 'exact' binary concepts of scientific categories. Things are either in or out; it is either a fish or a mammal; a reptile or an amphibian, and so on; and if there are any uncertainties at the boundaries, further investigation will have to clarify the classification. This scientific approach holds for all phenomena, whether the physical terrain, the weather, the systematic sampling of different kinds of fish, the prevailing coastal currents, etc. Uncertainties are not acceptable. If there are any, further research will have to be done, so that more appropriate, that is, science based policies can be developed. Within this 'non-fuzzy' logic, taking into account the colour of the ocean, or whether the current is from the West or Northwest, and so on, in order to determine the right time and place and the right gear and bait to fish, certainly would not be acceptable scientifically. The irony is that the large commercial fisheries with all their scientific data and sophisticated technology are unable to maintain fish stocks at sustainable levels, while the Grenada fishers can make an ecologically sustainable living. Of course there should not be a dilemma between a scientific-technological approach and an experiential-communal approach. Presently, as Berkes notes, it is nearly impossible to bring the two together, since they start from two radically different points of view. To integrate science and practice would require a very different way of doing science and technology as we will see in the following section.

Although the previous account of experiential knowledge provides us with a holistic view of knowledge, it does not provide us with an *alternative view of scientific knowledge or theorizing* (an 'epistemology'). To articulate such a view, we will briefly consider what role ordinary *cognitive discerning* plays in human life, both as a submerged awareness and as a focused cognitive activity. We will look at how theoretical knowing or *generalizing* differs from practical knowing. Finally we will highlight how each of these human activities is an *existential and normative* endeavor.

2) A holistic view of human knowing

The emphasis on a non-rationalistic alternative is crucial since rationalism in all its various forms still dominates much scholarship and most reports. This anti-rationalistic viewpoint is not a crusade against modern science, but an appeal for the development of an integrated view of science that is in the service of all of life and not just the economy. It is in opposition to the deification of science and technology; against 'in science is our trust' and 'we will find technological solutions to all our present-day problems', and many other variations of this belief. As a *deification, an over-emphasis, it is an ultimate trust, a basic belief and commitment*. With today's globalization and the domination of neoliberal capitalism this belief has spread far and wide. As part of the driving force of capitalism it has brought humanity and the environment to the brink of disaster. Because of this long rationalistic history in Western society, I will present a brief summary of the nature of our cognitive functioning in general. This viewpoint goes against the centuries-old tradition of scientific rationalism and warrants careful attention. If we do not absolutize scientific reason and its application in economic theories and guidelines, what place does our reasoning have in life and what could its role be in economic activities? What follows is a *brief summary* of an alternative understanding of human reason.

What role does human reasoning or better, distinguishing play in daily life? This may seem like an obvious question, but it refers to a complex issue. Does our reasoning just happen inside our minds or is there more to it? If so, how does reality enter the picture? A common view is that through our sense perceptions we take in raw data from our environment which we order and categorize in our mind. The raw data out there have no discernible meaning. They are random facts or raw data; that is all. *We give* these raw sense perceptions meaning. They have no meaning in themselves. In this viewpoint a table is just some chunks of wood or metal, which in our culture we happen to call a 'table'. In fact, it could represent anything. In this somewhat simplified account reason comes to stand over against matter. This mind-over-matter dualism in whatever variation has a long history and can be seen as a secular version of the age-old body-soul dualism. In an integral or phenomenological view of life this relation between our cognitive functioning, our other ways of functioning and reality comes out very differently.

In contrast to Cartesian dualism of culture versus nature, of humans versus the environment, of mind versus matter, of subject versus object, my underlying assumption in all the previous chapters has been that all of life, including human manifests a multi-dimensionality. Nothing is two-dimensional; there are many dimensions to life that exist in an inter-related unity. Any dimension is an integral part of the whole and cannot be separated or isolated from all the other dimensions. We function physically, organically, sensitively, creatively, technically, symbolically, cognitively, socially, economically, politically, relationally, and spiritually. There is a multi-dimensional coherence and interaction in the way we function. In each activity and in each relationship, every dimension is present and plays its role. The inter-subjective encounters in life are not arbitrary or endless. At this point in history and our western culture about a dozen or so fundamental, irreducible dimensions have become differentiated. These dimensions too are given in our experience. They are not categories in our minds or ontic qualities. They are part of *the phenomenological givens of life*. There are no universal laws, no eternal creation ordinances, no absolute identities, and no unchanging structures that we can identify and possess. Nor is the opposite true, that everything is change, that there is nothing but change and there are no givens or regularities that we can come to know. Historically, from the Greeks on, these two viewpoints have gone back and forward, between abiding structures and relentless change. In either case 'structure' or 'change' has been made into an absolute. What is needed is a viewpoint that acknowledges and integrates the truth of both. The words '*structure within change*' may begin to describe how these two characteristics of reality are interrelated.

There is no doubt that *things change* over time and *new features of each dimension keep unfolding*. Historically, all creatures in all their dimensions keep unfolding, differentiating, and integrating further. Older knowledge, however new and exciting at the time, becomes out-dated. We only need to check the history of any human activity or the history of any academic discipline to realize the changes that have taken place over time, geologically, geographically, organically, as well as socially and culturally. At the same time we are aware that there is an *abiding continuity* in life. Each irreducible dimension of life keeps revealing more of itself throughout history and in different cultural settings. Undifferentiated dimensions become distinct and take on their own form. Historically there is an on-going process of differentiating, individuating, and integrating. During the millions of years of geological and physical time, things can undergo subtle or more drastic changes as a result of climatic changes, geological upheavals, or human activity. All phenomena continue to unfold and reveal more and more of themselves and their many potentials. Nothing is fixed or static, whether it is the expanding universe or the marvels of nano particles. Everything has its secrets and there is always more to discover, even about the "law of gravity", which seems so fixed to us. Yet in the midst of all this there are *regularities or a phenomenological givenness* that we count on, in spite of changes over long or shorter periods of time.

To come back to the role of human distinguishing, we can say that *all of our cognitive functioning is embedded in the whole of our activities*. Thinking does not take note and discern, rather I think with the whole of my being. Distinguishing is only one of the many ways in which we function. There are many other dimensions to our lives and they each play their role in coming to know our world. One dimension may stand in the foreground but all the other ones are present as well. Working on the computer right now I am primarily focussed on formulating my thoughts, but at the same time, in the background as it were, I am aware that my back is getting a little sore, that soon it is time to quit for the day, that I am excited about the progress I am making, that I like the flow of the argument, that I hope this study can make a meaningful contribution, that I feel supported by my partner; in short, there are as many kinds of awareness as there are dimensions to our way of functioning. Most of them are submerged and just below the threshold of my consciousness. At any time, however, when I stop writing, I may become aware of these other impressions about my body, my feelings, my relations, my sense of justice, the meaning the writing of this book has for me, and so on, because all along they are an integral part of my total experience. That is a first conclusion we can draw, just as everything else, we function in a multi-dimensional, integrated way in which one or more dimensions are in the foreground and all the rest in the background.

If this is the way we function as humans, in a multi-dimensional unified way, it immediately becomes apparent that if we reduce our functioning to one dimension, like the rational, or the economic, or any other aspect, how much we are distorting our existence. Then we become nothing but religious beings, rational creatures, or political animals. Then all of life is wrenched out of context and becomes distorted. Then we, and all other creatures with us, suffer. In the Western world, during the Middle Ages, the religious hierarchy and dogmas of the church dominated life, preventing the free flourishing and unfolding of life. All of life was thought to point toward heaven through the redemption offered by the church. Since the Renaissance and the Enlightenment a new spirit took hold. Scientific rationalism and technology became the order of the day. A new utopia was dawning, now through human scientific effort and discovery. Unlimited progress and human freedom were beckoning. In many different forms, this new rationalism had its day. But it only took a century or two before science and technology were enlisted by another absolutization, the new economy of the Industrial Revolution. The production and possession of material goods in turn became the new utopia; material well-being for everyone. Today the worldwide production and consumption of goods and services has been developed into a 'fine art', or, more accurately, a refined form of exploitation, manipulation, domination, enrichment of the few, and impoverishment for the many, covered by a blatant ideology. Life wrenched out of order has destructive consequences. Any absolute destroys the integral, multi-dimensional coherence of life. When that happens in our search for ultimate security, we become like our idols, one-dimensional creatures.

In as much as scientific rationalism, in its present dominant form of positivism, involves a basic reductionism, there is no way to harmonize this form of modern science with experiential knowledge. Berkes is right; they start from two entirely different and opposite points of view about reality. Much of present-day science with its abstractions, hypotheses, mathematical models, data analysis, statistical methods, etc., has basically abstracted the cognitive dimension of life from its integral coherence with all the rest of life and made it into an object for analysis. Such reductionism distorts and violates reality. The cognitive side of things is not available by itself; it cannot be abstracted from the whole; it is always *contextual and intertwined and determined* by all the other aspects. Whatever is knowable is only knowable holistically, as an integral whole. As we noted before, economic life is inseparably connected to the ecological foundation of life and the social dimensions, including social justice and it always involves a particular worldview and values. Economic processes too do not exist by themselves and cannot be abstracted from the real economy, regardless of what the economic textbooks tell us.

To give an example, climate change in the Arctic cannot be known just by recording the average rise in temperature or the thickness and retreat of the ice, or by climate modelling, or any other statistical approach. They are poor indicators of the social and ecological impact of global warming. By themselves they are abstractions that do not exist as such. They give the illusion of factual knowledge, as if scientific facts can exist apart from their context. The ecological and social meaning is an inseparable and integral part of any true scientific data. The real meaning of the change in the Northern climate is a complex interrelated set of factors, based on countless local peoples' observations and experiences. They include many physical and social valuations: the extent, thickness, and kind of sea ice; the history of the climate in that region based on peoples' memory; unpredictable and more extreme weather patterns with stronger winds and more rain in summer and fall; the rise in sea level and the consequences for different communities; multi-year ice as a source for drinking water; changes in ice break-up and freeze-up dates; the appearance of a yellowish air mass, the 'Arctic Haze' (sulphate aerosol); less fat on seals; the spoiling of caribou meat because of rising temperatures; permafrost and soil erosion, making travelling difficult and dangerous; the appearance of new insects, birds and animals and the decline of other mammals; changes in fish and wildlife distributions: fewer polar bears in the fall, fewer cisco and a shift in the flyways of the geese; the invasion of commercial fishing in the Arctic ocean; the in-land explorations for resources and the building of dams and roads; in short all the physical, geographic, social, economic effects and the

implications for a way of life; but also the remarkable adaptations of local groups to all these changes by adjusting the timing, the location and the mix of species harvested, minimizing risks and increasing mobility; all the while supported by their sense of generosity, reciprocity, and the well-being of their communities, which discourages hoarding and individualism. In contrast to the one-dimensional, abstracted, cognitive knowledge of the scientists, the knowledge of the Inuit is holistic and situational, based on local expertise and community based monitoring.

The Inuit of Sachs Harbor on Banks Island in Alaska, for example, have real knowledge of climate change in the Arctic. In many instances, the government researchers and policy makers operate from a truncated, one-dimensional point of view; we could call it 'fuzzy' knowledge that does not reflect the real state of affairs. To the extent that they are not open to learning from the Inuit, it is also imperialistic and a form of neo-colonialism. Not all researchers approach Arctic climate change in this way; some are truly open to learning from and collaborating with indigenous people, but even then it seems that the indigenous knowledge has to be tested for 'accuracy' and held up for comparison to scientific knowledge. Meanwhile the Inuit's adaptations can only go so far, along with the other approximately 180 coastal communities in Alaska that are threatened by flooding. Resource exploration takes priority over spending the funds for moving these communities to higher grounds and dealing with climate change and the rise in sea level.

Summarizing, we can say, cognitive distinguishing is only one dimension of the integral ways in which we come to know. We cannot separate cognition from its embeddedness in all the other dimensions, nor can we reduce anything to one dimension in order to objectify and manipulate it.

As an aside, not all knowledge is cognitive; or only the result of our cognitive awareness and reflection on our experience. There are many other kinds of coming to know. In fact there are as many ways of knowing as there are dimensions to our experience. We know emotionally or intuitively, or as people have called it, we have 'emotional intelligence'. In the same way we have a social awareness, a bodily sense, a technical insight, or an aesthetic sensitivity, or sense of justice or spirituality. In all these instances the cognitive dimension is submerged and in the background. That is why in education, for example, there is a growing awareness of the different kinds of 'intelligence' children may excel in and which may be their favored way of learning. These 'intelligences' or ways of coming to know, can range from spatial and bodily knowledge, to emotional, technical, creative, social, or spiritual knowledge. Good education will provide children opportunities to learn through anyone of their favorite avenues: through discussion and sharing, through listening, observing, researching, constructing, creative writing, composing a song, developing a dance, reading poems or stories, making a display, dramatizing a situation, making a graph, sharing activities and projects, etc. Those are all equally important ways for children to come to know and to respond to a particular subject or issue. Only after such a rich exposure and encounter with a subject does it become meaningful to draw out the cognitive dimension, the conceptual side of the subject. In such a learning environment, the majority of children with specific learning difficulties and others whose brain functions somewhat differently can more easily find their place and flourish. Such multi-dimensional learning and ways of responding is a long ways away from the highly conceptual and fragmented curriculum of much of public education today. This is true for adult education as well.

A second, fundamental characteristic of the process of coming to know is that it is always inter-subjective. There are no brute data out there, no objects, without much rhyme or reason. From a phenomenological point of view, there is a countless array of phenomena that display a richness and a fullness that we can come to know if we immerse ourselves in the experience. We encounter and experience concrete, whole phenomena that exist in their own unique way. Our coming to know the other is always based on an interaction between two or more subjects. All subjects, including all non-living things, plants, trees, animals, and other humans exist as subjects, each in their own way. There are no subject-object relations, only subject-subject relations. As soon as we perceive and treat something or anybody as an object, we

are violating the richness of the other, reducing it to a physical, biological, political, economic, or social object that can be analyzed, used, manipulated and exploited.

Modern science, if it had not been trapped in a formal analytical framework, could have learned, among other things, from the rich phenomenological tradition. It could have learned that it is *subjects* in all their subjectivity that try to understand *other subjects* in their subjectivity. For a while phenomenology was fruitfully practiced in Europe, at Duquesne University in the US, and other places. It gave rise to many outstanding studies in the areas of physiological anthropology, psychiatry, developmental psychology, education and religion. Even today the phenomenology of religion continues to make significant contributions to our understanding of religious beliefs and practices. They understood something of the personal and subjective involvement of the investigators and the rich phenomenology of their subjects. Regrettably it mainly survives as a philosophical movement investigating human consciousness, which seems like another form of abstracting. A similar more holistic understanding was beginning to develop in the many ethological studies of previous decades, observing animals in their natural setting, as well as in the anthropological and religious studies from an insiders' and participants' point of view. Most of these approaches have been sidelined and pushed to the background.

To give another example, a forest is never just a stand of two-by-fours to be harvested and sold at a profit. If it is not harvested, it is considered useless and of no value. In fact, many entrepreneurs would consider it wasteful to let it just stand there and not do anything with it. Such forests are reduced to economic objects. The real forest, however, has many different aspects of which the economic side is only one dimension and needs to be seen in the light of all the other sides. Only then can we truly relate and respond to a particular forest that exists in a particular place, that is of concern to a particular people, and, ultimately, to all of life on the earth. To relate to a forest as an economic object, we need to close ourselves off from the richness and diversity of the forest and its ecological embeddedness. In the process we distort ourselves as well as that forest.

It is only in the inter-subjective flow between two subjects that we can truly come to know something of the other. When we open ourselves up, from our own many-sidedness, to the many sides of the other subject, we can truly come to know the other and ourselves, at least partially and for a time. Each subject functions in the whole of reality. They each exist in their own unique subject-ivity. All the aspects of reality, the organic, the sensitive, the aesthetic, the cognitive, the economic, the spiritual, etc., *truly belong to each subject*. Even physical objects are not just physical objects, they function in an ecological context and they have a discernible, aesthetic, economic side, and so on. These various aspects beyond the physical, including the cognitive dimension, are not just categories or attributes in our minds that we add to the raw data of our sense perceptions. 'Physical objects' too have a discernible side, as well as many other sides *that are inherent to their phenomenological identity*.

All of reality has a *discernible* side. There is a *discernible or cognitive* dimension to the trees in the forest that is inherent to their *phenomenological identity*. They present themselves as distinguishable creatures. Their 'tree-ness', is an integral part of and given with their subjectivity. We recognize that a tree is not a frog and that a bird is not a fish. We recognize some of them as pine trees, some as spruces, others as aspen. Even these more particular differences are given as distinguishable characteristics. Our experiential categories are merely *cognitive approximations or descriptions* of the distinct identities they carry. They are fluid categories, many of which have changed over time as a result of more detailed observations, or cultural use.

In the Hebrew Scriptures animals were classified according to their hooves and their ritual purity or uncleanness. Scribes in the ancient near Eastern world had to learn all the many classifications that were known at that time. It would take many years for a scribe to graduate. It is a sobering experience to look at their categories and the things that were

known at that time. This illustrates how culturally and historically determined the classifications of the kinds of creatures are. Today our classifications are strictly physically and biologically based, and even then there are many boundary questions and uncertainties. Experientially these boundary issues do not present a problem to us. Regardless, identities and general categories remain *cognitive approximations of what presents itself in our experience*. Both the general kind or identity (trees, frogs, birds, fishes) and the particular kind or categories (pine trees, spruces, aspen) of each subject are given in our experience. What is important to highlight in this context is that these kind of phenomenological identities are only a *cognitive description of their biological identity*, nothing more. It does not say anything about all the other aspects of trees or frogs, for example, nor does it say anything about the specific characteristics of any particular tree. Each tree has its own variations, no tree is exactly like any other tree, but we still recognize that we are looking at an oak tree and not a larch. *Individuality, or individual characteristics* like this specific oak tree with its gnarled trunk, its *uniqueness*, is something different than noting that it is a tree or more specifically an oak tree. Each day when I walk by this specific tree I may notice something new about its uniqueness and its many aspects. These descriptions of *general and specific kinds* or categories as well as *individual, unique features* are a long ways away from abiding rational categories by which we can classify and control our environment. Many indigenous or local people have a very extensive and intricate knowledge of such forests, far beyond most of us, based on long experience and tradition.

Because many people have become alienated from nature and their own bodily awareness and sensations, it is not easy to be aware and open to the richness of our inter-subjective experiences. Many things in our western culture are geared to numb and desensitize us to the reality around us. Whether sensationalized newscasts, relentless advertising, the double-talk of political and corporate leaders, reality TV, the stress of work, or our hurried way of life, they all contribute to our lack of awareness. They are an assault on our bodily and sensitive awareness. This can make us blind to the significance of a particular forest or the reality of the suffering around us, of countless indigenous people deprived of their livelihood and their way of life. In the end it can blind us to the decline of the quality of our own lives as well. Such numbing can easily lead to denial, rationalization and self-forgetfulness.

In response to this assault on our sensitivities, there are also millions of people that seek to restore their connection to life and to themselves. They do so in many different ways. Many people crave going on nature hikes, going canoeing or kayaking, going bird watching or fishing, tend to their garden, or, simply, go for their daily walk in the park or the country side. Others take time to learn to meditate, practice yoga or tai chi, learn to play guitar, take singing or dancing lessons, and many other ways to restore their connection to their body and to develop a new mindfulness. Still others find deep satisfaction and meaning in being of service to others. As many have noted, without volunteers in almost every area of life, our communal life would come to a grinding halt, if not that of the nation. None of these ways are perfect and are limited in withstanding the assault on our sensitivities by the dominant economic ideology. They can all be compromised, commercialized and distorted. Nevertheless, they are a protest and an attempt to restore self-awareness and awareness of the other.

Practical knowledge and generalities based on experience do not tell us what is characteristic of *scientific knowledge*, and how it may differ from experiential knowledge. The answer can be brief. Scientific theorizing, if done rightly, is not inherently different from the generalizing and conclusions we draw that are based on our local experiential knowledge. Perhaps the best way to indicate the difference between the two kinds of knowing is that scientific generalizing, hypothesizing, developing theories, drawing conclusions, formulating, etc. is done *systematically*. Such *systematic generalizing* based on actual personal and local knowledge is always flexible, approximate, and changing. Rationalistic or positivistic science tends to objectify the phenomena and abstract them from their integral context in time and location. Rather than an abstracting and objectifying science that distorts reality, we need a kind of scientific generalizing that is embedded in and based on many particular instances. Systematic generalizing in this context does not mean that these

generalities suddenly take on an ontic identity; that they become scientific laws that exist as such. Systematic generalities are based on many particulars and as the particular situations change so does our understanding of the basic 'law' that seems to govern them. All we mean by systematic generalities is that in all these particular instances in this place and at this time, such and such seems to be the case. Some systematic generalities of course are broader and longer lasting, because they are based on long historical insights across many cultures. But even these long-standing insights that seem so certain do change over time or as the result of a breakthrough in understanding. The history of the natural sciences is very illustrative and humbling in this respect. We have no reason to smile at the 'childish' theories of a hundred or five or even two thousand years ago. Our present-day scientific insights too are limited and culture and time specific.

Our main concern so far has been to understand something of the *process of cognitive knowing*, knowledge that is the result of our taking note and distinguishing. The first point to make is that whatever can be known theoretically can also be known experientially and vice versa. We all daily look for examples when we are mystified or confused in order to clarify our thinking and develop our understanding. Cognitive knowledge is the (provisional) end point of a whole process of reflecting. We imagine what could be the case, we try to comprehend, we hypothesize, theorize, formulate, summarize, evaluate and come to a conclusion. On the basis of many experiences we come to a general conclusion. This can happen individually or jointly. We may experience something odd or different and check with a neighbor and ask if they had something similar happen. The neighbor might say, yes, I checked with a few people and they all experienced the same thing; and so, together we may come to a general conclusion. Generalities are tentative conclusions based on many practical, particular experiences. The only difference with 'scientific research' is that academic theorizing or generalizing is done more *systematically*. Systematically in this context means that we collect many particulars, do detailed case studies, experiment, predict, develop a coherent argument, summarize, evaluate, and *finally check the validity of our conclusions with the actual situation*.

As the Grenada fishers might say, when the sea is blue (and all other conditions being equal), we will catch a lot of sail fish today. That would be an experientially based cognitive generalization. Generalizations can happen on an everyday level and on a 'scientific' level. The experienced trapper might conclude looking at the sky; it is going to rain soon, given the direction of the wind and the clouds, etc. The weather forecaster might conclude his forecast by saying, there will be five centimeters of rain starting in the west and slowly moving to the east within the next few hours, given the prevailing winds, the overall temperatures, and the computer imaging. The one is not necessarily more accurate or better than the other. The Inuit's knowledge of the changes in the Arctic climate was more accurate and detailed than those of the government scientists. At the same time the weather forecasts and computer images enhanced the Inuit's knowledge, once they coordinated their findings and vice versa. A lot of the northern fisheries department's research, for example, would have been more meaningful and relevant, even today, if they had gone to the various Cree communities and listened to and recorded their experience. Then they might have come to some helpful generalizations and contributed to the local knowledge of many villages. On that basis they could also have established some general guidelines for commercial fisheries that would prevent overfishing and maintain a sustainable practice. Instead they established 'scientific regulations', unrelated to experience, that can only lead to the decline of the Arctic fisheries.

Theorizing, hypothesizing, developing mathematical models, drawing conclusions, and verifying can be very helpful and clarifying if they are based on actual experience and observations and lead back to experience. They can serve life if they are based on experience and experiential knowledge. Many studies on depression and anxiety, for example, were so flawed, that as a practitioner, it was more useful to look at the ten year overviews and evaluation of the research than any specific study. Often the hypothesis to be tested was based on an abstract idea that did not arise from experience, or the 'tested population' was so limited and specific (college students, hospitalized psychiatric patients, prison inmates,

etc), that no general conclusions could be drawn. To give another striking example, questionnaires for social work research tend to be meaningful only if they are based on in-depth interviews. Without such preliminary interviews, many questionnaires end-up containing questions that have no relevance to the people interviewed. There are countless other examples from many fields of study that illustrate how much academic research is limited and flawed, and as a result, irrelevant or meaningless. Usually the reason given for these shortcomings and failures is that academic knowledge accumulates slowly over decades. More often the reason is the faulty set-up and construction of the research, or favorite and in-topics that get research money, regardless of how meaningful the proposal. Added to all this are the basic presuppositions and the total cultural context of the research that colour the study from the beginning no matter how solid the research methods.

Summarizing we could say that generalities are no different in nature than particular cognitive insights. They are both contextual, relative to time and space, changeable, and experientially based. A particular refers to one instance, a generality to many similar instances. Generalizations, whether systematic or experiential, do not lead to absolute, verifiable, dependable facts, concepts, definitions, categories, models or theories; they can only provide provisional, open-ended approximations or suggestions. Ultimately, the direction and vision of our life determines our generalizing and vice versa. Our generalizing may make us aware that our way and vision of life needs to be adjusted to changing circumstances or new insights into some of the guidelines of life. Scientific theorizing, if done rightly, is based on the inseparable connection between *experience, knowledge, and a way and vision of life. They are inseparably intertwined.* The different kinds of experiential knowledge or 'expertise', the specific kinds of cognitive knowledge based on those experiences, our systematic generalizing and our life direction and worldview form an integral unity. As we explore these interconnections, the implications of our understanding of human existence and social interaction, the Earth, our ecological embeddedness and human history become apparent. We will highlight a few of these implications for all of life. Human knowing is inseparably connected to all the ways we exist.

4) A phenomenological ethics

This open-ended journey is true for any other human activity and relationship. Everything we do involves an existential encounter. It requires staying open to new situations, taking risks and trusting the signals. It would be tempting to think that there are universal laws or general rules or dependable tested procedures that we can just follow and apply. That would seem secure at first but it would turn out to be an illusion and not a reality. Such false certainties soon let us down and eventually distort and disintegrate life. What started as a genuine search for what things are really like, a genuine search for the guideline for life during the hay days of the Enlightenment, soon derailed into a declaration of unchanging, universal laws as an ultimate source of security.

In the present context, coming to know is also one of these existential undertakings. Whether we try to understand something, find evidence, hypothesize, experiment, compare, evaluate or draw a general conclusion, they all require our openness to experience, to new situations and to changes. Even when we try to generalize based on our own experience and that of others; it remains an existential, open-ended endeavor. We generally do not think of coming to know and trying to understand as an existential undertaking. What and how we distinguish and the things we do not take note of matter and can have big consequences. Distinguishing is an inseparable part of every human activity and plays a crucial role. Our coming to know can lead to wisdom or idolatry. Knowledge can clarify or lead us astray. In our distinguishing the very direction and vision of our life becomes apparent. *Distinguishing rightly* is not just a matter of being logically consistent and not contradictory. It is a logical activity, but it is so much more, since our cognitive distinguishing is interrelated with all other dimensions. It is based on bodily awareness, on sensitive openness, on our imagination, on our formative abilities, on our clarity, and it needs to be open to economic and political situations, and so on, if we are

to discern rightly. Logical distinctions and arguments cannot be separated from the rest of life. What we become aware of, what we take note of or ignore is deeply influenced by our life direction and our worldview. Our observations reflect the way of life we are committed to. There are many things that people who are committed to the neoliberal ideology do not see, or they might see but it makes no impression.

In contrast, a life-enhancing direction reflects what we take note of. Discerning rightly is conditioned by and in the service of our personal and communal well-being as well as that of all other creatures. Logical distinctions and arguments cannot be separated from the rest of life. Ultimately distinguishing has to do with discerning the 'truth' about life. Not truth in some absolute ontological sense, but *truth as rightly discerning the phenomena we encounter*. And that brings us back to being open to experience and to new and changing situations; to truly discern the other. The crucial kind of questions are: do our generalities clarify; do they add to our personal and communal knowledge; do they help understand new situations; do they lead to experimenting with new approaches; and, most basically, do they deepen our understanding of our way and vision of life? Those are the crucial questions. In this way cognitive distinguishing is an existential encounter, because it makes all the difference in the world what we discern and what we do not take note of. The process of coming to know is a 'normative' activity and not some neutral, value-free, objective undertaking. There is an apparent *signpost, discern rightly, that is, discern, be aware of all of life, of the total context*. We can objectify, abstract, manipulate and dominate, but such an approach will distort reality. Knowledge is power, that is, power to enhance the well-being of all creatures, or power that leads to the disintegration and destruction of life.

In view of the way we come to know and what we discern or ignore, each time we read a study or report we need to ask ourselves, what is the writer's point of view? What vision and way of life is the author committed to? Embedded in any author's writings are *his or her basic presuppositions* about the givens of life, their view of reality, of human existence, of social interaction, of human knowledge, of our human history. These are not always explicitly mentioned; often they are assumed. Nevertheless these assumptions reflect a writer's basic understanding of life. They represent an underlying point of view or frame of reference. Throughout we have taken note of these presuppositions in scientific studies and environmental and economic reports.

Phenomenological signposts or touchstones

Because of the 'structure within change' we can only know something of these fundamental directives or guideposts through our actual experiences of many particular situations. These guideposts only become apparent to us when we are actively engaged, whether in fishing, farming, building, exchanging, organizing, counseling, making music, writing a play, relating, or any other activity. It is only through intense involvement and openness that we develop a sense of abiding 'structures' within changing circumstances. These built-in guidelines cannot be possessed or controlled, because we can only come to know them in this culture and in this time in history. They are always relative to the situation. They cannot be formulated in fixed laws; if we tried they would only be meaningful to our time in history and our culture, and relative to the limits of our experience. Laws and regulations soon become inadequate and outdated. It is only in the intense struggle, commitment and openness to new insights, that we discover more of the guidelines that seem to govern the different dimensions of life.

Generalities based on many particular experiences do put us on the track of the fundamental directives or signposts that seem to hold for each dimension of life and their interactions. Some of these directives that govern life we have tried to describe in an earlier section, like the directive or guideline for human sensitivity, counseling, education, economic life, politics, art, and ecology. We could have added guidelines for living spaces that enhance interaction and community, or for physical well-being, or for committed relationships or for faith communities. There are abiding, core guidelines (like

justice, equality, solidarity, ecological sustainability, physical well-being, sensitive openness, communal living space, and so on) that seem to govern each dimension of life and that enable us to recognize past human activities. In Chapter 8 we will summarize and highlight a number of other phenomenological ethical guidelines.

Coming to know in the practice of psychotherapy; an example

'Psychotherapy' happens very differently in different cultures and at different times. Historically it can take place within a village by an elder or medicine man, or, more formally, by a psychiatrist in an office. Whatever the setting, the same kind of fundamental dynamics take place, whether imbedded in the life of a community or in a differentiated setting with its own organisation. In our actual experience we continually bump up against these givens or guide posts and we can either honor or violate them. It is only through intense involvement that I as a psychotherapist come to know something more of the guidelines that seem to hold for the healing and re-integration of feelings and emotional reactions. Only by growing in my awareness of the social factors that hinder healthy sensitive development and my own emotional past and social conditionedness, can I learn more about what actually helps another person change and grow. Emotional difficulties like 'anxiety' or 'depression' or 'personality disorders' or 'post-traumatic-stress disorder' or any other disorder, cannot just be classified in a psychiatric manual. These are not objective conditions that can be treated with some drug and twelve sessions of cognitive behavioral therapy. Nor can they be assessed in terms of, if you have six of the following eight symptoms then you suffer from an obsessive compulsive disorder, or a paranoid personality disorder, etc. These abstracted disorders without context float in a psychiatric universe like isolated objects without much rhyme or reason.

Real people have difficulty with certain feelings; they become overwhelmed and can't function very well anymore. They have a certain family background and upbringing and a particular inherited constitution and personality type; they may have a low threshold for anxiety or anger. They may be in a certain social situation, trying to cope with a marital conflict, have a child with an undiagnosed learning difficulty, live in a run-down part of town, have a domineering and controlling supervisor, see their actual family income diminishing, worry about the changing climate and their children's future, suffer from a debilitating disease, or any other number of difficulties. It is with these kinds of backgrounds and situations that people come for help and it is in these kinds of contexts that people can't manage and are overwhelmed by their feelings. Feelings do not exist in isolation; fear is about a bully at school or fear of failure, anger is about a critical and humiliating boss or an exploitative situation, shame is about being guilted or not having lived up to expectations, sadness is about loss of love or lost opportunities, and a host of other situations that we have strong feelings about. Conflicted or overwhelming feelings cannot be resolved and re-integrated in isolation even if they have a significant constitutional or neurological basis. Feelings and emotions are the emotional undercurrent of all that we do; they provide the liveliness, colour, intensity and passion of how we experience life and everything we do.

As a therapist I need to address this particular persons' whole situation as much as I am able to. It is only in the total context of this person's life that together we may be able to find what is helpful and healing. Although there may be certain guidelines about human sensitivity and counseling that I have come to know from past experience, that accumulated knowledge may not help me in this particular situation. I have learned that overwhelming feelings can be faced, endured and managed over time. I have also learned that doing therapy requires experience, knowledge, presence, empathy, understanding, acceptance, not afraid to name things, patience, and trust that the person will find the strength to heal herself or himself with my support. The closest one can come to these guidelines is to give a very general description. At one point I described the guideline for healthy emotional functioning as '*sensitive openness to all experience and appropriate emotional reactions*'. And the guideline for counseling (as well as all other forms of guidance), as '*guidance that leads to self-guidance, or help that leads to self-help, in this case, the re-integration of the*

person's feelings into the whole of her or his life'. But at best these very general descriptions that point to basic *underlying directives* can only serve as *road signs or guide posts*. Go in this direction and then things may work out well, and the opposite, don't go there, that will lead nowhere.

With regard to psychotherapy, every new situation requires that I search anew for what may help this particular person in their specific situation to resolve their specific emotional difficulties or conflicts and develop a more integral sense of self. There is no roadmap only a sign post that says, try this direction. Venturing out this way with confidence or trepidation means that I have to stay open to the unknown, to find new approaches or new openings, to wait and not abandon or blame the other, to allow myself to feel helpless at times, but nevertheless to have courage and persevere. In the end I can only trust that the road signs I have come to know and that are an inherent part of life will not lead me astray; that they are trustworthy even though I cannot formulate them in a clear set of rules. They are only guidelines, that is all we have. There are no other certainties. All we have are the historically and culturally given directions that I can only come to know through experience and that are never fixed, because in each situation they have to be given new form. There is no way around it, doing therapy involves taking risks; putting myself on the line; it is an *existential undertaking* each time again when I meet a new person. My only comfort is that these core guidelines have not let me down as I continue to grow in my understanding of them; as I continue to learn what helps me and other people grow and change and what kind of support seems to be helpful.

In contrast to an integrated approach a one-dimensional economic view has a disintegrative effect on all of life, including therapy. In our differentiated society psychotherapy could be an integral part of communal life that provides healing, restoration and re-integration. Instead, in many instances, psychotherapy has become isolated from the realities of daily life with its stresses and difficulties. Whenever that happens psychotherapy and even more so psychiatry, becomes impersonal or deteriorates into behavioral control. In those instances helping is formalised and is socially constructed to serve other interests. Then therapists become part of the social control of the dominant ideology. They become entrepreneurs, charging large fees for those who can pay. When that happens, therapy has little effect and in fact becomes powerless. The touchstones for emotional integration and the process of guidance need to be honored for therapy to be helpful. Without experience, knowledge, empathy, personal involvement, mutuality and respect and a radical vision of life, psychotherapy has little effect. Therapy can be compromised and limited by the economic pressures of insurance companies and employment assistance programs that only allow for a number of visits or phone and Skype sessions. Such limitations have a profound influence on the effectiveness of therapy. People will suffer, but eventually they will turn away and find alternative ways to manage their emotional distress. Because of absenteeism, burn-out or stress as it is called, or because of lack of motivation and commitment and low productivity, even corporations have to pay attention to this issue. Life can be violated but it has its consequences. In such situations therapists and counselors that seek to be true to their way of life and worldview can only take recourse to a 'subversive' approach, undermining and challenging the status quo.

c. Technology that serves all of life; an alternative to technicism

When technology is no longer in the service of 'economic growth', 'efficiency', 'material prosperity', and the accumulation of 'wealth', then technological innovations and developments can serve and open up all of life. When technology is liberated from the straightjacket of one-dimensional economic practices, then it can be guided by a very different vision of life. Then durability, practicality, usefulness, simplicity, elegance can guide technological creativity and innovations instead of obsolescence and the constant pressure of developing 'new products' in the quest for more profits. From out of a different economic vision and practice it is clear we do not need ten or more kinds of toothpaste, cereals, cell phones, cars, vacuum cleaners, bicycles, razors, computers, toasters, televisions, soft drinks, and an endless

number of other products. In most instances we only need a choice of a few kinds of anything. Imagine how many resources and materials could be saved. Then obsolete or outdated parts can simply be exchanged and replaced on cars or computers. Then material things can once more serve and enhance all aspects of life and not just consuming for the sake of consuming. More electronic gadgets and 'toys' for adults and kids do not bring satisfaction or happiness.

Within a liberated technology creativity and innovation can be recaptured and celebrated. It is always astounding and surprising to see the innovative ideas people and research centres come up with. Within a different perspective these ideas can flourish and enrich life. To be an engineer within this context can be a great contribution and passion. Manufacturing and constructing can take on a whole new dimension. There are many examples of manufacturing things in innovative and ecologically sustainable ways that involve team work and shared responsibilities. There are astounding examples of new building materials and intriguing new ways of constructing, including less polluting ways of making cement. Small projects and models have been developed in different countries and have been shown at different international exhibitions.

New technologies and ways of manufacturing also provide a basis for what kind of metals and minerals and how much of each are needed in the future. If we start from the premise that in view of ecological survival 'two thirds' of resources need to stay in the ground, then it becomes crucial to know what resources are truly essential for the ongoing unfolding and enrichment of life. If the *guideline* for technology and manufacturing is, *sustainability, durability, practicality, simplicity, comfort, elegance*, then it is not hard to know what metals and minerals are essential for our well-being. In this new context resourcefulness and frugality can come to its own again. Then it will also be possible to find ways to extract that 'one third' or 'one-fifth' of resources in an ecologically sustainable and socially just way. Extracting and mining has taken place for thousands of years often by means of destructive and cruel ways (slave labour) that create health hazards and pollution. It can also be done differently. Perhaps examining the history of mining may provide surprising examples of non-destructive ways that protect both humans and the environment.

c. Administering justice; a radical alternative to economic domination

When governments follow neoliberal economic policies, governing becomes controlled by corporate interests. The majority of governments have been co-opted by multi-national corporations. In this respect most governments are committed to serve economic development and 'austerity programs' or 'structural adjustment programs' for the rest of society. In this way public money has been systematically co-opted for private interests. Such a one-sided focus distorts the 'democratic process', the 'rule of law' and the 'independence of the judicial system'. It fosters imperialism, domination, corruption, injustice and violence. When governing on whatever level is in the service of the economy it can no longer administer justice. Placing political power under corporate control violates the very nature of doing justice. It reduces governing to a one dimensional role similar to the role of science and technology. Imperialism along with scientism and technicism have become the three major contributing factors in the advancement of neoliberal ideology. A lot has been written about imperialism and its destructive influence and its complicity in crimes against humanity. Imperial powers too are primarily motivated by an underlying way of life and ideology. No doubt in some instances the possession and exercise of absolute power can become an underlying motivating force by itself. Today domination seems to be largely in the service of the global capitalist ideology and the enrichment of the few. Power and greed go together. This foundational issue about the role of political power deserves separate attention. What is sorely needed is a *multi-dimensional* analysis of different political power structures. Such a study will take account of all the dimensions of life that are affected by imperial power structures: communal relations, public information and media, recreation, the arts, education, emotional well-being, health care, the elderly, race relations, use of public spaces, the

environment, and much more. Nothing functions in isolation; the distortion of 'governing' affects every other aspect of life

In this context we will limit ourselves to a description of what ought to guide all governing. This 'ought' refers to the phenomenological signpost for political life. In the Ancient Near East, emperors and kings were seen as the embodiment or the representatives of (the) god(s). Regardless of the *hierarchical context* of the whole of the Ancient World, including Ancient Israel, *rulers were expected to do justice and practice loving kindness*. They were to protect the widows, the fatherless and the strangers among them. They were to deliver the oppressed and at certain occasions they were to set the bonded slaves free and restore them to their ancestral lands. They were not to accumulate riches at the expense of the poor and show loving kindness to all. In short, rulers were *to do justice for all. They were to see to it that every creature would be given its rightful place under the sun in which it could flourish*. The ancient prophets and priests railed against all unjust rulers and elders (judges) in the city gates whenever they failed to do justice, took bribes, catered to the powerful and enriched themselves. The ancient Hebrew prophets were no exception, they too cried out against all forms of injustice by kings, princes and judges. Their words sound eerily familiar.

**Woe to those who join house to house, who add field to field, until there is no more room, and you are made to dwell alone in the midst of the land.
Woe to those who are wise in their own eyes, and shrewd in their own sight! Woe to those who call evil good and good evil. Who acquit the guilty for a bribe, and deprive the innocent of his right.
*Isaiah 5: 8; 20,21,23***

**There is no faithfulness or kindness...there is swearing, lying, killing, stealing...they break all bounds and murder follows murder. Therefore the land mourns, and all who dwell in it languish, and also the beasts of the field, and the birds of the air, and even the fish of the sea are taken away. The princes of Judah have become like those who remove the landmark;
A trader, in whose hands are false balances, he loves to oppress. Ephraim has said, 'Ah I am rich, I have gained wealth for myself'; but all his riches can never offset the guilt he has incurred.
*Hosea 4:1-3; 5:10; 12: 7-8***

**They sell the righteous for silver, and the needy for a pair of shoes – they that trample the head of the poor into the dust of the earth, and turn aside the way of the afflicted. Woe to those who are at ease in Zion, and to those who feel secure on the mountain of Samaria, the notable men of the first of the nations, to whom the house of Israel come! You who afflict the righteous, who take a bribe, and turn aside the needy in the gate. Hate evil, and love good, and establish justice in the gate.
Woe to those who lie on beds of ivory, and stretch themselves upon their couches, and eat lambs from the flock and calves from midst of the stall; and sing idle songs to the sound of the harp.
*Amos 2:6-7; 5:10, 12; 6:1,4,5***

**Woe to those who devise wickedness and work evil upon their beds! When the morning dawns, they perform it, because it is in the power of their hand. They covet fields, and seize them; and houses and they take them away; and oppress a man and his house, a man and his inheritance. Hear this, you heads of the house of Jacob and rulers of the house of Israel, who abhor justice and pervert all equity, who build Zion with blood and Jerusalem with wrong. Its heads give judgment for a bribe, its priests teach for hire, its prophets divine for money. Shall I acquit the man with wicked scales and with a bag of deceitful weights? Your rich men are full of violence.
*Micah 2: 1-2; 3:9-11; 6:11,12***

For the background and context of these references and an elaboration of this viewpoint, see Chapter 9. Ultimately the prophets saw injustice as the result of 'idolatry', of deifying one or more dimensions of reality. In our time, we might say that injustice (the violation of the environment and human rights) is the result of pursuing a one-dimensional view of life, of deifying the economic sphere of life. The ancients would call it the idolatry of wealth and power. We can still

learn from how prophets and priests articulated this guideline of doing justice for their time and railed against all forms of injustice. Governing has taken on many forms in the course of history, but regardless of the particular form, it did not stop the prophets and priests from articulating clearly what doing justice meant in their time, whether for emperors, kings, judges, landowners, or the people. Most presidents, prime ministers, politicians, corporate executives and managers would do well to study the prophets. *Doing justice is not just a moral principle or law that one can adhere to or disagree with; rather, it is a phenomenological guideline that calls for implementation; it is inherent in life.* When there is no justice, there is imperialism, domination, oppression, violence, killing, raping, suffering, which gives rise to protests, civil disobedience and revolts. Implementing justice brings fairness, equality, harmony, peace and well-being for all.

Fostering justice on all levels of governing only talks about the fundamental guideline and not how that directive can be implemented. Today, in the face of dominating economic and political forces, different forms of ‘participatory democracy’ would seem to be the most viable alternative. The persistent egalitarian approach of the Social Forums is an inspiring example of radical equality. Within a Third Alternative way the challenge will be to develop another way of governing on all levels, locally, regionally and internationally; a way that is truly egalitarian, inclusive, with communally developed regulations, practicing restorative justice, and so on. Fortunately there are many small-scale examples of such self-governing and cooperation. See Chapter 11.

d. Human nature

Throughout history people have sought their meaning and security in one dimension of life after another. As a result, the multidimensional coherence of life is violated and lost. Such absolutization deeply affects what motivates us in life. In that context we have encountered two views of human motivation: human selfishness versus altruism. If we are committed to the neoliberal absolutization of economic life, then, ultimately, all of life is for sale; then everything becomes an economic object, including all aspects of human life. Then we become like our idol, *Homo economicus*, in the sense of what basically moves and motivates us in life. Then our bodies and our desires become objects for manipulation and profit; then a forest is no longer a forest but a resource to be exploited. This one-dimensional view of human motivation is often contrasted to *Homo reciprocans*, which emphasizes that humans are primarily motivated to reciprocate, to be cooperative, to seek the well-being of others, and to improve their environment. In keeping with this emphasis, many studies have appeared showing that human beings are equally motivated by altruism, empathy, care, selflessness, service, reciprocity and responsibility.

Rather than this contrast between selfishness and altruism, it would seem to be more helpful to recognize that people seek to satisfy the whole range of human needs, whether biological needs, needs for security, belonging, cognitive needs, aesthetic, relational, or spiritual needs. Human motivation is multi-dimensional; there are as many motivations for human behavior as there are dimensions of life. Nor do these motivations necessarily follow Maslow’s hierarchical order with biological and physical needs at the bottom and self-actualization at the top. Concerns about food, water, shelter, safety and belonging may vary with the level of prosperity. The more precarious a person’s existence the more concern there may be with just surviving. However, even in desperate situations many people have shown remarkable care and selflessness. Likewise, in more prosperous societies, at least after a number of decades, values and motivations among the younger generations may tend to change more towards individual improvement, freedom, citizen input, humanistic values and care about the environment. However, with each economic recession and massive unemployment among young people, these concerns can easily change back again to a ‘survival’ mode. Even then, this kind of hierarchy of needs may be quite ethnocentric, that is, more geared to Western individualistic societies. In other, more community orientated societies, acceptance by the group and the well-being of the entire community may

supersede individual needs, as we saw with the Cree and other local groups. Present-day interests in a more elaborate *index of well-being* may come closer to a multi-dimensional view of what motivates people and what gives them satisfaction. Certainly the GDP of a country is a very inadequate, one-dimensional indication of a people's quality of life and what they value.

The neoliberal view of people as rational, narrowly self-interested, labour-averse individuals is a central part of their ideology. Even when dressed up as the ideal person and the ideal society in the novels of Ayn Rand, it remains an ideology that is out of touch with the wide range of needs and interests that really motivate people. It is often presented as prizing the individual, as freedom of choice, control over one's own life, self-determination, pride in one's own accomplishments, no dependency and no 'nanny' society. To counter the pervasive influence of this reductionistic and individualistic ideology we need to keep returning to our ultimate motivation or life direction. It is from out of this basic life direction that we seek to fulfil our lives, whether it is with regard to our physical needs or any other need out of the whole range of concerns. Throughout we have presented a view of human existence that honours all the dimensions of life and that is in harmony with all other creatures. It is a view of the ecological embeddedness of all of life, including humans, in which all creatures are given their due and have their rightful place.

As we will see in the next section on existential trust, if people have an existential basis for their lives, they can also allow themselves to be altruistic, instead of self-centered. Given half a chance people like to care, share, be helpful, be of service, and risk their lives, even in the most difficult and dangerous circumstances. When threatened and out of touch with themselves or in the grip of a destructive ideology, people can do the most unspeakable cruel, selfish, heartless and evil things. But given some basic security, people respond with care and solidarity.

e. The meaning of human history; the future is now

Enlightenment beliefs held that the on-going Progress of humanity will eventually bring about human fulfillment, which will be the end of history. Faith in Progress still lingers on, even though the vision of Utopia has been dimmed. The fulfillment of human history seems to be nowhere in sight anymore. What then is the purpose of human existence? If there is no ultimate destination to human development, then what is the meaning of our lives and struggles? Given the ecological decline of the earth and increasing social injustices, will that be the end?

Historical development, like all other phenomena, is *multidimensional*. Cosmic development is measured by light years. Stars are born and die and constellations change. As a star the earth was born and has some billions of years to go before it dies out, unless humans speed up its demise. Meanwhile the earth's orbit and the way it rotates around its axis fluctuates and changes very slowly over the centuries. Its nearness or distance to the moon and other planets effects changes in the tides and the way air and ocean currents swirl around the earth. Geological time is measured in terms of millions of years. Continents join and break up; mountains rise up and wear down; the contours of the oceans change; seas disappear; ice ages come and go and tropical climates expand to the Arctic and shrink back again to the equator. Cultural time is measured in epochs or periods. Civilizations come and go. As long as humans have been on this earth, physical and cultural times are deeply intertwined. Changes in climate effect human life and human activity has an effect on the environment, especially today. Change is manifested differently in each dimension of life. These different dimensions of changes form an integral unity and inter-connectedness. This means that we cannot limit change to chronological changes in distinction from all kinds of changes. There is no separation between physical change and cultural change.

The human life span has changed over time as well; we live longer than previous generations. Likewise with regard to 'human nature', it too has changed over time. Childhood was seen and experienced differently five hundred or two

thousand years ago. Developmental stages became more differentiated over time. We go through different developmental stages during our life-time, from babyhood to the stages of old age, ready or not. Human development is also a good example of a total integral way of developing. From the beginning all the dimensions of human functioning are present, including the baby's sense of identity and agency. Slowly these integral functions differentiate and develop as they are practiced and guided by parents. At each stage a new sense of self-awareness develops and takes on a particular cultural form. Childhood and parenting differs not only from one historical period to another but also from culture to culture as the many cultural anthropological studies show.

In previous sections we have indicated how we recognize whether some economic activity was happening at a particular period of history. From the 'records' we gather how people were providing for their needs. There are abiding, core guidelines (like justice, equality, solidarity, ecological sustainability, physical well-being, sensitive openness, communal living space, and so on) that seem to govern each dimension of life and that enable us to recognize the records of past activities. These core guidelines allow us to recognize all other human activities in the past besides economic ones.

We are all makers of history. We all contribute to the unfolding of life in small or bigger ways. We do so as parents, as computer analysts, as engineers, as farmers, as plumbers, as bookkeepers, as musicians, as cashiers, as pilots, as husbands and wives, as nurses, as migrant workers, as community planners, as soccer players, as carpenters, as politicians, and so on. We are all part of and contribute to the cultural unfolding of our society, for good or ill. There is an integral, total process of the development of a society, or from a longer view, of a civilization. The challenge for each of us, with the fullness of our being, is *to make history, each in our own way, and to contribute to the unfolding of history in life-fulfilling and life-enhancing ways*. We are both formed by history and makers of history. We play a decisive role in the development of life, in harmony with all others and in the context of our ecological embeddedness.

This view of history is different from those who believe historical developments are random and accidental, a cultural evolutionary process of chance occurrences, or a circular and repetitive process, both timeless and recurring, or the self-realization of Reason in the great movements of history, or a progression of the class struggle toward the liberation of the oppressed, or humans as rational animals capable of making rational choices, and so on. Such views do raise the question of the development or the process of history. Is there any regularity or basic dynamic that seems to govern the unfolding of life? As we have suggested earlier, there is a basic process of *differentiation, individuation and integration* with regards to the process of historical unfolding. It is that same process that governs the historical process that we have illustrated before in reference to the archaeology and history of the ancient near east. The various disciplines are a good reflection of this ongoing process. New disciplines rise with new developments and understanding; they become independent subjects in the curriculum; then, after a time, the need for integration rises and inter-disciplinary seminars and conferences are organized in an attempt to place the separate insights back into a larger whole. The same can be said about the developments of jobs, organizations, institutions, governments, etc. There is a constant unfolding and a dynamic opening up of human culture.

We could describe historical development as the unfolding of various *dominant ways and visions of life and how that takes form in a particular culture*. Today the dominant neoliberal policies and practices are more than an economic and political development. As an *all-encompassing cultural force* it influences every aspect of life, whether our living space, our environment, our health, our emotional well-being, our work, our recreation, our values, and so on. Already in its relatively short history it has undergone significant changes, which are usually discussed under economic history or political economy. But in as much as it refers to a *fundamental direction in life*, it is much broader than just political or economic history. If it were not so awkward we could call it *worldviews and ways of life history*, the coming and going of fundamental eras that historians have tried to capture in words like the Hellenistic Age, the Roman Period, the Middle

Ages, the Renaissance, the Age of Enlightenment, and so on. Different historians of the Ancient Near East, for example, keep searching for a more integral view to characterize *the spirit of an age*, or the driving force behind the various dominant empires like the Egyptian, Babylonian, Assyrian, and Persian empires. In all its diversity, there is a coherent totality of meaning to historical developments. Historians sense something of and search for that overarching unity within all the national and regional differences; they look for the general driving force of a civilization or a cultural epoch.

The history of economic development in the western world of the last two hundred years, for example, is conditioned and coloured by the dominant spirit of the Enlightenment. It is intriguing to see how every country or region in the west with its own national identity and culture has adapted, resisted, or furthered this dominant cultural, economic force. Capitalism has its own unique colour in each society. These distinctive forms of capitalism also provide an entry and an appeal for developing alternative economic structures. Different countries or regional areas have their own distinct cultural visions, so that we can meaningfully talk about the Japanese way of life or the Kenyan way of life, or the Inuit way of life and so on. In spite of modernization and the penetration of the dominant neoliberal ideology cultural distinctiveness remains. Within the non-western world this incorporation of the global neo-liberal policies is even more striking. Countless corporate managers have been forced to take these national traditions and sensitivities into account. MacDonalds and Coco Cola soon learned they had to adapt their advertising and products to different cultures. Their products are presented and advertised differently in India or Africa than in North America, for example. The cultural ideals or the motivating spirits compete in the formation of any society. Today, even though there is the dominating global spirit of neoliberal capitalism, there is a growing battle of the spirits in many countries and regions. It is within this conflict of pervasive visions and ways of life that civilizations develop, unfold and disappear.

Given the changing ecology of the earth and the slow unfolding of human society is there a fundamental direction to these changes? Does the earth's history, including human history, have a purpose, destination, end-goal or telos? Enlightenment beliefs held that on-going Progress will eventually bring about human fulfillment, which will be the end of history. Many religions have a picture of a final fulfillment, of paradise regained, of a new heaven and a new earth. Even though the earth and humanity may go through a great upheaval, in the end all will be made new, such is the conviction. But are these apocalyptic and utopian visions anything more than comforting and reassuring beliefs that help people cope with present suffering or anxiety? Is there any basis for such hopes? Are they merely expressions of human longing for the end of suffering, for peace and for happiness? And if there is no goal to history, if it leads nowhere, what then is the sense of life? If there is no intrinsic meaning to history, including our own lives, and if history does not commit us to anything, is it up to us then to give it meaning, even if it is just our story? All we can say is that, yes there is change and development and we can discern some regularities in these changes when we look back, but that is all. It is not given us to know the future. We can extrapolate and predict on the basis of present evidence and trends, but that is all. We don't know the future. There is no voice from heaven.

What we do have is a fundamental direction to live by and crucial signposts along the way. But that is more than enough to engage in life and to make living meaningful. *The future is now.* The future is in the present, both negatively and positively. The buildings we currently put up, built in an ecologically unsustainable way, will consume excess energy for decades to come and add to the rise of CO₂. At the same time, the drastic measures we take today may yet halt and begin to reverse the present ecological degradation. The future is now. The future is what we create now. It is enough to know our calling: to respond to the evocativeness of life, guided by a phenomenological ethic, the signposts that show us the way.

Chapter 8: Existential Anxiety and Existential Trust

- a. The search for existential security and the ideologies
- b. Existential anxiety
- c. Existential trust in life
- d. Morality, ethics and normativity

a. The search for ultimate security and the ideologies

Many people have highlighted the crisis of our times: the growing sense of ultimate meaninglessness, the emptiness of life, the loss of human values, the increasing violence and destruction, the blindness of world leaders, the impotence and complicity of world organizations. There seem to be few truly prophetic voices. There is enough to make us despair and yet we need to go on living. All the while we secretly long and hope for something that will make sense out of life and provide us with some meaning and a reason for living. But the universe is silent, an ominous silence. On the earth there is decline and disintegration with millions of people huddling in refugee camps. On the oceans there is only the kilometer's long bubbling of deadly methane gases, rising from the deep. Is this going to be the end? There is only the void. The heavens are silent. The mighty Hebrew and Christian God is dead and if not dead, powerless to change anything, to save humanity from itself. God's view of this world is turning out to be a mirage. It is a view from nowhere. And yet we must go on and not despair. We can't help but long and hope however absurd that may be in the face of utter meaninglessness. Such is our existential crisis and dilemma.

This is not a new voice, many centuries ago the author of Ecclesiastes already complained about injustice in the world and God's absence. The unjust prosper, the just suffer, and in the end both die. All is vanity and emptiness and God is hiding. How can that be? The author suffers deeply from God's absence and the evil he sees around him. He complains, God "...has put eternity into man's mind, yet he cannot find out what God has done from the beginning to the end" (Ecclesiastes 3: 11).

In the face of this profound meaninglessness and dread people have searched everywhere for some ultimate security. It seems that from the beginning of human history people have scoured the universe to find some ultimate meaning and security to cope with this existential uncertainty and lostness. Early humans attributed ultimate meaning to the invisible powers evident in nature, in the setting of the sun and its rising again the next day and the mystery of birth, death, and re-birth. They found evidence in the mysterious powers of the great animals they hunted that provided food and safeguarded their precarious existence. Or they found security in the mysterious cycles of nature with its fertility, or the regularity of the course of the stars, the sun and the moon. All the different powers of nature that seemed beyond their control became a source of hope, of inspiration, of dread, of sacrifice, of worship, demanding certain rituals and a way of

life. As the powers and the course of nature became more and more known, all this changed. Yet, though we understand a great deal more about nature than in previous ages and centuries, the mystery or the depth dimension of physical and organic life remains. Ultimately it is something that cannot be reduced to or grasped in abstracted physical or biological concepts. As we saw before, the Cree people and many other indigenous people understand this mystery of life more readily than many of us coming from a positivistic and scientific worldview.

b. Existential anxiety

Given the fundamental insecurities of life, this search for some ultimate security is understandable. Life is uncertain and at times precarious. Ultimately we have no control over our lives. We cannot predict our future or how long we will live. We cannot oversee the course of history and what the future may hold. Life is often unpredictable. We never know what might happen to us and we have only limited control over our existence. We must make choices, yet our freedom is limited. The future is inscrutable and impenetrable. Often life seems arbitrary and fickle. A plane crashes and kills a family eating dinner. There are many threatening forces in nature. Storms and floods can overtake and kill us. There are unexplainable adversities that bring misery and suffering. There are epidemics, diseases, fires, drowning, freak accidents that kill or maim and leave survivors marked for life.

We search for clarity and for the courage to be and face life. We make choices in the hope of a good outcome. We hope for happiness and prosperity, for health and well-being, for vitality and a good old age. We marvel at the beauty of nature and take comfort in the rising of the sun each day. We are dependent on others and are moved when someone is caring. Each time again we are surprised by the great generosity of people. We are overwhelmed when love happens. Often we are surprised by joy. How is it possible that in spite of everything, there is care, love, joy, respect, consideration, fairness, cooperation, well-being and happiness in the world?

At the same time we also face adversity and have to deal with unfairness. We experience or see injustice in the world. There are no equal opportunities. Human rights are trampled upon. People are capable of great good and sacrifice, but also of unspeakable cruelty. In the name of God or national security, or because of greed and lust for power, people are tortured and killed in the most gruesome ways. The cries of millions of children echo through the universe and will not be silenced. Extreme poverty, hunger, and starvation are the lot of millions of people. Modern slavery flourishes, and who can count the number of abused persons? Where does all this evil come from, or can't we question beyond our own personal and collective responsibility and failures? Is there hope, and if so, what kind of hope?

We can be anxious about many aspects of life: our health, our feelings, our work, our relationships, our children, and much more. Almost everything can be a source of worry. These concerns can cover the whole range of life. All of them can be difficult to deal with at times. However, there is one kind of anxiety that is the most debilitating, and that is *existential anxiety*. When we no longer trust the basic direction in which we are going; when we are lost as to what to do; when nothing seems to make sense anymore; when we have lost all meaning; when we have lost hope; then existential anxiety can overwhelm us. When the basic certainties of life that we counted on are gone, then *ultimate fear* or *angst* can overtake us. Without some basic direction and some vision of life we cannot live. Then there is only dread of the unknown. Then we become disorientated and don't know how to go on. Without some kind of perspective, we cannot live. We are self-conscious creatures that can reflect on ourselves and on life, and so we search for a basic direction in life, for a frame of reference that can guide us. It is not given us to live purely from moment to moment

without thought; just being with what is; following our instinct; dealing with whatever comes our way, life or death. We are self-conscious and aware, therefore we need something that we can trust and live by. Entrusting ourselves to a way and a vision of life is part of our being; it is an irreducible part of the way we function. Looking for certainty and entrusting ourselves is an irrepressible human tendency.

Today we may not deify some aspect of nature, but we all hold to some basic view of human nature, of knowledge, of the world, of society, of morality or ethics, of justice and of history. Often these views tend to be one-sided, limited, or absolute. It raises an important question, namely, is it possible to pursue a direction in life and hold to an ultimate belief and not deify and absolutize some aspect of life with all of its disruptive consequences?

In a period of globalization, secularization, emancipation, individualization, post-modernism and the advance of the neo-liberal ideology, many people are at a loss where to look for some guidelines and direction. The Christian religion along with most other religions has lost much of its relevance and public presence in our Western society. Historically, instead of being a prophetic voice, Christianity has always been in danger of accommodating or openly supporting the dominant ideology of the times. Now it seems that the Christian faith has become primarily a private affair for a minority of the population in the global North. What could the Christian religion possibly contribute to today's ecological and social crisis? For many it has resulted in a crisis of meaning and life direction.

In view of this existential condition, it is not surprising that throughout the ages people have looked for that foundation and certainty in one place after the other. They have looked to the heavens, for the many gods, the personifications of nature and the rulers of history. They have looked to the divine kings and emperors, the representatives of the gods and the divine powers. They have looked within themselves, to the power of their minds, their control, their possessions. In our day it is particularly the economic dimension of life that has been absolutized or deified with the aid of science and technology and the support of politicians. They have failed us all, the gods in whom we trusted. Anything that we have made absolute and deified has ultimately brought disappointment. No dimension of life can provide ultimate security.

c. Existential trust in life

As previous chapters illustrated, there is a fundamental alternative to absolutizing and deifying one dimension of life in order to obtain a basic security or ultimate trust in life. There can be a fundamental harmony between living and believing, between experiencing and trusting. We can have faith in life and trust life. Ultimately that trust is built on the givens and guideposts that present themselves to us in our experience. If we listen consistently and openly to these givens and follow these built-in directives, we can trust that things will go well.

This existential or basic trust in life *undergirds all the other ways we trust life*. We can trust that if we take good care of our health, we will stay fit and able. As a psychotherapist I can trust that if I listen with empathy and provide understanding and guidance, the other person will start on a path of healing, growth and emotional integration. We can trust that if we express ourselves clearly, we will be understood in our intention. We can trust that if we deal honestly and fairly with others, they will respect us. We can trust that if we are committed to our partner, they will do likewise. In all these ways we trust life. Our ultimate faith can undergird all these different ways of trusting.

There are many dimensions to our trusting, not only physically but also emotionally, relationally, economically and with regard to fairness. Every dimension of life calls us to entrust ourselves, not as a leap in the dark but as something we can depend on. It is not foolish to believe that there is a just and fair way to do things. It is not foolish to trust that a different economy is possible. It is not foolish to trust that love and commitment are possible. This entrusting is not based on some utopian vision or unfounded idealism. It is based on experience that is open to the phenomena that

present themselves to us and that have their own inherent phenomenological ethic. Even at this late stage it is not foolish to hope and to trust that if we radically change direction, nature, including human nature, can repair itself.

In putting it this way, namely that we can count on the phenomena to reveal themselves, that we can trust what presents itself to us. That means that we do not have to look for some absolute elsewhere, that we do not have to deify anything. However, it does require that we are open to the phenomena that present themselves and that we respond to them as they reveal and urge themselves upon us. In the end that requires an act of faith or trust each time again. It means not seeking our security where it cannot be found. *The only appeal we have in life are the phenomena of our experience with their embedded signposts, but that is more than enough.* If we are faithful listeners they keep on revealing more and more of themselves, such is the nature of things. Inherent in the phenomena is a *phenomenological ethics* that directs us, the guideposts that do not let us down.

This normativity of life holds us and calls us. It corrects us and pushes us forward. *In this way life is revelatory. It evokes a response.* It is never something we can possess, control or even predict. Life keeps changing and continually calls for new responses. In this way life with all its unique dimensions and coherence is truly revealing. Showing us the direction we need to go to find life. It is only in this historical and social process that together we come to know what is right and good for all. We can hope that if we listen faithfully, again and again, that there will be a good outcome. If not, then we can listen anew, change our ways, and find a new direction.

This point of view conveys a deep conviction about the basic meaning and direction of life: that there are fundamental guideposts that we can come to know through our experience; that each dimension of life reveals its own normativity in interrelation with all other dimensions; and that this provides us with a direction for living that will not let us down or lead us astray. This vision gives expression to an approach to life and a way of living that is open-ended, trusting and responsive. At the same time, as a worldview it provides us with an existential frame of reference to deal with the uncertainties of life. It does not miraculously take away all uncertainty or eliminate all struggles, but it does provide us with a foundation and direction for living.

There have been many attempts to explain the normativity inherent in life. Within an evolutionistic framework they are seen as the adaptations that help the human species survive and adapt to new situations. Within the sociological tradition morality is seen as social constructions that maintain positions of power and privilege and protect the in-group. There is no doubt that this normativity has survival value or helps to maintain the established order. There are many other explanations, probably as many as there are worldviews and they each have some validity. The question is whether such explanations, usually limited to one or more aspects of life, can do justice to the complexity and the interrelatedness of life. Most often they involve a reductionistic view. Others deny there is any normativity to life at all and that all 'grand stories' have been found wanting. Many post-modernism writings tend to hold this view; a view which borders on nihilism. When one ultimate conviction is considered as good or as bad as any other, there is no reason to follow any particular conviction. After the 'deconstruction' of all basic viewpoints, there is nowhere to go. That is the theory, in practice those holding such a perspective tend to shy away from the crucial issues of our time and end up supporting the status quo.

d. Morality and ethics

To return for a moment yet to this issue of the built-in normativity of life, it is instructive to see how *ethicists* deal with this question. Ethicists are often called upon when as a society we face a difficult or controversial issue. But what is ethics and who are these ethicists? Unfortunately ethics is a nebulous area and ethicists are usually moral philosophers or theologians. What qualifies these people to make ethical pronouncements about all kinds of difficult situations?

Ethics as an academic discipline presents its own difficulties, since it has no particular field of investigation. Except as a subdivision of philosophy (moral philosophy), there is no general discipline called ethics. In practice, ethics deals with the “moral” or normative nature of specific human activities. As a result, we only have specific kinds of ethics, like environmental ethics, military ethics, social ethics, business ethics, medical ethics, the ethics of technology, etc. Historically this has resulted in a strange split between “facts and values”, between one’s ‘factual’ daily actions and the ‘morality’ of one’s actions. In view of the history of this “split” it is not surprising that a philosopher or a theologian is asked to reflect on the “morality” of certain medical practices, for example, or the ‘morality’ of a technological innovation, and so on. We can wonder how a theologian-ethicist who is not trained in medicine and is not a practicing doctor can comment and provide guidelines for medical procedures and research? Or how a philosopher-ethicist who is not an engineer can provide insight, for example, into the implications of new developments in nano technology?

On a personal level this split between one’s actions and its morality tends to give rise to such statements as “I am just a soldier, I just follow orders”, “I am just an engineer, I have no control over what people do with my invention”, “I just work here, I don’t set the policies of this company”, and so on. On a practical level, usually nothing is done about a problem until something goes wrong, and then the ethicists are called in and a commission is set up to provide new guidelines. But the problem starts much earlier. Doctors, lawyers, engineers, social workers, journalists, etc. are not sufficiently trained in the broad, “moral” aspects of their daily work. Or, if they have that awareness, there is often little room to act upon their insights and experience, especially if the bottom line is profits or the fear of legal ramifications. It is not easy to disturb the status quo or to be a whistle blower.

As a subdivision of philosophy (moral philosophy), ethics is usually considered an autonomous discipline that focuses on the analysis and the testing of moral value arguments. Ethics presupposes morality, that is, people’s moral behaviour, their sense of right and wrong, and what they ought or ought not to do. From that perspective ethics is an autonomous, objective discipline that analyses the reasons people give for their moral behaviour and that challenges inconsistencies in their arguments. Practiced in this way, it tends to be an abstract undertaking that is quite far removed from daily practice, even though they may touch on some very foundational questions. Those ethicists that are closely associated with a particular institute, like a medical school or a research lab, face the opposite problem. With the pressure to come up with practical and workable answers, they may lose the foundational perspective and become more pragmatic.

In an inter-disciplinary setting, philosophers and theologians can certainly make valuable contributions if they are aware of their limitations. Philosophers have an understanding of the foundational issues that are basic to any practical issues. Theologians have insight into the ultimate dimension of life, but they have no special insights when it comes to the normativity of medical practices or technological innovations or any other human endeavor. It underscores how each human activity and each dimension of life related to that activity carries its own normativity. There are no neutral, value free, objective enterprises. It is in our very actions that the normativity of life reveals itself. Morality is not something that we can consider separate from our actual counseling practice, or our medical care, or our technical procedures, or our urban development, or our educational approach, or our fishing practices, or our business dealings, or our peace keeping, or our mining operations, or our academic writing, or any other human activity. Morality is not something we can consider after the fact, or as second thoughts. In every action the guidelines and direction we follow becomes apparent.

The machinery a ‘corporate farmer’ invests in, the coated seeds he sows, the herbicides and pesticides he applies, the water he uses for irrigation, the energy his way of farming requires, the storage facilities he builds, the subsidies he accepts, the transportation system he makes use of, the markets he pursues, they all reveal what kind of farming he is committed to. From beginning to end, factory farming is a normative activity, and in this case, a way of farming that

violates many built-in guidelines, the guidelines of a phenomenological ethics. Such farming is a commitment to a high energy use, chemical and mechanical form of agriculture that requires more and more acreage to be profitable, that is ecologically unsustainable and destructive, that depletes the soil and pollutes the water, that diminishes the genetic stock of plants and animals, that makes more and more damaging bugs and diseases resistant to chemicals, that leads to dispossession and land clearing elsewhere, that fosters food speculation, and that contributes to world hunger. Such forms of agriculture violate the land, the soil, the water, the air, the resources, and other peoples' security and livelihoods. Smaller scale farms and family farms get caught in this squeeze between price speculation, cutting costs, larger volumes, more investments in bigger and expensive machinery, etc. and survival. The same could be said about large-scale commercial fishing, forestry, mining or manufacturing and many other kinds of present-day enterprises. However, in each area there are other options for larger scale operations and small local businesses, as we will see in the last chapter. Human enterprises, in this case economic ones, are human creations that are the result of human decisions. There is nothing absolute or inevitable about it. Humans made it and humans can change it, that is, as long as the foundation of life endures.

For many the built-in normativity embedded in our experience involves a mystery. For others it is something that just is, the nature of things. For the Cree people and for many other indigenous people it is the Creator that is behind it. The Creator that is separate from and above all creatures and at the same time in all creatures. Within Christianity there is a tradition that believes that beside the special revelation contained in the Bible, there is also a 'general revelation', that God reveals himself in nature and history. God as Creator ordered and actively maintains the creation. His creation ordinances uphold the whole world and guide the unfolding of history. In this tradition they are seen as eternal, universal laws that hold for all of creation and all times. Such eternal laws have been found wanting and misused. Even though this view has become untenable, it implies an important insight, namely that *sacred writings and life are inseparably connected*, as we will see in the next chapter.

Chapter 8: A Guideline for Ultimate Convictions; Believing Rightly

Introduction

- a. An alternative vision of life beckons
- b. Religious and non-religious worldviews
- c. The nature of religious writings
- d. Actualizing a religious guideline
- e. The new emerging interpretation of the Hebrew scriptures
- f. The vision of the Hebrew Scriptures: a fundamental directive:

Introduction

This chapter is about '*believing rightly*', in the same sense as we have described '*discerning rightly*', '*making a living rightly*', '*living ecologically rightly*', '*educating rightly*', and so on. These are all a part of what we have called a phenomenological ethics, an ethics that is founded in the guidelines of life as they reveal themselves in our experience. Even so, many may think it a precarious undertaking to try to say something about believing rightly. After all the great stories were found wanting at Auschwitz and the many genocides after that, what is there left to say about right beliefs? After all the religious fanaticism and destructive political dictatorships, how can we still hold to some kind of truth about ultimate convictions?

Yet, we have no choice. After the rejection of the various 'isms' and their distortions and violence, we still need to go on and pick up our daily tasks. Whatever task that may be, we are bound to do it in a certain way and not in some other way. Whether as a farmer, a homebuilder, teacher, mechanic, parent, store keeper, car salesman, researcher, etc.; sooner or later after all the let-downs and disillusionments we are bound to take up our tasks again and develop a new perspective for living. Just by going in a certain direction and not some other, we are committing ourselves to a particular direction. Of course there is always the possibility of becoming a complete skeptic or cynic, but that option too is a hard position to hold. Life still beckons in a myriad of little and big ways. It is of our very nature as self-conscious beings to reflect on life and make choices. At the same time we are faced with new ultimate visions that demand our allegiance and loyalty. We cannot avoid following one way of life or another, because we are not merely instinctual creatures that act by instinct in interaction with our environment. We do have a choice how we will live and we all do make a choice, consciously or not. That still leaves the question, what are life-enhancing beliefs or worldviews and how do we know? Are there any phenomenological touchstones or guideposts for believing rightly that are imbedded in our experience? The purpose of this chapter is to explore those questions in more detail and provide an introduction to the following chapter on the contributions of different religions. This is crucial for two reasons; world religions comprise a large majority of humankind; and not all religious views and practices are life-enhancing. There are many distortions and failures, which underscores how much we are in need of a criteria or touchstone for evaluating different kinds of ultimate convictions and ways of life.

According to the *Pew Research* reports of 2012 on the *Global Religious Landscape*, worldwide there are approximately 5.8 billion people that identify themselves with a religious group. Whether all those believers actively participate in religious activities and financially support their religious group is subject to debate. The statistics differ, depending what is meant by 'identifying'. Regardless of the degree of involvement, *their identity, worldview and values* are shaped by these commitments. They represent about 84% of the nearly 7 billion people in the world. Of that 84% about 32% are Christians (2.2 billion), 23 % are Muslims (1.6 billion), 15 % are Hindus (1 billion), 7% are Buddhists (500 million), and 0.2 % are Jews (14 million). An estimated 58 million, slightly less than 0.1%, belong to other religions. About 1.1 billion (16%) people have no religious affiliation. This means that the unaffiliated are the third largest group worldwide, behind the Christians and Muslims and equal to the world's Catholic adherents (1.1 billion). Many of the unaffiliated persons hold to some religious or spiritual views, like belief in God or a universal Spirit. These figures underscore how Christians, Muslims, Hindus and all other alternative nonreligious groups need to work together to bring about fundamental changes in the world. Together they represent a potentially very powerful group for transformation. Almost all of these groups, religious and nonreligious have made new and strong commitments to oppose climate change and uncontrolled economic growth. Increasingly they are discovering that the preservation of the environment and the healing of the earth, inescapably leads to opposing domination, exploitation and relieving human suffering. Ecological justice is invariably intertwined with social justice and vice versa. The one cannot come about without the other.

a. An alternative worldview beckons

As we have already indicated, another approach to life is possible, one that honours and responds to the guidelines embedded in every aspect of life and that we can come to know through our openness and experience. We *can* follow a different direction in life and we can *trust* that life will reveal itself. We can give every dimension of life its rightful place. Nothing is expendable or superfluous. All creatures have their place within the whole. All of life keeps unfolding and revealing itself, opening up new directions, inviting us to follow the lead. Such is the vision of this worldview.

An alternative worldview that does not deify some aspect, as we noted in the last chapter, *needs to reflect and honor the unity of life, its diversity, its interrelatedness, its continually changing nature and its unfolding structures or*

consistency. There is no basic duality of spirit and matter, of body and mind or any such duality. Life is of one piece. For humans, as we have described, that unity is centered in our selfhood, in our self-consciousness and in our inter-subjectivity. All creatures exist as subjects among other subjects and have their own unique subjectivity, their own unity of action and interrelatedness. It makes for a great diversity, complexity and richness. Within this multi-dimensional coherence, there is both continuity and change. The core features of life continue throughout history, but they take on new forms in different cultures and in different historical times. Everything has its history and future. There is a fullness of meaning to life. It is not too much to say that *life is meaning*, that everything reveals meaning. Ultimate meaning or 'transcendence' is not an addition to secular, 'immanent' life, but a deeper insight into ordinary events. It is a disclosure of events and things to their real meaning. In the encounters we face each day and in the decisions we make reality discloses its real meaning. There is an open dimension in our phenomenological awareness and ethical decision making. To be part of this unfolding process is our challenge, our fulfillment and the meaning of our existence both personally and communally.

b. Religious and non-religious worldviews

As we have seen in a previous section there are many worldviews, both specific religious and non-religious or so-called secular ones. Each of the major religions and many of the beliefs of smaller groups and the spiritual beliefs of indigenous peoples, each have their unique vision of life. *They each contribute something valuable to our understanding of what is life-enhancing. The same can be said about non-religious worldviews that do not refer to a transcendent Power or Presence, like some forms of neo-Marxism or as some have called it, Eco-Marxism, Eco-Socialism and Eco-Humanism. These emerging views have opened themselves up on a fundamental level to the other dimensions of life.* In this section we will focus primarily on the vision of life that is contained in the Hebrew Scriptures. These prophetic writings make *an essential contribution* that is not always recognized either by the Jewish, Christian or Muslim religions. Most important, *it is a vision that points to an aspect of the guideline for 'believing rightly' that is not readily found elsewhere. There is an inherent or phenomenological touchstone or guidepost for ultimate beliefs*, just as there is for any other dimension of life. In the next section we will look more closely at the visions and ways of life the different religions hold to and advocate, as well as the contributions of non-religious views. Only all life-promoting ultimate convictions together, can discern something of what is whole and just and leads to peace.

The choice to focus primarily on the contribution that the Hebrew scriptures make to our understanding of the guideline for ultimate convictions is somewhat arbitrary and circumstantial. It is part of my background and it is one aspect of the touchstone for believing rightly that I can contribute to. We could just as easily have chosen to focus on the contributions of eco-Marxism and eco-Socialism, certain Anarchist groups, new Humanistic voices, spiritual Environmentalist groups, other indigenous religions, or new contributions from within Judaism, Islam, Buddhism, Hinduism and other major religions. Perhaps my contribution can inspire others to reflect on what their ultimate conviction about life can contribute to the guideline for believing rightly. Throughout I have been inspired by the writings of eco-Marxists and eco-Socialists for their understanding of economic repression and exploitation, especially in the global South. In their analysis of many practical situations I have not felt a need to further analyse their overall perspective. On that level it is easy to get lost in abstract debates that do not seem fruitful. It would take some effort to highlight the contribution they are making to the guideline for ultimate convictions.

Throughout, including the last chapter I have made reference to the convictions of many peasant groups and indigenous peoples. They often speak from out of the midst of their precarious existence, their struggles, sacrifices, courage and deep faith. In the practice of psychotherapy I have been most inspired by Humanistic psychology and radical Social Work. Because part of my background is the study of the phenomenology of religion and the interpretation of the

Hebrew scriptures, I have chosen to focus on the contributions the Hebrew prophets have made to our understanding of the guideline for ultimate convictions. Others no doubt can contribute to our understanding to the touchstone for ultimate convictions from out of their background and experience.

The role of religions

Christians have generally believed and many still do today that the bible contains the only and infallible norm for faith, for ultimate beliefs. But as many missionaries that were open and sensitive to other religions and cultures discovered, there are many other beliefs that reveal something of what it means to believe rightly. Believing rightly in this context means ultimate beliefs that point to a way of living that brings justice and care. The Hebrew scriptures do contain 'a norm for faith' which is *imbedded in their experiential accounts*. However it is only one aspect of such a guideline. There are many other aspects these scriptures do not touch upon. Most important, this guideline keeps on unfolding and needs to be articulated and actualized by each generation anew and in each cultural setting.

To some it may seem surprising that distinctive religious perspectives have anything to contribute at all in dealing with our present global political, economic and ecological decline and disintegration. In one way it ought not be surprising, since religions deal with ultimate concerns and with basic beliefs about life. But it is surprising in view of the decline of many religions in the Western world as the result of the process of secularization of the last 50 years; a process of emancipation, freedom, independence, and, for some, new economic prosperity and security. As a result of these developments, many peoples' worldview has changed radically. Others are at a loss, because the old views have lost their meaning and they have not found a new vision for living. It is also surprising because there is a general backlash against all religions as a result of past and present religious domination, violence, persecution, killing in the name of god, excommunication, banning; condoning or being complicit in colonialism and new forms of domination and subordination; mutilation and violence against women and children; defending slavery; 'just' wars; different forms of 'apartheid'; class divisions; inequality and injustice; or upholding a deadening and predictable morality that serves the status quo of power and privilege. Much more could be added, the sins of religions are many.

In spite of this dark side of most religions they have a valuable contribution to make that we need to retrieve. Every worldview and life-practice has its dark side, yet we tend to expect something more and different from specifically religious views and practices since they appeal to a transcendent Power or Presence to legitimize their beliefs and practices. At the same time we need to remember that every non-religious worldview has its dark side and makes an *ultimate appeal, whether to human reason, power, profit, or whatever is held to be ultimate or basic*. In light of that it is not too much to say that the neoliberal vision of life too with its economic policies is like a fanatical and destructive religion that, like a contagious disease, has penetrated and infected every corner of the globe. But just as the capitalist worldview needs to be transformed and some of its insights and practices retrieved and placed within another integral economic system, so can the *religious* understanding of what is just and good be retrieved and placed within the alternative frame of reference that we have sketched above. There is only one reality and however distorted or violent the practice, there are often some insights or practices that need to be rescued, retrieved and transformed. In spite of the dark histories of many religions, there are exciting, new religious voices, sobered and humbled. Many religious leaders are speaking out courageously and presenting a radical, prophetic vision along with Pope Francis, the Dalai Lama and archbishop Desmond Tutu. It is these kinds of visions along with several radical so-called secular visions that can encourage and affirm us, bringing us back to the task at hand in the midst of life.

c. The nature of religious writings, including the Hebrew scriptures

Holy scriptures of whatever faith convey a religious conviction and point to a way of living. To get a sense of what it means that religious writings are books of faith, we might compare them to religious art, religious architecture, religious music, religious education, religious or pastoral counseling, and so on. They fully participate in all the dimensions of reality, but they have a unique characteristic. To engage in any of these activities, one first of all has to be a good artist, architect, musician, teacher, or counselor. Only then can one consider how a people's faith, religious feelings, sense of community and care can come to expression through art, architecture, music, etc. The same is true for books of faith, they are part of life, they reflect all of reality and yet they have a particular focus. *They give expression to a people's ultimate convictions and point to and endorse a specific way of life.*

As an integral and inseparable part of creation, sacred writings are not revelations from a divine, transcendent Spirit, coming from outside our world. They may *point to* a transcendent reality, but they are part and parcel of this creation. More and more it has been recognized that holy books are human documents. It has become evident, whether the Hebrew Scriptures, the Christian New Testament, the Koran, the Buddhist or Hindu writings, or others, that they are totally embedded in the history and culture of their places of origin. Every aspect of the Hebrew Scriptures, for example, whether laws, genealogies, customs, proverbs, ancestral stories, miracles, and so on, had its parallels in the accounts of the neighboring peoples and the history and culture of the Ancient Near East in general. They are truly human writings that often went through a long period of development before they were recognized by a certain faith community as authoritative, divine revelation. They are written from *a faith point of view*, but they remain historical, human documents. *They reflect the religious experiences and reflections of a people that were given form in their oral traditions and writings.* They pondered the human condition, the presence of good and evil, what happened in the past and what the future would look like. They wondered about sickness and health, about despair and hope, about the flourishing of life and life-destroying forces. They contain depth reflections on the meaning of life, on what is worthwhile and right, what is worth living for and as such they promote and endorse a way of living.

The Hebrew Scriptures too are a part of this creation and human culture. As such they are *revelatory* just as any other part of life, as we have described above. They contain the responses of believers long ago to the basic questions of life in their particular cultural, political and economic situation. They do so from out of their worldview and express their faith in terms of their particular vision of life. They too, the people of ancient Israel and the early church, through the witness of their scribes, poets, prophets, apostles and their disciples, tried to discern something of the mystery of a Presence or Power. They too tried to answer the age-old questions of life. They interpreted their history and their experiences in the light of their ultimate vision, their God image and their view of the cosmos. They too had something to say about living rightly and what makes for human flourishing. In this process they too uncovered and disclosed something of the *fundamental guideline for holding ultimate convictions*. Other religious views and non-religious perspectives equally contribute to our understanding of this guideline, to what makes for a life-flourishing vision. The Hebrew Scriptures, in spite of some of the later interpretations and distortions of Judaism, Christianity and Islam, has contributed its own unique understanding of what makes life whole.

Sacred writings belong to a specific genre; *they are religious books, written from a particular point of view*. The history of the Ancient Near Eastern religions is often reduced to sociological dynamics of power struggles, re-enforcing and glorifying the position of the ruler and the priests; privileging certain social classes; uncritically reflecting the social conditions of their day; affirming the identity of the group in the face of the others, the enemy or outsiders. As a result religious pronouncements are easily reduced to propaganda that serves to legitimize the powers that be: the gods favour this king or this city. Likewise with regard to the ruling class of priests that are seen as using the beliefs and rituals to enhance their own power and influence and legitimize their own religious views and political purposes. Again, there is no doubt that religious writings have this sociological and political dimension, which needs to be taken into account and

can deepen our understanding of specific texts. But ultimate beliefs or worldviews need to be understood, first of all, in terms of their religious nature, in terms of the ultimate convictions they convey. They cannot be reduced to mere political or sociological or any other dynamics without violating their meaning.

That also means that they do not provide guidelines for any other area of life than the spiritual or faith dimension. They are not a 'textbook' for ecology, for agriculture, for economics, for politics, for justice, for peace, or for any social issues. They do not contain an ethics of any area of life in spite of the many books about Old Testament ethics. *They only reflect a vision of faith that points to a way of living*, nothing more and nothing less. They do not contain a feminist theology or an environmental ethics, or any other theology or ethics. First of all because they do not contain any systematic reflections on anything, they do not contain any theology or doctrines, or any set of principles or values. Instead, *they are of a practical, experiential nature that speaks to life in particular situations at a particular time*. They do *reflect* all of life, since they talk about faith in concrete situations, but *they do not speak to those situations in themselves*. Even when the Hebrew prophets oppose violent rulers, domination, cruelty, the manipulation of the courts, repression of the vulnerable, exploitation of the poor, not caring for the widows and the orphans, accumulating riches and land, using false weights in the market place, indebting and enslaving impoverished farmers, and so on, *they are not addressing or opposing any social structures or calling for radical political change. Rather they speak from an ultimate conviction point of view*. From that ultimate point of view they pronounce judgments on these social evils.

The same point needs to be made with regard to liberation theology and Marxist interpretations of the bible. However valuable, the scriptures are not about political, economic, and social liberation in the face of domination, violence and repression. *The scriptures do point to all these issues but via a life-restoring vision*. The context is always, directly or indirectly, the failure to follow Yahweh's Way. Maybe the difficulty is that we keep looking for some ultimate authority and support, when that is not given to us. The crucial point is that the Hebrew bible is a book of faith and needs to be interpreted as such if we are not to violate and distort its meaning. Even the prophets' strongest condemnations of the social, political, and economic evils in their society are *ultimate judgments without any plea for radical social reforms and structural changes*. Of course, such ultimate judgements do have radical implications for political, social and economic actions. As we go on we will need to clarify how a religious or ultimate evaluation of economic practices and ills, for example, is of a different kind than a basic, structural evaluation of an economy. The two are closely related, or better, they are interrelated, but they each have their own focus. All along and especially in Chapter 10 this difference becomes evident in a radical critique of the basic direction of the present global economic system and the alternative practices that are guided by a very different vision of life and economic practices.

This is the first concern in trying to understand sacred writings. They are not political, economic, sociological, cultural, psychological, geographical, biological, historical, theological, or even ethical texts. Even though they reflect all these dimensions, they remain religious writings, and need to be interpreted as such. To see them as 'nothing but' social and political justifications of privilege and power, for example, distorts their meaning and prevents us from responding to and evaluating any claims or appeals they may make. It is of the very nature of religious writings to make an appeal and advocate a way of living. All ultimate convictions make such an appeal; that is of the very nature of basic convictions. They invite, ask us to join, to believe likewise, to follow the same direction, etc., which means that they need to be evaluated as to whether their vision is life-promoting and life-asserting, and not life-destroying. Ultimately every conviction needs to be judged as to whether they are true to experience, true to life. *In the end, the fundamental question to be asked of each religious and non-religious vision is 'how do they want us to live?' Does their particular vision promote and enhance life in all its fullness, or not?* Believing is of a communal nature and involves conviction and invitation. Ultimate convictions are not private matters; they all make an appeal to share their vision and adopt a way of life. By their very nature worldviews present a choice and make an appeal to our allegiance. That is why it is crucial that

every religious pronouncement be evaluated in terms of its life-enhancing or life-distorting nature. Every religious movement as well as every non-religious movement can be evaluated and challenged by this criterion.

d. Actualizing a religious guideline

As we described above, our first concern is to realize the limited nature of religious guidelines. Although they address all of life, they do so from a limited perspective, the perspective of faith. As a part of the coherence of life the faith dimension or vision of life as presented in the Hebrew Scriptures *articulates and actualizes (part of) a fundamental guideline for a lived faith*. Just as we have tentatively described the guidelines or guideposts for other aspects of life, like the ecological, the economic, the analytical, and so on, so too the Hebrew Scriptures reflect and point to a guideline for a vision and way of life. It does so in terms of different literary genres, such as history-like stories or narratives, prophetic writings, wisdom literature, songs and apocalyptic writings. They reflect very concrete experiences at a particular place and time in history and in a very specific cultural setting. They do not generalize or provide some norm for faith and life, but they do *actualize an experientially given religious guideline*. They discovered through liberating and desperate experiences what fundamental direction in life brings shalom. They learned about well-being and what makes for human flourishing as well as what destroys and disintegrates life. They faced the same challenge as we do, namely, what kind of worldview brings joy and well-being. We could call this overall interpretative approach *a foundational, phenomenological perspective*; more about this in a moment.

No doubt there is more to be known about this guideline for ultimate convictions, especially from other religions and other worldviews, but the Hebrew Scriptures make their own unique contribution to this inherent guideline. Within the history and culture of their time they presented the contours of a “lived faith”, a faith embedded in the whole of life. They developed this conviction in contrast to the idolatry of their times, the absolutization of some aspect of life. The gods of others are seen as the personal deification of the powers of nature and the order of life. Right from the beginning in Genesis 1, for example, the sun with its life-giving warmth and the moon indicating the cycles of fertility, are seen as creaturely, as an integral part of life on this earth and not as divine. Similarly with the seasons and the times of our lives, they realized that our fate and the orderliness of the cosmos are not written in the stars. The stars with their constellations that stir the imagination were considered creaturely like everything else, a part of the givens of life. And people in their co-humanity were seen as free, able to make choices and carry responsibility and when they failed, able to start over again. For the rest it does not speculate about what was before anything came into being. *Creation was de-sacralised*.

They do point to a Presence behind and in all things which the Hebrews called Yahweh. In this way the prophets, priests and sages expressed their deep conviction that nothing in life can be deified and that if we do all of life gets distorted and we become slaves to our idols. When the ancient people of Israel failed, each time again, they had the choice to start over again and find life and well-being. Although they often repented and made a new beginning, they continually fell back in idolatry. Their story is a story to weep about. It is the story of a failed project. It is the story of humankind. It raises the question, is there hope for humanity? Will there ever be an end to human failure and suffering? The answer they were convinced of was, yes, there is hope *as long as the life-giving vision holds and calls us back to an integral way of life, or as they said, until the moon is no more*. That is the vision of the Hebrew Scriptures. The Hebrew prophets discerned something of that mystery of life that we cannot put our trust in any part of life without distorting all the rest. At the same time they had a deep sense of mercy and compassion, of renewal and hope.

To put it somewhat simplistically at this point, the central message is clear: do not absolutize or deify any part of life; if you do, it will not go well, life will become distorted and there will be suffering; and if you have, it is never too late to turn around and make a new beginning, just follow the Way. Such was the insight and wisdom and the deep conviction

of the ancient prophets, priests and scribes. The history of the people of Israel and the history of the Christian church, as well as that of Judaism and Islam and the stories of many other religions and convictions, may be a sad story, but these stories written by a small minority have a lasting significance. They challenge us to actualize that same guideline of not absolutizing some aspect of life in our times. It is an urgent question for the story of the dominant faith of today, of the neoliberal ideology, which is also a story to weep about. It is a story that reflects policies and practices that are destroying the very foundation of life and involves immense suffering.

e. The new emerging understanding of the Hebrew Scriptures

In interpreting the Hebrew scriptures as one particular collection of sacred writings we have followed a *fundamental phenomenological approach*. It is hard to find a good word for this interpretative key. It is on par with an overall Marxist, Liberation theology, feminist, psychoanalytic, existential, symbolic, allegorical, confessional, fundamentalist, etc. interpretative framework. In developing an interpretative approach, I have not found the often abstract theories of interpretation (hermeneutics) helpful in this context. They seldom acknowledge and articulate their fundamental startingpoint and perspective. With a stated psychoanalytic or an existentialist interpretative framework, for example, it is clear what we can expect. Because of this clarity, it allows us to learn from the interpretation of a particular passage, even if we disagree with the overall approach. Often it highlights unexpected aspects of a text we had not noted before. I have consistently sought to use a phenomenological frame of reference in the conviction that this interpretative approach provides the key to any holy scriptures. It is based on the view that there is a basic (phenomenological) givenness to life throughout human history and in all cultures; a givenness of the *multi-dimensional unity of life, its diversity, interrelatedness, continually changing nature and its unfolding and abiding structure*.

This abiding and unfolding givenness of life also allows us to ‘bridge’ the gap between then and now, whenever it concerns ancient scriptures. There is a fundamental similarity in the givenness of life, whether in ancient times or in the present. Economic relationships and practices may differ culturally and historically, but we recognize them as economic phenomena, and so on. This means that we always have to ask, what human reality do these books refer to? What sort of human phenomena do they point to? How did they actualize the fundamental directives for life in their situation? These questions are based on the assumption that ‘holy books’ are part and parcel of this creation, that they are an integral part of human history and culture. They do not belong to some other realm, to a boundary realm between heaven and earth. Holy writings are fully creaturely phenomena, including the beliefs they refer to. These are based on the assumption that holding to and living by an ultimate conviction is a universal human phenomenon. Being committed to a certain worldview is a normal part of life.

Many present-day church-goers, those that still attend in the Western world, barely know the bible stories, never mind the church’s confessions and doctrines. Although not important in itself, it is relevant when we consider the radical witness of the leadership of the Christian churches today with regard to our present ecological and social crisis. We will come back to this in the next chapter in relation to the radical witness of the Christian churches opposing neoliberal ideology. It highlights how part of the Christian church speaks out courageously in spite of its dubious past and lingering legacy. Maybe that is how it has always been. In ancient Israel too, it was a small prophetic minority that spoke out and confronted idolatry, injustice and violence. *We as well are confronted daily with the destructive consequences of another vision claiming our allegiance and assent requiring a radical protest and opposition.*

In order to understand something of the meaning and relevance of the writings of the Hebrew prophets, we first need to look a little more closely at the present-day understanding of the Hebrew Scriptures. There has been a fundamental shift in its interpretation, both in more orthodox and liberal circles. This shift has developed slowly since the 1960’s and especially during the last decades. The events of WWII and the Holocaust left its mark. The old certainties had been

shattered and there was no going back. There has been a new freedom and honesty in biblical scholarship and historical studies of the Ancient Near East. The tremendous advancement in understanding could no longer be harmonized with traditional historical interpretations. Perhaps the most important change came from the growing awareness that the various books of the scriptures went through several editions: a first, limited edition addressed to the first hearers in a particular situation; more elaborate, later editions addressed to second or third hearers often at a much later time facing very different circumstances. This awareness along with new archeological discoveries and historical studies made it evident that there was a specific historical event that gave rise to the development of the Hebrew scriptures, namely *the Exile*. There were some later and other additions to the collection of writings, but the main part came about as a result of the Exile; the experience of being led captive to a far-off land.

The pre-exilic and exilic prophets and scribes *reconstructed a history of Israel* from many sources and in accordance with the traditions of the nations around them. Almost every story and custom in the Hebrew Scriptures has its parallels in the writings of the surrounding nations, of Syria, Egypt, Babylon, and others. Like the tradition of other nations around them, they reconstructed a beginning, a creation story; ancestors for their nation, the patriarchs; great epochs and events, the Exodus and the law-giving at Mount Sinai, the Torah; great kings, and conquests, David and Solomon. From these givens and these traditions, they reconstructed a history for the about-to-be-exiled or exiled people. In doing so they were very faithful to their sources and ancient traditions. They did not try to harmonize the different sources or conflicting accounts. They left them standing side by side, as well as traces of later versions that reflected new situations. They did not just sit down one day and dream up a complete history of ancient Israel. *However they composed their writings in the light of their religious self-understanding, their profound religious convictions, their traditions and in view of what was happening at their time of writing, the Exile.*

This means, first of all, that to understand the scriptures we need to read them 'backwards', starting with the pre-exilic, exilic and post-exilic times. Some core parts of Genesis through II Kings may have been written during the time of Hezekiah's (715-687 BCE) and Josiah's (639/638-609 BCE) reign and reforms. All the various scrolls may have undergone one or more redactions. Some parts that can no longer be re-constructed have left traces of older traditions that may go back even earlier. There may have existed separate court stories of David and Solomon and stories of prophets like those of Elijah and Elisha, and possibly others. There is a lot of debate about the sources and origins of each part and many changing theories and speculation. *However, the completed scriptures were intended for the readers before, during or after the exile in the concrete situations they faced at that time. They were the first readers.*

Before that these scriptures in their completed form were unknown. During the time of the early prophets, like Amos, Hosea, Micah, Jeremiah, and others, there was no Pentateuch, no Deuteronomy, no other historical books, only some traditions and stories. In view of the above, reading the scriptures "backwards" means that we should not start with Genesis 1, the creation story, nor the stories of the patriarchs, of Abram, Isaac and Jacob, nor the exodus from Egypt under the leadership of Moses and the entry into the promised land led by Joshua, nor the kingship of David and Solomon, but rather with the reforms during the times before the *Exile, the Exile itself and the time after the Exile*. The deportation, first of the people of the Northern kingdom and the destruction of Samaria in 723/722 BCE by the Assyrians and later the exile of the people of Judah and the destruction of Jerusalem and the temple in 587/586 BCE by the Babylonians, these events had a profound and devastating impact upon the people.

Looking back on their past they tried to understand why this catastrophic event had happened to them. They found the reasons in their 'history', or better, in their traditions. In Moses speeches in the last chapters of Deuteronomy the exile is already 'predicted' as well as the failure of the kingships. The exile happened because of the unfaithfulness of the kings and the people. In each of the following 'historical' books (Joshua, Judges, Samuel, Kings) these reasons are repeated

over and over again. It is the idolatry of the people, serving other gods, forsaking Yahweh and his life-giving word, that is presented as the reason for the exile. At the same time the prophets and scribes had a deep sense of mercy and compassion, of human frailty, and of making a new start. They expressed a strong conviction and hope that things would be different in the future. The exile of the Hebrew people would come to an end and there would be a new beginning. Yahweh, the God of Israel, would create 'a new thing', the life-giving Torah written in their hearts.

It is important to emphasize that the Hebrew bible needs to be read "backwards" to get a sense of how profoundly the understanding of the Bible has changed during the last decades. For many it is a big difference from what they may have been familiar with from their upbringing. We need to imagine a bible that starts with some brief stories about Hezekiah's and Josiah's reforms and some prophetic oracles by the early prophets. During that time some first versions of the Book of the Covenant and Deuteronomy were added, and slowly on more and more different writings and new versions of older texts were added to the collection. Imagining such a bible immediately changes our understanding of the key message of the scriptures. It is not about a *history of redemption* that started with the creation of the world at the beginning of time, followed by the fall into sin in paradise and culminating in the resurrection of Jesus and salvation through his sacrifice. *These books of faith came about during a time of great crisis of the Exile for the people of Israel and their response to this crisis.*

They are not history books in the usual sense of the word. They are more like *prophetic reflections on the past with a view to the present and the future*. In view of the destruction of Samaria and Jerusalem, the exile, the years in captivity, and the remnant that returned many years later to join the rural population that had been left, how could this have happened? How was it possible that Yahweh's chosen people that were to be a blessing to all the nations of the world could be deported, lose their land and return to a small province (Yehud) of the Persian empire? To understand this devastating reality they looked back to their past to discern what had gone wrong. These stories about the past are first of all *prophetic writings*.

This 'backwards' reading means that every 'book' and every story must be understood in light of their experience of the Exile and the return of a remnant to the Promised Land. From that point of view Genesis 1 and 2 is not a story about the beginning of creation. It is first of all and foremost an affirmation that Yahweh who had promised to rescue them from exile (through the messages of the prophets) could do so because he was the also the Creator god. He could turn the heart of Cyrus, the emperor, so that he would allow the people of Israel to return to the Promised Land. The story of the law-giving on Mount Sinai to Moses is not a report of an historical event. Rather it served primarily as a sharp reminder and promise to the first hearers that when they returned from Exile and followed the life-giving way of the Torah, it would go well with them and they would once more flourish. The same with the story of the worship of the Golden Calf at Mount Sinai; it was a warning that when they returned not to fall back in idolatry and deify the powers of nature. They are to remember that idolatry was the cause of the Exile. It is only from out of this overall perspective of the Exile, that we can do justice to the details of each story. It is the key to interpreting the Hebrew scriptures. The question with regard to each book is always, who were the first hearers, what was their situation, what was happening, and how does this particular story address them in those circumstances? This is a very simplified account of a complex development.

(For a more elaborate account of this viewpoint and an elaborate bibliography, see my website: *Reading the Hebrew Scriptures Backward*, www.foundationalissues.com and some other related articles.)

f. The Vision of the Hebrew Scriptures; A Fundamental Directive

It was essential to set the stage before looking more at the prophetic witness in detail. So many studies end up just quoting individual passages about justice or violations, without considering the specific nature of religious writings, as well as changes in the interpretation of the Hebrew scriptures. Whatever guidelines the Hebrew bible contain they are totally 'embedded' in their experiential accounts, in the stories. Although the scriptures talk about all of life, they do so from the perspective of faith, from the viewpoint of a specific worldview. Like many of the peoples at that time they made a strong distinction between the Creator and the creation. At the same time they had a unique image of their Creator god, Yahweh, and of their intimate relationship with Yahweh and their mutual expectations, which included a vision of a way of life that would bring well-being or shalom.

A unique God image

Like the surrounding nations, the Hebrew people thought of their god as *personal* and as the one who *created and controlled the cosmos and directed the course of human history*. It is important to note that such views of intense personal involvement on the part of the deity directly intervening in the affairs of his people was the common conception of that time. Given this common notion of a personal god, it is crucial to focus on the *actual content* of the God image in the Hebrew scriptures. *What* characteristics did they ascribe to Yahweh? *How* did he control the cosmos and direct history, for *what* purpose and on *whose behalf*? *How* did he treat and relate to his people? Was he seen as a fickle and arbitrary lord that exacted his pound of flesh and would punish his people if they neglected the rituals of worship like the surrounding peoples? Or was he a protective and dependable god that cared for his people and set his people free?

It is the same for us, we too have our worldview. We cannot think of our planet earth apart from our understanding that we are a tiny part of a huge constellation of stars, the Milky Way, which in turn is located in an immense universe. Nor can we think about human existence apart from the unfolding of biological life on earth in terms of evolution during the course of billions of years; or the complexity of historical causation; or of molecules and atoms and the tiniest nano particles; or the world of TV, computers, cell phones, etc.; in short, all the parts of our present place in the world. In the same way in the Ancient Near East it was unthinkable to picture their world without a creator deity whose favors had to be courted and who could be fickle and cruel. When reading about the Hebrew god image we constantly have to remember, given that worldview, how did they give *content* to their ultimate convictions about their deity, their history and life?

In contrast to the surrounding nations, the Hebrew people believed in *one god* which they called Yahweh. The powers and functions of other deities were ascribed to and incorporated in their image of Yahweh, the Lord of Lords, the Creator. All the powers of nature, the maintenance of the order of the cosmos and the guidance of the course of history were all ascribed to Yahweh. Not only Genesis 1 and 2 asserted this belief, but throughout the scriptures the psalmists and prophets confirmed this belief. They did so in the context of their history, of deliverance, re-dedication, and of following the Way; they had a deep trust that they could depend on their god because he was the Creator of all things and in charge of history. This was not a formal confession like the Apostolic Creed, 'I believe in God, the Father almighty, creator of heaven and earth', recited or sung in unison during Christian worship services, but always a confession in a context of crisis, despair, appeal, trust or hope. They express a deep conviction that the Creator would use his power to redeem them from their oppressors, their own waywardness and set them on a new path again. Such confessions, songs of praise or cries for help cannot be made in general without reference to a specific situation, if the texts are to keep their experiential meaning and the meaning they had for the first hearers.

The one God and the idols

The prophets cried out loudly against the idolatry of the kings, the nobles, the elders, the priests, the Levites, and the people. They ridiculed and poked fun of the wooden images made by some local carpenter and silversmith. They called them non-gods and scarecrows, good for nothing, except for firewood. They asserted again and again that if you follow Yahweh's life-giving guidelines you will find peace. When you follow the Way, the heavens will respond to the earth, and the early and late rains will respond to your pastures and your flocks will multiply, and then your olive trees and your vineyards will respond and bear fruit, and you will have peace and abundance. There is only one Creator and all other beings are his creatures, so honor the Creator and the Giver of life and follow his life-giving ways. The prophets' messages are against the violation and the disintegration of life that results from deifying the powers inherent in creation. Whatever powers there be, they are all creatures dependent on the creator. Such was the prophet's message. The spiritual struggle evident in the Hebrew scriptures is *against serving other deities as the embodiments and personifications of the powers of nature and the order of life.*

An intimate relation and mutual expectations

The Israelites used two main images among others to describe their relation to Yahweh, the image of a *covenant* and of *holiness*. We will just focus on that first image of the covenant. The scribes may have borrowed this image from the treaties, or covenants, between powerful kings, the suzerains, and their subject kings, the vassals, who sought or received military protection and other favors. These treaties could be entered into voluntarily by small kingdoms seeking protection or imposed by a conquering army. The treaties involved reciprocal relationships with mutual obligations of protection and loyalty, even though the two partners were unequal. The violation of a covenant could have serious consequences requiring additional heavy tributes, demanding slave labour for building projects or field work, exiling the ruling elite, destroying the local temples and carrying off the temple deities, and levelling the revolting cities to the ground and laying waste the supporting country side. These ideas of covenant treaties may have been modeled directly after this practice, or they may have been a general well-known part of the near eastern world. Certainly the covenant making ceremonies reported in the scriptures show this common pattern of treaty making.

This background is important because it defined the relationship between Yahweh and his people. This emphasis on the covenant came to the fore during a time of great crisis for Israel when their very existence was at stake. The descriptions of the making and renewal of the covenant many centuries earlier (Exodus; Deuteronomy; Joshua; etc.) served as a confrontation with the peoples' past; an occasion for re-evaluation; a call for change and re-dedication; and a proclamation of hope and a new beginning in the future. There had been a constant crisis from before the fall of Samaria (722/721 BCE) and the exile of many northern people to Assyria; the two short-lived and failed reforms under the reigns of Hezekiah (715-687 BCE) and Josiah (640-609 BCE); culminating in the fall of Jerusalem (597 BCE) and the exile of the elite of the southern kingdom to Babylon. Based on many sources, the scriptures were mostly composed and re-written during this time of intense crisis lasting for almost two hundred years until the restoration and dedication of the new temple in 515 BCE. The 'writing' of the 'Book of the Covenant' and the 're-discovery' of this scroll during Hezekiah's and Josiah's reign played a crucial role during this crisis and after the exile when it was re-edited reflecting the new situation.

The idea of the covenant did not just rise during this time of crisis, but *it was used to explain why the exile had happened*, what the relation with Yahweh committed the people to and how they could renew their way of life by following the Torah. There is one more essential aspect to the prophets' message that we need to highlight separately, and that is the emphasis on following the commandments, the religious blueprint, that point us back to a way of living. *They are instructions that represent a fundamental direction or a path to follow in life, or simply, the Way.* It is described as a path that can lead to life or, instead, a crooked path that leads to destruction.

A committed way of life

To return to this image of the covenant relationship, *in that image the covenant relationship and keeping the commandments are inseparably connected*. The one without the other is unthinkable. Serving Yahweh means following and trusting his Way, the Torah. Sometimes the ordinances can be summarized in the *great commandment* to love God and our neighbor as we would love ourselves, or in the *ten commandments*, or as they are elaborated in many *detailed prescriptions* for different areas of life. Together they are like *a spiritual blueprint for living*. *Whether all the various detailed instructions for different situations were ever realized and followed is doubtful*. However, they remain as a vision for a way of life that leads to shalom. These commandments are recorded in the context of the exile and they are embedded in the culture and the ancient traditions of that time, and as such they have many parallels in other law codes.

Many of these laws are debatable if not questionable in the light of what we know today about the different aspects of society and relationships. As we have indicated before, it is a mistake to try to deduce basic economic, political, societal, or environmental principles or moral guidelines from these commandments. Instead, the emphasis in the scriptures is on the *faith dimension of living life in Yahweh's presence, of a commitment to a way of life*. They are religious directives that point to a basic direction for living that brings peace and heals suffering. In that light, for example, a good king, a good judge, a good merchant, a good farmer, etc. is first and foremost a faithful covenant partner. It is another way of specifying what it means to follow the great commandment, to love our neighbor as ourselves. The emphasis is on the *fundamental attitude and motivation* of the people, to act as Yahweh has acted towards them, while they were yet sojourners in a foreign land, having been liberated from slavery and exile. All the commandments, therefore, are covenant laws, covenant ordinances that lead to life and wholeness. For that reason they can be summarized by the great commandment.

To be a covenant partner is first of all to be a *righteous* person, which means that one lives up to one's reputation as a true partner, that one truly recognizes and sees the other as a co-partner. It means that a person's righteousness shows in *just* actions; that the other person can count on it. It is interesting that in this context a scale can be called righteous, meaning that it lives up to its true nature and does what we expect a scale to do, weigh accurately and honestly. In the same way, a righteous person is not some super human being, but one that does what we can expect from a faithful covenant person; from covenant keepers that follow and implement a life-giving way, that truly see the other and the earth.

When that happens, justice will be done; then orphans and widows will not be neglected and allowed to suffer; then foreigners will be welcomed and protected; then kings will establish just laws for the flourishing of society; then elders in the city gates will secure justice for the oppressed; then merchants will use just scales and trade fairly; then landowners will honor the rights of indebted persons and not confiscate their ancestral lands; then farmers will deal rightly with their land and leave enough of the harvest for the hungry; then the elderly will be honored; then the sick will be comforted; then prisoners will be visited and set free; then all will live up to their reputation as covenant partners following the way of life, the Torah; then all will be true image bearers of Yahweh. Being righteous and doing justice are of one piece. Righteousness shows in acts of justice in every dimension of life.

The same things can be said about *goodness* and *truth*, those other two qualities of covenant partners, of Yahweh as well as the people. Goodness in this context means to show acts of loving kindness, of fidelity, of loyalty and of mercy to the other. When that happens, a person's actions demonstrate truth, just like Yahweh's actions and words show truth. Truth is in the actions. It is a verb, a relation, a way of being with the other. According to the Hebrew scriptures righteous and truth is what one is called to *be*, which *will show in acts* of being just and loving kindness. In view of this it

is not too much to say that all of the scriptures can be encompassed by the covenant relationship between Yahweh and his people, including all the nations of the world as well as the whole earth and all creatures.

This view of Yahweh and the people as covenant keepers is the opposite of following the letter of the law, or whatever negative connotation we may have of the word law or commandment. All the commandments, all the laws, and all the specific ordinances are intended to implement and give form to the covenant expectations. They are intended to give expression to what it means to be a true partner in all the circumstances of life. Even those regulations that may seem strange to us and that we cannot trace back to their cultural and historical background, are meant to be covenant laws. All ordinances are meant to make life flourish and lead to harmony and well-being.

The same Deuteronomist' scribes, looking back from the time of the exile, tell the story about the re-commitment of all the Israelites after they settled in the promised land. A copy of the law of Moses had been written by Joshua on the stones of the altar when they first entered the land. They are not to go one step further into the land until the words given to Moses at Mount Sinai are written on the very stones of the Promised Land. These directives were to be a guide for a new way of life.

But the people soon forgot. In the book of Judges, written by the same Deuteronomists looking back at the time of the exile, the conclusion is that 'the people of Israel did what was evil in the sight of the Lord and served the Baals' (Judges2:11). Just before that conclusion we read that when the people were reminded of their failures to live up to their covenant promises, 'the people lifted up their voices and wept' (Judges 2:4). But even after that they soon went back to their old ways. And so it went, one failure after the other, until the exile. Throughout their history, we hear the same refrain, they did what was evil in the sight of the Lord and served the Baals. They kept putting their trust in the various deities, the personifications of some aspect of life, instead of in the life-giving words of Yahweh. It is a tragic story.

How did it go after they returned from exile? Not very well. In the book of Ezra and Nehemiah, written after the exile we read that there were struggles and conflicts and delays in rebuilding the temple and Jerusalem. In the end the people committed themselves once more to the covenant with Yahweh and promised to live by his covenant ordinances. But by the time of Jesus, some centuries later, the rabbinic tradition had taken hold and Judaism was divided in different factions of Pharisees, Sadducees, Zealots, Essenes, and perhaps other revolutionary groups. There had been persecution and a violent uprising during the time of the Maccabees around 167 BCE, to be followed later by another revolt in 70 CE, resulting in the destruction of the second temple by the Romans.

The history of Christianity during and after the New Testament period is not much different. There were controversies and heresies right from the beginning. And as time went on the church divided in an eastern (the Orthodox tradition) and western (the Catholic tradition) part and split in countless denominations. Again and again the church compromised itself and used its power to dominate and violate others. As we indicated before, the sins of the church are many. Even today there are strong doctrinal differences that do not allow the various denominational bodies to agree and take a united stance on social and ecological issues. Christianity too is a story to weep about. But in spite of itself, Judaism and Christianity preserved the ancient scriptures. The New Testament with its emphasis on the kingdom of God and the people of the Way points in the same direction, if we can read it non-confessionally and non-theologically. Both scriptures point us back to the fullness of life, to the signposts that enable life to flourish if we follow their direction.

In our present-day struggle for social and ecological justice and witnessing the disintegration of the basis for life on this planet and the suffering of millions of people, we have the built-in *signposts* to give us hope and direction. In this precarious journey the prophetic witness of the Hebrew scriptures can inspire us, regardless whether we share their god

image. They give expression to the life we all long for and that is 'not yet'. They encourage us not to despair and give up hope but to persevere as we struggle to give expression to another way of life. The guidelines that present themselves in our experience still hold. And whether we believe that there is a Presence or Power behind these guidelines that we encounter in every aspect of life is a matter of conviction and a challenge to all of us. *Even if these phenomenological givens just are, they have a compelling presence and pull, for life is evocative.* In our present situation when the very foundation of life is under attack and millions of people are suffering, we cannot hold to these convictions about a personal Creator and Redeemer in the same way, if at all. The Christian god of the confessions and theology is indeed dead. What we can have is a deep trust in the 'foundations of life' that present themselves to us in our experience, the guideposts, that show us a direction for living. In this trust the Hebrew scriptures can encourage us. To find the courage to listen to our experience and follow what seems right is indeed a mystery. The Hebrew scriptures would say, it requires a new heart, a turnabout. Ultimately we can only appeal to one another to open our hearts, to see and hear; to hear the cries of the suffering and to see the violence; and then to take heart, change direction and respond in 'righteousness and truth with justice and loving kindness'.

As indicated in the section on history, the kingdom of heaven will only come through committed people following the guidelines embedded in experience. They hold us and call us till 'the moon be no more', as the prophet would say. Even though that phrase meant 'forever', it is frightfully real today, will the earth endure? Will we destroy ourselves? Maybe these ancient writings can reassure us that the guideposts will endure as long as the earth lasts and perhaps we will yet follow the directions for life. There is no other future than the future we create ourselves in response to the call of life. It involves a daily search for what is right and good and caring; a daily search and commitment to what is righteous, truthful, just and faithful to the other.

Summary

The Hebrew scriptures too present a vision of life that wants to be lived from day to day. Most important for our purposes, during their time of crisis, they *actualized two fundamental guidelines for ultimate beliefs*. One is that we ought not to deify or absolutize any aspect or part of life. If we do, we destroy the integral coherence of life and then life becomes distorted. The other guideline relates to the fundamental attitude and approach in our relation to our 'neighbor', that is, to the other and the earth. The scriptures could summarize this attitude in the words of the great commandment (love your neighbor as you would love yourself) and in terms of righteousness, truth, justice and loving kindness or loyalty, as ways of being for the other and with the other. Both of these guidelines are as relevant today as they were then. There are other guidelines or refinements and variations as we will explore in the next chapter. But these two are essential. Many native peoples, indigenous tribes, peasant farmers and fishers have articulated and affirmed this vision of how to be communally with and for all creatures. They have done so more clearly and strongly from 'time immemorial' than many of us in the developed world.

Chapter 10. The Radical Witness of the Religions to the Neoliberal Ideology.

- a. The Christian religious critique of global neoliberal economic policies
 - Introduction
 - 1) The Roman Catholic witness
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- 3) The witness of the World Council of Churches (WCC)
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Introduction

- 1) The Alliance of Religion and Conservation (ARC) initiatives
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a. The Christian religious critique of neoliberal economic policies

Introduction

Especially during the last decades, the Christian churches, both Protestant and Roman Catholic, have presented radical testimonies with regard to the neoliberal ideology and its effect on the global economy, environment and social justice. Many of these confessional statements cut to the very core of this destructive ideology and the evils it has brought about. Not only have they called for a radical change in direction, but in many cases they have also articulated fundamental alternative approaches from a faith perspective. Generally these declarations have been the result of many preparatory studies, conferences and dialogues. For each of these different statements representatives from every continent, from Asia, Africa, Latin America, Australia, Europe and North America have been involved. Delegates from nearly every denomination have participated in these preparations. As a result of this participatory process the declarations are generally not majority but mutually agreed upon statements. Initial and final reports were usually sent back to the various churches for further consultation and ratification. The meetings of the different ecumenical groups tend to rotate from one continent to another. In this way the participants were exposed and confronted by each other's local and national circumstances, especially the sharp contrasts between the wealth of some and the poverty, discrimination and oppression suffered by others. Representatives from many indigenous communities have made strong contributions to the many preliminary and final reports. They could speak directly from their own experience about the devastating effects of the global economy on their communities, the decline of their lands and forests, the pollution of their water and the violation of their human rights.

It is important to realize how these various ecumenical reports came about. They reflect the consensus of the great majority of Christian churches. Worldwide there are over two billion Christians, which represents about one third of the world population. In Canada there are over seven million Christians. Together with the witness of many other religions and non-religious groups, they could be a powerful force for change worldwide as well as locally and nationally.

When the different church bodies make pronouncements about neoliberal policies and actions, they usually do so from a faith point of view. Although many of them make reference to specific economic structures and strategies, they tend to limit their witness to the destructive effects of the neoliberal economic approach on the lives of people, especially the poor and disadvantaged, as well as on society as a whole and the environment. In doing so they expose the *ultimate or basic direction of economic life* as guided by neoliberal principles. We could call these public testimonies *x-rays* of the present global neoliberal economy. They lay bare the underlying direction of the present world economy. These witnesses allow us to see more clearly the disintegrative effects of the present economy. A radical critique needs both an ultimate directional evaluation as well as a detailed structural analysis.

Sometimes the ecumenical statements go beyond such directional evaluation and provide specific structural analyses of different aspects of the economy, for example, of the inflation/unemployment cycle; the role of capital and labour; the built-in disparity between the rich and poor; unequal taxation policies; the speculative financial market; the delusion of balanced budgets and austerity measures; and so on. When they do, they are usually the result of the work of an interdisciplinary group of participants, including economists, environmentalists, sociologists, ethicists, and theologians. Along with those more detailed accounts of specific economic structures they tend to provide recommendations for *restructuring and developing the economy in a radically different direction*, for example, with regard to the financial sector, environmentally sustainable development and social justice.

Center for the Study of Global Christianity. (June 2013). Christianity in its global context, 1970 – 2020, society, religion, and mission. Retrieved from <http://www.gordonconwell.edu/ockenga/research/documents/ChristianityinitsGlobalContext.pdf>

Coggins, J. (2007/2008). The state of the Canadian church, Part I-VII. *Canadian Christianity*. Retrieved from <https://canadianchristianity.com/state-canadian-church-part-nation-believers-211/>

Morgan, J. (May 10, 2013). Christians in Canada drop to 67% of population. *Canadian Lutheran*. Retrieved from <http://www.canadianlutheran.ca/christians-in-canada-drop-to-67-of-population/>

National Post. (August 5, 2013). Survey shows Muslim population is fastest growing religion in Canada. Retrieved from <http://news.nationalpost.com/news/canada/survey-shows-muslim-population-is-fastest-growing-religion-in-canada>

Pew Research Center, *Religion & Public Life Project*. (June 17, 2013). Canada's changing religious landscape. Retrieved from <http://www.pewforum.org/2013/06/27/canadas-changing-religious-landscape/>

Pew Research Center, *Religion & Public Life Project*. (March 22, 2013). Number of Christians rises, but their share of world population stays stable. Retrieved from <http://www.pewresearch.org/daily-number/number-of-christians-rises-but-their-share-of-world-population-stays-stable/>

Pew Research, *Religion & Public Life Project*. (December 19, 2011). Global Christianity – A report on the size and distribution of the world's Christian population. Retrieved from <http://www.pewforum.org/2011/12/19/global-christianity-exec/>

Pew Research, *Religion & Public Life Project*. (October 5, 2006). Overview: Pentecostalism in Africa. Retrieved from <http://www.pewforum.org/2006/10/05/overview-pentecostalism-in-africa/>

Pew Research, *Religion & Public Life Project*. (October 5, 2006). Overview: Pentecostalism in Asia. Retrieved from <http://www.pewforum.org/2006/10/05/overview-pentecostalism-in-asia/>

Pew Research, *Religion & Public Life Project*. (October 5, 2006). Overview: Pentecostalism in Latin America. Retrieved from <http://www.pewforum.org/2006/10/05/overview-pentecostalism-in-latin-america/>

1) The Roman Catholic Witness

Some of the earliest and interesting examples of social teaching and witness come from the Roman Catholic tradition. There are about 1.2 billion of Catholic believers worldwide and over 14 million in Canada. Because of its long tradition of 'natural law' ethics, there has always been an awareness of the 'moral principles' that ought to guide all human actions. These 'natural laws' apply to all people and can be known by the light of reason that is in us. All people, unless their conscience is seared closed know that murder, stealing, genocide, etc. is wrong and evil. We are naturally disposed to know these universal moral principles that ought to guide us in life.

The church's role is to *confirm* those moral guidelines and *supplement* them with the demands of the gospel. Although fraught with all kinds of difficulties and objectionable and misguided appeals to natural law, these 'moral guidelines' maintained an openness to all of life rather than the narrow domain of the church and faith. Protestants Christians in contrast have often been limited to deriving ethical principles for the different areas of life from the scriptures. The appeal to general revelation and eternal creation ordinances (the Reformed tradition) never played the same role in protestant social ethics as the appeal to natural law in the Catholic tradition. The pronouncements made by the leadership in either tradition does not say anything about if they were ever practiced by the common parishioners, or how, in certain instances, they were enforced by the authority of the church, especially with regard to sexual guidelines.

Regardless of these severe limitations, many challenging statements for consideration and adaptation were produced during the course of many years. In 1983, during the third major postwar recession in Canada, a radical document was released by the Canadian Conference of Catholic Bishops entitled, "*Some Ethical Reflections on the Economic Crisis*". It was written by their Social Affairs Commission. Immediately after its release it created an uproar. Cardinal Carter

distanced himself from its fundamental message, as well as Prime Minister Trudeau and Conrad Black, which could be considered a credit to the bishops' statement. Many questioned whether the members of the committee understood economics and the workings of the global market and how hard it is to meet the payroll each week. Unintended by the critics, their intense reactions gave the ethical reflections a lot of extra publicity, more than it would have had on its own.

The recession had left one and a half million people unemployed. There were many plant shutdowns, massive lay-offs, wage restraint programs, suspension of collective bargaining rights for public sector workers, cut-backs in social and health services, and line-ups at local soup kitchens. It resulted in many personal tragedies, intense stress, loss of dignity, family breakdowns, and in some cases, suicide. The authors insisted that in this human crisis priority should be given to the real victims of the state of the economy, the unemployed, welfare poor, pensioners, native people, women, young people, small farmers and fishermen, and some small businesses. In their eyes, in keeping with long-standing Catholic social teaching and the gospel, the needs of the poor have priority over the wants of the rich. The rights of the workers are more important than the maximization of profits. The participation of the marginalized take precedence over a system that excludes them.

They asserted both government and business should give priority to long-term strategies instead of short-term gains. Unemployment should be recognized as the number one problem rather than inflation. Industrial strategies should be developed to create permanent and meaningful jobs. The burden of wage controls should be shifted to the upper income earners and new taxes should be introduced on investment income. Cutbacks on social services should be curtailed to maintain adequate health care and social security benefits. Special assistance should be given to the unemployed, welfare recipients and the working poor. Labour unions should be asked to play a more decisive and responsible role with the restoration of bargaining rights. They recognized that these demands ran counter to the current policies and strategies of both government and corporations.

They were convinced that the present recession was symptomatic of a much deeper structural crisis of global capitalism. The fact that corporations and banks can freely move capital from one country to another and exploit cheaper labour conditions, lower taxes and use lax environmental regulations has profound implications. Likewise with regard to automation and computers that are replacing human work on the assembly line and in the administrative centres. The consequences of these developments are permanent structural unemployment and the increasing marginalization of large segments of the Canadian population. Capitalism will increasingly go through cycles of over-production, postponement of investment, cutting back production, laying off workers, looking for more profitable conditions, etc. with all its negative social consequences. To enforce these kinds of economic policies, governments have introduced repressive measures to restrain civil liberties and control social unrest.

Most important of all, the authors call for a re-direction of the economy, guided by an alternative economic vision. They plead for a fundamental reordering of the basic values and priorities of economic development, an economy guided by social values, serving all of life and all people. They spell out such a vision in some detail: the value of human labour, equitable distribution of wealth and power, socially useful forms of production, labour-intensive industries, appropriate forms of technology, self-reliant forms of development, community ownership and control of industries, new forms of worker management and ownership, and greater use of renewable energy sources. It is a plea for economic and social justice.

By the end of that same year the bishops presented a similar statement to the *Royal Commission on the Economic Union and Development Prospects for Canada*. After setting out their main principles, they described the problems of massive unemployment, social deprivation, labour devaluation, increasing marginalization, economic disparities, economic

dislocation, expert orientation, militarization, ecological damage, and social breakdown. According to them the economic crisis is really an ethical or spiritual problem. The economy ought to serve the needs of all people for a more fully human life, which includes such basic life needs as adequate food, clothing, housing, education, employment, health care, and energy. They also called for global solidarity with all suffering and deprived people. The Canadian bishops have issued many other statements on the economy and society both before and after 1983. Their witness is as relevant today as it was more than thirty years ago. Regrettably over time their witness became much more cautious and conservative. It will be interesting to see how the Canadian Catholic churches will respond to the current messages of Pope Francis.

Bishops in other countries and on different continents and several popes have reiterated and elaborated upon these same pleas for economic and social justice and for a radical new direction. Recently, in 2009, both Pope Benedict XVI in his encyclical *Caritas in Veritate* (Charity in Truth) and Pope Francis in his *Apostolic Exhortation* (2013) and his encyclical, *Laudato Si'* (Praise be to you), (2015) have strongly condemned the new economic idolatry. They use such words as 'free market fundamentalism', the 'deified market', an 'economy of exclusion and inequality' and the 'idolatry of money and the dictatorship of an impersonal economy lacking a truly human purpose', emphasizing the religious or ideological direction of neoliberal economic policies. Again and again they have emphasized that the economy must serve the needs of all people and not just the one percent of the rich. In his encyclical, *Laudate Si'* Pope Francis has made an extraordinary appeal to stop the disintegration of the earth's environment that has been brought about by neoliberal economic activities.

Their evaluations imply a fundamental rejection of unlimited economic growth for the sake of the accumulation of wealth by a few. None of them pretend to be experts on the economy, but they rightly condemn the spiritual direction of the economy that brings about the impoverishment and suffering of millions of people and the degradation of the environment. At the same time they have repeatedly outlined what an alternative direction would look like from out of the directives of the gospel and the social teachings of the Catholic church. Although we can affirm these radical statements, we cannot idealize them. There are many questionable details and objectionable views in these documents that reflect specific catholic doctrines or emphases, but we can endorse their prophetic protest and plea for an alternative economy that fosters social and eco justice.

Thirty years later the environment in many regions has deteriorated to such an extent that within a few decades it will be beyond repair. During this same time, from the late seventies on, the one-dimensional economic policies of neoliberalism have become so entrenched globally that only a radical change in direction and grass roots protests can bring about social justice and alleviate the suffering of millions of people. It is becoming increasingly clear that the present capitalist economic system cannot be adjusted or reformed, as many still hoped, for fear of communism or state directed socialism. The failure of all these economic systems calls for a radical alternative. In describing other approaches to ownership, work, production, taxes, property, resources, the environment, etc. these religious evaluations contribute building blocks for such an alternative way of organizing the economy and providing for everyone's needs in a just way.

Bailey, J. P. (2010). *Rethinking Poverty: income, assets, and the Catholic social justice tradition*. United States Conference of Catholic Bishops. Seven themes of Catholic social teachings. Retrieved from <http://www.usccb.org/beliefs-and-teachings/what-we-believe/catholic-social-teaching/seven-themes-of-catholic-social-teaching.cfm>

E.F. Sheridan, S.J. ed. (1987). *Do Justice! The social teachings of the Canadian Catholic bishops (1945-1986)*. Retrieved from <https://archive.org/details/dojusticesocial00sher>

Encyclical Letter LAUDATO SI' of the Holy Father Francis, on care for our common home. (May 24, 2015). Retrieved from http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

Greenfield, N. (June 18, 2015). The Pope is not alone! *OnEarth, NRDC*. Retrieved from <https://www.nrdc.org/onearth/pope-not-alone>

Gunn, J. (January 16, 2013). Anniversary of Ethical Reflections' is call for social equity. *Catholic Register*. Retrieved from <http://www.catholicregister.org/opinion/guest-columnists/item/15692-anniversary-of-%E2%80%98ethical-reflections%E2%80%99-is-call-for-social-equity>

Mellino, C. (June 29, 2015). Dalai Lama endorses Pope Francis's Encyclical on climate change. *EcoWatch*. Retrieved from <http://www.ecowatch.com/dalai-lama-endorses-pope-franciss-encyclical-on-climate-change-1882058109.html>

Renshaw, R. (February 15, 2011). Liberation Theology. *Rapports de Dakar*. Retrieved from <http://rapdakar.blogspot.ca/2011/02/liberation-theology.html>

Salemink, T. (1991). *Katholieke kritiek op het kapitalisme 1891-1991*. doi: <http://doi.org/10.18352/bmgm-lchr.3812>.

Sniegocki, J. (2008). Neoliberal globalization: critiques and alternatives. *Theological Studies*, 69. Retrieved from <http://www.thefreeibrary.com/Neoliberal+globalization%3A+critiques+and+alternatives.-a0179456919>

The Canadian Conference of Catholic Bishops. (December 13, 1983). Ethical reflections on Canada's socio-economic order. Retrieved from <http://www.cccb.ca/site/eng/media-room/official-texts/pastoral-letters/769-the-struggle-against-poverty-a-sign-of-hope-in-our-world>

Zenit –the world seen from Rome. (July 7, 2009). Vatican Summary of 'Caritas in Veritate'. Retrieved from <https://zenit.org/articles/vatican-summary-of-caritas-in-veritate/>

2) The Protestant Witness

Next we want to look at the testimony of the *World Communion of Reformed Churches (WCRC)*. The WCRC is a newly formed ecumenical body created by the joining together of the *Reformed Ecumenical Synod (REC)* and the *World Alliance of Reformed Churches (WARC)*. They represent 230 denominations with a combined membership of 80 million believers. At their first joint meeting in 2010 they endorsed the so-called *Accra Confession*, which is a radical statement about social justice and the environment. The Accra Confession was the result of a long process of consultation and discussion that started in 1995 at Kitwe in Zambia in response to the urgent call of the Southern African churches to respond to the suffering and the injustice they experienced along with millions of others. Since that time meetings were held in many parts of the world. They consulted with the *World Council of Churches (WCC)*, the *Lutheran World Federation (LWF)* and regional ecumenical organizations. These discussions finally resulted in the meeting at Accra in Ghana (2004) in a joint testimony called, *Covenanting for Justice in the Economy and the Earth*. This confession is the result of a truly grass roots endeavor in which many people participated. It is a very powerful statement that speaks to the suffering and the injustice experienced by many people in the world and environmental degradation in many areas of the globe.

There were strong reactions to the confession by those who believe that the church should not make any political or economic statements and should limit itself to faith statements and its mission. Such viewpoints reflect the dualistic tendencies within Christianity that we referred to earlier, faith and ethics in some way separate from the rest of life. Others saw the influence of Liberation Theology and Marxism in the declaration, with the threat of socialism and communism. Still others objected to the radical rejection of the present economic system. They have faith that the capitalist system can be corrected and transformed, especially through international organizations.

Without an integral view of faith and life it remains difficult for many Christian believers to see the implications of their ultimate convictions for all of life. The fundamental direction and the basic structure of economic practices are inseparably connected, or to put it differently, the 'ethics' of the economy cannot be separated from its basic practices. Any religious body can rightly respond to the 'ethics' or the ultimate direction of the economy and raise a prophetic voice against its distorting influence. One does not have to be an economist to see the destructive consequences of the present global economy. In fact, one has to be blind and deaf to the cries and suffering of millions of people, not to see its devastating impact. The testimony of the *African Churches Living out the Accra Confession, Choose Life, Act in Hope*, (2009), especially of the women, makes it abundantly clear what happens when an economy has no regard for social and ecological justice.

The Accra Confession starts out with a strong statement about the root causes of the massive threats to life. They are above all "the product of an unjust economic system defended and protected by political and military might". For millions, "economic systems are a matter of life and death". For this reason they do not hesitate to use words like, 'an immoral economic system defended by empire'. By the word 'empire', they mean "the coming together of economic, cultural, political and military power that constitutes a system of domination led by powerful nations to protect and

defend their own interests". As they explain further, "under neoliberalism the purpose of the economy is to increase profits and returns for the owners of production and financial capital, while excluding the majority of the people and treating nature as a commodity". And again, "as markets have become global so have the political and legal institutions which protect them". The dominant governments, "together with international finance and trade institutions (International Monetary Fund, World Bank, World Trade Organization) use political, economic or military alliances to protect and advance the interest of capital owners".

The core beliefs of the neoliberal economic ideology are described as a faith that the whole world will benefit from unrestrained competition, unlimited economic growth, and consumerism; a faith that capital speculation, unrestricted movement of capital, liberation and deregulation of the market, privatization of public utilities and national resources, unrestricted access for foreign investments and imports, and lower taxes will create wealth for everybody. It is a belief in the absolute right of private property; and a belief that any social obligations are subordinate to economic growth and capital obligations. This ideology makes the false promise that it can save the world through the creation of wealth and prosperity for all. In classical liberal economics the state began to regulate markets and provide for the welfare of the people. In neoliberal economics the state has set out to dismantle the welfare functions of the state. The declaration rejects any ideology that puts profits before people and does not take responsibility for the environment. Instead they assert that the "economy exists to serve the dignity and wellbeing of people in community, within the bounds of the sustainability of the creation". They acknowledge that we have all become captivated by the culture of consumerism and the competitive greed and selfishness of the current economic system.

The testimony also calls explicit attention to the effects of neoliberal economic ideology on the environment. "The policy of unlimited growth among industrialized countries and the drive for profits of transnational corporations have plundered the earth and severely damaged the environment." Among the devastating consequences they list climate change, increase in storms and floods, depletion of fish stocks, deforestation, soil erosion, threats to fresh water, loss of biodiversity, diseases, rising sea levels, and so on.

Such is their witness. It generated a lot of discussion and some disagreements. The confession was debated at further gatherings in 2009 and 2010. Some clarifications were made, but basically the confession stands as it is. It was recommended to the churches for study and adoption. A lot of attention was paid to children and youth and the local church. They called upon the member churches on the basis of their covenant relationship "*to undertake the difficult and prophetic task of interpreting this confession to their local congregations*". This last statement highlights one of the two main difficulties of all ecumenical statements about the economy and the environment. These are official declarations by the leadership of the churches, the question is how many of the ordinary members share the same viewpoints. Even though many representatives from different denominations and churches were involved, the challenge remains to engage each local church in adopting this confession. It would require a lot of acceptance and patience to listen to one another and to consider many peoples' fears to oppose the established order and challenge the ruling corporate and political elite. But the struggle is unavoidable as the environment deteriorates in many places and the issues of justice multiply and become more known. Some no doubt will leave their church because of its stance, but as Pope Francis said, "I prefer a Church which is bruised, hurting and dirty because it has been out on the streets, rather than a Church which is unhealthy from being confined and from clinging to its own security". When this contemporary confession is brought down to the level of the pews, there will be a spiritual struggle in many local churches, because we cannot both follow the message of the Hebrew prophets and the Kingdom of God and serve the idols.

LennkaBula, P. (September 15, 2009). Choose Life, Act in Hope: African Churches Living out the Accra Confession. WARC. Retrieved from <http://www.wcrc-europe.eu/4370-0-0-26.html>

LWF. (2002). A call to participate in transforming economic globalization. Retrieved from https://www.lutheranworld.org/sites/default/files/LWF-Doc-50-Economic_Globalization-EN.pdf

LWF. (2004). Communion, responsibility, accountability: responding as a Lutheran communion to neoliberal globalization. Retrieved from <http://www.lutheranupress.org/Books/Communion-Responsibility-Accountability>

The Lutheran World Federation (LWF) (2009). The Bangkok Declaration and Call. Retrieved from <https://www.oikoumene.org/en/resources/documents/wcc-programmes/unity-mission-evangelism-and-spirituality/just-and-inclusive-communities/dalits/the-bangkok-declaration-and-call>

World Alliance of Reformed Churches (WARC). (2004). The Accra Confession: Covenanting for Justice in the Economy and the Earth. Retrieved from <http://www.oikotree.org/wp-content/uploads/accra-confession.pdf>

World Communion of Reformed Churches (WCRC), *Uniting General Council*. (June 2010). Appendix 14, Section Report, Justice in the economy, on the earth and for all God's creation. Retrieved from <http://wcrch.org/wp-content/uploads/2015/04/WCRC-UGC2010-Minutes.pdf>

3) The Witness of the World Council of Churches

For many decades the World Council of Churches (WCC) has produced a great number of confessional statements for consideration and adoption by the member churches, governments and international bodies. Usually they are the result of many years of consultation with regional councils on different continents and with the collaboration of many other ecumenical groups. There have been inputs from women, indigenous people, youth, disabled persons, marginalized groups, impoverished farmers and fishers, people suffering from HIV and AIDS, climate refugees, and so on. They have also sought the cooperation and input of Muslims, Hindus, Buddhists and other people of faith and the collaboration of non-religious bodies. The range of topics has been equally extensive, particularly issues related to the global economy, the free market, exploitation, resource extraction, land grabs, water, climate change, eco justice, eco debt, international finance, the role and policies of the World Bank, the International Monetary Fund, OECD, and other international bodies, war and peace, militarization, domination, empire, etc. Other topics relate more directly to the unification of the churches, issues of baptism and worship, confessional differences, views of scripture, mission, mutual aid, inter-religious dialogues, etc. Representatives have testified at UN meetings, at the conferences on climate change, to national governments, and so on, often together with other non-religious groups and organizations. It is an impressive accomplishment of cooperation and mutual understanding. Meeting on different continents and in different countries has greatly added to the understanding of each other's often desperate situations.

One strong statement on the global economy is the *AGAPE* document (*Alternative Globalization Addressing People and Earth*, 2006) with its background paper and discussions. It summarizes "a seven-year global study process of the churches' responses to economic globalization with contributions from all regions of the world". Both the *Lutheran World Federation* (LWF) and the *World Alliance of Reformed Churches* (WARC) were directly involved in the development of this statement. It challenges the "ideology of unfettered market forces" that serve "the dominant political and economic interests". It highlights "the growing inequality, the concentration of wealth and power in the hands of a few and the destruction of the earth". It calls for an alternative approach to the economy, an *Economy for Life*, and the development of transformative justice. In their final statement they addressed each aspect of the economy together with guidelines for an alternative approach. They focussed on the eradication of poverty, just trade, just finance, sustainable use of land and natural resources, ecology, public goods and services, life-giving agriculture, decent work, emancipated work and peoples' livelihoods, churches and the power of empire. In 2012, again after a long process of consultation, they developed a detailed study on the transformation of international finance. The accompanying background paper was entitled, "*Financial services, economic needs and global financial architecture; a background paper*".

In many statements they highlight what they have called *economic fundamentalism*. "Market fundamentalism is more than an economic paradigm: it is a social and moral philosophy". As they explain further, "market faith based on unbridled competition and expressed by calculating and monetizing all aspects of life has overwhelmed and determined our systems of knowledge, science, technology, public opinion, media and even education". And again, "this ideology is permeating all features of life, destroying it from the inside as well as from the outside, as it seeps into the lives of families and local communities".

The WCC testimonies call it 'the ideology of unfettered market forces' that serve 'the dominant political and economic interests'. Repeatedly they call attention to 'the escalating role of political and military power' and the testimony of people all over the world that are experiencing the 'impact of imperial forms of power on their communities'. They reject 'Empire' and all 'systems of death', including 'militarism', and 'political and military offenses perpetrated in the name of neoliberalism that threaten human security and result in massive violations of human rights'. They reject the 'explosion of monetization, the commodification of all of life', the 'neoliberal urge to reduce all of life to an exchange value', the 'ideology of consumerism' and an economy that 'is driven by debt and financialization'. They reject the 'economic abstraction of *Homo Oeconomicus*, which constructs the human person as being essentially insatiable and selfish'. They seek to 'overcome capitalism, its nature and its logic and to establish a system of global solidarity', and 'alternatives for just, caring, participatory and sustainable economies', economies of 'sufficiency'. There are many who suffer the consequences of this global economic ideology: "women, abused and yet caring for life, children who are denied their rights, youth living in economic insecurity and unemployment, those labouring under exploitative conditions, the many caught in unjust trade relationships and debt slavery, those living with disabilities and those living at the margins of society, people of colour who are often the first hit by poverty, those pushed away and alienated from the land, the earth - battered, depleted and exploited - denied of their sustenance, and all of those most vulnerable to diseases". It is a long list and it is clear that the delegates have talked and heard from many people in many parts of the world including the poorest and the most oppressed and exploited.

In summary, because of these "gross injustices that accompany neoliberal policies and structures, nothing less than a *metanoia* ('repentance' or radical turn-about) of the international economic and financial system is required". "For that we need a people's movement which, like the earlier civil rights, anti-apartheid and Jubilee movements, rejects a world that is unfair, unequal and unjust, and one that is run for the benefit of the '1%'. Ultimately changes will need to go beyond technical and structural requirements. What the world needs is a change of heart so that financial and economic systems do not have individual gain as their compass but justice, peace and the protection of God's creation". As the *Economy of Life* statement (2012) puts it, "the 'good life' lies not in the competitive quest for possessions, the accumulation of wealth, fortresses and stockpiles of armaments to provide for our security, or in using our own power to lord it over others". It calls for confronting the 'sins of egotism, callous disregard and greed which lie at the root' of the present crises. Instead, as they affirm again and again, 'the good life' is about 'mutuality, shared partnership, reciprocity, justice and loving-kindness'. They plead for developing 'economies of solidarity and sustainable communities' and 'to collaborate closely with other social movements', and 'discover innovative alternatives'. They seek a transformative praxis that 'not only delegitimizes, displaces and dismantles the present social and economic order but also envisions alternatives that emerge from the margins'. They state that capitalist ideologies have clouded our ability 'to think beyond existing financial and economic structures'. There is an 'alternative imagination available that derives from our deepest and ultimate convictions and that is informed by many groups of people, by liberation and grassroots movements, eco-feminists, ecologists, blacks and other minority groups, and by indigenous spirituality'.

There are a few paragraphs from the *Economy of Life* that are worth quoting in full because they summarize the WCC's and the many member churches' view of the global economy and the environment.

Our present stark global reality is so fraught with death and destruction that we will not have a future to speak of unless the prevailing development paradigm is radically transformed and justice and sustainability become the driving force for the economy, society and the Earth. Time is running out. We discern the fatal intertwining of the global financial, socio-economic, climate, and ecological crises accompanied in many places of the world by the suffering of people and their struggle for life. Far-reaching market

liberalization, deregulation and unrestrained privatization of goods and services are exploiting the whole Creation and dismantling social programs and services and opening up economies across borders to seemingly limitless growth of production. Uncontrolled financial flows destabilize the economies of an increasing number of countries all over the world. Various aspects of climate, ecological, financial and debt crises are mutually dependent and reinforce each other. They cannot be treated separately anymore.

Climate change and threats to the integrity of creation have become the significant of the multifaceted crises that we have to confront. Climate change directly impacts peoples' livelihoods, endangers the existence of small island states, reduces the availability of fresh water and diminishes Earth's biodiversity. It has far-reaching impacts on food security, the health of people and the living habits of growing part of population. Due to climate change, life in its many forms as we know it can be irreversibly changed within the span of a few decades. Climate change leads to the displacement of people, to the increase of forced climate migration, and to armed conflicts. Unprecedented challenges of climate change go hand-in-hand with the uncontrolled exploitation of natural resources and leads to the destruction of the Earth and to a substantial change of the habitat. Global warming and ecological destruction become more and more a question of life and death.

Greed and injustice, seeking easy profit, unjust privileges and short-term advantage at the expense of long term and sustainable aims are root causes of the intertwined crises and cannot be overlooked. These life-destroying values have slowly crept in to dominate today's structures and lead to lifestyles that fundamentally defy the regenerative limits of the Earth and the rights of human beings and other forms of life. Therefore, the crises has deep moral existential dimensions. The challenges that are posed are not first and foremost technological and financial, but ethical and spiritual.

These statements were adopted and recommended to all the churches for acceptance and implementation in 2013 at the 10th WCC General Assembly at Busan in South-Korea. In these and many other statements the WCC has sought to *actualize the fundamental guidelines for ultimate convictions as they relate to the economic dimension of life and the ecological foundation and interconnectedness of all of life.*

Just as we mentioned at the end of our discussion of the Accra confession, these are the viewpoints of the church leaders and the countless participants from many continents. The challenge remains of how to engage the millions of ordinary church members; to provide educational materials that will 'enhance the economic and financial literacy' of the members; to help local churches to engage in open discussions; to involve the children and young people especially in local eco-projects; to become 'transformative communities' and stimulate local action. This is the great challenge and perhaps the great failure of the participating churches in the ecumenical movement. They have been unable or failed to engage Christians at the grass-roots level. No doubt the declining and aging membership in many Western countries, including Canada, plays a significant role. However, directly involving all age groups in issues of eco-justice and social justice could be a great source of spiritual renewal and provide new meaning for many young people.

4) The Witness of the Laity from India at the WCC

There are a number of other statements that we want to call attention to because of their special significance. One is the testimony of lay people from India mentioned above, drawn up in 2012 in preparation for the meeting of the WCC in 2013. The second is the action taken by the *United Church of Canada* in cooperation with *Kairos* in relation to mining companies based in Canada. The third is a message from the pre-assembly gathering of Indigenous Peoples at the WCC 10th Assembly in 2013. The fourth is a declaration about the large *ecological debt* the corporations from the developed world owe the developing nations.

A group of laity from different churches and different parts of India met in 2012 to talk about the theme of the WWC, "God of life, lead us to justice and peace". Right from the start they asserted that for them the 'us' in the theme is inclusive of all the marginalized, because life and peace is anchored in justice. To quote from their report,

Justice is the core of the whole of creation. Justice requires equitable sharing of resources, harmony with nature and respecting the right of others to life in all its fullness. Justice would reject any kind of exploitation, oppression or aggression. Justice ensures full and free participation of the peoples at the lowest rungs of society in decision making processes.

There is a need for a shift in our understanding of mission as being "to the margins" into being "from the margins". The people on the margins in our context are the Dalits, Adivasis/Tribals, women, children, coastal communities, fisher folk and all those victimized by socio economic, political and cultural exclusion, injustices and discriminatory systems.

In India, instead of life, justice and peace, 'the demons of death and injustice are reigning over creation'. For them these demons of death come in the form 'of an unjust development paradigm, the caste system, gender-injustice, poverty, homelessness, unemployment, and discrimination against sexual minorities'. Neoliberal policies have aggravated caste and gender discrimination even more. New forms of structural injustices are 'depriving millions of people of their right to life and livelihoods', like the grabbing of land of small farmers and the Tribal and Adivasi people, driving them away from their land, forest and water resources; and by introducing capital intensive industrial farming. The stress on many farmers has been so severe that 290,740 farmers have committed suicide between 1995 and 2011. Other consequences of structural injustices have been the displacement of traditional fisher folk by allowing big fishing companies to fish in coastal waters; the large scale migration of people across the country; the growing casualization and feminization of work; child labour and sex-trafficking; and the increase in nuclear power stations posing a further threat to life.

The state because of its commitment to capitalist growth has become another threat. The state uses the police and armed forces against those who oppose the capitalist model of growth, oppose structural injustices and support human rights. Of the 250,204 prisoners, 66% are political prisoners who are kept in prison for long periods of time without a fair trial. The state uses its power against the unorganized workers, the unemployed, peasants, fisher folk, migrants, especially the women among them, the Tribals/Adivasis, Dalits, and many other Indigenous Peoples. Many are ruthlessly suppressed by those who victimize them with the tacit support of the state. This delegation from India calls the other churches back to stand up to these forces,

It is unfortunate that the elite and religious organizations, especially the Churches, which are expected to speak out and act against structural violence and injustice, are insensitive and indifferent towards this situation that denies life, dignity and justice. They, who are expected to be prophetic, have also unfortunately sold themselves to market forces.

They call the churches back to become a prophetic voice again and function as an alternative community, refuting the existing values and power structures that negate Life and Justice to all. In closing they commit themselves to discipleship that compels them to forsake their privileges ‘to journey with the marginalized and the oppressed’. Such is their testimony within the WWC.

WCC. (2006). Alternative globalization addressing people and earth – AGAPE. Retrieved from <https://www.oikoumene.org/en/resources/documents/assembly/2006-porto-alegre/3-preparatory-and-background-documents/alternative-globalization-addressing-people-and-earth-agape>

WCC. (2010). Affirmation of faith on justice for Dalits. Retrieved from <https://www.oikoumene.org/en/resources/documents/wcc-programmes/unity-mission-evangelism-and-spirituality/just-and-inclusive-communities/dalits/affirmation-of-faith-on-justice-for-dalits>

WCC. (2013). A lay perspective from the Indian context. Retrieved from <https://www.oikoumene.org/en/resources/documents/assembly/2013-busan/reflections-on-the-assembly-theme/a-lay-perspective-from-indian-context>

WCC. (2013). Report of the joint consultative group between Pentecostals and the World Council of Churches. Retrieved from <https://www.oikoumene.org/en/what-we-do/jcg-with-pentecostals>

WCC. (April 22, 2010). Ecumenical declaration at World People’s conference on climate change. Retrieved from <https://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/ecumenical-declaration-at-world-peoples-conference-on-climate-change>

WCC. (July 19, 2012). Economy of life, justice, and peace for all: a call to action. Retrieved from https://www.oikoumene.org/@@multilingual-selector/a6b8f348724d48c89d31e982a948bb78/en?set_language=en

WCC. (October 29, 2013). Message from the pre-assembly gathering of Indigenous Peoples. Retrieved from <https://www.oikoumene.org/en/resources/documents/assembly/2013-busan/pre-assembly-outcome-documents/message-from-the-pre-assembly-gathering-of-indigenous-peoples>

WCC. (October 5, 2012). Sao Paulo statement: international financial transformation for the economy of life. Retrieved from <https://www.oikoumene.org/en/resources/documents/wcc-programmes/public-witness-addressing-power-affirming-peace/poverty-wealth-and-ecology/finance-speculation-debt/sao-paulo-statement-international-financial-transformation-for-the-economy-of-life>

WCC. (September 2, 2009). Statement on eco-justice and ecological debt. Retrieved from <https://www.oikoumene.org/en/resources/documents/central-committee/2009/report-on-public-issues/statement-on-eco-justice-and-ecological-debt>

World Council of Churches. WCC member churches and councils: profiles of ecumenical relationships. Retrieved from <http://archived.oikoumene.org/en/member-churches.html>

5) The Actions and Witness of Kairos

In 2013 The *United Church of Canada* in cooperation with *Kairos: Canadian Ecumenical Justice Initiatives*, the *Canadian Network for Corporate Accountability* and several other organizations urged all their church members to participate in a national campaign to make *Canada Open for Justice*. The aim of the campaign was to petition the Canadian government to appoint an extractive-sector Ombudsman Office that would have real power to hear complaints from people in other countries that have been seriously hurt by Canadian based mining companies. They also urged the government to pass a new law guaranteeing access by people from abroad, particularly the global South, to Canadian courts to seek justice for human rights violations and environmental damage by Canadian mining companies and their subsidiaries. There are good reasons for this campaign of solidarity with many oppressed and indigenous people, since about 75% of the world’s mining companies are based in Canada.

So far, the mining companies have opposed and lobbied against any kind of regulation and accountability. The government actively supports the mining industry with favorable tax conditions, lobbying for mining companies in other countries as well as conducting industrial espionage through the *Canadian Security Establishment Canada* (CSEC). There have been serious allegations by local people in many countries of violations of human rights, of intimidation, use of para-military forces, rape, murder, dangerous working conditions, burning of villages, forced dispossession, contamination of the environment with dangerous chemicals, pollution of water systems and local drinking water, countless contaminated abandoned mines, etc. Church representatives, including from Canada, have visited many of these places and listened to the local people and their horrendous stories, whether in the Congo, Philippines, Tanzania, Papua New Guinea, Zambia, Mauritania, Eritrea, and many other countries. Mining, along with corporate agriculture and forestry are some of the worst forms of today’s neo-colonialism, the plundering by the North of the South, with very little benefit for the local communities. It is an old story.

Halpert, J. (April 19, 2012). Presbyterians and climate change, *The Yale Forum on Climate Change & the Media*. Retrieved from <http://www.yaleclimateconnections.org/2012/04/presbyterians-and-climate-change/>

Kairos Canada. (December 30, 2011). Coal and shale gas obstacles to climate justice. Retrieved from <http://www.kairosCanada.org/product/briefing-paper-30-coal-shale-gas-obstacles-to-climate-justice>

Kairos Canada. (June 22, 2012). Whose green economy? Retrieved from <http://www.kairosCanada.org/whose-green-economy>

Kairos Canada. (March 19, 2013). Time to refocus our approach to climate change. Retrieved from <http://www.kairosCanada.org/time-to-refocus-our-approach-to-climate-change-kairos-policy-briefing-paper-no-35>

Kairos Canada. (September 2014). Indigenous wisdom: living in harmony with Mother Earth. Retrieved from <http://www.kairosCanada.org/product/indigenous-wisdom-living-in-harmony-with-mother-earth-download>

Presbyterian World Service & Development (PWSD). Malawi. Retrieved from <http://presbyterian.ca/pwsd/malawi/>

United Church of Canada (2006). Living faithfully in the midst of empire. Retrieved from http://www.ucrystore.ca/media/upload/file/ch10394_lens.pdf

6) The Testimony of the Indigenous People at the WCC

The gathering of the Indigenous People at the WCC in 2013 urged the assembly to consider their unique vision for justice and peace. The People of the Land and Seas had gathered from the 'Four Winds' to 'affirm and proclaim life, despite the very real pain and death' that is all too present in many of their communities. For them the 'issues are whole and one: the spiritual and physical renewal of our people, their survival on the Land' is urgent and pressing. As they declared, 'besides spiritual and theological colonialization' they continue to experience 'various forms of oppression, exploitation, marginalization and suffering' by many nations. 'The ancestral lands and sacred forest, grounds' are being 'commercialized, desecrated and abused through unmindful extractive development activities'. Many communities have been 'displaced, dispossessed, uprooted, evicted and even annihilated'. Their 'cultures, practices, customary laws have been abused, misused and misrepresented and commercialized without respect'. Those who actively oppose these practices and claim their rights are 'being killed, harassed and persecuted'.

Sharing their experiences as indigenous people they realized 'the commonality of an on-going and accelerating displacement and dispossession'. Virtually all of them had 'stories of intense conflict with the forces of so-called development, especially in mining and other extractive industries'. Many faced 'illegal and immoral seizure of their lands, paramilitary and extrajudicial violence and death, and a marginalization' that increased 'the already unacceptable pace of the disintegration of our families and way of life'. For many this development has led to 'poverty, suicide, human trafficking, and the despair of our youth'.

For them affirming the theme of the conference, "*God of life, justice and peace*", involves the 'reclaiming of our identities, wisdoms, language, re-possession of our lands and sacred grounds'. They reminded the General Assembly that 'the additional threat of climate change is a very real and direct threat' and an 'urgent, pressing, and unavoidable reality' for Indigenous People. They directly face the prospect of 'disappearing islands and lands, stress on wildlife and subsistence lifestyles and an increased dispossession from the land'. They emphasized the 'direct connection between indigenous justice, environmental justice, social justice, and human rights'.

Their ultimate vision of life is worth quoting in full. It reinforces the beliefs of the Cree fishermen discussed before.

Indigenous Christian communities constitute a significant population in World Christianity. As Indigenous Christians, we affirm our Peoples distinct earth-centered view of God and spirituality, cosmology, and ancient traditional practices of making communities of justice and peace. We believe that the Indigenous spiritually oriented understanding of the communion of Creation – the cosmology of the Peoples of the Land and Seas – is a perspective that can assist the renewal of the whole Church's relationship with Creation and the Creator. Further, Indigenous theologies continue to provide a new paradigm of a wider ecumenism by challenging the occidental, anthropocentric, androcentric and white character of "normative" theology, as

well as its continual North-Atlantic point of reference.

Despite their cultural and ethnic diversity, the Indigenous communities all over the world uphold a similar earth-centered spirituality and cosmology. They perceive their cosmology in an organic way. In this organic understanding, everything is organically related to each other. Everything is linked together, even values. The Sacred Power affects each one and all creatures. Humans see themselves as an integral part of the total cosmic life. Though the Sacred Power and the Spirit(s) are understood as Creator and Sustainer of all living beings, they are also perceived, though distinct, as part of the total cosmic life. This organic relationship is possible because of Mother Earth. Mother Earth is the foundation of cosmo-centric spirituality. From the giving nature of Mother Earth, Indigenous Peoples have learned to share and show hospitality as the foundation of a culture and community of humanity and Creation. This view gives a concrete and wider vision of justice and peace that need to be explored for ecumenical engagement.

They remind the assembly that in the past the churches have often joined with the 'Powers that have dehumanized Indigenous Life, placing it in a category of pre-civilization that has allowed this dehumanizing of Indigenous Peoples and the destructive exploitation of Creation'. The churches ought 'to admit and confess that, for many, the goal of ministry with Indigenous Peoples was their disappearance'. Many nations 'have proposed an ungodly end for Indigenous Peoples, too often with the cooperation of those who call themselves Christians'. They requested that the WCC express 'their solidarity by denouncing the oppression of Indigenous Peoples' and that the Church stand with them and 'advocate and promote respect for their culture, their Land, and their way of life', finally, that they make a 'commitment to create a space for them in the World Council of Churches and in the family of nations and peoples around the earth'. They spoke about their resilience 'in the face a massive development aggression, of unbridled globalization, and formidable racism and dehumanization'. In spite of this massive assault, the 'churches of the People of the Land have developed a theological and spiritual history of both substance and promise'. They stand as 'a prophetic witness to the communion of Creation' and claim their 'place in the wider worldwide ecumenical community', since they 'rightly and equally belong to the household of God'.

Such is their testimony and it underscores the efforts of the United Church of Canada and other church communions to express their solidarity with the Indigenous Peoples both at home and abroad by confronting the numerous mining companies based in Canada.

Many churches in the developing countries are the result of missionary activities decades or centuries ago. Besides many benefits of health care, orphanages and education, they inherited a 'narrow' gospel, a divided Christianity, a foreign morality, the undermining of their culture and all the evils of Western domination and colonialism. Ironically, today, these same churches have a voice within the regional and world-wide ecumenical gatherings. The delegates from the North are asked to listen to their stories of oppression and exploitation. Each time the meetings take place in a different country and area, which very directly confronts all the participants with the reality of life in many local communities and the devastating effects of the neoliberal global economic policies and practices. The strong scriptural emphasis on the special care for the poor, the widows and the orphaned makes these encounters between the churches from the North with those of the South even more poignant. It is like roles have been reversed, the 'missionaries' have to learn from the 'converts' what it means to be followers of the Way and to develop an integral vision and way of life.

7) The WCC's Statement on Ecological Debt

In 2009 the WCC adopted an important *Statement on Eco-justice and Ecological Debt*. According to this statement *the ecological crisis debt is owed primarily by industrialized countries in the North to countries in the South*. The 'culture of the North' is primarily responsible for the present ecological crisis. This culture is characterized by 'resource plundering', unequal trade, bio-piracy, environmental degradation, the dumping of toxic wastes and a consumerist lifestyle. The phrase 'ecological debt' intends to measure the real cost that global economic policies have had on developing countries. The industrialized countries are called upon to repay this debt. This ecological debt far outweighs the unfair *financial debt of the developing nations*. These illegitimate debts need to be cancelled. Even when this happens, the North will still owe a huge debt to the South. This statement was adopted in 2009 when the CO₂ levels were still below 400 parts per million (ppm). In 2015 that level of emissions reached 400 ppm.

As the statement explains:

Under the current international financial architecture, countries of the South were pressured through conditions for loans as well as multilateral and bilateral trade and investment agreements to pursue export-oriented and resource-intensive growth strategies. Ultimately it fails to account for the costs of erosion of ecosystems and increasing pollution. Many mega-development projects (e.g. dams) in countries of the South are financed through foreign lending by international financial institutions in collaboration with undemocratic and corrupt local leaders and elites, without the informed consent of local inhabitants and with little consideration of the projects' ecological and social consequences.

The ecological crisis is 'human induced, caused especially by the agro-industrial-economic complex and culture of the global North'. The global North is '*the principal ecological debtor*'. They have made '*disproportionate use of ecological space without adequate compensation, reparation or restitution*'. The Northern countries' ecological footprint (the average human impacts on the environment of 6.4 ha/person) far outpaces the footprint of the Southern countries (an average of 0.8 ha/person), about six times as much. The words 'ecological debt' expresses a 'deep moral responsibility to rectify injustices' and to promote 'ecological justice by addressing the debts to peoples most affected by ecological destruction and to the earth itself' and future generations. These concepts of 'ecological debt' and 'ecological justice' provide a unique perspective on the distortions of the present neoliberal global economy. There is a general movement to develop this issue further and create a *People's Tribunal on Ecological Debt* and the *Rights of Mother Earth*.

The assembly acknowledged that the 'churches have been complicit in this history of exploitation through their own consumption patterns and through perpetuating a theology of human rule over the earth'. It is a perspective that 'valued humanity over the rest of creation' and that 'served to justify the exploitation of parts of the earth community'. The churches need to learn anew 'from environmental ethics and faith traditions that have a deeper sense of an inclusive community'. They need to learn particularly from 'the leadership of the Indigenous Peoples, women, peasant and forest communities' who all point to 'alternative ways of thinking and living within creation' and their emphasis on 'the value of relationships, of caring and sharing', as well as the practice of 'traditional, ecologically respectful forms of production and consumption'. The participating churches are urged to consider and take steps to change their own ecological footprint and engage in a self-assessment of their own consumption patterns. At the same time they are encouraged to support local 'community-based sustainable economic initiatives, such as producer cooperatives, community land trusts and bio-regional food distribution.

There are many other proclamations and exhortations that re-iterate similar concerns like that of the Accra confession and the statements of the WCC. Many church bodies have taken note of or adopted the Accra confession, like the

Presbyterian Church of Canada, the Lutheran World Federation, the World Council of Churches, and others. Several other church councils are working with these and other statements of the WCC. Each ecumenical body, from out of their own tradition, are committed to *actualize* these basic guidelines for confessing and a program of action. In different ways these testimonies emphasize not to deify some aspect of creation and to keep covenant with all creatures, or, as some put it, to live in communion with all people and the earth.

There are two other examples that deserve separate attention. In spite of separate historical developments and a rich and unique liturgical tradition based on a different theological emphasis, the Orthodox Churches have also been developing a world-wide social witness and service. At an international conference in 2005 at Valamo, in Finland under the theme of '*Orthodox Diakonia: the Social Witness and Service of the Orthodox Church*', they laid out their plans for international cooperation. Many of their organizations on different continents have been active throughout the world and are engaged in a great variety of services.

Belopopsky, A. (June 26, 2003). Orthodox Diakonia: an introduction. Retrieved from <https://www.iocc.org/orthodoxdiakonia/content/alexanderbelopopsky.pdf>
Couretas, J. (February 17, 2008). Conflicted hearts: Orthodox Christians and social justice in an age of globalization. *Orthodoxy Today*. Retrieved from <http://www.orthodoxytoday.org/articles8/Couretas-Orthodox-Christianity-and-Globalization.php>
Molokotos-Liederman, L. (2012). Orthodox social service and the role of the Orthodox Church in the Greek economic crisis. Retrieved from <http://www.faithineurope.org.uk/lina.pdf>
Orthodox Diakonia. (April 16, 2004). Orthodox Conference commits to new worldwide cooperation in social action. Retrieved from <https://www.iocc.org/orthodoxdiakonia/index.php?id=p7>
Orthodox Diakonia. (May, 2009). Orthodox diakonia: an initial assessment. Retrieved from http://www.academia.edu/10350014/ORTHODOX_DIAKONIA_WORLDWIDE_AN_INITIAL_ASSESSMENT
Orthodox Diakonia. Churches and organizations. Retrieved from <http://www.orthodoxdiakonia.net/>

A narrow view of the gospel has been the burden of many Christians in the developing countries. 'Jesus saves us from our sins' and a moralistic view of life is a legacy they have inherited from the missionaries of the developed North. Faced with social injustice and environmental destruction, evangelical and charismatic groups in Africa, Asia and Latin America have been struggling to develop a new social vision. Many faith-based organizations have been very active on those continents. Recently (2013) the *Baptist World Alliance* has sent delegates to the 10th WCC, and the *World Evangelical Alliance* and other evangelical ecumenical associations have been developing statements on social responsibility and issues of social justice. Evangelical and the so-called classical charismatic churches developed a statement on Evangelical Social Engagement called *The Philadelphia Statement* in 2007. The year before, in 2006, a group of evangelical leaders launched the *Evangelical Climate Initiative*. Others have been attempting to develop a Pentecostal 'political theology', see *Evangelicals and Empire* (2008). Struggling to come to terms with a strong dualistic heritage and a very narrow popular 'Jesus saves' gospel, one can only welcome these initiatives. There are about 600 million evangelical and charismatic Christians worldwide in 126 countries with a fast-growing membership.

Allan Jr., J. L. (September 25, 2013). Pope sounds alarm on antichristian persecution. *National Catholic Reporter*. Retrieved from <https://www.ncronline.org/blogs/francis-chronicles/pope-sounds-alarm-anti-christian-persecution>
Benson, B. E. And Heltzel, P.G. eds. (2008). *Evangelicals and Empire: Christian Alternatives to the Political*
Corbin, J. (April 15, 2015). These maybe the last Christians of the Middle East – unless we help. *The Guardian*. Retrieved from <https://www.theguardian.com/commentisfree/2015/apr/15/middle-east-christians-islamic-persecution-iraq-war>
Johnson, J.C. A Pentecostal perspective in a politically pugnacious environment. *Encounter: Journal for Pentecostal Ministry*: Summer 2009, Vol. 6. doi=10.1.1.606.7047
National Association of Evangelicals. (2004). For the health of the nation: an evangelical call to civic responsibility. Retrieved from <http://nae.net/for-the-health-of-the-nation/>
Speciale, A. (April 15, 2013). In Asia, the Pentecostals are on the march. *UCANews*. Retrieved from <http://www.ucanews.com/news/in-asia-the-pentecostals-are-on-the-march/68010>
Status Quo. Brazos Press. doi: 10.1111/j.1468-2400.2009.00439.x
Tackett, C. (July 22, 2013). 200 evenagelical scientists ask Congress to pass climate legislation. *TreeHugger*. Retrieved from <http://www.treehugger.com/culture/200-evangelical-scientists-ask-congress-pass-climate-legislation.html>
The Reunion Black Family. (January 18, 2013). Africa is still being colonized, every Sunday. Criminals posing as men of God. Retrieved from <http://www.reunionblackfamily.com/apps/blog/show/22572422-africa-is-still-being-colonized-every-sunday-criminals-posing-as-men-of-god>
van Klinken, A. S. God's world in not an animal farm – or is it? The catachrestic translation of gender equality in African Pentecostalism. *Religion & Gender*, Vol. 3, No. 2, 2013, 240-258. doi: <http://doi.org/10.18352/rq.9167>

World Evangelical Alliance. (August 30, 2007). A statement on Evangelical social engagement. Retrieved from <http://www.christiantoday.com/article/wea.a.statement.on.evangelical.social.engagement/12713.htm>

Worthen, M. (May 21, 2010). Onward, Christian nationalists. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/arts/books-and-media/review-the-armageddon-factor-by-marci-mcdonald/article4319980/>

Zandt, M. (June 2011). The situation of Christians in sub-Saharan Africa. *KAS International Reports*. Retrieved from http://www.kas.de/wf/doc/kas_23017-544-2-30.pdf?110606100737

Zebechi, R. (October 15, 2008). Pentecostalism and South America's social movements. *Upside Down World*. Retrieved from <http://upside-down-world.org/main/international-archives-60/1529-pentecostalism-and-south-americas-social-movements>

8) The divisions of the Christian Church

The division of the Christian churches remains one of the fundamental issues facing Christianity. There are many ecumenical assemblies besides the WCC, countless smaller national bodies, and an endless number of denominations and independent churches. Anyone looking at a picture of all the major, smaller, tinier and, finally, the smallest little twigs on the branches of the tree of Christianity, can't help but be dismayed by all the divisions and sub-divisions. Every ecumenical council of the major denominations have hundreds of participating separate church bodies. The World Communion of Reformed Churches, for example, has *229 member denominations* in 108 countries with around 80 million believers. On the local level any of these denominations worship separately and have very little interaction. A small country like Benin in West Africa, to give another example, with a little over 10 million people (of which about 4 million are Christians) has around *430 Christian denominations and independent, separate churches*. One more example, South Korea has approximately 15 million Christians (about 29% of the population), 9 million of which are Presbyterian that belong to about *100 Presbyterian denominations*. In any larger city in South Korea you have a choice of which particular Presbyterian church you would like to attend, not to mention the other Protestant churches. No doubt there are many historical and cultural reasons for these divisions, but the fundamental cause are differences in interpreting the bible, doctrinal and theological rationalism and dualistic visions of life. *The Christian Church does not exist*, only a very fragmented body of councils, denominations and separate churches that disagree about most any aspect of the Christian faith. It is a sad state of affairs. Not that Marxists or Socialist or Nationalists or any other fundamental group does any better, but somehow we expect more from the followers of Moses and Jesus.

The Lingering Dualistic Vision; the church's doctrines

Once more it raises the issue of the dualistic traditions and vision of many churches. When the Christian faith is narrowed, to whatever degree, to 'Jesus saves us from our sins', it is hard to develop a social and ecological awareness and become a transformational community. Unless 'faith', or rather, ultimate convictions are seen as embedded in the whole of life, there will always be a tension *between* 'the life of faith and worship' *and* daily life. Overcoming this duality would not only require a new view of the integral coherence of life in all its dimensions, but also a radical, different view of the scriptures and the acceptance of new confessions that are relevant for our times.

The ecumenical bodies, in spite of their excellent statements and bringing people together from every continent and region, still contribute to this lingering duality. They do so by too much 'God-talk' when it is not directly relevant to the issue and by the often 'anecdotal' quoting of scripture passages out of context and without regard to their social and cultural setting. *It is such out-of-context quoting of bible passages that also perpetuates doctrinal differences and maintains questionable historical confessions*. What is one to think, for example, of the age-old difference between the Orthodox Churches and the Roman Catholic Church? They divided again (after coming to an agreement with one another) in 1450 CE about the issue of whether the Holy Spirit emanated from the Father through the Son or directly from the Father, the so-called *filioque* issue. The issue was debated extensively during the preceding centuries on the basis of particular texts in the gospels and some letters of the apostles. If that was the only issue that kept two large church communions separated for hundreds of years, it would be quite absurd and tragic. Probably there were other

questions of political power in the background and the independent authority of the saints that were considered directly inspired by the Holy Spirit. Recently the two church bodies have agreed to come to a compromise that both could live with and develop new forms of fellowship and cooperation.

From a broader perspective, however, to theorize about the nature of God (the Trinity) who by definition is inscrutable, wholly other and a mystery can only be called theological speculation. The texts on which these speculations are based do not contain any generalizations; they are not about the (ontological – three essences in one - or, presently, the relational) nature of God. They do not theorize about Jesus' relationship to His heavenly Father nor whether, somehow, God's Spirit is a separate entity within the Trinity. Each of those individual texts are an integral part of larger sections that have their own specific context and meaning that cannot be abstracted from that setting without violating its meaning. As religious writings, they are always addressed to specific readers in a specific situation in a particular culture. See the previous chapter. Regrettably, many ecumenical statements are marred by these kinds of references to the Trinity and other isolated quotes from the scriptures. Numerous church's doctrines are of this nature, whether the two nature's of Jesus (a divine and a human, combined in one person), the substitutionary atonement, God's sovereignty and election, the bible as the infallible Word of God, original sin, total depravity, salvation by grace and faith alone, etc. They are all highly speculative or untenable in the light of the scriptures and they distract from the real issues of our day.

'The Prosperity Gospel' of the New Pentecostalism

The advance of a particular form of 'Pentecostalism' in Latin America, Africa and Asia deserves separate attention. Instead of a pervasive dualism, they have accommodated their approach to life to the neoliberal ideology with a veneer of 'Christian morality'. To the extent that they have embraced the so-called 'prosperity gospel' these forms of Pentecostalism can hardly be called Christian churches. Even though the boundaries between the traditional charismatic Pentecostal churches and this US-inspired and supported movement are not always clear, there is little doubt about the basic values that inspire this movement. The fundamental message is that if you are faithful and give at least ten percent of your income to the Lord (that is, to the church, or more accurately, to the pastor in charge), then you will be blessed, prosper and receive health; you will receive hundred fold in return. And when you are in need, the Holy Spirit will lift you out of poverty, provide food when you are hungry, protect you from accidents, and cure your diseases and disabilities. For those who have faith, miracles will happen. Nothing is too much for the Lord. All you need to do is surrender your life to Jesus and the blessings will come and you will prosper and enjoy the good life of possessions and wealth.

Many of these new churches are modelled after and have American connections. They follow clear business strategies and some of the mega churches in Latin America and Africa have significant assets. 'Religion' has become a lucrative market and founding a church is a worthwhile business. Wherever possible they make use of public media to spread their message. In several countries they control radio and TV stations. Increasingly they have been able to shape the politics of certain countries and its public life, influencing political leaders and promoting 'pro-life' and anti-gay legislation. In contrast many smaller churches in rural areas operate out of tiny make-shift churches and become a haven for impoverished and marginalized people, offering hope in isolated or desperate situations. However, the message is the same, have faith in miracles. They offer a new identity and a new kind of community, but in reality they are depriving the people of the only real security that can be found, namely in Life itself as it reveals itself to us. Unlike many other church communities their focus is not on concretely helping to change the conditions that create poverty, dispossession and marginalization.

There are many social, economic and political reasons for the spread of this form of 'Pentecostalism'. The influence of the structural adjustment programs imposed by the WB and IMF with the reduction in social, health and educational services, the development of agro-industry, deforestation, mining, displacement, urbanization, the failure of many

governments, corruption, local and regional conflicts, growing disparity between the rich and the poor, the spread of HIV/AIDS, lack of safe drinking water and sanitation, environmental destruction and so on, have all had their effect, leaving many people dislocated and suffering. These developments leave a social and personal vacuum that is easily filled by the promises and claims of this new Pentecostalism. It dove-tails perfectly with the neoliberal agenda and its neo-colonialism.

During the Occupy Wall Street movement in 2011 an interfaith group of religious people carried an image of the golden calf (from the story in Exodus 32) with them on their march to Zuccotti Park as a symbol of the Wall Street bull. It served as an image of the idolatry of greed of the 1%. In contrast, the new 'Pentecostals' in the US were busy mass-producing 'golden calves' as it were, for export to South America, Africa and Asia as symbols of the new idolatry, or the not so new, worship of mammon (Mathew 6:24), the 'gospel of prosperity'. As a group of lay people representing the many marginalized Indigenous People from various parts of India expressed it at the WCC in 2013:

The growing popularity of a 'prosperity gospel', orchestrated by the advocates of the market economy, so as to expand the market for goods, is a vivid testimony to how the values of materialism and individualism are elevated.

The teachings that lead to the multiplication of desires and wants, in fact, threaten the very foundation of the gospel of liberation – the gospel of Jesus Christ.

We are called to be a prophetic voice and to function as an alternative community refuting and refusing to conform to the existing values and power structures that negate Life and Justice to all.

The basic message of the prosperity gospel and miracle healing is a perversion of the message of Moses and Jesus, of the way of the Torah and the Kingdom of God, of the way of justice, righteousness, truth and loving kindness. The classical evangelical and charismatic churches would do well to distance themselves from this distortion of the Way, as they seek to find a new sense of public responsibility and social and eco justice.

9) A local example and the faith-based groups in Malawi

Within half an hour radius of our home here in the country, there are approximately fifty churches of all stripes, many of them struggling to survive. For all practical purposes they have very little impact on the three small towns of our area and the rural population. At the same time, the contributions of the many schools of theology (every denomination is represented) at the university in nearby Toronto, are generally unknown and irrelevant to the life of these local churches. The majority of the church members, whether Roman Catholic or Protestant, have never heard of the ecumenical statements of the WCC or of the positions on key social and ecological issues of their own denomination. There may be a couple dozen or so church people in our area that have heard of and participate in the actions of *KAIROS*, which, as mentioned earlier, is the ecumenical movement of Canadian churches working together for justice and peace. All the main denominations are represented in this movement. Again, *KAIROS* itself is doing exemplary work by its statements and actions on many pressing social and eco justice issues. Nation-wide it has been able to engage many people and over the course of forty years has become a strong movement for justice, peace and the preservation of the environment. They provide many readable and useable materials and background reports and call for crucial local action. It would seem that they are the ideal body to help local congregations to become knowledgeable and involved. Perhaps most important, their vision could inspire and give meaning to countless young people that are searching or disillusioned. Yet, this is not happening.

On the local level, most of the churches remain divided, worship separately and have limited interaction, if at all. The town near us is a telling illustration of a church divided against itself. There is a traditional United Church, an Anglican Church, a Presbyterian Church, a Lutheran Church, a Christian Reformed Church, and a Canadian Reformed Church (each with their own Christian school). These churches have minor doctrinal differences. Then there is a conservative Roman Catholic Church, a large thriving Baptist Church, and a dozen or so evangelical, charismatic, and Pentecostal churches. There is a church to suit everyone's taste. All of this in a community of about 32,000 people. If we add the other two towns nearby, then there are at least fifty churches to choose from.

For many decades the majority of the people in these communities have voted conservative and, to a large extent unawares, have endorsed the neo-liberal ideology with its destructive consequences for people and the environment. Without protest they have accepted the 12-hour continental shifts in the local factories that are often disruptive to marriage and family life and the subsequent closing of many of these factories. Without protest they have accepted the new fragmented and conceptual curriculum (in 2000) for the elementary and high schools that leaves the majority of non-academic students uninvolved and bored. Texting, smoking up and drinking is the order of the day. The drug of choice is available at any of the local high schools. People have accepted the downloading of many public services without extra funding. They experience the decline in social services, health care, and special education support for their children with learning difficulties. They have embraced the expansion of the town, sprawling into the country side, regardless of the lack of transportation services, committing more people to commuting daily for two or three hours to and from their work. The court system is to a large extent politicised and there is harassment by the local police officers, especially of young people. Drinking and heavy drugs are a social problem. Box stores have slowly replaced local businesses. Generally environmental concerns are low on the agenda of town councils until more recently. Each week a minister writes a spiritual column in the local newspaper next to a few columns by conservative political commentators. Apart from individual protests there is no public outcry about any of these issues.

For daily life and the local community the Christian faith seems irrelevant, or, at best, seems to belong to a separate sphere of life. Certainly the radical witness of the denominations represented by these churches is not evident, which does not mean that the churches do not have their own (private) diaconal outreach. Many provide assistance to people in need. Nor does this mean that the people of these towns are not caring or generous, including many individual Christians. On the contrary, they give large amounts of money to the local hospital (based on a business model) and are always fund-raising for one cause or another. There are many volunteers that help out in every area of the community's life. The local service clubs are popular, the arts flourish, and many are politically engaged. This generosity and involvement, however, seems to be fed more by general human values that the majority of people share rather than by a Christian sense of service. Christianity is primarily about salvation, while community life is about participation, volunteering, caring and being helpful.

This scenario could be duplicated in most of the local towns and rural areas of Ontario and Canada, that is, among the more well-to-do people. Among the poor, the marginalized, the homeless, the imprisoned, the elderly, and many Native Peoples, it is quite a different story. These are some of the consequences of a dualistic view of life with the growing gap between public and private spheres. The process of secularization, individuation, emancipation and the conservative tendencies of the churches to preserve the old order and morality have accelerated this marginalization of religion. The final blow during the last thirty years has come from the pervasive influence of the neoliberal ideology: individualism, each on his or her own, the privatization and commercialization of everything, consuming as a virtue (the economy depends on it) and shopping as a past-time with personal debt rising every year. In view of all this, these communities are doing relatively well in terms of maintaining a sense of care and concern for each other. Caring, altruism, being of service is part of our human nature and cannot be undone so quickly and totally by selfishness, indifference and greed.

In light of this abiding community spirit, *imagine for a moment* if most of the fifty or so local churches all ‘*twinned with*’ (not ‘adopted’) a church in Malawi, to use that country as an example. Imagine what could happen. With the help of a ‘literate’ adult or teenager in each of these local churches it would be possible to overcome the language barrier and establish personal communication between the two churches, one in our area and one in Malawi. (There are several programs of the other official language in Malawi, *Chichewa*, besides English, on line with short phrases and words that would soon make more exchange possible.) The *Presbyterian World Service & Development (PWS&D)* has an extensive program in that country helping local, small-scale subsistence farmers to become more self-sustaining and lift themselves out of crushing poverty. The program is well-developed and provides training in innovative and sustainable farming. They are using organic farming practices, like intercropping, the use of organic fertilizers instead of expensive chemicals, increasing the soil quality and preventing erosion, conserving water, growing newer varieties of sorghum and cassava that are more drought resistant. In these ways they are often able to double the yield of their crops. Small changes can make a tremendous difference in the quality, variety and quantity of food for their families. It also increases self-sufficiency and the health of the family.

The PWS&D provides similar local programmes in improving water sources and sanitation, by building new wells and boreholes and installing latrines to prevent the spread of diseases. Local people are taught how to maintain the new water sources and repair pumps. There are programmes in education, empowering women to become self-sufficient, providing general health services, child and maternal health care, assistance in dealing with mental and physical disabilities, fighting against the spread of HIV with an emphasis on social acceptance and human rights as well as care and counseling, and care of orphans and vulnerable children. In all these programs the emphasis is on empowering local people to meet their own needs. In this way the PWS&D is trying to address the root cause of poverty, hunger, and disease. The organization is active in 12 different countries and works in cooperation with other agencies.

Our local Presbyterian churches support these programs. Individual members can make a donation for building a latrine (\$30), training a village water committee (\$500), help a woman start a vegetable garden (\$57), provide a village with tree saplings (\$20), provide a chick (\$5) or two rabbits (\$50), help a person become literate (\$20), provide a schoolgirl with a school bag and supplies (\$7), provide a bicycle ambulance (\$300.) and so on. Besides giving money members of different Presbyterian congregations have visited these churches, their clinics and their schools and have seen the work that is being done first hand. Many visitors report that their trip has fundamentally changed their outlook on poverty, disease and subsistence living and, by contrast, their awareness of our consumer way of life. They went to learn and received a lot.

The local *Christian Reformed* churches through their denominational *World Renew* program, supports similar efforts in Malawi. In cooperation with the *Church of Central Africa, Presbyterian* (they have old ties) and *Partners Worldwide*. *World Renew* engages in a wide range of initiatives. There are several farm programs that deal with food storage, seed multiplication and diversification, tree nurseries, small scale irrigation, nutritional food choices, providing mosquito nets, preventative health practices, composting, latrines, women development groups, literacy classes, orphan nursery schools, providing small business loans, etc. Regrettably there are some serious issues about following business development models, growing food for the international markets and their views of sexuality with an emphasis on abstinence and not actively promoting safe sex through the use of condoms. To the extent that there is no evidence of a critical awareness of neoliberal economic policies and practices and preventative HIV programs besides abstinence, they are in direct conflict with the radical position of the *World Communion of Reformed Churches* and the *Accra Confession*.

The local *Roman Catholic* churches through their *Catholic Development Commission* programs in Malawi support a great variety of initiatives as well. Their programs cover a wide range of activities, such as health care, early childhood centres,

care of orphans, education, water and hygiene programs, developing better farming methods, locally made stronger bicycles, addressing social justice issues, like financial corruption, developing a national agricultural policy, issues of climate change, and so on. Their programs too are marred by their stance on abortion and abstinence and a strong hierarchical church structure.

Then there are dozens of 'charity' organizations active in Malawi, as well as NGO's, international aid and development programs. Canada supports several aid and development programs in Malawi and so does the national and some local Rotary clubs. One charity program that stands out is *Ripple Africa* that has developed excellent integrated and holistic local programs in a number of areas and villages in northern Malawi. Their programs in education, health care, farming, fishing, conservation, tree planting, fuel efficient cook stoves, and so on are exemplary. They have an extensive volunteer program that gives many young adults first hand experiences that they will carry with them for life.

Several reports indicated the great need for integration and cooperation of these different efforts. At times even in the same villages there is no coordination between the different faith groups and other organizations. In spite of this lack of cooperation and a division and coordination of labour, many excellent things are happening on the local level. The focus in all these activities seems to be on the development of local leadership and local ownership of the various projects.

There may be other local evangelical churches through their support of *Partners Worldwide* and other community organizations that have a direct connection with Malawi. *It is this experience of direct involvement that would be most important for our local churches.* Making a connection with a local church in Malawi and becoming a 'twin' church takes a congregation beyond donating money, however helpful that may be in itself. Since all the local churches through their denominational and international organizations support the same radical vision for social and eco justice, no church should have difficulty supporting these kinds of programs, whatever their denominational affiliation.

To match the North-American and European scene, there are approximately *90 different denominations and independent churches* in Malawi and about 70% of the population consider themselves Christian, out of a total population of over 16 million people. Politicians and church leaders tend to talk about Malawi as a Christian nation. Besides the traditional denominations (Roman Catholic, Anglican, Lutheran, four Presbyterian), the greatest number, maybe around 70, are evangelical, charismatic and Pentecostal churches. The largest denomination is the *Church of Central Africa, Presbyterian* with about 1.3 million members. The tragic and sad part is that the confessional bases of these indigenous Presbyterian churches are the Canons of Dordt, the Heidelberg Catechism, the Belgic Confession, the Gallican Confession, Scots Confession, Second Helvetic Confession, the Thirty-Nine Articles, and the Westminster Confession, most of them from 16th century Europe and some older early church confessions. Although these confessions had their own meaning in those historical periods and countries, they also include an untenable traditional view of the bible as the infallible Word of God and other doctrinal views. The missionary and mother churches have done their work well. Imagine if instead these African churches had developed their own indigenous confessions or adopted the more radical Accra confession as their basis. In spite of these splits and differences most of them seem to agree about the great need for social and environmental action and endorse or actively participate in these kinds of programs.

A direct relationship and involvement with these churches in Malawi would not leave any of our local churches unchanged. In any exchange they would stand to learn most from their Malawi sisters and brothers. Especially the reports of daily life in these small local villages in different areas give a vivid picture of what life is like for many people in Malawi. It would fundamentally change their outlook on life. It would rejuvenate the local churches and provide an exciting opportunity for the children and young people to become involved.

Imagine further that all the local churches would gather once a year for a communal ecumenical gathering under the theme of *Learning from our Malawi Sisters and Brothers and their Children*, with the intention to learn from their suffering, their courage, their resourcefulness and their hope. Together they could watch some of the many video clips and actually see their faces and look into their eyes. They would see what daily life is like and the challenges they face as well as their joys. Imagine.

Compared to the poverty, disease, child labour, sexual exploitation, suffering, hopelessness, deforestation, the effects of climate change and other environmental problems threatening Malawi, etc. *all the doctrinal and theological differences between our local churches here and abroad become insignificant if not irrelevant*. By becoming, first of all, as many are advocating, a *diaconal or servant church*, the ‘proclamation of the Word’ and the ‘Sunday celebration’ would become that much more meaningful. The Presbyterian Church of Canada has lost 36 % of its membership. The same is true for the other denominations. By becoming directly involved with social and ecological issues locally and internationally in a country like Malawi, the churches could renew themselves and *become truly transformative communities*. It would motivate the membership to *become involved in local environmental and social issues* from out of a radically different vision. Once local churches encounter these situations of poverty, disease and subsistence living without adequate medical care, food, water and sanitation, they would soon be confronted by many other desperate situations in Malawi as well. It would lead to an awareness and endorsement of their own denomination’s radical statements for change. Each in their own way would *begin to implement these prophetic testimonies with others on the local, provincial and national level here in Canada*.

Catholic Relief Services, Livelihoods in Malawi. (2010). Summary of major findings to consider in strategic planning. Retrieved from

<http://www.crs.org/sites/default/files/tools-research/livelihoods-in-malawi.pdf>

CIWEM. (November, 2010). Faiths and the environment digest. Retrieved from <http://ciwem.co.uk/wp-content/uploads/2016/03/Faith-and-Environment-Digest-Final.pdf>

CIWEM. Faiths & the environment. Retrieved from <http://ciwem.org/networks/faiths-the-environment/>

Farm-Africa. Sweetening the pot. Retrieved from <http://www.farmafrica.org/downloads/resources/Beekeeping-Case-Study.pdf>

Foreign Affairs, Trade and Development Canada. (September 30, 2013). Malawi. Retrieved from http://www.international.gc.ca/finance/qfr-rft/qfr-rft_2013-2014_q2.aspx?lang=eng

Forum on Religion and Ecology at Yale. Religious campaign for forests conservation (RCFC). Retrieved from

http://fore.yale.edu/religion/christianity/projects/religious_campaign/

Jones, S. (May 13, 2015). Malawi study reveals devastating cost of child undernutrition. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2015/may/13/malawi-child-undernutrition-lost-lives-poor-productivity>

Premph, E. O. K. (Spring 2006). The anticapitalism movement and African resistance to neoliberal globalization. *Studies in Political Economy*, 77. Retrieved from <http://spe.library.utoronto.ca/index.php/spe/article/view/5222/2126>

Presbyterian World Service & Development (PWS&D). Agriculture and Livestock. Retrieved from <http://presbyterian.ca/pwsd/agriculture-and-livestock/>

TerrAfrica. (October 23, 2013). Faith in action: engaging African religious groups in sustainable land management. YouTube. Retrieved from <https://www.youtube.com/watch?v=4fdo29sHMyc>

UN General Assembly, Report of the Special Rapporteur on the right to food, Olivier De Schutter. (January 21, 2014).

Mission to Malawi. Retrieved from <http://www.srfood.org/en/official-reports>

Wood, B. et.al. (October 2013). Up in Smoke? Agricultural commercialization, rising food prices and stunting in Malawi. *The*

World Bank, Development Research Group, Poverty and Inequality Team. Retrieved from <http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6650>

World Bank. (January 12, 2015). Engaging with faith groups to restore land in Africa. Retrieved from

<http://www.worldbank.org/en/news/feature/2015/01/12/engaging-with-faith-groups-to-restore-land-in-africa>

World Renew. (April 2013). World Renew Partners in Malawi. Retrieved from <http://www.worldrenew.net/malawi>

Once engaged they would encounter and be confronted by the many problems facing the Malawi people. They would learn about the approximately 80.000 children and their families in Malawi that work on small tobacco growing farms. These farmers were first lured to grow corn instead of their local grains and vegetables and now, with the promise of big profits and loans for seeds, fertilizers and pesticides, seduced to grow tobacco. The children try to juggle going to school and working before and after school on the fields to help their parents. By handling, picking, sorting, bundling, and finally curing the leaves in small huts with their bare hands, they, as well as their parents are exposed to a high level of nicotine absorption and the danger of the green tobacco disease. The farmers remain permanently indebted and are exploited by larger buyers that collect and sell the tobacco to international companies. The tobacco industry contributes directly to the deforestation of Malawi because of land clearing, erosion, use of water and firewood for curing. The

Malawi government subsidizes the tobacco industry and provides tax breaks. About 4% of the land is used for the production of tobacco. More than a decade ago people in the developed countries and in Africa already talked about the ethical issue of devoting agricultural land for tobacco export while many people go hungry. How can a nation justify supporting tobacco crops while ignoring the many needs of the people, especially their on-going poverty?

Ted Case Studies. Number 252, 1998/1999, Malawi tobacco industry and the environment. Retrieved from <http://www1.american.edu/TED/maltobac.htm>
You Tube, *Journeyman Pictures*. (November 18, 2013). Children of Tobacco – Malawi’s shocking plantation exploitation. Retrieved from <https://www.youtube.com/watch?v=3AyR7DnlWrM>

It is only one issue among many. Lake Malawi, the ninth largest lake in the world covers about one fifth of the land and stretches all along its western border. It is home to more species of fish than any other body of freshwater. It provided a major source of protein for the Malawi people. Over 300,000 people relied on catching or trading fish as part or all of their income. Now the lake is in crisis. It has been severely overfished as the number of fishers have increased and the nets have become bigger and the mesh of the nets smaller. In many parts only very small fish remain. New legislation and fishing permits for local fishers only were introduced in 2012. Time will tell if these new regulations will reverse the trend and allow the fish to regenerate themselves and if the small local fishing cooperatives, supported by Ripple can counter the level of corruption and bribery.

Deforestation

Deforestation is another major issue. Without drastic changes Malawi is destined to become a barren land with massive erosion and with the soil running off into the rivers and finally into Lake Malawi. Deforestation in Malawi is twice as large as in the rest of the world. Only about 27% of the forest cover is left and dwindling each year. A big part of the problem is the constant and growing need for firewood. The majority (90%) of people use charcoal or firewood for cooking. The bundles of wood each family uses in a week or a year is staggering. They each use 3 bundles of about 30 kilograms a week or 150 bundles of wood a year. Multiply this by the number of families of the 16 million people that depend on firewood, then we get some idea of the magnitude of the problem. No tree planting campaign by itself (see the next section), no matter how ambitious, can keep up with the number of trees being cut down each year for fuel.

Beedy, T.L. et.al. (2013). Scaling up agroforestry to achieve food security and environmental protection among smallholder farmers in Malawi. *Field Actions Science Reports, The Journal of field actions*, Special Issue 9. Retrieved from <https://factsreports.revues.org/2082>

Ford, L. (February 18, 2014). Malawi’s small farmers kept in the dark about G8 New Alliance. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2014/feb/18/malawi-small-farmers-g8-new-alliance>

Mclaverty, J. (November 21, 2012). Deforestation in Malawi. *Oxfam*. Retrieved from <http://www.oxfam.org.uk/get-involved/opportunities-for-young-people/oxfam-youth-blog/2012/11/deforestation-in-malawi>

Moorsom, P. (April 20, 2015). Permaculture in Malawi: using food forests to prevent floods and hunger. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2015/apr/20/permaculture-malawi-food-forests-prevent-floods-hunger>

Mtika, C. (August 1, 2014). Sugar wars: 354 years of bitter feuds in central Malawi. *Farmlandgrab*. Retrieved from <http://mg.co.za/article/2014-08-01-sugar-wars-35-years-of-bitter-feuds>

Ndipita, M. Combating climate change effects through agroforestry and evergreen agriculture: World Agroforestry Centre achievements in Malawi. *Evergreen Agriculture Network for Southern Africa*. Retrieved from <http://www.worldagroforestry.org/downloads/Publications/PDFS/B09008.pdf>

Ouya, D. (November 12, 2012). Agroforestry key to reaching 10% tree cover in Kenya. *World Agroforestry Centre*. Retrieved from <http://www.worldagroforestry.org/news/agroforestry-key-reaching-10-tree-cover-kenya>

Oxfam International. Malawi, the difference a goat makes. Retrieved from <https://www.oxfam.org/en/countries/malawi/malawi-difference-goat-makes>

Phiri, G. (April 16, 2015). Scaling-up CSA in Malawi, successes, challenges, opportunities. *FAO. SlideShare*. Retrieved from <http://www.slideshare.net/agroforestry/scalingup-csa-in-malawi-successes-challenges-opportunities>

Stoddard, E. (October 12, 2005). Deforestation and erosion starving Malawi. *Mongabay*. Retrieved from <https://news.mongabay.com/2005/10/deforestation-and-erosion-starving-malawi/>

Tafirenyika, M. (2014). What went wrong? Lessons from Malawi’s food crisis. *Africa Renewal*. Retrieved from <http://www.un.org/africarenewal/magazine/january-2013/what-went-wrong-lessons-malawi%E2%80%99s-food-crisis>

Underdown, D. (March 6, 2015). Conservation agriculture projects harvest rewards in Malawi. *Concern Worldwide*. Retrieved from <http://blog.concern.net/conservation-agriculture-projects-harvest-rewards-in-malawi>

Whitehead, F. (February 13, 2015). Creating a fertile future for smallholder farmers in Africa. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2015/feb/13/private-sector-africa-smallholder-farmers-training-diversification>

Solutions to the use of firewood

There are at least three excellent solutions that are being implemented on a small scale. First of all, a *new kind of stove* is being introduced that is more fuel efficient and can be made locally. Another answer is making *charcoal bricks out of vegetable materials and waste*. *Agroforestry* is the third solution. The great benefit of the new kind of stove is that it produces hardly any smoke. It would drastically cut down on respiratory diseases and deaths (about 400.000 persons a year for the sub-Saharan area alone and about 2 million for Africa as a whole). The new kind of charcoal for fuel would drastically reduce or eliminate the need for firewood and agroforestry would provide enough firewood for the remaining needs. Reforestation, preserving and maintaining the remaining forests can certainly play its part, but by themselves they would not be sufficient to change the deforestation trend. It would take a massive education program, local support and training to implement these changes.

Chaix, J.K. (February 26, 2010). The East African Briquettes Company points the way to sustainable biomass alternative. *The Charcoal Project*. Retrieved from <http://www.charcoalproject.org/2010/02/the-east-african-briquettes-company-points-the-way-to-sustainable-biomass-alternative/>

Ouya, D. (April 5, 2013). Charcoal briquetting in Nairobi relieves poverty, environment stresses. *World Agroforestry Centre*. Retrieved from <http://www.worldagroforestry.org/news/charcoal-briquetting-nairobi-relieves-poverty-environmental-stresses>

Westenhaus, B. (January 10, 2012). Why Africa needs to embrace bamboo charcoal. *New Energy and Fuel*. Retrieved from <http://oilprice.com/Alternative-Energy/Renewable-Energy/Why-Africa-Needs-To-Embrace-Bamboo-Charcoal.html>

Westenhaus, B. *Ripple Africa*. General information about the environment in Malawi and deforestation in Africa. Retrieved from <http://www.rippleafrica.org/environment-projects-in-malawi-africa/deforestation-in-africa>

WF Ecomakala. (2007). Sustainable charcoal to protect Virunga National Park. Retrieved from <http://newgenerationplantations.org/en/casestudies/26>

Mining developments

Then there is the issue of new mining developments. The exploration and extraction of natural resources in several areas as well as along and in Lake Malawi threatens to become another major environmental and economic disaster. Especially the development of a uranium mine is disconcerting. Invariably they result in environmental degradation and give rise to serious health issues. The existing mines and the new ones being developed have little or no benefit for the local people. Many new permits have been issued without consultation and without the permission of the people most directly affected. There has been strong local opposition to these developments. People have been intimidated and dispossessed without any kind of compensation. The *Catholic Commission on Justice and Peace* has called for a review of all mining agreements including the tax regimes.

Brown, D. (May 16, 2012). Uranium miners in Africa facing labor disputes. *Uranium Investing News*. Retrieved from <http://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-miners-in-africa-facing-labor-disputes/>

Chamley, S. (June 3, 2015). On the shores of Malawi's lake of stars, activists raise uranium fears. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2015/jun/03/lake-malawi-activists-uranium-fears-paladin>

EJOLT, Report 21. (February 22, 2015). Impact of the Kayelekera uranium mine. Retrieved from http://www.ejolt.org/wordpress/wp-content/uploads/2015/02/150222_Report-21.pdf

Mining in Malawi. (July 18, 2013). Record production at Paladin's Kayelekera uranium mine, but communities remain disgruntled. Retrieved from <https://mininginmalawi.com/2013/07/18/record-production-at-paladins-kayelekera-uranium-mine-but-communities-remain-disgruntled/>

The Alliance: Nyasa Times. (April 22, 2009). Malawi right watchdog, Catholic Church voice on uranium mining. Retrieved from <http://thealliance123.blogspot.ca/2009/04/malawi-right-watchdog-catholic-church.html>

Uranium from Africa. (July 2011). Mitigation of uranium mining impacts on society and environment by industry and governments. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1892775

Sexual abuse of girls

One example of the corruption and ineffectiveness of the police and the courts is the lack of prosecution for the raping of young girls in Malawi (and many other countries). A recent report (January 2014) highlighted four of these attacks and the sheer agony and terror of the girls. They were threatened with death, abduction, selling them as sex slaves, and cutting off their breasts and uterus (to be sold as 'charms' on the black market). One contracted HIV and died a week later. It was near impossible to get the police to arrest the violators that were known in the community and even more

difficult to get a conviction. The non-profit organization *The Equality Effect* is trying to persuade the government to change and uphold the laws. They were successful in Kenya where the nation's high court ruled that the police failed to protect as many as 160 under-age girls who had been raped. They are working to achieve the same results in Malawi, hopefully bringing about greater protection for girls. *The Equality Effect* uses 'human rights laws to make the rights of girls and women real, so they can be safe from sexual violence and get an education'. It is only one example of heart wrenching social injustice and violence.

Dunning, D. and Mkandawire, J. (February 26, 2015). How girl activists helped to ban child marriage in Malawi. *The Guardian*. Retrieved from

<https://www.theguardian.com/global-development-professionals-network/2015/feb/26/girl-activists-child-marriage-malawi-let-girls-lead>

Labatt, J. (January 11, 2014). Innocence lost. *The Globe and Mail*. Retrieved from <http://www.pressreader.com/canada/the-globe-and-mail-bc-edition/20140111/282175058966370>

Mhango, H. (July 16, 2012). Malawi children falling victim to human traffickers. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2012/jul/16/malawi-children-victim-human-traffickers>

UNICEF, Malawi. The situation of women and children. Retrieved from <http://www.unicef.org/malawi/children.html>

Homosexuality and sexual exploitation

There are many human rights problems with regard to homosexuality, which has been illegal in Malawi, violence against women, and human trafficking and child labour. One report estimates that as many as 5000 children and women are trafficked for sexual exploitation each year. Since over half a million children are orphaned in Malawi they are very vulnerable to exploitation. With regard to homosexuality gay persons can be sentenced to 14 years in jail and hard labour. Recently a gay couple was pardoned because of pressure from the secretary general of the UN and a world-wide reaction to this sentence. There is the promise to repeal the laws criminalizing homosexuality. Time will tell. Going by the general statistics worldwide (5-10% of the population), there are at least 80.000 gay, bi-sexual and trans-gendered persons in Malawi, all in danger of imprisonment and discrimination and having to live a secret life.

There is a long cultural history of anti-homosexuality in Malawi and other African countries. It will take time and effort to bring about a change in attitude. Rather than supporting such a change many of the Christian churches tend to reinforce the negative views and discrimination against homosexual, bisexual and transgendered persons. The *Malawi Council of Churches* has strongly opposed any change in the law. The misinterpretation of certain Bible passages and the general sexual morality of Christianity tend to support these negative attitudes. The anecdotal interpretations of isolated scripture passages without regard to their social and cultural context as well as the dualistic view of the body (the body over against the spirit) maintain these attitudes toward homosexuality and sexuality in general. Exegetical interpretations and moral traditions have their consequences, especially via the teachings of missionaries and the clergy. It is part of the sins of the churches that has caused great personal suffering and persecution throughout the ages and now again in the developing world.

The anti-homosexuality stance of many churches is a blatant example of the misuse of scripture without regard for the social and cultural context, which has had horrific consequences both historically and in the present. Sexually differently orientated people have been discriminated against, persecuted, imprisoned, tortured, executed, burned, drowned, banned, and excommunicated. Even today gay and lesbian couples are well advised not to travel to Russia, or many African and Middle Eastern countries.

Western culture with its distortions of sexuality and its commercial exploitation of sex and the body does not have a lot to offer in this regard. Healthy and natural sexuality can be enjoyed on many levels, privately and individually delighting in the rhythm and pleasure of one's body, or as part of a friendship with mutual consent and respect, or as part of a committed and exclusive relationship. Everyone has their own natural rhythm of arousal, even Jesus had his natural arousal pattern and wet dreams. Maybe it was a little easier for him to respond to his body in an integral way than it was

for the apostle Paul who was more exposed to Greek 'immorality' in his travels. But neither one of them was bombarded by so many 'unnatural' stimuli as we are today by exploitative commercials, movies, songs, videos, stories and a lucrative pornography to provide relieve from stress and some momentary comfort. Healthy sexuality in all its dimensions is not easy to achieve in our society and even talking about it in this way makes many uncomfortable. Whatever our sexual orientation, it is everybody's challenge to give form to it in a way that enhances the experience of our bodies and our relationships. The things that threaten the order of life today is not first of all sexuality but the neoliberal commodification and objectification of all of life, including the body and sexuality. The scriptures would call that our present-day abomination. The political and corporate leaders need to be held accountable for this exploitation of sexuality. It calls for some form of restorative justice.

Karimi, F. (November 6, 2012). Amnesty: Malawi suspends anti-gay laws. CNN. Retrieved from <http://www.cnn.com/2012/11/06/world/africa/malawi-antigay-laws/>

Corruption in Malawi

Much more could be mentioned that our local congregations would become aware of, like the massive corruption on all levels, including the highest levels of the government. In 2013 the problem was exposed once again. It was so severe that several international donors threatened to withhold their funding and aid. Millions of dollars had been siphoned off, primarily from health services, to private accounts. There is bribery and patronage on every level and in many areas. The police are considered the most corrupt and accused of using excessive force. People feel they can't trust the judicial system and the courts. The police are poorly paid and use every means to supplement their income.

IRIN Africa. Government corruption 'cripples' Malawi's health sector. Retrieved from <http://www.irinnews.org/report/98990/government-corruption-%E2%80%9Ccripples%E2%80%9D-malawis-health-sector>

Ntata, Z. A. (October 24, 2013). Malawi rampant looting signifies failure of political leadership. *The Zambezia*. Retrieved from <http://thezambesian.com/malawi-rampant-looting-signifies-failure-political-leadership/>

NYUMBA24. (December 13, 2013). Corruption in Malawi. Retrieved from <http://www.faceofmalawi.com/category/national-news/crime/corruption-2/>

HIV/AIDS

Besides the human rights issues there is great concern about the rising incidence of HIV/AIDS. Approximately 11% of the population (over 900.000) in Malawi are living with the disease. About 120.000 of those are children. There are over 60.000 deaths a year from HIV/AIDS, with around a 1000 new people infected each week and at least 70% of the hospital beds are occupied by HIV/AIDS patients. These figures are approximate as progress is being made in dealing with the disease. Many local farm communities are crippled by these deaths and trying to care for all the orphaned children. Indirectly the different church communities bear some responsibility for this situation by their views about abstinence and sexual morality. Besides HIV/AIDS there are many other infectious diseases like diarrhoea, hepatitis A, typhoid fever, malaria (4 million people annually), TB (27.000 cases annually), plague, rabies and schistosomiasis (a chronic disease caused by parasitic worms; it is the second most devastating parasitic disease after malaria). Infant and maternal mortality rates are high and life expectancy is around 58 years at best. Fortunately different faith groups have committed themselves to work together in the fight against HIV/AIDS. The *Malawi Interfaith AIDS Association (MIAA)* coordinates the work of 172 agencies from the Islamic and Christian faiths.

Health clinics and local healers

The relation between medical clinics and local traditional healers needs special attention, especially in Africa (but in many other countries as well), because of the devastating impact of HIV/AIDS in Africa and the role of faith based organizations. During the last decade there has been a growing cooperation between local medical clinics and traditional healers. In many areas, especially in Africa, this is of crucial importance, since traditional healers play a crucial role in nearly every local community. They are highly revered and have the respect and trust of the people. Their role as

diviners and herbalists is to heal physical, emotional, and spiritual illnesses; to direct the birth and death rituals; to find lost cattle; to protect warriors; to counteract the power of witches; and to narrate the history, cosmology, and myths of their tradition. They are the guardians of tradition and morality. African people are profoundly religious people, religion not in the sense of a set of beliefs, but as a total view and way of life. Spirituality is the foundation of their culture, identity and a source of inspiration and creativity. In view of this deep spirituality it is not surprising that 80 % of Africans will consult a traditional healer at least once in their life time and that for many people (70 %) traditional healing methods are the first line of care. Traditional practitioners are easily accessible and charge modest fees. They provide client-centered and personalized health care that is tailored to the needs and expectations of the patients, paying special attention to the social and spiritual aspects of their illnesses. In contrast, doctors and nurses are not easily available. Medical clinics are often some distance away and for many the medications are too expensive.

In Malawi, for example, there are only about 4000 doctors, nurses and midwives for a population of about 16 million people. By comparison the *International Traditional Healers Association of Malawi* has about 45.000 members and maybe as many as 90.000. Most villages have at least one traditional health practitioner. Malawi has over 1.000.000 (in 2012) people living with HIV/AIDS, about half of which, 560.000, are women and 180.000 children. There are over 700.000 children that have been orphaned because of their parents' death from HIV/AIDS. Over 45.000 people die of AIDS each year, and there are approximately 50.000 new HIV infections annually. About 60-80% of the people will consult a local herbalist or diviner first before going to a clinic. In view of these numbers, traditional healers are the most valuable link in dealing with the HIV/AIDS epidemic and other infectious diseases, like STI, TB, malaria, and many other diseases. The faith-based organizations are the second most important link, especially in countries where they provide a significant proportion of the health care, like in Malawi (37 % by the Christian Health Association of Malawi, CHAM; as well as support and help from Muslim women's groups; and interfaith organizations like Global Aids Interfaith Alliance, GAIA, etc.).

Worldwide some 36 million people have died of HIV/AIDS up to 2013. In 2012 there were about 35 million people infected with HIV. Sub-Saharan Africa is the region most affected. About 69 % of all people with HIV, that is about 23 million people, are living in this region. South Africa has the highest number of people infected with HIV, over 5 million which is about 10% of the population. Given this situation close cooperation between the medical clinics and the traditional healers is essential.

There has been a growing recognition that the two approaches are not incompatible but can be complementary. Medical practitioners and traditional healers can collaborate and work together. There have been preventative programs for safer sex that have included teachers, youth leaders, women's organizations and religious leaders. Efforts have been made to expand community workshops and bring about greater coordination between the medical and traditional approaches. Brief training sessions for traditional healers, birth attendants, and midwives have also been effective, providing them with manuals and materials. There has been more respectful engagement, mutual trust and joint training. Since faith-based organizations and clinics play a much greater role in the sub-Saharan regions in the care of HIV/Aids better coordination and communication is needed both between the different faiths and the private and public health agencies. The *Christian Health Association of Malawi (CHAM)*, for example, provides over 37 % of the health care in Malawi. They run 171 health facilities with 20 major hospitals, 30 community hospitals, and health centers in small villages, many in isolated areas. The story is much the same for other sub-Saharan countries. However, to make further progress dealing with the HIV/AIDS epidemic and the other infectious diseases there are three basic obstacles that need to be overcome. One obstacle is with the nature of the traditional healing methods, the second is the sexual morality of Christianity and the third is the medical approach to disease. Everything depends on how illness is interpreted.

Traditional views of illness are very different from scientific biomedical beliefs. Illness is attributed to supernatural forces, to the forces of good and evil, to witchcraft, pollution (impure objects or occurrences), or the neglect of the ancestors. Living in harmony with the dead is crucial for leading a trouble free life. Ancestors must be shown respect through rituals and animal sacrifices, and they can be summoned by burning sacred plants, dancing, chanting,

channeling, or playing drums. Showing the right kind of respect for the ancestors ensures their continuing involvement with one's offspring. Traditional medicines made from herbs, animals or minerals can repair one's relationship with the supernatural world; they have deep symbolic significance. Charms and amulets are used to ward off evil. Because of these beliefs many consider HIV (and other infectious diseases) to be the result of disharmony, of evil forces, of poisoning by witches, which can only be cured by traditional or spiritual methods. It is the main reason why many of those infected with HIV will choose traditional methods of healing before seeking biomedical help.

Curing the disease means that the disease or poison has to be expelled from the body through sexual emission. Some men will have sex with another woman or virgin to expel the poison and then have sex again with their wife or girlfriend. This practice leads to silence and secrecy, because no one wants to admit to having been poisoned and cursed. Some traditional healers will make small cuts in the skin to rub sacred, healing herbs directly into the wound. They often do so with unsterilized razor blades. Some will use their mouth for sucking blood as a form of bloodletting. Others will use enemas and reuse the equipment without sterilization. In this way traditional healers can play a detrimental role in the prevention and treatment of HIV/AIDS. Many did not know the cause of HIV or their knowledge was limited to what they had heard on the radio.

As mentioned earlier, traditional healers can also be a tremendous force for good in the fight against the spread of HIV/AIDS and the stigma surrounding it. They can promote safe sex practices, distribute condoms, educate their patients and the community, refer people to seek medical treatment and encourage adherence to the treatment. They can be provided with condoms, gloves, sterilization equipment, razor blades, and manuals, as well as safety around ear piercing and tattoos. Traditional birth attendants and midwives can be helped with more accurate information about the spread of HIV from mother to baby through breast feeding, and to become knowledgeable about the various myths about the transmission of the disease. Traditional healers are most often consulted for STI as well and can promote safe sex practices, like use of condoms even with their spouse, not entering into new polygamous relations or engaging in extra-marital relations. Both traditional healers (male and female) and birth attendants are ideally situated for providing these essential services. This calls for a cross-referral system between traditional healers and biomedical health practitioners. They can *both* learn to see themselves as providing complementary services.

It would be easy to look at traditional healing as primitive, superstitious and mythological in contrast to rational biomedical science. However the biomedical model itself has serious shortcomings that stand in the way of more integration, cooperation and the development of a holistic approach. It is founded on a one-dimensional view of the human body, a body that can be objectified, medicated and operated upon. It reflects a scientific pragmatism and leads to biomedical absolutes. Increasingly medical research and practice is influenced and controlled by the pharmaceutical industries and by neoliberal policies that lead to the commodification of health care. The result is over-medication, especially of the elderly, misuse of antibiotics, misguided heart and cancer research, unnecessary testing and surgeries, many yearly deaths as a result of misdiagnosis, medication errors and failed surgeries (the numbers are staggering), corporate control of medications and patents, etc. More and more adult children of aging parents find themselves in a position of becoming their parents' case workers and advocates. Countless reports and articles highlight these failures of the medical system. That is not to say that acute care cannot be tremendously beneficial and life-saving. In many instances it is. But once medical care, clinics and hospitals start to follow a business model, the system tends to deteriorate. Western medical science is greatly in need of an alternative paradigm. In that respect it has much to learn from the more holistic traditional healing methods and herbal treatments worldwide.

Even when it comes to infectious diseases like HIV and others, a more holistic approach would make a significant difference. In these instances antiretroviral medications are indeed the only basic solution, but even then immune boosting herbs, emotional and spiritual counseling as well as community support would add a lot to the healing process. Just as with heart disease a change in life style, nutrition and exercise is the most crucial factor in preventing another heart attack, a more integral approach to HIV would make a significant difference. *We are our bodies, or better, we live bodily, emotionally, relationally and spiritually as an integral unity. We do not just have a body that needs to be medicated and operated upon. Even with terminal lung cancer, group meditation can add a year or more to the person's*

life and provide greater tranquility and peace. The more the two approaches learn from each other, the greater the impact.

The traditional healers play the most important role because of the trust and respect they have in each community. They are the first to be consulted in case of illness. In the treatment of HIV, given the combination of drugs, the importance of strict adherence to the treatment regime and the many side-effects that can occur, the knowledge and the cooperation of the healer and birth attendants are even more important; assuming that there is a clinic nearby and that the drugs are even available or affordable. For the prevention and the spread of HIV providing the healers with information, condoms, supplies of razor blades, gloves, and ways to sterilize equipment is crucial. They are in a position to educate their patients and to integrate the new information with traditional knowledge and practice.

Christian faith groups can either help prevent HIV and be part of the treatment and care or contribute to the spread of HIV, depending on their sexual morality. Teaching that women should be submissive to their husbands; encouraging abstinence and not promoting the use of condoms; adding to the stigma and shame of HIV; seeing HIV as a punishment of God and not following God's Word, all contribute to the epidemic and the suffering of countless people. If wives are to be submissive they cannot easily demand that their husbands use condoms. If it is believed that condoms encourage promiscuity and will encourage pre-marital and extra-marital sex then condoms will not be made widely available. Certain beliefs about sin and guilt will only add to the communal stigma and shame of those infected with HIV. They will be more inclined to hide their illness and not seek help. Many end up suffering in silence.

Instead Christian churches, medical clinics, orphanages and schools could be a tremendous force for good through education, reducing the HIV stigma, encourage testing and seeking treatment, and a more integral approach to healing and care. Many faith-based organizations do just that. They provide information about HIV and many other diseases. They particularly tend to promote women's health and care of new-borns. Besides these practical measures, there are many ways in which traditional views of medications, sex, and poison that must be expelled, etc. can be built into positive, alternative religious views. Most important of all, faith groups and organization can counter the one-dimensional view of modern science and promote a more integral view. Instead of primarily focussing on the physical treatment of a disease they can foster a more holistic practice. There is a great need for more cooperation and integration of faith-based organizations and medical clinics. As we have seen earlier, the contributions of any religion to health care will depend a lot on the degree of dualism within their views, the duality or tension between the physical and spiritual, between body and mind, or between the transcendent and the imminent.

The developing world does not need a rationalistic medical science, the monopoly and power of the pharmaceutical industry, the cut-backs in medical care, social services and education demanded by the WB and IMF, nor the privatizing of profit medical care. It does not need piecemeal, limited solutions that do not address the core of many problems. Instead Africa, Asia and Latin America need community centered and locally controlled holistic care and healing. Aspects of Western medicine can contribute and play a limited role in such integral developments.

Abubaker, K. (September 27, 2013). Qur'an fights aids in Malawi. OnIslam. Retrieved from <http://islamstory.com/en/quran-fight-AIDS-malawi>

AVERT. (2011). Global HIV & Aids statistics. Retrieved from <https://www.avert.org/global-hiv-and-aids-statistics>

Belief Systems in Africa, Falola and Heaton, eds. Retrieved from <http://www.cap-press.com/pdf/1594.pdf>

Cameron Freeman Internet Marketing. *Socio-Cultural Anthropology*. (2012/2013). Collaborative partnering with traditional healers for improved access to ARVs in rural Malawi. Retrieved from <http://cameronfreeman.com/socio-cultural/medical-anthropology/collaborative-partnering-traditional-healers-improved-access-arvs-rural-malawi/>

Falola, T. and Heaton, M.M. (2008). Overview – Investigating health knowledge and beliefs, in *Health Knowledge and*

Homsy, J. et.al., Traditional health practitioners are key to scaling up comprehensive care for HIV/AIDS in sub-Saharan Africa. *Aids*, 2004, August 20; 18(12): 1723-1725.

USAID. (2013). USAID Malawi health, population and nutrition program overview. Retrieved from <https://www.usaid.gov/malawi/fact-sheets/usaid-malawi-health-population-and-nutrition-fact-sheet-2012-13>

Waldron, I. (2010). The marginalization of African indigenous healing traditions within western medicine: reconciling ideological tensions and contradictions along the epistemological terrain, *tSPACE.library.utoronto*. Retrieved from <https://tSPACE.library.utoronto.ca/handle/1807/24423>

WHO, Fact Sheet No. 360. (October 2013). HIV/AIDS. Retrieved from <http://www.who.int/hiv/en/>

Widmer, M. et.al., (May 25, 2011). The role of faith-based organizations in maternal and newborn health care in Africa. *International Journal of Gynecology and Obstetrics*. Retrieved from <https://www.wilsoncenter.org/sites/default/files/Role%20of%20FBO%20in%20MNCH%20Africa.Widmer.pdf>

Muslims and Christians

One other aspect that is worth mentioning is that there is a considerable amount of tolerance between the various religious groups in Africa. Contrary to popular perception, promulgated by the media, there is a great deal of mutual acceptance and cooperation between the religions. The *2010 Pew Report* gives a clear picture of religious people's attitudes. Muslims are more tolerant than Christians may think. There are some notable exceptions in a number of African countries, in which there are religious conflicts and persecutions. It is difficult to determine to what extent these conflicts are brought about by economic conditions, domination and exploitation. The report confirms the deep religiosity of the African people. 90% consider themselves religious, which implies that there is not a lot of room for growth within Christianity and Islam. On an international level it reflects the level of cooperation and the joint ecumenical efforts of the *Parliament of the World's Religions*, and other world religious organizations.

Conclusion

The purpose of highlighting these basic problems in Malawi is that any involvement with local issues in Malawi, or any other country in Africa and other continents, *sooner or later would lead to a confrontation with the broader issues of social justice and eco justice and from there to the radical prophetic critique of the different ecumenical bodies that most of the churches ascribe to.*

Imagine if these problems had been confronted 40 years ago and these alternative directions and programs had been supported internationally and nationally instead of the short-term aid and often ineffective development programs. What a difference that would have made in suffering and exploitation, even now. Instead, Malawi, along with most of the other African nations, were subjected to the structural change programs of the WB, IMF, WTO with its unfair loans, its unequal trade programs with elite and corrupt governments, its plundering of resources, its demand of privatization, its cutbacks in social programs, health care, and education. In a country like Malawi such neo-liberal economic policies amount to complicity in crimes against humanity. All the foreign aid does not begin to make up for this social and environmental injustice; rather, it has mostly perpetuated and distorted the problems. What the various faith-based programs and many other alternative initiatives are doing today could have been undertaken many years ago by all the parties involved were it not for the religious force of the neoliberal ideology. It does not have to be this way. There are any number of alternative approaches available to every aspect of Malawian society and many alternative local projects that already have been implemented. There is another way.

To return to the wishful thinking about the fifty or so local churches in our immediate area hooking up with a church in Malawi, it is only a dream. Besides a dream of what could be, it also reflects the longing for a prophetic and life-orientated faith community on the part of many people that have been alienated from the traditional churches in the Western world including in our local community. These reflections on a local example and the faith-based organizations in Malawi brings us to the next section.

b. The Work and Witness of the World Religions; Faith-Based Organizations

Introduction

In today's global economic world two very different directions in life and two different visions come to stand over against one another. From *the point of view of ultimate convictions* there is a *crisis of values*. On this basic level the neoliberal ideology with its individualism and materialism as the highest good; its pursuit of unlimited growth and

economic progress regardless of consequences; its social Darwinism or neo-Darwinism, its belief in science and technology as the ultimate savior; and so on. These values stand in sharp contrast to those who treasure life in all its fullness and who seek to give every area of life its due; who strive for justice and equality for all; who want to pursue an economy that serves all of life; who want to uphold community and give everyone a voice; who seek to live in harmony with nature as creatures of the earth; and so on. We cannot devote our life to the accumulation of wealth, to power and privilege and at the same time live in harmony with our surroundings, ourselves and all other creatures. All the major world religions as well as countless radical alternative groups speak for Life and seek to act in harmony with all of humanity and all creatures. Each has its distortions and limitations. But together they far outnumber those who are pursuing death, destruction and domination.

The religious majority

As mentioned earlier, there are approximately 5.8 billion people that identify themselves with a religious group. Regardless of the degree of involvement, their identity, worldview and values are shaped by these commitments. They represent about 84% of the nearly 7 billion people in the world. This large percentage underscores how much Christians, Muslims, Hindus and all other alternative nonreligious groups need to work together to bring about fundamental changes in the world. Together they represent a potentially very powerful group for transformation. Almost all of these groups, religious and nonreligious have made new and strong commitments to oppose climate change and uncontrolled growth. Increasingly they are discovering that the preservation of the environment and the healing of the earth, inescapably leads to opposing domination, exploitation and relieving human suffering. Ecological justice is inseparably connected to social justice and vice versa.

Every major religion has developed a strong environmental vision and program. As a result of these commitments there are countless faith-based organizations that are active in every area of life often in cooperation with non-religious initiatives, NGO's and international organizations. From countless concrete experiences it is becoming more and more evident that the religious action groups have a special contribution to make, alongside many non-religious environmental and social justice groups. Together the religions have a network of connections that is unsurpassed. There are temples, mosques, churches and other centres of outreach in almost every area of the globe, from the largest urban centres to small isolated rural villages. The many religious centres and faith-based organizations have a unique 'delivery' system that has been underestimated by NGO's, governments and foreign aid and development organizations. Anyone that can connect with and has the trust and the cooperation of the local community has a distinct advantage. The local religious centres and faith-based organizations can reach people more easily than others. This is not to diminish the work of other organizations, on the contrary, in fact the more different groups can work together, the more effective the work. The point is that many other organizations could join in more and take advantage of the great network the churches, synagogues, temples and mosques provide.

The faith-based groups have undertaken many different projects and tackled numerous issues, from community health services, promoting sexual health and the prevention of HIV and AIDS; educating people about TB, STI, malaria, and many other preventable diseases; organizing different programs of education and literacy; rescuing children and women from slavery and the sex trade; caring for orphans and disabled persons; restoring and conserving the environment; supporting the development of organic and sustainable farming practices; developing and maintaining wells and pumps for clean drinking water; building latrines; promoting agro-forestry and re-forestation; supporting the development of alternatives to firewood for cooking; protecting fragile coastal environments and alternative fishing practices; helping organize protests against human rights violation and the destruction of local environments; standing in solidarity with

the dispossessed and marginalized; and many other efforts. A number of examples will illustrate all the work that is being done, often against many odds and obstacles.

Adherents. Major religions of the world ranked by geographical distribution, date founded, and sacred texts. Retrieved from http://www.adherents.com/Religions_By_Adherents.html

Pew Research Center. (April 2, 2015). 7 key changes in the global religious landscape. Retrieved from <http://www.pewresearch.org/fact-tank/2015/04/02/7-key-changes-in-the-global-religious-landscape/>

Pew Research Center. (April 2, 2015). The Future of the world religions: population growth projections, 2010-2050. Retrieved from <http://www.pewforum.org/2015/04/02/religious-projections-2010-2050/>

Pew Research, Religion & Public Life Project. (December 18, 2012). The global religious landscape. Retrieved from <http://www.pewforum.org/2012/12/18/global-religious-landscape-exec/>

1) The Alliance of Religions and Conservation (ARC) Initiatives

The *Alliance of Religions and Conservation* (ARC) is a UK based international organization founded in 1995 by Prince Philip. In 2007 it joined with the *United Nations Development Programme* (UNDP). It is a secular body and its aim is to assist all the major religions (12) of the world to develop environmental programs *based on their own core teachings*. Together with the UNDP they encouraged the religions to develop *Long-Term Commitments for a Living Planet* to achieve generational environmental change. In 2009 about 30 faith communities worldwide presented their long-term plans. Potentially it constitutes the largest civil society movement on climate change in the world with a tremendous network of connections. In 2012, at an historic meeting in Nairobi, Kenya, 26 Muslim, Hindu and Christian groups of many *sub-Saharan countries* presented their long-term commitments. Together they have a combined following of over 183 million people. The meeting included groups from Cameroon, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Uganda, and Zimbabwe.

They committed themselves to very practical initiatives for the next seven years, from launching major awareness campaigns on the environment and global warming; planting millions of trees across Africa; training people in sustainable farming; planting and growing 2.5 million seedlings for fruit trees and agroforestry; restoring degraded land and habitats; training farmers in water protection and management; and many other initiatives. They have also committed themselves to extensive environmental education at the schools. About half of the schools in these countries are run by faith groups. For example, there is a teacher's toolkit for Christian, Muslim and Hindu primary schools that integrates faith values of caring for the creation with environmental education. It has sections on water, health (sanitation and hygiene), agriculture, waste, energy, biodiversity, and climate change, through very practical learning approaches like drama, games, role playing, and small micro projects like gardening, bee keeping, and water conservation. The water and hygiene projects alone have greatly improved the health of the children in the participating schools. In addition many eco-clubs are planned or have been started in different countries (1000 in Ghana alone). Children and young people will be able to lead the way.

What is most striking about these projects is that the focus is on local, small group initiatives that are self-governing. For many it brings a new sense of self-esteem and hope. For example, several faith groups are establishing women-led tree nurseries with training in nursery bed establishment and agroforestry, like the Evangelical Lutheran Church in Tanzania, the Anglican Church (by means of the Mother's Union) in Uganda, the Catholic Archdiocese in Nigeria, the Council of Protestant Churches in Rwanda, the Evangelical Presbyterian Church in Ghana, the Gomba Women's Greening Project in cooperation with the Muslim Supreme Council in Uganda, the Ethiopia Islamic Supreme Council, the Muslim Green Top planting project in Uganda, etc. These dynamic environmental groups not only protect the environment but they also foster women's sense of empowerment. Besides running tree nurseries, the women raise chickens, sell eggs, fruits and vegetables; all adding to their self-sufficiency. Young people are able to help with making enclosed energy saving stoves and charcoal briquettes from vegetable materials.

Ninety percent of Africa's population is either Christian or Muslim. Potentially they can have profound influence on changing attitudes and fostering practical action. They are re-discovering the mandate to protect the richness of God's creation as set out in their holy scriptures. As some have said, it is a moment of grace, a Kairos moment, a special moment in time in which extraordinary things can happen. Faith based groups can have a tremendous influence on many of the community groups, local farmers, and women and youth networks. Most of all, they have the trust of the people and together they are re-discovering and renewing their faith in practical action.

Alliance of Religions and Conservation (ARC). Faiths & Ecology. Why work with the faiths? Retrieved from http://www.arcworld.org/arc_and_the_faiths.asp
ARC, News & Resources. (October 10, 2013). New book brings inspiring stories of faith eco action from Africa (Many Heavens, One Earth, In Action: Stories of African Faith Commitments, 2012). Retrieved from <http://www.arcworld.org/news.asp?pageID=660>
ARC. (October 2014). *Green Pilgrimage Network: A handbook for faith leaders, cities, towns and pilgrims.* Retrieved from http://www.arcworld.org/downloads/Green_Pilgrimage_Network_Handbook.pdf
ARC. ARC statement on the global alliance for climate smart agriculture. Retrieved from <http://www.arcworld.org/downloads/ARC%20statement%20on%20the%20Global%20CSA-Sept2014.pdf>

In spite of all these commitments and concrete activities that have already been started, two reservations need to be made. In view of the great rate of deforestation with the accompanying erosion and general degradation of the land, it is doubtful that all these efforts can reverse the trend of deforestation. African countries generally lose their forests at twice the rate as elsewhere. One big factor is that about 90 % of the population use tree branches for firewood and trees for making charcoal. Unless more energy *efficient fireplaces* and *vegetable based briquettes* are widely introduced along with the development of *agroforestry* and the introduction of *solar power* (see the next chapter), it is hard to see how this practice can be changed. New, closed in, more efficient, brick stoves need to be introduced in every village to replace the 3 brick open fireplaces. As we saw from the efforts made in Malawi, they can be made from local materials. Secondly, briquettes made from vegetable materials will be needed to replace tree branches and wood as fuel. They too can be made quite simply from local materials. But again such a campaign will need to be introduced in every village and followed up. The challenge will be to train local groups to be in charge of these projects. Without the general implementation of these three or four programs, it is hard to see how the many millions of trees planted during the coming years can even keep up with the extent of deforestation, never mind reversing the trend.

The second, more critical comment is about the many social issues that will need to be confronted. Environmental conservation and protection invariably leads to an awareness and a confrontation with many social and economic justice issues, like the structural adjustment programs of the WB, IMF and WTO with their destructive effects on health care, social services, and education; the unequal trade agreements; the dumping of cheap subsidized foods killing small farms; mega farms that pollute the environment and use up valuable water for irrigation; the depletion of coastal fish sources, depriving many local people of their livelihoods and their daily ration of protein; the plundering of natural resources without benefit to the majority of the people and the additional devastation of the environment; the bribery and corruption on all levels of government in most African countries; the army and police brutality with little recourse to the courts; the child labour, especially in the mines and the virtual slavery of many men and women by indebtedness and poverty. Very disturbing is the great number of child slaves in the many different kinds of mines in Africa and world-wide. Some estimate that as many as 1 million children, boys as well as girls, are enslaved, either sold into slavery by their parents or forced into slave labour because of sheer poverty and hunger.

These social and economic injustices involve real children and adults, many in desperate situations. Their stories and faces are there for all to see in documentaries and on YouTube. Anyone that has really looked into their eyes cannot go on as usual. All the studies and reports on 'development' and 'globalization' are worthless and an affront if they do not start from these givens. In view of these evils it is not surprising that so many Christian churches and others have presented such strong public testimonies. In this process of environmental action by local communities, the *leadership* of the different religions *and* the *local members* will begin to connect on these *social issues* as well. Over time there can

be no eco-justice without social justice. The situation in the developed countries, including Canada, is really not any different, even though these same issues take on a different and subtler form.

2) Faith-Based Organizations Worldwide

The majority of religions look at 'nature', whether the Islamic, Confucian, Buddhist, Hindu, Sikh, Jewish, Christian, or the so-called 'nature religions' of many indigenous people, as well as other religious groups, as something 'sacred'. There is a common conviction that at its very core life is spiritual. In different ways and with whatever compromises, they all hold life, including human life, as something that is to be honoured, respected, trusted, protected, shared, celebrated and enjoyed. As such it calls for dance, stories, gifting, music and celebration. When that happens there is harmony or as the Hebrew Scriptures put it, there is 'shalom', everything in life doing what it is intended to do. Even though there are many distortions and absolutizations, many false gods, there is also a general commonality about these life-honouring beliefs and how various people seek to live their faith. It is this commonality we want to highlight: *to live in harmony with nature as creatures of the earth.*

One thing that stands out is that the views of nature, preservation, respect for all creatures, not being wasteful, simplicity, humility, peacefulness, concern for future generations, and other teachings of the various religions stand in radical opposition to the materialism, individualism, domination and violence of the neoliberal ideology. Even though many believers have been seduced by the neoliberal economic policies and the promise of material prosperity, their religious beliefs point them in a different direction. Oppression, powerlessness, exploitation, injustice, despair, hunger, extreme poverty, and disease often play a crucial role. Nevertheless, these religious convictions provide a powerful source of appeal to care for the environment and to follow a different lifestyle.

There are numerous examples on every continent and every country of the commitments and actions taken by the different religions. Many religions have begun to 'green' their own buildings and grounds. They are taking action to reduce their use of energy and the impact of travel to national and international assemblies. A similar effort is being made to 'green' the pilgrimages religious followers undertake in Asia, Africa and Europe. Worldwide more than 150 million people go on such spiritual journeys every year as part of their faith commitment. They are determined to reduce or eliminate the massive waste such pilgrimages produce each year.

Ethiopia's 40,000 mosques have committed themselves to develop tree nurseries and plant 5,000 trees each over the next three years. Some will become eco-mosques, establishing wood lots in order to become self sufficient in their fuel supply and to provide training in small scale farming and agroforestry. Many groups in partnership with the WWF have also committed themselves to protect wildlife from poaching, like the rhinos and elephants and other endangered species. Many other outside organizations are involved in assisting and financing these projects.

Ammar, N. Are Islamic thinking and Ecofeminism possible? *Environment and Ecology*. Retrieved from <http://crccs.ugm.ac.id/wednesday-forum-news/661/are-islamic-thinking-and-ecofeminism-possible.html>

ARC. (January 8, 2014). Islamic green awards launched for mosques. Retrieved from <http://arcworld.org/news.asp?pageID=680>

Hajjat Sebyala Aphwa. (December 12, 2012). Gomba Women Environmental and Development Group. Retrieved from <https://www.youtube.com/watch?v=Wly6-b3FhiY>

IFEES. Mosques as green project exemplars. Retrieved from <http://www.ifees.org.uk/mosques-as-green-project-exemplars/>

IFEES. Schools4Trees. Retrieved from <http://www.ifees.org.uk/category/schools4trees-project/>

Islamic Environmentalism. (November 11, 2013). The call to Eco-Jihad. Retrieved from <https://en.gantara.de/content/islamic-environmentalism-the-call-to-eco-jihad>
Islamic Foundation. Sharing Eden: green teachings from Jews, Christians and Muslims. Retrieved from <http://www.islamic-foundation.com/shop/sharing-eden-green-teachings-from-jews-christians-and-muslims-2/>

Muslim Environment Watch. (October 25, 2010). Philippine Muslims form network to confront climate change. Retrieved from <https://muslimenvironment.wordpress.com/2010/10/25/philippine-muslims-form-network-to-confront-climate-change/>

Ozdomir, I. An Islamic approach to the environment. *Environment and Ecology*. Retrieved from http://www.islamawareness.net/Nature/environment_approach.html

Wihbey, J. (April 11, 2012). 'Green Muslims', Eco-Islam and evolving climate change consciousness. *Yale Climate Connections*. Retrieved from <http://www.yaleclimateconnections.org/2012/04/green-muslims-eco-islam-and-evolving-climate-change-consciousness/>

Hindu leaders are developing initiatives with plans for all of Africa. They have a presence in 26 African countries. Already in 2005 the *Hindu Religious and Service Centre* started its first tree planting project in conjunction with the *Hindu Council of Kenya*. The survival rate of the trees has been about 90% instead of the usual 20-25%.

ARC News and Resources. (July 4, 2009). Greener habits for up to 24 million Sikhs. Retrieved from <http://www.arcworld.org/news.asp?pageID=336>
ARC, *Environment and Ecology*. EcoSikh Movement. Retrieved from <http://environment-ecology.com/religion-and-ecology/331-ecosikh-movement.html>
ARC, *Faiths & Ecology*. What does Jainism teach us about ecology? Retrieved from <http://www.arcworld.org/faiths.asp?pageID=7>
ARC, *Faiths and Ecology*. Hindu eco-news. Retrieved from <http://www.arcworld.org/faiths.asp?pageID=113>
ARC, *Faiths and Ecology*. (September 18, 2014). Sikh statement on climate change. Retrieved from <http://www.arcworld.org/faiths.asp?pageID=199>
ARC. (July 2, 2005). Northern Buddhists agree 12 major environmental initiatives. Retrieved from <http://www.arcworld.org/news.asp?pageID=78>
ARC. (October 29, 2013). Hindus announce the first Hindu Environment Week next February. Retrieved from <http://www.arcworld.org/news.asp?pageID=665>
Confino, J. (September 2, 2010). How Buddhism could be a way out of the environmental mess we are in. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/blog/2010/sep/02/buddhism-environment>
DharmaNet International. Engaged projects in Asia. Retrieved from <http://www.dharmanet.org/engagedasia.htm>
His Holiness the 14th Dalai Lama of Tibet. A Buddhist concept of nature. Retrieved from <http://dalailama.com/messages/environment/buddhist-concept-of-nature>
Joshi, N. (October 2012). Neo-environmental thoughts and actual practices in Jain tradition: a critical review. Eubios Ethics Institute. Retrieved from <http://www.eubios.info/>
Khokhani, D. (April 6, 2012). Jainism and environmental conservation. *Biodiversity of India*. Retrieved from http://www.biodiversityofindia.org/index.php?title=Jainism_and_environmental_conservation
Sikh Council on Religion and Education. (July 19, 2009). Sikh leaders unveil 'green' plan. Retrieved from <https://groups.google.com/forum/#!topic/cknet/iddHVfQI0JQ>
SikhiWiki. Sikhism and the environment. Retrieved from http://www.sikhiwiki.org/index.php/Sikhism_and_the_environment
Sponberg, A. The Buddhist conception of an ecological self. *Western Buddhist Review*, Vol. 2. Retrieved from http://www.westernbuddhistreview.com/vol2/ecological_self.html

In England, Jewish, Christian and Muslim environmentalists developed a unique handbook, called *Sharing Eden* that uses the teachings of the Abrahamic faiths to encourage the development of a greener lifestyle. They are supported by the *Faith and Environment Network (FEN)*, which has as its aim to put faiths and belief systems at the heart of environmental policy and practice for the public benefit. *FEN* has also published the *Faith and the Environment Digest* that provides an introduction to the views of nine faith groups on the environment. *FEN* is part of the *Chartered Institution of Water and Environmental Management (CIWEM)*.

ARC. (February 1, 2007). The big green Jewish website. Retrieved from <http://www.arcworld.org/news.asp?pageID=153>
Reform Judaism. Jewish views on the environment. Retrieved from <http://www.reformjudaism.org/jewish-views-environment>
Troster, L. Ten Jewish teachings on Judaism and the environment. *Green Faith*. <http://www.greenfaith.org/religious-teachings/jewish-statements-on-the-environment/ten-jewish-teachings-on-judaism-and-the-environment>

In 2013 the twelfth religious group, the *Confucianists*, joined the *Alliance of Religions and Conservation (ARC)*. The new *International Confucian Ecological Alliance* together with the *China Daoist Association* committed themselves to long term environmental action in China. Both groups have undertaken ambitious programs starting with their own centres, temples and festivals. They are committed to conduct an environmental audit of 500 Confucian temples and create a Confucian village as a model for good environmental practice. The *China Daoist Association*, which includes followers of Taoism, Buddhism and local traditions, has adopted an eight-year ecology protection plan. It is estimated that about 300 million people travel each year to Qing Ming to pay respect to their ancestors and about 8 million visitors to Deng Feng, another major Confucian destination. They intend to tackle the problem of litter, waste and the environmental impact of burnt offerings. Millions of people go on pilgrimages and visits to Daoist sites as well every year. Both religions have strong environmental awareness and healthcare programs and a commitment to stop illegal wildlife trade, through restoring traditional Chinese medicine to its herbal foundations. As one Daoist statement put it with regard to affluence in biodiversity, 'if all things in the universe grow well, then a society is a community of affluence; if not, this kingdom is on the decline'. Along with these new initiatives *ARC* launched a web site in Chinese and a link to the independent non-profit organization *chinadialogue* that contains many articles in both Chinese and English on the environment, climate change, pollution, water, health and food, etc.

ARC News Resources. (October 8, 2013). Confucianism – powerful new force for a greener China. Retrieved from <http://www.arcworld.org/news.asp?pageID=659>

ARC, *Faiths and Ecology*. What do Baha'i teach about ecology? Retrieved from <http://www.arcworld.org/faiths.asp?pageID=2>

Jingling, X. (December 11, 2013). Confucius goes green. *Global Times*. Retrieved from <http://www.globaltimes.cn/content/831535.shtml>

The Interfaith Center for Sustainable Development. (July 2013) Confucian statement on the environment. Retrieved from <http://www.interfaithsustain.com/confucian-statement-on-the-environment/>

Dong, L. (March 16, 2015). Confucius 2.0: Role in China reprised. *ChinaDaily*. Retrieved from http://usa.chinadaily.com.cn/epaper/2015-03/16/content_19822894.htm

Palmer, M. (November 15, 2013). Daoism, Confucianism, and the environment. *Chinadialogue*. Retrieved from <https://www.chinadialogue.net/books/6502-Daoism-Confucianism-and-the-environment/en>

Clammer, J. (2015). Engaged Shinto? Ecology, peace and spiritualities of nature in indigenous and new Japanese religions. *Environment and Ecology*. Retrieved from <http://environment-ecology.com/religion-and-ecology/512-ecology-peace-and-spiritualities-of-nature-in-indigenous-and-new-japanese-religions.html>

Suwantana, G. (October 2013). East Asia's view of environmental ethics. *Discovery Agriculture*, Volume 1, (1). Retrieved from http://discoveryjournals.com/agriculture/current_issue/v1/n1/A1.pdf

These are just a few examples of the numerous more recent initiatives taken by faith based organizations. In summary, they tend to focus on environmental awareness programs within communities and schools, on reforestation, water, sanitation, and sustainable agricultural programs. They illustrate how nature is valued within each religion's total vision of life.

To do justice to each of the major religions view of nature and their interrelationship with nature would require a more careful phenomenological understanding of the core beliefs of each religion. Just as it is difficult to understand Christianity's views of nature without considering its long meta-physical and theological tradition and its views of the cosmos, knowledge, human nature, society and history, so too with regard to other religions. Christianity's fundamental duality between the spiritual and the physical, between body and soul, has deeply influenced its approach to nature, the body and sexual morality. In the same way, each religion's core beliefs ultimately determine its view of the environment and our place within it. One guideline that stands out at this point is that the more dualistic the view of life, the harder it is to develop an integral approach to the environment and social justice. On the one end of a continuum we could place different strands of Christianity and on the other end Hinduism and many indigenous religions. Regardless, the positive view of nature and all creatures, including humans, which all religions seem to share, provides an important point of appeal in bringing about more radical change.

Such a phenomenological understanding, or an 'inside view', would also clarify to what extent the various religions have adjusted to or fundamentally rejected the neoliberal global form of capitalism and would support an alternative, sustainable form of economic development. In the end the crucial question with regard to each religion is *how would they have us live as an inseparable part of nature?* As environmental and social crises increase it will become evident where each religion stands, on the side of eco and social justice or condoning the neoliberal vision with its destructive practices.

Finally we can ask, what does each religion contribute to our understanding of the guideline for *believing rightly, in a way that endorses life?* Earlier we highlighted two aspects of holding to an ultimate conviction, *not to deify any part of life and secondly to honor our inseparable relation to all creatures, including our solidarity with all people*. Each religion, some more clearly than others, has given expression to this phenomenological directive in their own unique way. Buddhists, for example, talk about the oneness of self and the environment and a biocentric vision of life, which guide their environmental programs. It reminds us that 'transcendence' and 'immanence' can be conceived of very differently, even though religions by their very nature refer to something other than the purely physical. In this way each religion, and particularly Christianity, can learn from all the other religions and deepen and broaden their own vision.

The way many indigenous religions revere and express respect for the land, the forest, the water and their resources makes us aware of the ultimate meaning and interrelationship of everything. When a Thai 'ecology' monk wrapped a sacred orange robe around a tree, all Buddhist believers are reminded through this new ritual that trees are 'sacred'. It reminds them of the ultimate meaning or indispensable place trees have in the whole of the environment. It became a

powerful motivation for the preservation of forests and tree planting actions. Similar sacred rituals have been initiated by the African traditional religions and the Earthkeeping churches in Zimbabwe. Personalizing the relation with nature in this way fosters new attitudes of respect and care. Even a communal tree planting action in our local community takes on a deeper meaning that participants remember for years to come. No doubt, an inside understanding of each religion will enrich and further our sense of a directive for ultimate convictions. This is also the point where religious and non-religious ultimate convictions touch. The growing depth of understanding and concern about the environment and the economy among the various religions makes them allies of many non-religious movements: radical ecology movements, eco-Marxism, eco-Socialism and many other alternative organizations. The next chapter will highlight many other contributions by both religious and non-religious groups to the conservation and restoration of the environment, bringing about social justice and alternative ways of living.

Chapter 11: A Radical Alternative Way of Living

Introduction

- a. The fundamental direction and the many guideposts
- b. Alternative directions
 - 1) Alternative sources and uses of energy
 - 2) Ecological agriculture and agroforestry
 - 3) Ecologically sustainable forestry
 - 4) Ecologically sustainable fisheries
 - 6) Communities for living

Conclusion

Introduction

What does a radically different way of life look like? What would life be like when the environment is not threatened, when there is social justice and when externalities are just as important as any other part of life? What guidelines can direct us in this process of transitioning from one way of life to a radically different way? What kind of innovations are truly helpful and add to the quality of life? What new initiatives will help in this transformation of our communities? What criteria can we use to evaluate the great range of alternative projects and movements? As we will see, not all alternative developments are helpful. In the end it is the direction that counts. What fundamental vision and way of life guides any particular development? The installation of solar energy and lighting in a small village in India can be for good or ill. An agroforestry project in a rural area in Africa can enhance the health of many families or it can tie them into the ups and downs of the global, free market. Artisanal miners in South America can organize themselves and form a co-operative and become even more enslaved than before.

In this chapter we will look at the basic direction and worldview that guides alternative initiatives. We will once more consider the guideposts (a phenomenological ethics) that can serve as criteria in evaluating any structural changes and new developments. Ultimately the question is, do radical alternative ways of doing things serve all of life? Do they honor the multi-dimensional unity of life? In evaluating different alternatives we want to both honor all honest attempts to bring about change, however small or limited, and at the same time keep our focus on the fundamental life-direction that motivates new initiatives and developments.

Many fundamental changes are happening as a result of alternative action groups and the exposure and pressure of numerous watchdog organizations. Alternatives happen in various different ways and action groups have shorter or longer-term goals. Action groups may have thought through and articulated their basic perspective very carefully, or they may intuitively have moved in the right direction guided by their sense of justice and solidarity. The many e-mail campaigns, for example, by *Avaaz* and other groups, as well as other social media efforts, help us to stay aware of urgent issues that need immediate attention. *Amnesty International* and countless other watchdog organizations keep us focussed on what we can do in the present, even if it is by joining and supporting a campaign from behind our computer. Some of the campaigns may be limited in scope, but they are all part of bringing about longer term changes.

Another crucial part of developing a new way of life are the thousands of web sites in almost every area of concern that provide us with up-to-date information. *Most important reports and statements from all corners of the globe are now available online. Any significant new report or study is highlighted and summarized within days by both mainstream and alternative news sources.* More and more studies, reports and journals tend to quote from or refer to these web sites for further information. In this way knowledge is being 'democratized' and made available to everyone. Almost all the references for this study are available on line. Anyone can get an up-to-date picture of what is happening in the world. Together these sources of information provide a view of the reality of our present situation. Each day, each week and each month more information is added to the existing picture.

a. The fundamental direction and the many guideposts

As I have emphasized throughout, to develop an alternative way of living nothing short of a *system change* will do. We need a transition from one way of life to another, from the deification of the economic sphere to the honoring of the multi-dimensional unity of life. In this transitioning the many guideposts in every area of life can direct us. There are no roadmaps and even the signposts take on new meaning as we travel. Yet these touchstones along the way are quite sufficient, in fact this open-endedness makes our journey exciting, always presenting us with unknown possibilities and challenges, which is our response-ability. There is always more to find out and more to discover. In this journey the guideposts can point the way, as much as we understand of them at our time in history and in our various cultures and climates. It is ours to articulate, implement, concretize, and actualize in our continually changing situations.

A basic directive or motivation

At different points I have called a radically different approach to life, a *Third Alternative*, for short. *We have done so to avoid identifying an alternative way of living with a particular political conviction.* It is not that another directive does not have political implications. On the contrary, it does, but the basic political-economic streams of capitalism, socialism or communism immediately limit and prejudice our perspective. When it comes to finding an alternative direction, especially with regard to the environment and climate change, words like democracy, the rule of law, freedom of the press, the right to protest, dictatorship, censorship, etc. do not mean much. When it comes to industrial mining, agriculture, forestry, fishing, transportation, or manufacturing, the political system is basically irrelevant. Democratic, socialist, communist regimes or dictatorships all equally promote and support ecologically destructive forms of development and generally exploit the earth's resources. It will take a lot for a Third Alternative way to develop *another political system that is based on participatory democracy on all levels, that is truly egalitarian and inclusive, promotes communally developed regulations, supports a process of restorative justice, and so on.* Although we can learn most from eco-Marxism, eco-Socialism, radical alternative ecological movements, and peasants groups, it is helpful not to identify a Third Alternative too quickly with any of these movements. It will simply take time to clarify the implications of these viewpoints in actual practice.

The same point needs to be made with regard to religiously orientated regimes, whether Muslim, Buddhist, Hindu, Christian, Jewish, or any other religious conviction. Religiously influenced regimes, combined with whatever political structure are no guarantee that they will endorse a more just and integral way of life. History and the present teach us otherwise. Religiously influenced governments and societies may uphold repressive laws and views with regard to women, children, minorities, castes, the poor, homosexuality, female circumcision, slavery, etc. Such regimes may equally endorse and promote destructive economic policies and practices that lead to ecological disintegration and climate change. Here too, as we illustrated in the last chapter, there are many promising alternative movements within each religion with the Dalai Lama, Buddhist monks, Pope Francis and many indigenous peoples and peasant farmers leading the way and symbolizing that *there is another way*.

A multidimensional unified approach

An alternative way of life seeks to do justice to all the interrelated dimensions of human life. It is a way that beckons and invites us to let go of our ultimate anxiety and believe that Life can be trusted. *A multidimensional unified approach to every part of life is another way of describing a structural change from a one-dimensional emphasis to an integral, many-sided emphasis that seeks to do justice to all aspects of life.* Multidimensionality and the many guideposts serve as a *criterion* for evaluating any ultimate convictions, including religious beliefs and a Third Alternative. Does a specific life direction follow healing directives for ultimate convictions, commitment, justice, fairness, equality, integrity, respect, tolerance, community, provisioning, expressiveness, creativity, emotional, physical and sexual well-being for all or not?

A phenomenological ethics

Earlier on I have provisionally described a number of these basic guidelines that seem to govern the different aspects of life. They can be seen as *phenomenological signposts or guidelines* which together in their interrelatedness constitute a *phenomenological ethics*. As our experience and understanding deepens so does our insight into the various guidelines. It is an ethics that is not static but keeps unfolding, because life keeps changing as we give form to it. It is not given us to live a perfect life for we are human. Rather it is the overall direction that counts, step by step, and our willingness to retrace our steps and change course when needed. On a macro level it is as simple as when our agricultural practices lead to ecological disintegration and climate change, we need to retrace our steps and make a radical change in agricultural practices. If our mining practices and the burning of fossil fuels lead to global warming, social injustice and crimes against humanity, we need to stop and come to our senses and reflect on what we are doing. If our forests are disappearing and declining and our oceans are acidifying and our fish stocks are depleting, we need a conversion, which means, to make a turn-about and make a new beginning. The same is true on a micro-level. If local people don't have a voice in what happens to their community, or if they can't provide for themselves, or are dispossessed, or can't use the food from their forests, or are deprived of clean water, we all know that something is drastically wrong and there needs to be a radical change. When a village cooperative becomes dictatorial and does not share equally, we know some fundamental directive for egalitarian relations has been violated. That does not mean that some situations can't be complex and difficult to resolve, but the key directions are usually very clear. It is up to us to implement these guidelines by trial and error. Phenomenological ethics is not hard to discern; it is near all of us to do. It is both an *ought* and an *invitation to living well*.

Following are just a few brief reminders of guidelines that we have touched upon in previous chapters. At this point in history, a phenomenological ethics can be no more than a tentative description of various signposts. They can only point to a direction, like a road sign, it is up to us to follow the signs. Describing an ethics, even a phenomenological ethics, which is about right and wrong, is always a precarious undertaking. On the other hand we know from our experience

which is the right direction to go. *A phenomenological ethics can only articulate what we already know from experience, for a time and a place. In that way it can undergird and support our actions.*

A guidepost for economic practices

In chapter 5 I have attempted to give a description of the guidepost for economic life: *how do we provide for all our needs; what ecologically sustainable way do we follow; what resources do we use, how do we make use of them; what insights have we gained from our experience; what technical know-how or craftsmanship do we bring to it; what creativity and resourcefulness; what ways of working together and exchanging; and what vision of life do we hold that reinforces our approach. In this way we tried to describe the economic guideline or road signs in interrelation with all other dimensions: provisioning rightly for all our needs and our well-being.*

In the following sections on alternative forms of mining, farming, forestry and fishing we will encounter many examples of how different peoples are working out ways of providing for their needs that serve the entire community and all aspects of their life. It is exciting to see these local instances of ‘making a living’ that is radically different from the global corporate economy. They have intuitively or quite consciously tried to work out this guideline for an alternative way of living. At the same time this guidepost serves as a *criterion* for all alternative approaches: do they truly serve life; are they inclusive and egalitarian; are they ecologically sustainable; or do they lead back and become integrated in the global capitalist market economy?

A guidepost for doing justice

In chapter 7 I have used the words *doing justice* as the basic direction for all governing and for establishing overarching rules. To do justice means to give everything its rightful place under the sun so that every creature can flourish. That means that true justice is based on eco justice and opened up to social justice. True justice is restorative, allowing all creatures to flourish, including all humans. In terms of establishing justice (governing), it means that it is participatory, communal, inclusive, doing justice to every person and every group. To do otherwise would mean to be unjust and to violate the very being of the other. True justice involves self-governing, establishing communal rules in which everybody has a voice. These descriptions are no more than a signpost that needs to be followed and *given form in every different and new situation*. At times we may not know what is truly fair or how to do justice to all the complexities of a particular situation. Then it would be tempting to hide behind a rule or a formality, ‘the law is the law, if we start to make an exception there is no end to it’. Sometimes we do not know what is a fair way of doing things. The Law cannot give us ultimate security and safeguard our existence. Only by our active participation can we communally establish justice and deal fairly with different situations and people.

As we have seen over and over again, the ‘rule of law’ is no guarantee that justice will be done. Only if we are open to these basic regularities or touchstones of life can we find harmony, safety and peace. As some of the examples of local farming and fishing communities show, developing new ways of self-governing need to come from a ‘bottom-up’ approach in a truly egalitarian way. New rules need to be established by communal participation and assent. Such new organizational structures and communal agreements will differ from place to place, depending on cultural traditions and local situations. All we know is that they need to be fair to everyone and involve the total community. There are instructive examples from various local villages and cooperatives.

This guideline too serves as a criterion for evaluating all alternative approaches: *governing ourselves rightly in a way that does justice to all*. At the same time this touchstone serves as a radical condemnation of all domination, empire, power, dictatorship, oligarchy, the few lording it over the rest, enriching themselves and exploiting all others, all miscarriage of

justice and all misuse of power, especially the use of police and army to protect vested interests. In this respect the Canadian government may endorse the 'rule of law' but in many aspects of life and in many instances it does not administer justice for all. As we have highlighted in chapter 2, it has and still does repeatedly violate this guideline for doing justice by its commitment to neoliberal ideology.

A guidepost for holistic and scientific knowing

In chapter 7 I have presented an alternative view of *experiential knowledge, scientific theorizing and technology in the service of an alternative direction and vision*. *Discerning rightly* is more than a matter of logic and scientific analysis. *Distinguishing rightly* is not just a matter of good observation and analysis. It is a logical activity, but it is so much more, since our cognitive distinguishing is interrelated with all other dimensions. It is based on bodily awareness, on sensitive openness, on our creativity, on our formative abilities, on our clarity, and it needs to be open to economic and political situations, and so on. Our observations reflect the way of life we are committed to.

Ultimately distinguishing has to do with discerning the 'truth' about life. Not truth in some absolute ontological sense, but *truth as rightly discerning the phenomena we encounter*. That brings us back to being open to experience, to new and changing situations and truly discerning the other. The process of coming to know is a 'normative' activity and not some neutral, value-free, objective undertaking. There is an apparent *signpost, discern rightly, that is, discern, being aware of all of life, of the total context*. Knowledge is power, that is, power to enhance the well-being of all creatures, or power that leads to a deceptive view of life that justifies malpractices.

When knowledge is liberated from its (neo-)rationalism, logicism and pragmatism, then scientific knowledge can once again serve life. When scientific knowledge is developed in close interaction with experience and not separated from life, then colleges and universities can once more become exciting places for discovery and learning. Then students can once more follow their passion and their interests. Then they are free again to explore, investigate, experiment, test and follow their intuition and hunches. Then they can bring their ideas back to concrete life situations and test them against reality. Then knowledge, including scientific knowledge, can flourish, enrich life and deepen our understanding of the many dimensions of life. When experiential knowledge and scientific knowledge enrich and inform each other; then study and experimentation can become a passion and a joy. When universities are no longer based on business models and forced to make their own way, they can become truly educational institutions again. When universities are no longer in 'partnership' with business and are no longer dominated by economic concerns, they can flourish, integrate, coordinate and work together.

A guidepost for technological innovation

The same holds true for technology. When technology is no longer in the service of 'economic growth', 'efficiency', 'material prosperity', and the accumulation of 'wealth', then technological innovations and developments can serve and open up all of life. When technology is liberated from the straightjacket of one-dimensional economic practices, then it can be guided by a very different vision of life. Instead durability, practicality, usefulness, simplicity and elegance can guide technological creativity and innovations. This is in sharp contrast to obsolescence and the constant pressure of developing 'new products'. Within a liberated technology creativity and innovation can be recaptured and celebrated. It is always astounding and surprising the innovative ideas people and research centres create and develop

All this is mostly relevant for the developed world and for those who can afford the latest products, machinery, model or version. Imagine if this kind of liberated technological development and innovation could serve the developing countries. Imagine if all that creativity and innovation could focus on what impoverished people in Malawi, for example,

really need for where they are. Imagine the things that would *really* aid their health, the education of their children, the quality of their food, the supply of their water, their seeds and trees, their transportation and communication, and so on. Imagine if all ‘foreign aid’ had focused on these kinds of developments and innovations during the last forty years, instead of the exploitation of their resources, land and water under the guise of economic development.

There are countless examples of support and programs that start where local people are in their actual circumstances and that help them to develop, use and repair new pumps, bicycles, water purification methods, food storage facilities, fishing gear, growing tree seedlings, conservation techniques, sanitation units, health procedures, environmental education, solar devices, means of communication, theatre, videos, radio programs, etc. etc. They can be helped to incorporate these innovations in their own way based on their own knowledge and experience and they can share their new practices with others; practices that build on their knowledge and experience and that are integral to their way of life and spirituality. They do not need to go through the same disintegrative course of development of the last forty years as the west. Local and indigenous people everywhere can be helped to help themselves. If given this kind of aid and support, imagine how much suffering and injustice would have been avoided. The developed world owes a great debt to the developing world that will take many decades and centuries to pay off.

A guidepost for believing or ultimate convictions

In Chapter 9 I have ventured a description of *believing rightly*. Ultimate convictions whether religious or non-religious can be life-destroying or life-enhancing and life-healing. What we can have is a deep trust in the ‘foundations of life’ that present themselves to us in our experience, the guideposts, that show us a direction for living. In this trust the Hebrew scriptures can encourage us because of the guidelines embedded in their writings. They point us to a vision of life (no deification of life) for a way of living (the Torah or simply, the Way or the Path). The spiritual struggle evident in the Hebrew scriptures is against serving other deities as the embodiments and personifications of the powers of nature.

Today we know more than ever what good convictions are like and whether they contribute to the flourishing of life. All religions and all other worldviews potentially contribute to our understanding of *the guidepost for believing rightly that serves life*. And they can all be evaluated accordingly, whether they are *true* to life. Only together can we know what it means to believe rightly. The Hebrew scriptures too present a vision of life that wants to be lived from day to day. Most important for our purposes, during their time of crisis, they *actualized two fundamental guidelines for ultimate beliefs*. One is that we ought not to deify or absolutize any aspect or part of life. If we do, we destroy the integral coherence of life and then life becomes distorted. The other guideline relates to the fundamental attitude and approach in our relation to our ‘neighbor’, our intersubjectivity. The scriptures could summarize this attitude in the words of the great commandment (love your neighbor as you would love yourself) and in terms of righteousness, truth, justice and loving kindness, as ways of being for the other and with the other. Both of these guidelines are as relevant today as they were then. There are several other aspects to this guideline for ultimate convictions: the view of the human person, gender identity, sexuality, community, nature, governing, equality, respect, caring and other aspects. Different religious and non-religious convictions all contribute to our understanding of what it means to hold to ultimate convictions that enhance life.

A guidepost for ‘providing guidance’

In chapter 7 I touched upon a guideline for all forms of guidance, namely *guidance that leads to self-guidance*. *Guiding rightly*, whether in parenting, teaching, nursing, care for the elderly, the handicapped, and so on, in short all forms of guiding, honors, respects, personally involves, empowers, and enables the other. It is the opposite of control, behavioral management, manipulation, intimidation, guilt, overpowering, and indoctrination. The aim of all guidance is to help

the other to help themselves, to learn for themselves, to heal themselves, to manage themselves. In that journey of growth or healing we can only assist, help the process along, provide essential information, demonstrate skills, suggest alternatives, ask challenging questions, and so on. *The focus is on enabling the other, which requires intense personal involvement, commitment, respect, empathy, and understanding of the other.*

Much education violates this guideline. In my *Backwards into the Future* (2000) I have illustrated the change in public education in 2000 in Ontario as a result of the impact of neoliberal educational policies. Fifteen years later, in spite of heroic efforts by many committed teachers, the disintegrative effects of this kind of education are everywhere visible: disinterest, boredom, functional illiteracy, addictions and loss of meaning and values. Countless students have been deprived of genuine education that could have helped them find their way in life and toward personal fulfillment. Depriving children and young people of meaningful education is a violation of their very being and their future. The basic direction of education in Ontario constitutes complicity in 'crimes against humanity', in this case, children and young people. All the while there are any number of alternative forms of elementary and highschool education available that beg for general implementation, for schools our children deserve (Alfie Kohn).

In Chapter 6 I have also highlighted the disintegrative effects of neoliberal policies in medical and hospital care. Here too the critical evaluations and alternatives are readily available. Our personal struggle in psychotherapy with this fundamental guideline provides an example of providing guidance in a very limiting social, political and economic situation. It is not hard to imagine different forms of supporting emotional healing in an alternative communal setting. There are other signposts, as many as there are dimensions to life, but these are sufficient to illustrate what a phenomenological ethics is like and how it can function as a guide in our practice.

b. Alternative directions: summary of key areas

When it comes to alternative practices it is the *fundamental direction of our way of life* that is crucial. There are countless alternative practices and suggestions. Many of those new practices are truly inspiring. However the fundamental question with regard to all alternatives is, do they foster ecological sustainability and economic and social justice. To put it differently, are these practices, or can they, be part of an integral economy that is opened up to and serve all aspects of life and not just economic growth for its own sake (chapter 3 and 4). In the process of finding and putting alternatives into practice, no one has a corner on the right approach. Together we need to experiment, try out, adjust and improve in order to discover new forms of economic practices that are life-enhancing and make life flourish for all people. It is in our actual practices from day to day that our commitment to another way of life becomes evident.

1) Alternative sources and uses of energy

The directive for the development of alternative sources of energy and usage of energy can be described quite simply. Does the development of alternative forms of energy and our use of energy serve an ecologically sustainable and just way of life? Presently, the extraction of oil, gas and coal and even many of the renewable sources only serve limited aspects of life, mostly a predominantly materialistic way of life that is destructive to the environment and human well-being.

With regard to global warming the large-scale, global development of renewable forms of energy is crucial. If we are to manage to keep global average CO₂ particles below or around 450 ppm and the average temperature below 2 degrees

Celsius, we need to leave most fossil fuels in the ground as the IEA and others have suggested. *This recommendation needs to be the starting point for any alternatives to fossil fuel energy*, particularly in North America and Europe. That change alone would begin to solve the 'energy problem', especially if the yearly subsidies to the energy section were phased out and directed to the development of alternative sources of energy. These sources of solar, wind, geothermal, tidal power, etc. are widely available and the technologies keep improving. To complement these alternative sources, there are countless suggestions to save energy in everyday usage and increase the re-cycling of metals and minerals. Given a fundamentally different life direction, a world without fossil fuels is not hard to imagine both in the global North and the South. Small-scale energy projects are the primary viable alternative for Africa, Asia, the Americas and China, especially for more isolated rural communities.

Many reports on alternative energy assume that a basic change in greenhouse gas emission can be brought about within the present capitalist economic system. These attempts to reduce CO₂ emissions and their equivalents in many sectors of the economy no doubt have great beneficial effects for the environment and human health. In the end, however, they are limited by the market ideology, which makes it doubtful that the goal of drastically reducing emissions by the year 2020 or 2050 will be reached. Reductions of 20, 50 and 80 percent will not be possible without a radical change in economic direction. The commitment to a growth economy does not allow for such drastic reductions. Many resources and finances would have to be re-directed. It would require fundamental changes in mining, manufacturing, building, transportation, agriculture, forestry and fishing. Such a changed system would no longer be a form of capitalism; it would be another way, a Third Alternative, within which all dimensions of life would receive equal due. We could compare the development of renewable energy to that of ecologically sustainable agriculture. In themselves these alternatives, however necessary and crucial, will not save the environment from further decline or bring about social justice for all; they can only be part of the solution. A change in every aspect of the economy will require the adoption of another way of life.

What is needed with regard to the global availability of energy is to phase out all large-scale mining projects, a massive increase in the development of alternative energies, energy saving technologies and devices, a doubling of recycling of metals and minerals, the development of small-scale energy projects for millions of rural people, and most of all a change to a non-disposable, non-materialistic way of life. For the sake of the environment and a livable world and for the millions of people without affordable sources of light and power, we need to make basic structural changes both collectively and personally. The capitalist way of life and worldview cannot provide such an overarching alternative direction. It is a bankrupt system that has brought us to the brink of disaster.

A multidimensional unified approach to mining means that all aspects of the mining process are taken into account. The most obvious aspect is its geological, geographical, physical, and ecological foundation. Without paying attention to these fundamental aspects there can be no safe, ecologically sustainable way of mining. However, that is only one aspect of an integrated approach to mining. A multidimensional approach seeks to do justice to every aspect and not just the physical and economic sides. There are many innovative small-scale examples of integrated energy projects both in the developing and developed world. They are run as cooperatives or managed by local towns or villages. These exemplary projects serve the entire community. In evaluating any of these small projects, the crucial question is, do these projects truly empower people and allow them to enrich their own lives or will they be drawn into the global market economy? Do alternative sources of energy add to the quality of their lives, providing comfort, ease, greater health, communal life, fair distribution, and so on? Do people locally truly have power over their sources of energy and its distribution?

Even if run by cooperatives or local communities, there is still the question of the way of life and worldview the energy supports. Big commercial wind farms generally do not benefit local communities; the same is true for large dams for generating hydro power and other mega projects. They are part and parcel of the global market economy even though in some instances they may produce less greenhouse gases. Alternative sources of energy can become the new corporate, for profit enterprises that enrich the few. They will not necessarily benefit the general population and provide cheaper energy with local and regional control over resources. It may lead to a reduction in greenhouse gases but by itself it will not solve the issue of climate change, enhance the quality of life and bring about social justice.

Given this fundamental direction and multidimensional frame of reference, alternative ways of generating and using energy can take on many forms. They seem almost unlimited and highlight people's creativity and resourcefulness. It is in these areas of alternative ways of mining, manufacturing, building, transportation, water and waste management, etc. that technology can truly come to its own.

Renewable sources of energy

The development of renewable sources of energy besides fossil fuels, especially wind and solar energy is growing by leaps and bounds in many countries. In spite of opposition and intense lobbying by the oil, gas and coal industries there is a steady growth in renewables. Different countries with large desert and/or high wind areas, like the US, China, Algeria, etc. could produce enough renewable energy in the coming decades to satisfy present and future usage many times over. The IPCC (2011) calculated that renewable energy can power the world for a cost of only 1% of the global GDP, which is negligible compared to the global arms industry, for example. The crucial questions are whether the global development of renewable energy can solve the problem of climate change and benefit all people equally? The answer is a clear 'no', since there are many other factors that contribute to global warming and ecological decline and injustice. The 'solution' to climate change ultimately depends on a transformation of values and the development of transformative communities.

The development of renewable energy during the next few decades can create the illusion that the present economic system can be transformed without making any radical changes. Such a painless change from one primary source of energy to another is certainly the hope of Australian and Canadian prime ministers and that of most other governments. Renewables are acceptable as long as they do not threaten future economic development and growth. Lester Brown's optimistic and appealing account in *Plan B 4.0*, (Chapter 5, "Stabilizing Climate: Shifting to Renewable Energy"), for example, does not directly confront the need for a structural change. To see the developments of alternative sources of energy in different countries gathered together in one place is indeed compelling and inspiring. There is no doubt that renewables can drastically reduce greenhouse gas emissions, but will this change from a carbon energy based economy to an electric energy economy just happen because it's cheaper, better for the earth and will ensure a future for human life? The reality is that even the more immediate goal of de-commissioning and replacing coal-fired power plants with renewables will take several decades. Presently the development of large wind, solar, hydro, thermal and tidal power is primarily a for-profit-business controlled by corporate and financial institutions.

Ashden, (2013). "Wind Power". Retrieved from, <https://www.ashden.org/wind>

Ashden, (June 2010), Briefing Paper, "Power to our neighbourhoods: towards integrated local sustainable energy solutions, learning from success". Retrieved from, http://www.ashden.org/files/pdfs/reports/Briefing_Paper_Power_to_our_neighbourhoods.pdf

Atkin, E. (2015). "Spain got 47 percent of its electricity from renewables in March", *ClimateProgress*. Retrieved from, <http://www.globalpossibilities.org/spain-got-47-percent-of-its-electricity-from-renewables-in-march/>

Bergeron, L. (January 26, 2011). "The world can be powered by alternative energy, using today's technology, in 20-40 years, says Stanford researcher Mark Z. Jacobson", *Stanford Report*. Retrieved from, <http://news.stanford.edu/news/2011/january/jacobson-world-energy-012611.html>

Brave New Climate, (August 9, 2011). "A critique of the 2011 IPCC report on renewable energy".

Retrieved from, <https://bravenewclimate.com/2011/08/09/ipcc-renewables-critique/>

Community Energy Scotland, (March 18, 2013). "Ten years of community energy – Scottish Communities lead the way". Retrieved from, <http://www.scotsrenewables.com/blog/videos/ten-years-of-community-energy-scottish-communities-lead-the-way/>

David Suzuki Foundation, (April 2014). "Windmills are things of beauty". Retrieved from, <http://www.davidsuzuki.org/blogs/science-matters/2014/04/windmills-are-things-of-beauty/>

Delucchi, M.A. & Jacobson, M.Z. (2013). "Meeting the world's energy needs entirely with wind, water, and solar power", *Bulletin of the Atomic Scientists*, Vol. 29, Issue 4, July/August, 2013. Retrieved from, <https://web.stanford.edu/group/efmh/jacobson/Articles//JDEnPolicyPt1.pdf>

Energy4All, (2012). "Co-operative Futures". Retrieved from, <http://energy4all.co.uk/community-ownership/co-operative-solution/>

Environmental Defence, "Good green jobs". Retrieved from, <http://environmentaldefence.ca/2009/02/23/press-releases-528/>

Greenpeace International, (2014). "Renewable energy myths: 6 myths about renewable energy blown away". Retrieved from, <http://www.greenpeace.org/africa/en/campaigns/Climate-change/renewable-energy-myths/>

Harvey, F. (May 9, 2011). "Renewable energy can power the world, says landmark IPCC study", *The Guardian*. Retrieved from, <https://www.theguardian.com/environment/2011/may/09/ipcc-renewable-energy-power-world>

IEA, (2011). "Solar energy perspectives". Retrieved from, http://www.iea.org/publications/freepublications/publication/solar_energy_perspectives2011.pdf

IEA, (February 26, 2014). "Any country can reach high shares of wind, solar power cost-effectively, study shows". Retrieved from, <https://www.iea.org/newsroomandevents/pressreleases/2014/february/the-power-of-transformation.html>

IEA, (2014). "Executive Summary of The Power of transformation: wind, sun and the economics of flexible power systems". Retrieved from, https://www.iea.org/publications/freepublications/publication/The_power_of_Transformation.pdf

International Labour Organization, (March 11, 2015). "Green jobs". Retrieved from, http://www.ilo.org/wcmsp5/groups/public/@ed_emp/@emp_ent/documents/publication/wcms_158733.pdf

IPCC, (2011). IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation. Retrieved from, http://www.se4all.org/sites/default/files//2013/09/IPCC_Summary_for_Policy_Makers.pdf

Jacobs, M. (August 20, 2014). "Rooftop solar boom Underway", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/rooftop-solar-boom-underway-1881946444.html>

Journeyman Pictures, (April 30, 2012). "Villages in Germany competing with energy companies for power". Retrieved from, http://resep.my.id/video/Villages-in-Germany-competing-with-energy-companies-for-power/Ec_DO_YwH8A

Kiley Kroh, (July 8, 2014). "Renewable energy provided one-third of Germany's power in the first half of 2014", *ClimateProgress*. Retrieved from, <https://thinkprogress.org/renewable-energy-provided-one-third-of-germanys-power-in-the-first-half-of-2014-a9282c836d80#x5o5nk9q>

Mauthner, F. & Weis, W. (June 2014). "Solar Heat Worldwide: markets and contribution to the energy supply 2012; Edition 2014", *IEA Solar Heating and Cooling Programme*. Retrieved from, <http://www.iea-shc.org/data/sites/1/publications/Solar-Heat-Worldwide-2014.pdf>

May, E. (August 12, 2013). "Canada is missing out on global clean-tech revolution", *Articles by Elizabeth*. Retrieved from, <http://elizabethmaymp.ca/publications/articles/2013/08/12/canada-is-missing-out-on-global-clean-tech-revolution/>

Pantsios, A. (September 2, 2014). "Renewable energy jobs continue to grow", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/renewable-energy-jobs-continue-to-grow-1881952213.html>

Parkinson, G. (August 20, 2014). "UBS: Time to join the solar, EV, storage revolution", *RenewEconomy*. Retrieved from, <http://reneweconomy.com.au/2014/ubs-time-to-join-the-solar-ev-storage-revolution-27742>

Pearce, F. (April 7, 2014). "Almost half of new electricity is now clean and green", *NewScientist*. Retrieved from, <https://www.newscientist.com/article/dn25368-almost-half-of-new-electricity-is-now-clean-and-green/>

Phillips, A. (July 12, 2014). "Onshore wind power is now cheapest form of new electricity in Denmark", *ClimateProgress*. Retrieved from, <https://thinkprogress.org/onshore-wind-power-is-now-cheapest-form-of-new-electricity-in-denmark-4577abb9bb49#v08xx22lr>

Pope, C. (February 7, 2015). "Why utilities hate the clean power rule", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/why-utilities-hate-the-clean-power-rule-1882012324.html>

Renewables International, February, 2015, "Comparing the main indicators for population, GDP, energy, CO2 and electricity of Australia, Canada, Russia, Saudi Arabia". Retrieved from, <http://cf01.erneuerbareenergien.schluetersche.de/files/smfiledata/4/5/8/5/2/6/104bFF4countries.pdf>

Resch, R. (July 29, 2014). "German solar experience offers critical 'lessons learned' for America", *EcoWatch*. Retrieved from, <http://www.ecowatch.com/german-solar-experience-offers-critical-lessons-learned-for-america-1881940009.html>

Roney, J.M. (July 8, 2014). "China's solar panel production to double by 2017", *Earth Policy Institute*. Retrieved from, http://www.earth-policy.org/data_highlights/2014/highlights47

Roney, J.M. (March 5, 2015). "Wind power beats nuclear again in China", *Earth Policy Institute*. Retrieved from, http://www.earth-policy.org/data_highlights/2015/highlights50

Skeptical Science, (August 26, 2011). "Lessons from past climate predictions: IPCC FAR". Retrieved from, <http://www.skepticalscience.com/lessons-from-past-climate-predictions-ipcc-far.html>

Solar Energy Industries Association (SEIA), (July 2014). "Solar energy support in Germany: a closer look". Retrieved from, <http://www.seia.org/research-resources/solar-energy-support-germany-closer-look>

Schlandt, J. (October 26, 2015). "Germany's electricity grid stable amid energy transition", *Clean Energy Wire*. Retrieved from, <https://www.cleanenergywire.org/factsheets/germanys-electricity-grid-stable-amid-energy-transition>

Spross, J. (August 12, 2014). "The German electricity grid is one of the most secure in Europe", *ClimateProgress*. Retrieved from, <https://thinkprogress.org/germany-added-a-lot-of-wind-and-solar-power-and-its-electric-grid-became-more-reliable-c9d6878a8357#754zqemed>

In contrast, renewable energy projects could be operated by national and regional governments to serve all citizens. They could also be part of local, communally owned and governed, sustainable enterprises, as many villages in Scotland, Germany and elsewhere illustrate. Such larger and smaller energy projects are in the public interest, like public transportation, public media, public health, public parks (national, provincial and local), public resources, etc. They do not exist to make a profit, but to serve the common good. Wind energy is abundant, widely distributed, can be developed quickly, has low lead requirements, and can provide long-term cost stability. Unlike oil, gas and coal that first

need to be extracted at high costs to the environment and people, the power of the wind, sun, water, tides, waves and heat in the earth is free to start with and is inexhaustible. The potential of renewables is enormous for all the peoples of the earth. They are good for the environment, they do not require huge amounts of water to develop, save millions of lives from air pollution both in the global south and the north, and create many new jobs. Off-shore wind and desert solar projects are particularly promising, depending on who owns and benefits from the projects.

The weather dependent availability of wind and solar power is becoming less and less of a problem. Smart grids are developing that can track and manage energy use patterns during the day and at night. Smart grids can switch between a number of energy sources and provide a constant supply of power. They are able to combine several energy sources together in a bundle. Smart distribution networks, better storage options, decentralized grids, are all developments that make the integration of different sources of energy possible. The accounts of the German experience are perhaps the most instructive. They had to go through a learning curve but managed in the end. In the future, highly efficient high voltage direct current (HVDC) lines will be able to link wind rich regions with urban centres. In all these developments Canada is lagging far behind when it could be a leader in the development and installation of renewable energy. As elsewhere, it could provide many new renewable energy jobs and reduce unemployment. Instead Canada seems to be holding out to the bitter end and waiting until the decline of the fossil fuel industry forces it to take strong action.

Denmark is an in-between example of wind power development involving and directly benefitting local communities. Potentially most communities can develop small-scale wind, solar and hydro energy projects, as the examples, particularly from Europe illustrate. They are both feasible and can be developed relatively quickly. Solar reflectors that concentrate the heat of the sun (CSP) to create steam or heat water are other options. Small solar systems for generating electricity are becoming more affordable. They could be much more so if there were better incentives and guaranteed feed-in tariffs as well as tax credits. In many countries the fastest developing renewables are small rooftop solar water and space heaters.

Recycling metals

For many of us it may come as a surprise how many metals and minerals and what percentages are already being recycled. Looking a little closer, that is not a surprise. If it is profitable, certain metals or minerals will be recycled. Presently recycling takes place primarily within the global free market economy. The recycling industry is a 'commodity sector' driven by basic 'supply and demand'. The 'market value of the material' drives recycling and not its use and the way it can enrich life. As a result valuable metals and minerals continue to be lost to landfills in many regions. Within an alternative approach a much greater percentage of essential metals and minerals could be recycled. Recyclable materials are a rich resource and the recycling of all metals uses much less energy than mining and processing of raw materials. Metals do not degrade and can be recycled many times, if not indefinitely. All together, recycling maximizes the use of finite materials. Most important, increased recycling would make a significant contribution to CO₂ reductions. As a result of a drastic increase in recycling, many large-scale mining operations could be phased out and a proportion of miners could develop local and regional, small-scale mining recycling cooperatives. As a *UNEP* report (2011), "Recycling rates of metals – a status report", puts it, "recycling metals are also part of the challenge society is facing in its transition to a low carbon, resource efficient 21st Green Economy".

Presently about 40% of the world steel production is made from scrap. Recycling steel uses 75% less energy than producing steel from raw materials. About 40% of copper is recycled, 35% of lead, 33% of aluminum, 30% of zinc, as well as other metals like platinum, tin, chromium, magnesium, titanium, depending on market prices and difficulty of recovery. Mineral recycling of gypsum, drywall, asphalt, tar, boiler ash, flyash, concrete, etc. is minimal in most regions and could be greatly expanded. The numbers illustrate how much room there is for a big increase in the recycling of

metals and minerals. The more joining of incompatible materials is avoided, like plastic and metal, or made for easy disassembly, like electronic products, the more different materials can be recycled. For a radical change federal and provincial subsidies to the corporate mining industry could be re-directed to the further development of the recycling of metals and minerals. Such public financial support could stimulate the development of new technologies for recycling processes. At the same time much can be done in collecting and preparing scrap metals and minerals for processing. There is no need for public recycling workplaces to generate a 'surplus' and if there is it can serve further innovation. What it does require is a different vision and way of life to motivate and inspire with the direct involvement and control by workers. Just as maintaining our national and provincial parks can have its own motivation and care, so can the maintenance of other public works; it needs no other incentive or purpose besides contributing to our collective well-being. In contrast to these possibilities, Canada is fast depleting and squandering its resources when it could preserve them for future generations.

These different measures, if separated from the profit motive, could go a long way in meeting our need for raw materials. The 'growing global demand for raw materials' is not a law of nature or an inevitable evolutionary or cultural development. The increased use of raw materials, primarily for a materialistic, consumer way of life, is a *choice*. It is not inevitable; it is based on a fundamental choice for a particular way of living. Nor does reducing the use and recycling of materials mean a return to a less modern and more 'primitive' way of life. On the contrary, it is a choice for a 'no growth economy', an 'economy of enough', an integral economy that serves all of life and not just possessing and consuming more goods. Such provisioning for all our needs is rich, rewarding and meaningful. It allows all of us to find satisfaction and purpose in a great variety of ways, each according to his or her gifts. In contrast, the possession of things and the latest models provide only very limited satisfaction and little meaning.

Bureau of International Recycling, "Non-ferrous metals". Retrieved from, <http://www.bir.org/industry/non-ferrous-metals/>

Bureau of International Recycling, "Ferrous metals". Retrieved from, <http://www.bir.org/industry/ferrous-metals/>

Canadian Association of Recycling Industries (CARI), "Education". Retrieved from, <https://cari-acir.org/education/>

Espinoza, L.A.T.(March, 2012), "Working paper, 20: The contribution of recycling to the supply of metals and minerals", *Polinares, EU Policy on Natural Resources*. Retrieved from, http://www.polinares.eu/docs/d2-1/polinares_wp2_chapter8.pdf

Fothergill, J. (October 4, 2004). "Scrap mining: an overview of metal recycling in Canada", *Canary Institute*.

Retrieved from, http://www.canaryinstitute.ca/publications/Scrap_Mining.pdf

Graedel, T.E. et.al. (2011). "Recycling rates of metals – a status report, a report of the working group on the global metal flows to the International Resource Panel". *UNEP*. Retrieved from, <http://www.ewasteguide.info/biblio/recycling-3>

Retrieved from, <http://www.ex-tax.com/knowledge-centre/scarcity/unep-study-on-recycling>

Kuyek, J. (November 10, 2006). "The need to shift Canadian tax incentives to reduce the impact of the mineral industry on the environment and local communities", *MiningWatch*. Retrieved from, http://miningwatch.ca/sites/default/files/environmental_tax_0.pdf

Mineral Information Institute, "Recycling metals". <http://www.mineralseducationcoalition.org/pdfs/recycle.pdf>

Natural Resources Canada, March 2004, Final Report, "Scan of metals and minerals recycling programs and associated climate change impacts". Retrieved from, <https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/mineralsmetals/pdf/mms-smm/busi-indu/rad-rad/pdf/er2-es-finr-eng.pdf>

Natural Resources Canada, November 16, 2013, "Enhanced recycling: government of Canada action plan 2000 on climate change, minerals and metals program".

Nelson, J. (2010). "Sustaining environment by recycling metal", *Watershed Sentinel*, Vol. 20, No 4, September/October 2010.

Retrieved from, <http://www.watershedsentinel.ca/content/sustaining-environment-recycling-metal>

Saskatchewan Eco-Network, "What you can do to reduce mining's environmental impacts".

Retrieved from, <http://econet.ca/issues/mining/whatyoucando.html>

Saskatchewan Waste Reduction Council, *Solid Waste & Recycling Magazine*, October 11, 2002, "Metal and recycling study".

Retrieved from, <http://www.saskwastereduction.ca/recycle/resources/metals/>

Steffen, A. ed. (2011, revised and updated), *World Changing: A User's Guide to the 21st Century*, New York: Abrams.

Saving energy

For many of us it may also come as a surprise how many energy-saving devices and possibilities are available presently. Usually we do not see these examples and innovations together in one place. We may hear of them piecemeal as a potential solution for the future, but seldom as a vast array of energy-saving devices or alternatives that could all be implemented today. Sources like *World Changing: User's Guide for the 21st Century*, (2011) and others, present many exciting and practical examples. When we see these basic innovations and alternatives for saving energy together, we get a sense of the total impact these changes could make. For some products and appliances the total figures for

different countries may be hard to estimate, but regardless of the exact savings in energy, the amounts are impressive. What is even more important is that they are all within our reach and are already being practiced in different places. Lester Brown gives an extensive account of the potential revolution in lighting technology, from new compact fluorescent lamps (CFL's) and advanced models of tubular fluorescents, to light emitting diodes (LED's) in homes, public buildings, traffic lights, exist signs, parking garages, etc. Not all of these devices may be workable or environmentally sustainable, but they point to alternative ways. Many energy efficient appliances have become available, from refrigerators, washing machines, air conditioners, TV's, etc. that use only half or even less of the electricity of conventional models. Many countries are requiring new efficiency standards and phasing out old models.

Added to these alternative lighting and appliance possibilities, the energy-saving retrofitting of buildings, certification standards for construction of new buildings (LEED), the electrifying of the transportation system, smarter grids, alternative sources of energy, recycling of materials, and reducing use of materials, etc. we get a sense of the extent of how much energy could be saved. It would require a change from a primarily materialistic and throw-away economy with its disposable products and mountains of waste to a richer and more gratifying way of life.

Together these ways of saving energy underscore the feasibility of changing to a neutral or very low carbon economy and way of life. The means are there as well as the vision to put it into practice. Changing to energy-saving ways that will drastically reduce carbon emissions and the massive development of renewable sources of energy can tempt corporate and political leaders and all of us to believe that we can continue as usual, with whatever adjustments. It can also motivate us to change direction and choose a more meaningful, communal, creative, fulfilling, fair and just way of life.

Artisanal and small-scale mining

Artisanal and small-scale mining takes place in approximately 80 countries, involving about 100 million miners and their families who depend on it for their livelihood. It is estimated that they produce between 15 to 20 percent of the world's minerals and metals. In Chapter 2 we already looked at the possibility of ecologically sustainable gold mining. From present practices it is hard to imagine that large-scale fossil fuel and mineral extraction could ever be done in an ecologically sustainable way. In many if not most instances exploration and extraction is environmentally destructive and often violates the rights of local people. The evidence with regard to artisanal mining is equally dismal. Many live under squalid conditions and are subject to dangerous working conditions. Child labour in artisanal mining is widespread. There are about 1 to 1.5 million boys and girls that work in mining from a very young age on in order to help their families survive. If they were supported to develop small-scale, safe, environmentally sustainable cooperative ways of mining, they could supply a significant amount of metals and minerals. For many it supplements their meager income from subsistence farming. If peasant farming methods were re-juvenated and transformed and land were made available (see the next section), that in itself would put artisanal mining in a whole different light. It could become a choice instead of a desperate survival tactic. As we concluded in Chapter 2 with regard to artisanal gold miners, small-scale cooperatives could provide all the essential gold (about 20%) that is needed globally, in a safe and ecologically sustainable way.

Organizations like the *International Institute for Environment and Development (IIED)* have made a concerted effort to give artisanal miners a voice and help change their working conditions. On a larger scale the results have been disappointing. Locally many groups have benefitted from their work, but these local efforts have hardly begun to make a structural change in the global mining industry. IIED has put all its hope and faith in *dialogue*. "Through dialogue, IIED is providing a neutral space for stakeholders to identify solutions to the challenges facing the artisanal and small-scale mining sector". In spite of their efforts, they concluded in a ten-year follow-up document that the actual implementation of sustainable guidelines and best practices have not happened on any significant scale or lag far behind. In somewhat

euphemistic and optimistic language they recognize that there are many challenges that need to be faced. These challenges that continue to plague the mining industry are climate change, human rights issues, child labour, health and safety measures, community relations, obtaining the 'social license' to operate and obtaining the free, prior and informed consent of the people. The industry has "failed to respond to these complexities adequately or at the scale needed". In an earlier document, in careful language, they state that, "mining, refining, and the use and disposal of minerals have in some instances led to significant local environmental and social damage", and "it is not always clear that mining brings economic and social benefits to the host countries, as the minerals sector sometimes operates where there is poor governance, including corruption", and finally, "in some cases, communities and indigenous groups near or around mines allege human rights abuses". In spite of these problems the solution remains the same, dialogue.

Without confronting the neoliberal ideology, the positive changes in a variety of communities promoted by IIED ultimately cannot succeed in bringing about structural changes. It is an example of fundamental alternatives that run headlong into the resistance of the market ideology. Much more total, radical structural changes are needed to transform the mining industry.

In view of the reality of mining practices and its driving force, we can only conclude that international organizations like IIED operate in an economic and political vacuum much like a fairy-tale land. It is an illusion to think that mining executives and their political allies will make any *structural* changes as a result of joint dialogues. Certainly Canadian-based mining companies and the Canadian government are not about to do so. In this respect talk is cheap. There are many First Nations' chiefs and representatives in Canada that have been dialoguing for decades with the Canadian government about treaty rights to their land, resources, forests, water, and hunting and fishing rights. Canadian industries and their government allies will not let go easily of potential profits in spite of environmental destruction and violations of human rights. They are motivated by the same neoliberal market ideology. With regard to IIED, on the positive side, they are paving the way for radical changes by giving artisanal miners a voice and by helping different local communities to develop cooperatives that can introduce health and safety measures, eliminate child labour, develop more ecologically sustainable practices, and provide Fair Trade products (gold, diamonds, precious stones, etc). When climate change becomes more pressing, local protests and demands become stronger, new mining sites more difficult to access and national governments will require a greater part of the profits making mining less lucrative. Then *there will be an extensive network in place for more radical changes*. Thanks to the work of IIED and similar small projects in agricultural and fishing an alternative way of life beckons for broad, larger implementation.

Artisanal Gold Council, (July 16, 2013). "Mercury recycling in artisanal gold mining: the good and the bad". Retrieved from, <http://www.artisanalgold.org/publications/articles/mercury-recycling-in-artisanal-gold-mining-the-good-and-the-bad>

Artisanal Gold Council, (September 26, 2013). "The effect of changing gold prices on artisanal mining". Retrieved from, <http://artisanalgold.blogspot.ca/2013/09/the-effect-of-gold-prices-on-artisanal.html>

Artisanal Gold Council, (September 2014). "A simple public health strategy for ASGM". Retrieved from,

<http://artisanalgold.blogspot.ca/2014/09/a-simple-public-health-strategy-for-asgm.html?view=magazine>

Artisanal Gold Council, (2016). "Our projects". Retrieved from, <http://www.artisanalgold.org/our-projects>

Bass, S. (February 11, 2015). "Time to tell a new story about artisanal and small-scale mining: time for a new 'indaba'", IIED. Retrieved from, <http://www.iied.org/time-tell-new-story-about-artisanal-small-scale-mining-time-for-new-indaba>

Bredenberg, A. (July 30, 2012). "Can mining ever be sustainable?", *ThomasNet News*.

Retrieved from, <http://news.thomasnet.com/imt/2012/07/30/can-mining-ever-be-sustainable>

Buxton, A. (June, 2012). "MMSD+10: Reflecting on a decade of mining and sustainable development", IIED, *Sustainable Markets*. Retrieved from, <http://pubs.iied.org/pdfs/16041IIED.pdf>

CASM, (June 2005). "The Millennium Development Goals and small-scale mining".

Retrieved from, <http://www.ddiglobal.org/login/resources/mdgs-and-small-scale-mining.pdf>

Diamond Development Initiative (DDI). "What is artisanal alluvial diamond mining?".

Retrieved from, <http://www.ddiglobal.org/artisanal-mining/about-artisanal-diamond-mining.php>

Freudenberger, M.S. et.al. (April, 2013). "Property rights and artisanal mining: clarifying and strengthening rights: options for policymakers". *USAID*. Retrieved from, http://www.usaidlandtenure.net/sites/default/files/USAID_Land_Tenure_Artisanal_Mining_Issue_Brief_0.pdf

Hentschel, T. (January, 2002). "Global Report on Artisanal & small-scale mining", IIED, *Mining, Minerals and Sustainable Development (MMSD)*.

Retrieved from, <http://pubs.iied.org/pdfs/G00723.pdf>

IIED, (2014). "Delivering solutions through multi-stakeholder dialogue".

IIED, "Mining, minerals and sustainable development".

IIED, (February 5, 2015). "Listen and learn: lessons from the small-scale mining sector".

IIED, (2014). "Delivering solutions through multi-stakeholder dialogue".

IIED, "Mining, Minerals and Sustainable Development (MMSD)";

International Council on Mining and Metals (ICMM), (May 2003). "10 principles".

ICMM, (2013). "Indigenous peoples and mining: position statement".

Klein, P. (March 5, 2015. "Artisanal mining: 'many stakeholders, but no winners'", *Impakt*.

Linton, J. (September 2005). "Communities and small-scale mining: an integrated review for development planning", *CASM Initiative*.

Mallo, S.J. (2012). "Mitigating the activities of artisanal and small-scale miners in Africa: challenges for engineering and technological Institutions", *International Journal of Modern Engineering Research (IJMER)*, Vol. 2, Issue 6, Nov-Dec 2012.

Priester, M. et.al. (2010). "Mechanization of alluvial artisanal diamond mining: barriers and success factors", *DDI International*.

Purefoy, J. (August 28, 2013). "Toxic toil, child labor and mercury exposure in Tanzania's small scale gold mines". *Human Rights Watch*. Retrieved from, <https://www.hrw.org/report/2013/08/28/toxic-toil/child-labor-and-mercury-exposure-tanzanias-small-scale-gold-mines>

Tieguhong, J.C. et.al. (2009). "The impact of artisanal gold and diamond mining on livelihoods and the environment in the Sangha Tri-National Park landscape". *CIFOR*. Retrieved from, http://www.cifor.org/publications/pdf_files/Books/BChupezi0901.pdf

WB, Brief, (November 21, 2013). "Artisanal and small-scale mining". Retrieved from, <http://www.worldbank.org/en/topic/extractiveindustries/brief/artisanal-and-small-scale-mining>

WB, Brief, (September 2008). "Communities, Artisanal and Small-Scale Mining (CASM)". Retrieved from, <http://siteresources.worldbank.org/INTOGMC/Resources/CASMFACTSHEET.pdf>

York, G. (August 18, 2012). "Young and dying: the scandal of artisanal mining", *The Globe and Mail*. <http://www.theglobeandmail.com/news/world/young-and-dying-the-scandal-of-artisanal-mining/article4487572/?page=all>

Small-scale solar and hydro projects in Africa and elsewhere

In 2013 the US government launched 'Power Africa' and pledged 7 billion dollars over a five-year period to double access to electricity in 6 sub-Saharan countries, Ethiopia, Ghana, Kenya, Liberia, Nigeria and Tanzania. Another 9 billion dollars is to come from private money. The goal is to provide 'clean energy' for stimulating economic growth in the region. The announcements contained a lot of rhetoric, suggesting that it would provide the energy to lift people out of poverty and at the same time combat climate change. In this context, burning natural gas and biomass are considered 'clean' energy. Not surprisingly, most of the money promised will go to large oil and gas companies and the development of centralized gas-fired power plants. The project will be co-opted by corporations like General Electric and others. It presents another opportunity for corporations to exploit the continent. The one billion African consumer-base presents a potentially lucrative expansion for American corporations. These macro-projects require the continued development of fossil fuel extraction and will lock these countries into a natural gas infra-structure for decades. This outdated solution for providing electricity to millions of rural subsistence farmers and thousands of outlying villages (the rhetoric) will not only fail, but it will significantly add to global warming. The African continent will be disproportionately impacted by climate change. Already the average temperature is above the global average. Droughts and heat waves will affect yields and food security in many areas and rising sea levels will threaten hundreds of coastal cities and villages with its millions of people. Instead of heeding the advice to leave most of the remaining fossil fuels in the ground and stop all major dam projects in Africa to halt further dramatic increases in climate change, corporations and governments blindly move forward with mega- energy projects.

Only a small amount (2 million) out of the 16 billion promised funding is committed to the development of small-scale off-grid and mini-grid power projects. Over 80% of the poor in Africa live in rural areas with more than 600 million people living without electricity. Mini local renewable solar, wind and hydro energy projects are the real solution for rural Africa. Decentralized, renewable energy systems are the most effective and cleanest way to provide electricity for rural populations. These kinds of projects are already providing energy for tens of thousands of households and small villages. It allows medical clinics to operate in the evening, refrigerate vaccines, keep food from spoiling, re-charge mobile phones, provide solar lights for children to study in the evening and generally improve the quality of family life. Solar home systems could soon replace the use of diesel power and kerosene for lights and cooking in many homes. Most areas have great potential for the development of small-scale solar, wind and hydro power and in some places for biomass generated power.

Abbas, R. (May 15, 2013). "Sudan Nile dam threatens to drown Nubian villages", *International Rivers*. Retrieved from, <http://www.al-monitor.com/pulse/originals/2013/05/sudan-kajbar-dam-nubians.html>

Asanzi, A. (November 19, 2015). "Fighting for Nubia's rich culture", *International Rivers*. Retrieved from, <https://www.internationalrivers.org/blogs/337-7>

Barber, D.A. (March 5, "Obama's Power Africa initiative showing results, draws criticism", *AFK Insider*. Retrieved from, <http://afkinsider.com/45313/power-africa-showing-results-drawing-criticism/>

Bidway, P. (March, 2012)). "Instead of imposing nuclear power upon unwilling people, India should join the renewable revolution for handsome gains", *Transnational Institute*. Retrieved from, <https://www.tni.org/en/article/renewables-option>

IEA, (2014). "World energy outlook 2014 factsheet: energy in sub-Saharan Africa today". Retrieved from, https://www.iea.org/media/news/2014/press/141013_WEO_Africa_Energy_OutlookFactsheet1.pdf

MBendi Information Services, March 2015, "Electrical power in Africa". Retrieved from, <https://www.mbendi.com/indy/powr/af/p0005.htm>

Oot, M. (July 7, 2013). "Obama's Power Africa initiative overlooks the real potential of renewable energy for sub-Saharan Africa", *Fairfax Climate Watch*. Retrieved from, <http://www.fairfaxclimatewatch.com/blog/2013/07/obamas-power-africa-initiative-overlooks-the-real-potential-of-renewable-energy-for-sub-saharan-afri.html>

Pearce, F. (September 13, 21012). "Beyond big dams: turning to grass roots solutions on water", *Yale Environment 360*, Retrieved from, http://e360.yale.edu/feature/beyond_big_dams_turning_to_grass_roots_solutions_on_water/2571/

Pearce, F. "Will huge new hydro projects bring power to Africa's people?", *Yale Environment 360*. Retrieved from, http://e360.yale.edu/feature/will_huge_new_hydro_projects_bring_power_to_africas_people/2656/

Welz, A. (December 12, 2013). "In South Africa, renewables vie with the political power of coal", *Yale Environment 360*, Retrieved from, http://e360.yale.edu/feature/in_south_africa_renewables_vie_with_the_political_power_of_coal/2719/

White House, (June 30, 2013). "Fact Sheet: Power Africa". Retrieved from, <https://www.whitehouse.gov/the-press-office/2013/06/30/fact-sheet-power-africa>

Woods, E. et.al., (September 17, 2013). "Electrifying Africa – but at what cost to Africans?", *The South African Civil Society Information Service (SACISIS)*. Retrieved from, <http://sacsis.org.za/site/article/1787>

The development of small-scale renewable solar and hydro projects in Africa, India and elsewhere, like eco-farming, agroforestry, artisanal mining and small fishing cooperatives provide many new opportunities for local peoples. Together these advances make it possible for millions of subsistence farmers, miners and fishers to improve their livelihoods, education, health care, sanitation and generally enrich their communal life. Particularly the availability of solar lights and energy are beginning to play a significant role in making life more comfortable. The *Ashden* prize-winning projects, described in some detail, present many inspiring examples of the development of innovative solar lanterns and solar home systems, solar thermal systems for hot water, improved and clean cookstoves, biomass briquettes and pellets, and small household-size or village biogas plants. In many remote mountain villages, micro-hydro power projects provide power for local workshops, small businesses and homes. These small-scale hydro projects are a welcome solution in Brazil, Peru, Bolivia, China, Philippines, India, Thailand, Indonesia, Afghanistan, Tanzania, etc. It provides opportunities to generate more income. Village-based committees or cooperatives oversee the technical operation and maintenance, how to allocate the energy and determine the connection fee. It allows people to visit each other more in the evenings and enjoy labour-saving devices, television and radio. Treadle and ram water pumps are used to provide individual families with water and irrigation for small acreage plots. As a result of these changes more young people are staying in the country instead of moving to the cities. In terms of health and climate change benefits, renewable energy eliminates the need of kerosene for lighting, wood for cooking, diesel for running machinery and fossil fuels for generating electricity.

The crucial question in all these developments remains, who will benefit from these renewable sources of energy? Will local people have communal control over these new energy supplies? Will it provide for their own needs and that of their village and add to the quality of their lives? In some places in India, for example, it powers women's sewing machines, but for what purpose, to produce more clothing for the global market or to provide for their own clothing and that of neighbouring villages? Solar lighting can light up the family living space and allow the children to read and study. It can also allow local shopkeepers to light up their stalls during the evening so that they can work into the night. Their basic way and vision of life will determine how these new renewable sources of power will affect their lives. It would require more extensive case studies to see if small-scale energy developments contribute to the total well-being of families and communities. Each dimension of their lives has its own touchstones. Like artisanal mining, such small-scale enterprises can easily be incorporated into the global market system with its destructive impact of volatile prices and

exploitation by middle men. People have a choice; they can be drawn into a neoliberal way of life or develop a more integrated alternative way that enriches their lives. With new sources of electricity TV is never far away with its relentless indoctrination in the consumer way of life and empty mass entertainment. Are the media under corporate control or alternative organizations? Cultural groups and cooperatives especially have made use of the radio waves to disseminate crucial information. In all these developments it is the direction and vision of life that is crucial. Because of the many detailed examples in alternative agricultural practices we will come back to these issues in the next section.

Ashden Awards Case Study: Aga Khan Rural Support Programme, Pakistan, (2004). "Micro-hydro power for remote mountain villages". Retrieved from, <https://www.ashden.org/winners/akrsp>

Ashden, (n.d.). "Ashden India renewable energy collective". Retrieved from, <https://www.ashden.org/india-renewable-energy-collective>

Ashden, (2015). "Solar Thermal", Ashden. Retrieved from, <https://www.ashden.org/solar-thermal>

Ashden, (June 2013). "Enterprise: enabling energy access". Retrieved from, <http://www.ashden.org/files/pdfs/reports/enterprisepaper4.pdf>

Ashden, (n.d.). "Solar lanterns and solar home systems", Ashden. Retrieved from, <https://www.ashden.org/solar>

Ashden, (n.d.). "Scaling up low carbon energy for the poor: learning from the Ashden Awards for sustainable energy". Retrieved from, https://www.ashden.org/files/reports/DFID_summary.pdf

Ashden, (n.d.). "Biogas". Retrieved from, <https://www.ashden.org/biogas>

Ashden, (n.d.). "Biogas Sector Partnership, Nepal; domestic biogas". Retrieved from, <https://www.ashden.org/winners/bsp>

Ashden, (n.d.). "Micro-hydro power". Retrieved from, <https://www.ashden.org/micro-hydro>

Ashden, (n.d.). "Water pumps". Retrieved from, https://www.ashden.org/water_pumps

Ashden, (n.d.). "Clean cookstoves". Retrieved from, <https://www.ashden.org/wood-stoves>

Clough, L. et.al., (December 18, 2012). "Review of household clean energy technology for lighting, charging and cooking in East Africa – Kenya and Tanzania", Africa Biodiversity Collaborative Group. Retrieved from, http://www.energy4impact.org/sites/default/files/clean_energy_technology_review_learning_report_external_18.12.pdf

Fulford, D. & Wheldon, A. (n.d.). "Biomass briquettes and pellets", Ashden. Retrieved from, https://www.ashden.org/files/factsheets/ashden_briquettes_and_pellets.pdf

IRENA, (March 19, 2015). "Renewable energy key to achieving socio-economic development in Swaziland, says new IRENA report". Retrieved from, http://irena.org/News/Description.aspx?NTtype=A&mnu=cat&PriMenuID=16&CatID=84&News_ID=398

IRENA, (2013). "Unleashing West Africa's renewable energy potential: reports on solar and wind opportunities". Retrieved from, <http://www.irena.org/menu/index.aspx?mnu=Subcat&PriMenuID=36&CatID=141&SubcatID=367>

Mayo, E. (January 6, 2012). "The communities taking renewable energy into their own hands", The Guardian. Retrieved from, <https://www.theguardian.com/environment/2012/jan/06/communities-renewable-energy>

Mdamombe, I. (October, 2006). "Solar power: cheap energy source for Africa", Africa Renewal, Vol. 20, #3, October, 2006. Retrieved from, <http://www.un.org/en/africarenewal/vol20no3/203-solar-power.html>

Pantsios, A. (January 5, 2015). "Solar-powered tent keeps food fresh without a fridge", EcoWatch. Retrieved from, <http://www.ecowatch.com/solar-powered-tent-keeps-food-fresh-without-a-fridge-1881995550.html>

Pantsios, A. (January 9, 2015). "Solar light solutions for 1.6 billion people living without electricity", EcoWatch. Retrieved from, <http://www.ecowatch.com/solar-light-solution-for-1-6-billion-people-living-without-electricity-188199519.html>

Pearce, F. (September 29, 2010). "Stoking up a cookstove revolution: the secret weapon against poverty and climate change", Ashden. Retrieved from, https://www.ashden.org/files/pdfs/reports/Cookstove_report_final.pdf

Pearce, F. (January 27, 2016). "From the Nile to the Amazon, climate change threatens hydropower", The Guardian. Retrieved from, <https://www.theguardian.com/global-development-professionals-network/2016/jan/27/from-the-nile-to-the-amazon-climate-change-threatens-hydropower>

Power for All, (June 2014). "Executive Summary: The energy access imperative". Retrieved from, https://static1.squarespace.com/static/532f79fae4b07e365baf1c64/t/5394968ce4b0d85a0d7827d5/1402246796514/Power_for_All_June2014_140608.pdf

Satter, A. (July 10, 2014). "Watch how solar power is transforming rural India", ClimateProgress. Retrieved from, <https://thinkprogress.org/watch-how-solar-power-is-transforming-rural-india-2d7cb1d632f7#sb63p42ex>

SunnyMoney, (February 19, 2015). "The sun is rising on a solar revolution in Africa". Retrieved from, <http://www.solar-aid.org/the-sun-is-rising-on-a-solar-revolution-in-africa/>

Toomey, D. (May 21, 2013). "For Africa's solar sisters, off-grid electricity is power", Yale Environment 360. Retrieved from, http://e360.yale.edu/feature/katherine_lucey_for_solar_sisters_in_africa_off_grid_electricity_is_power/2653/

Vidal, J. (June 12, 2015). "Harvesting hill streams of Wales for hydropower", The Guardian. Retrieved from, <https://www.theguardian.com/environment/2015/jun/12/harvesting-hill-streams-of-wales-for-hydropower>

2) Ecological agriculture and agroforestry; soil restoration and water conservation

Given the previous section on mining and Chapter 5 on an integral economics, it is not hard to formulate an alternative directive and driving force for agriculture. There are numerous examples and movements world-wide that are driven and motivated by a different spirit than neoliberal capitalism. Ecologically sustainable agriculture is not driven by increasing profits and unlimited expansion; that would be a contradiction. Ecoagriculture is committed to stay within the

limits of ecological interrelationships and doing justice to all aspects of life. Third Alternative ways of farming seek to provide the basic necessities of life and well-being for all people in all countries.

Honoring the *multidimensional unity* of life is a *structural* way of describing an alternative driving force, a Third Alternative. Ecologically sustainable and socially just farming is the opposite of industrial farming in almost every respect. Instead of monocultures grown with synthetic fertilizers and pesticides, it favors a great variety of crops using a minimum of energy and water. Instead of mega-farms and large plantations, it supports medium and small-size farms and the re-distribution of land, making land available to young farmers. Instead of growing crops for global export, it is oriented to local and regional distribution and processing. Instead of furthering the global liberation and integration of the market, it maintains price and supply stability and import restrictions when necessary. Instead of research and technology focused on industrial farming, it serves ecologically based farming in consultation with local growers. Instead of the array of subsidies for agribusinesses, it offers short-term support to farmers wanting to switch to a more sustainable approach and some form of organic farming, and so on.

No area of life is as promising as the alternatives for different forms of organic farming and a combination of farming and forestry. Given the changes in climate in Africa, Central America, and parts of Asia *agroforestry* is the most important alternative for many arid areas and degraded lands. For the developed countries different forms of *organic* farming on local small-scale and medium-sized farms are the most viable alternative to high energy, water intensive, chemical farming with mono cultures. Different forms of urban farming and community gardens can provide many basic food supplies for millions of people, especially in the mega cities. In all these developments, the fundamental direction is crucial. The capitalist way of life and worldview cannot provide a solution to world hunger and food security. The neo and eco Marxists and Socialists, alternative organizations as well as many religious organizations have made and are making significant contributions that can be seen as a part of a Third Alternative. In many areas subsistence farmers, fishers, foresters, and artisanal miners are already *living* a Third Alternative. The peasants' and peoples' movements have well-developed views of living within the limits of and in harmony with the environment, the integration of experiential knowledge and science, egalitarian relationships, honoring participatory democracy and social justice. Especially the agrarian movements have been able to organize themselves and to gain a world-wide voice.

The most obvious aspect of farming is its geographical, physical, biological and ecological foundation. Without paying attention to climate region, lay of the land, kind and quality of the soil, soil nutrients, water content and availability, ecological complexity and biodiversity, etc. very little will grow and flourish. Violation of this dimension can only bring disintegration and the collapse of many life-forms. However, there is much more to ecological sustainable farming than its ecological foundation. The lists of benefits of alternative ways of growing foods often mention the enhancement of the quality of life for farmers and rural communities. This emphasis highlights that farm work, among many other kinds of work, can be emotionally rewarding, fulfilling, joyful, passionate and meaningful. As people tend to say: 'I love what I am doing', or, 'I get rewarded for what I love doing', which is quite the opposite of what many others experience and express, 'I hate going to work each day and I can't wait for Friday to come'. This does not mean that alternative farmers and growers are never stressed or anxious, on the contrary. There are many uncertainties and set-backs, but they love the land, the animals, the work, providing good quality food and experiencing personal fulfillment and peoples' appreciation and satisfaction.

Growers constantly look for research and technical innovations that relate directly to their practices. The more research is participatory and shared the more effective and helpful the results. In certain areas farmers are working together to develop more drought resistant varieties like in the high Andes among the peasant potato growers. This example and many others illustrate that knowledge is not privately owned and can be shared freely. Experiential knowledge has been

preserved for hundreds of years by millions of farmers. It is publicly owned and is not subject to the perversion of intellectual property rights. People everywhere are innovative, have new ideas and love to experiment and share the results. Systematic research and new technologies are based on this creative tendency and ingenuity of farmers worldwide. This is true not only for farming but for every type of work if people are given the responsibility and possibility to find new ways of doing things. Thinking through, investigating, exploring innovative ideas and experimenting are fundamental aspects of human functioning. 'Suggestion boxes' in factories or offices are faint reflections of this human tendency. Capitalist ideology and corporate domination suppress these creative thinking processes, making workers into cogs of a large production machine that is blind to inefficiencies and waste.

Another dimension that is coming more to its own, especially in the global South, are education and communication. Many farmer-to-farmer networks of training and sharing of information are developing. In some areas publicly owned radio programs and cell phones are used to inform farmers of crucial information and new possibilities. In other places field days demonstrating new approaches are organized to inform other local villagers. When there is a high degree of illiteracy, visual aids, short documentaries, dramatization and songs are used to educate and communicate. Villages, especially women's groups are developing their own literacy training groups. In industrial countries field days and cooperative-led training sessions have always been a primary source of information, wherever they have not been supplanted by 'expert advice' or mandatory corporate procedures. Within a Third Alternative communities can once more become the context for solutions, cooperation, mutual aid, prizing each other's contributions, and last, but not least, celebrations, farm tours and fall festivals.

In terms of governance and justice, within a Third Alternative participatory democracy and from-the-bottom-up policies and recommendations can come to their own. Whatever form national or regional political institutions take on, they are to facilitate and serve local people everywhere and give everything its rightful place, whether with regard to health care, sanitation, waste and water management, public transportation, education, community justice and restoration, rural and urban connections, the food supply and particularly with regard to agriculture, land and water rights. All of these services can be publicly owned and governed by citizen groups. Safety, health and environmental standards, can be developed by workers' and citizens' groups that are directly affected. The same holds true for developing agricultural policies on a regional or national level. Local chapters of the National Farmers Union in Canada can present recommendations and policies which are debated and voted on at the provincial and national level. During the last decades these policies cover a wide range of issues dealing with the environment, phasing out the use of neonicotinoid pesticides, supporting integrated pest management approaches, protecting biodiversity, maintaining the right to save and use their own seeds, water conservation, developing alternative energy sources, supporting small-scale and family farms and rural communities, and so on. National delegates in turn participate in international conferences and contribute to the formulation of international guidelines and action. This kind of approach is not a utopian dream but a reality that stems from a commitment to an alternative way of life, providing a direction in which to walk, one step at the time, facing whatever obstacles there may be along the way, supporting each other.

As highlighted in previous chapters, this alternative direction or ultimate conviction about life has been clearly articulated and presented to global assemblies by the world-wide peasant movements and many religious assemblies and faith groups. Given this fundamental direction and multidimensional frame of reference, farming can take on many forms. There is no one right approach because there are many ways to actualize and give form to the many guideposts. It is instructive and exciting to read all the different variations and innovations people have developed in different climate regions, geographical areas, types of soil, water availability, variety of seeds and domesticated animals, technical means, traditional knowledge, cultural traditions, patterns of governing, ways of interrelating and new possibilities for young people. It also challenges each farmer, each community to grow, change, improve and live up to the fundamental

guideposts whether by means of ecological practices, communal action, cooperatives, developing guidelines, honoring land and water claims, or any other aspect. There are many repressive forms of domination, governance, inequality, class, caste, slavery, cultural or religious traditions and other conditions that mar and compromise ecologically sustainable farming. Not all organic growers and not all peasant farmers strive for social justice and equality. In view of that it is encouraging and moving to see how the 'untouchables' in India, for example, are asserting their rights and making their voice heard, often at the risk of their lives (Chapter 9). Those liberating forces that stem from a different conviction and vision about the integrality of life are at work in many places. In the end there can be no ecologically sustainable farming without doing justice to all aspects of life. A third way requires what we have called earlier 'the simultaneous realization of all norms'.

There are many different forms of alternative farming methods, like: biologically based farming; organic, regenerative farming; low-input approach farming; agroecology; energy smart agriculture; permaculture; biodynamics; polyculture; ecodynamic; and biointensive agriculture. No doubt there are other approaches or emphases that make distinctive contributions. In one way or another they tend to focus on: maintaining wetlands; restoring healthy soils; practicing advanced forms of crop rotation and intercropping; no-tilling or strip tilling with no-till areas; natural control of pests and weeds; integrated pest management; the use of green and animal manure; nitrogen fixing cover crops and trees; use of biochar; using community compost; wind breaks and shelterbelts; water run-off prevention; collecting and using rainwater; etc. The important point is that there are many viable practices, many new insights and innovations, many new possibilities and technologies. An integral agriculture is an unfolding, open-ended, exciting and creative endeavor.

Alternative approaches in Africa

Alternative methods of growing, particularly in Sub-Saharan Africa, deserve separate attention. Perhaps more than any other continent, Africa has suffered from colonial domination and is suffering again from neo-colonialism and, increasingly, from the effects of climate change. Under the guise of 'economic development' as the answer to the eradication of poverty, Africa is being plundered of its resources, from oil and gas, to minerals, wood, agricultural products, fish, and a wide variety of other products. These 'developments' primarily benefit the African elite in each country and a small growing middle class destined to become the new consumers. Global corporations with the cooperation of corrupt or indebted governments are protected and aided by international banks, financial institutions, world trade organizations and many international development and aid organizations. With regard to agricultural developments, many international support and aid programs are limited or compromised by disintegrative macro-economic practices.

TerrAfrica's exemplary work as reported in one of their main reports "*Sustainable Land Management in Practice; Guideline and Best Practices in Sub-Saharan Africa*" (2011) is a good example of such a mixed and conflicted approach. On the one hand it presents many promising case studies and valuable insights; on the other hand the actual field work shows all the limitations of the neoliberal capitalist approach to economic development. *Close to half of the African continent* is threatened by land degradation and water shortages, especially in the sub-Saharan countries. Desertification and degraded land areas keep increasing year after year. To help change this situation TerrAfrica in partnership with many other organizations (WB, FAO, African Union, EU) has developed a series of guidelines for 'sustainable land management' (SLM) based on 47 case studies in 18 countries. The focus on sub-Saharan and Eastern Africa is crucial since around 65% of the people in those areas depend on subsistence farming for their livelihoods, many on infertile, dry and degraded land. Eastern and Southern Africa in particular are increasingly experiencing the effects of climate change in terms of unpredictable weather patterns, floods and prolonged dry spells. A high population growth rate adds to the urgency of the situation.

The hope is that through efficient use of water, enhancement of soil organic matter and fertility, improvement of plant species and varieties, and the development of more favorable micro-climates, productivity can be improved. The innovations include up-dated cases gathered together earlier by World Overview of Conservation Approaches and Technologies (WOCAT) in a publication called *Where the Land is Greener* (2007), which describes 42 soil and water conservation initiatives worldwide. Many of the approaches have been described earlier and in later reports. In 2013 the UN Convention to Combat Desertification (UNCCD) published *Land for Life, Managing Land Sustainability for better Livelihoods*, covering 40 innovative approaches in many different countries. Together these reports cover a wide range of methods reflecting both indigenous practices and knowledge and the insights of the agricultural sciences and the contributions of modern technologies.

The case studies in *Sustainable Land Management in Practice* (2011) cover 12 main approaches, dealing with different ways of restoring and maintaining soil fertility; different forms of conservation agriculture; ways of collecting rainwater; managing run-offs and flood waters; smallholder irrigation practices; terracing and cross-slope barriers; different kinds of agroforestry; integrating crop and livestock; pastoralism and rangeland conservation; developing sustainable planted forests, dryland forests, and rainforests; and new opportunities. Some of the other reports add further details and variations. Each method is described in considerable detail along with advantages and potential difficulties that may need to be addressed. The wealth of actual practices from different geographical locations and climates illustrate how degraded soils can be restored and enriched and scarce water can be conserved and as a result, livelihoods and well-being can be improved.

Together these approaches reflect a richness of experience, initiatives and insights that bodes well for African smallhold farming on degraded lands. At least, one would think so after decades of experience. Although there are many small group and area successes, the authors' overall evaluation is that adoption of many of the new approaches is 'slow' or 'alarmingly low' (pp. 13, 43). "Too many best practices remain isolated in pockets. The challenge is to gain significant spread, not just help an increased number of families, but to achieve ecosystem impacts that can only be realised on the large scale" (p. 20). In some cases the new techniques were abandoned as soon as the incentives and support services were stopped. The authors present a variety of reasons for this low adoption, uptake and spread of these promising approaches.

The reasons given reflect an interplay of many complex factors, from a lack of 'institutional and policy frameworks', to a lack of 'institutional capacity', a lack of 'rules, regulations and laws', in short, a lack of an enabling political and governing environment. "To make an impact SLM needs to be integrated within national and regional priorities through policies, strategies, and action plans SLM policies must be mainstreamed into broader sectorial policy frameworks" (p.52). Added to this are issues related to access and rights to land and water. Communal and customary rights are often uncertain and not clearly protected by law. Many smallholders do not have secure land tenure and even if they do, their rights can easily be violated by political and corporate interests. Although there is a consistent emphasis on empowering local communities and subsistence farmers, they repeatedly express concern that there needs to be genuine participation at the grassroots level and the incorporation of their views and experiences in order to ensure their commitment. There is concern that 'extension and advisory services', that is contributions from staff and support workers are firmly based on 'appropriate training and capacity building', meaning that farmers need to be directly involved in further training by farmer-to-farmer exchanges and 'farmer field schools', etc. Finally there are the issues about lack of 'access to markets' and even if there is adequate access, farmers need to develop flexible and innovate alternatives in view of speculative and volatile markets and quickly changing prices. Overall they plead for greater involvement of civil society and all levels of the national and international communities.

WOCAT in its report *Where Land Is Greener* (2007) list similar reasons why large-scale adoption of these promising programs is limited: funding is often not long enough; the participatory approach is very demanding and time-consuming; there is need for more training; incentive schemes are problematic; off and on markets are oversupplied and prices fluctuate; land conflicts that interfere with the implementation of programs; etc.

This ambitious and promising program of TerrAfrica and others like it are ultimately stranding on the clash between their micro-economic, grassroots, small-scale, local, communal approach and the macro-economic policies of African governments, international corporations and banks. The two approaches are in direct conflict with each other. They represent two opposing visions and ways of life. The WB and other international organizations are divided against themselves, as we noted in Chapter 4. The WB, for example, supports and finances both the efforts of TerrAfrica *and* many macro projects that involve high energy industrial agriculture and irrigation, which leads to the further decline of the environment, to displacement, dispossession, poverty and violation of human rights (Chapter 2). In the descriptions it seems as if these low-scale and low-tech, ecologically sustainable practices and innovations take place in a political vacuum instead of in the context of the ideology of neoliberal economic policies. Only incidentally do the authors make reference to this over-arching and dominating influence with regard to market access, fluctuating prices, cutbacks in extension services and farm credit as a result of liberalisation policies. There is a general recognition that for these approaches to be adopted on a larger scale many other issues need to be addressed. “Field experiences show that for innovations to be sustainable there is a need to address not only the technological but also the socio-cultural, political, economic dimensions, such as: community structures, gender, collective action, property rights, land tenure, power relations, policy and governance” (p. 221). One gets the false impression that taking all those factors into account can happen within the present dominant global free market system and within a time-span of a few years of training and support.

Had the authors considered the actual situations in countries like Nigeria, Peru, Ghana, Mozambique, and Malawi (Chapters 2 and 9) or any other country like Mali, Niger, Kenya, Ethiopia, Togo, etc. from the beginning and throughout, their approach would have been very different. They might have started with the primary needs in many villages in very simple ways, like helping each household to develop a twenty brick two-pit fireplace instead of a three brick open one, or any other variation that villagers could make themselves from local materials. That approach alone would have saved hundreds of thousands of lives over the last forty years. Next they might have focused on supporting and teaching a small group of women in each village how to grow tree seedlings to develop a combination of vegetables, bushes, trees, grains, and small-animals agro forestry gardens around their houses and villages and in their small plots of land. It would have provided fodder, firewood, compost, manure, and an abundance of vegetables while at the same conserving water and developing protection against heat and drought. And from there on, they could have helped communities develop better storage facilities, a village well, collecting rainwater from village roofs, sanitation measures, latrines, etc.

In this way the aid and support offered by the RIPPLE aid organization, as just one example, is closer to the grassroots needs of the people and standing by as long as necessary, helping them to help themselves (Chapter 9). Their accounts illustrate how much sustained support is needed for the successful adaptation of improved or new strategies. It is not very glamorous but intensely rewarding. The solutions are often very simple; they do not require large projects and sophisticated approaches, even though in time that may be very helpful and appropriate. Of course, some communities may be in very different circumstances or have developed more elaborate cooperative structures and would be able to adopt more sophisticated and innovative solutions. It seems an illusion to think that land degradation can be countered and solved without taking the total context into consideration. If doubling the food production (mostly for export) by 2030 is not the goal, the different forms of agroforestry and organic growing will provide more than enough healthy food for each family with food left over to share.

Whatever the local situation may be, the challenge is to start and stay close to where a village and subsistence farmers are at. Imagine if the billions of dollars spent on the projects by TerrAfrica and other organizations over the last decades would have focused on these primary needs. In such a process they would have had to deal with local customs, traditions, beliefs, political corruption, land rights, social injustice, disease, gender roles, etc. and they would have had to struggle together to find ways to deal with these aspects. They would have discovered that there can be no ecological sustainability without social justice and they would have found themselves in direct conflict with donors and investors, starting with the WB, IMF, WTO, and global corporations that provide their funding.

Meanwhile, the impact of the free market ideology is never far away in the descriptions of the case studies. The stated goal is to increase both the land's productivity and at the same time restore and maintain ecological sustainability and provide protection against climate change. The overall goal is to double food production by 2030 in order to be able to feed the expected increase in population and eradicate hunger and poverty. Improving the fertility of the soil, conservation of water, protecting plant and animal biodiversity, creating micro climates by local subsistence farmers is increasingly acknowledged as the answer to world hunger and population increases. Improved practices of millions of smallhold farmers are considered the key to providing food security of impoverished populations throughout Africa. This promising vision runs headlong into global corporate macro-economic practices and structural adjustment programs. There is an uneasy balancing act between two contradictory visions in TerrAfrica's approach that cannot be resolved. How can one hold up an Agroforestry Extension Project in Malawi (MAFE), for example, however promising in itself and not relate the project to the general social conditions in Malawi and particularly the lack of food security, deforestation, droughts and floods? How can one present case studies from Ethiopia and Kenya, and other countries and not make reference to the WB's complicity in the dispossession and forcible eviction of farmers and herdsman? Why is there no mention of the mega-projects supported and funded by the WB and others that lead directly to the degradation of the environment and global warming? Sustainable land management does not happen in a political vacuum, especially in the face of increasing 'land grabbing' in Africa.

Another way this conflict between two fundamental directives becomes evident is in what could be called, its 'pseudo-scientific' language and concepts. The intellectualistic language of most reports, including TerrAfrica's creates unnecessary distance from the actual reality of farming and herding. The many case studies are tentative and small enough and often in need of further experimentation so that 'generalizations' and 'standardized measurements' are premature. This 'science-based evidence' is primarily for the benefit of donors and investors to obtain on-going or increased funding. Words like: 'an enabling environment, framework for investment, operation design, stakeholders, planners, implementers, landusers, levels of intervention, critical analysis, program appraisal, knowledge management, standardized pool of knowledge, building capacity, upscaling, regulatory environment, enabling policies, problem and impact driven practices, cost-efficient, human and natural capital, ecosystem services', etc. reflect a *scientistic* attitude. Within this frame of reference farmers have become 'landusers' and their experiential knowledge is now in need of 'management' and 'standardization', etc. Such language echoes one of the cornerstones of the Enlightenment worldview: 'in science and technology is our trust' to liberate humanity from ignorance and superstition (Chapter 4). It is in contradiction to the contributors' stated goals about the blending of indigenous knowledge and practices and the agricultural and environmental sciences with an emphasis on the importance of local knowledge and expertise. It illustrates that without an alternative view of experiential knowledge and scientific theory, the temptation to find one's security in science and technology is never far away.

The goal that TerrAfrica endorses is to *double food production, create a surplus, provide access to international markets and help farmers to deal with volatile commodity prices, etc.* In contrast, the goal of a Third Alternative vision is to *develop food sovereignty, self-management, local and regional sharing and distribution, communal sharing of*

knowledge and seeds, protection of plant and animal varieties and managing communal lands and water. It is a vision of 'sufficiency', of an 'economy of enough', of a 'no-growth economy', in which 'surpluses' are used in exchange for communal education, health care, sanitation, water and waste management, alternative ways of generating energy, and communal arts and crafts. Within those guidelines there are countless opportunities for development and innovation.

The same needs to be said about the inspiring examples of UNDP's *Community-based Sustainable Land Management; Best Practices in Drylands from the Equator Initiative, 2013*. In the detailed descriptions of these award winning examples there are only a limited number of references to issues like: land rights and tenure security; lack of infrastructure; social security services; corruption; timber and mining concessions; land grabs; monoculture plantations; water diversion for irrigation; illegal logging; poaching; national debts and interest payments; AIDS and other crippling diseases; dumping of subsidized foods; etc. Many of these situations and practices have contributed to or are directly related to changing weather patterns, droughts, floods and the degradation of land and scarcity of water. Most case studies are indeed exemplary but they remain isolated examples. There is no doubt that they are of great benefit to the villages and farmers that are directly involved, especially many women. However, if they are successful beyond the local or regional level, they will be in danger of becoming incorporated into the free market system and the global food industry. With regard to the examples of the development of eco tourism, we can wonder, how many eco tourism lodges can the sub-Saharan countries sustain (as well as in Asia and South-America) and how many wealthy tourists can they attract? And even if they could, is that sustainable? There are many other solutions to preserving and maintaining the valuable nature reserves and parks and providing a living. And what are we to think of payments by the developed world for 'eco system services' as an additional source of funding. Will they have any more integrity than previous arrangements and make a genuine contribution to climate change mitigation?

Equator Initiative. *Best practices in drylands from the Equator Initiative*. Retrieved from http://equatorinitiative.org/index.php?option=com_content&view=article&id=797&Itemid=732&lang=en
Liniger, H. and Critchley, W. eds., (2007). Where the land is greener. WOCAT. https://www.wocat.net/fileadmin/user_upload/documents/Books/WOOK_PART1.pdf
TerrAfrica. (2011). *Sustainable Land Management in Practice: Guideline and Best Practices in Sub-Saharan Africa*. Retrieved from <http://terrafrica.org/knowledge-management/knowledge-base/>
UN Convention to Combat Desertification (UNCCD), *Land for Life, Managing Land Sustainability for better Livelihoods*. Retrieved from <http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/Land4Life.pdf>
UN, *African Human Development Report 2012*. (2012). Towards a food secure future. Retrieved from http://hdr.undp.org/sites/default/files/reports/240/ahdr_2012.pdf
UNDP. (2012). *The power of local actions; lessons from 10 years of the Equator Prize*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/731undp.pdf>
UNDP. (2013). *Community-based sustainable land management*. Retrieved from http://www.undp.org/content/undp/en/home/librarypage/environment-energy/sustainable_land_management.html

Already in 1999 and updated in 2008, Berkes in his *Sacred Ecology* highlighted many instances of ecological farming methods and agroforestry practices by a wide range of indigenous and local peoples. His accounts and many references to earlier reports provide a much-needed corrective and counter balance to present-day combinations of indigenous and scientific approaches, including the TerrAfrica initiatives. Many of the new initiatives were known and practiced long ago, before colonial and neo-colonial domination disturbed the ancient practices. In some instances they are re-established and re-vitalized by the communities themselves. Every support worker and agricultural expert would do well to read and incorporate Berkes' and that of many of his colleagues' perspective. It is sobering and humbling to read the many ecologically sustainable practices that originally existed and were integrated within the total life of local communities, whether in the tropical forests, the savannahs, the mountainous areas, or coastal lagoons and reefs.

There are descriptions of shifting cultivation and elaborate ecological succession planting, reflecting extensive knowledge of a great variety of plants and trees and their nutritional needs and effect on the soil. Traditionally fire was used by many indigenous people to create garden patches. These agroforestry practices, instead of destroying the

integrity of the tropical forests actually helped to rejuvenate the forests. There are many accounts of communal uses of pasture with complex grazing systems of rotations and alternations; of pastoralist-livestock-Acacia trees interactions using circular enclosures; of herders with an exquisite rule-of-thumb knowledge of ecological conditions of the range for their migratory herding systems, following the annual cycle of rains with its new growth. There are descriptions of terracing practices for conserving soil and water and traditional irrigation systems with communal governance from many different countries; ingenious use of weirs, dams, run-offs and gully formations. The traditional coastal and marine conservation measures are equally instructive. There are examples from different coastal areas and islands of the management of lagoons, wetlands and lagoon fisheries with elaborate communal tenure and access rules to conserve the eco systems.

These practices reflect an integral system of interaction between humans and nature with a wise use of resources. One conclusion Berkes draws is that: “The examples in this chapter show that there is *a general tendency for self-organization toward community-based management that uses local knowledge*. The cases here are consistent with the international literature indicating that local knowledge development is most vibrant when local people are able to make their own management decisions” (p. 223). Earlier on Berkes ventured the generalization that “societies with time-tested environmental practices *and* a capacity to learn from experience are more likely to be sustainable” and “as we are dealing with a knowledge-practice-belief complex, one can further guess that the possession both of an appropriate social organization to put knowledge into resource management and of a worldview consistent with ecological prudence were also adaptive” (p. 72).

Perhaps his most important statement in view of the tendency to find ultimate security in some aspect of creation is: “Adaptive Management, like many traditional knowledge systems, assumes that nature cannot be controlled and yields predicted; uncertainty and unpredictability are characteristics of all ecosystems, including managed ones. In both cases feedback learning is the way in which societies deal with uncertainty” (p. 72). Because of the importance of a “conservation ethic, as part of the belief system or the worldview guiding practice”, we can underscore his point that when a “culture retains some semblance of the sacred” it is more likely to adapt to new circumstances and crises (p. 248). Adaptability is not just the outcome of a process of cultural evolution and evolutionary ecology. It is that. But it is ultimately rooted in a worldview that does not find its security in some aspect of life, but finds its trust in the underlying evocativeness of life and listens to the voice of life itself. The projects of TerrAfrica and others can only build on these rich traditions and ultimate visions and offer modern agricultural insights and technological innovations for the further enrichment and development of these traditions. They can only do so with humility and the acknowledgment that modern industrial agriculture is co-responsible for the degradation and exploitation of rural Africa.

There are similar exciting and innovative agricultural approaches in other countries and continents. The development of school gardens, urban farming and community gardens across the globe, including Africa, offer new possibilities and hope for self-sufficiency and food sovereignty.

- Berkes, F. and Adhikari, T. Development and Conservation: Indigenous businesses and the UNDP Equator Initiative
Berkes, F. et.al. (March 17, 2006). Globalization, Roving Bandits, and Marine Resources. *Science*, Vol. 311. Retrieved from <https://www.adelaide.edu.au/efn/publications/Berkes%20et%20al.%202006%20Science.pdf>
Berkes, F. *Sacred Ecology*, 1999/2008, 2nd ed. Routledge.
Bhagwat, S.H. et.al., (2005). The role of informal protected areas in maintaining biodiversity in the western Ghats of India. *Ecology and Society*, Vol. 10, (1). Retrieved from <http://www.ecologyandsociety.org/vol10/iss1/art8/>
Bray, D.B. et.al., (June 2003). Mexico's community-managed forests as a global model for sustainable landscapes. *Conservation Biology*, Vol. 17, (3). doi: 10.1046/j.1523-1739.2003.01639.x
Byron, C. L. (October 5, 2012). Africa: World Bank refuses call to halt land deals. *AllAfrica*. Retrieved from <http://allafrica.com/stories/201210080770.html>
Cultural Survival. (February 23, 2015). World Bank admits link to forest evictions in Africa. Retrieved from <https://www.culturalsurvival.org/news/world-bank-admits-link-forced-evictions-africa>

Dawson, I.K. et al., (2014). Agroforestry, livestock, fodder production and climate change adaptation and mitigation in east Africa: issues and adaptations. *World Agroforestry Centre*, Working Paper #78. Retrieved from <https://cafs.cgiar.org/publications/agroforestry-livestock-fodder-production-and-climate-change-adaptation-and-mitigation#.V5u1dMXvaRM>

Handbook of Research on Indigenous Entrepreneurship, (2005), Dana, L.P. and R. Anderson, eds., London: Edward Elgar. Retrieved from https://umanitoba.ca/institutes/natural_resources/pdf/Indigenous%20Businesses%20and%20the%20UNDP%20Equator%20Initiative%20FB%20BTA.pdf

Harsch, E. Fighting African poverty, village by village. *Africa Renewal*. Retrieved from <http://www.un.org/africarenewal/magazine/july-2008/fighting-african-poverty-village-village>

Ihobor, K. Africa's economy grows, but many stomachs are empty. *Africa Renewal*. Retrieved from <http://www.un.org/africarenewal/magazine/special-edition-agriculture-2014/africa%E2%80%99s-economy-grows-many-stomachs-are-empty>

Lasco, R.D. et al., (2013). Climate risk adaptation by smallholder farmers: the roles of trees and agroforestry. *Current Opinion in Environmental Sustainability*, Vol. 6. doi:10.1016/j.cosust.2013.11.013

Madzwamuse, M. (August 7, 2013). Managing land sustainably. *OSISA*. Retrieved from <http://www.osisa.org/economic-justice/blog/managing-land-sustainably>

Mbow, C. et al., (2013). Agroforestry solutions to address food security and climate change challenges in Africa. *Current Opinion in Environmental Sustainability*, Vol. 6. doi:10.1016/j.cosust.2013.10.014

Munciton, S., (November 23, 2015). "Cuba's ecological farming revolution shows a different path", *Green Left Weekly*. Retrieved from, <https://www.greenleft.org.au/node/60737>

Orozco-Quintero, A. and Davidson-Hunt, I. (2010). Community-based enterprises and the commons: the case of San Juan Nuevo Parangaricutiro, Mexico. *International Journal of the Commons*, Vol. 4, (1). Retrieved from <https://www.thecommonsjournal.org/articles/10.18352/ijc.138/>

Peter, O. (September 2013). An ethical critique of neoliberal development in Africa. *Covenant Journal of Politics and International Affairs*, Vol. 1, (1). Retrieved from <http://eprints.covenantuniversity.edu.ng/1504/1/5.%20An%20ethical%20critique%20of%20Neoliberal%20Development%20in%20Africa.%20Osimiri%20Peter.%202013..pdf>

Pratt, J.H. et al., (July 2002). Malawi Agroforestry Extension Project; Marketing and Enterprise Program: Main Report. *Malawi Agroforestry*, # 47. Retrieved from http://moringafarms.com/wp-content/uploads/2014/07/Malawi_Agroforestry_Doc.pdf

Pretty, J. and Ward, H. (February 28, 2001). Social Capital and the environment. *World Development*, Vol. 20,(2); 209-227. Retrieved from <http://faculty.ucmerced.edu/ecampbell3/slkiva/Pretty-GMF-2001.pdf>

ReliefWeb. (January 12, 2015). Engaging with faith groups to restore land in Africa. Retrieved from <http://reliefweb.int/report/world/engaging-faith-groups-restore-land-africa>

ReliefWeb. (February 11, 2015). Southern Africa food security outlook update January to June 2015. Retrieved from <http://reliefweb.int/report/malawi/southern-africa-food-security-outlook-update-january-june-2015>

Sears, R. R. (June 24, 2007). Amazon forestry transformed: Integrating knowledge for smallholder timber management in eastern Brazil. *Human Ecology*, Vol. 35. <http://dx.doi.org/10.1007/s10745-007-9150-5>

Seixas, C. S. and Berkes, F. et al., (2010). Community-based enterprises: the significance of partnerships and institutional linkages. *International Journal of the Commons*, Vol. 4 (1). Retrieved from <https://www.thecommonsjournal.org/articles/10.18352/ijc.133/>

Tafrenyika, M. (2014). Africa's food policy needs sharper teeth. *Africa Renewal*, Special Edition on Agriculture. Retrieved from <http://www.un.org/africarenewal/magazine/january-2013/africa%E2%80%99s-food-policy-needs-sharper-teeth>

Trees for life. An Annual Report for the World Agroforestry Centre. A major project for dryland Africa. 2013-2014. Retrieved from <http://www.worldagroforestry.org/ar2013/>

Wood, R.G. and Garside, B. (December 2014). Informality and market governance in wood and charcoal value chains. IIED, Briefing. Retrieved from <http://pubs.iied.org/pdfs/17274IIED.pdf>

3) Ecological sustainable forestry; community forestry

If any of the remaining original forests and secondary forests are to be saved, another way of life and worldview needs to guide humanity's relation to the rich eco cultures of the forests. The preservation of forests, whether old growth, secondary or managed, can play a crucial role in controlling and reducing global warming. However, there is no 'sustainable' forestry industry that can maintain the ecological integrity of the forests, whether tropical or boreal, in spite of claims to the contrary. The goal of the global forest industry is to make as much profit as possible with a minimum of costs, preferably by clear cutting or selecting the most profitable species and discarding the rest. In this view forests are nothing more than stands of two-by-fours, telephone poles, wood pellets, a source of expensive woods, or lately, stands of expensive stocks of carbon. Concern for watersheds, hillside erosion, pollution of waterways, reforestation, etc. are of secondary importance as long as it does not affect the bottom-line. Regulations may be officially accepted and endorsed but are not necessarily followed. As long as 'economic growth' remains the guiding principle of most governments, existing laws will not be strictly enforced. National and global companies are mandated and committed to increase profits and guarantee a high return to investors, which requires continual corporate expansion and access to new resources and markets. Afforestation or planted forests suffer the same fate and are treated much like other mono-culture crops demanding high energy inputs and the use of synthetic chemicals. The global market economy is the basic directive that guides the forestry industry and contributes to the accumulation of greenhouse

gases and global warming. Ecologically it is unsustainable and irredeemable as long as it is guided by the profit motive and the global market ideology.

A Third Alternative requires a radically different vision and motivation, the same as that of the alternative forms of mining, agriculture and agroforestry. The goal of an alternative vision is to develop *well-being for all with food security and food sovereignty, equality, self-management, local and regional distribution, communal sharing of forest knowledge, protecting and conserving trees, plant and animal varieties, and managing communal watersheds and eco systems*. It is a vision of 'sufficiency', an 'economy of enough', and most of all, an economy of well-being that serves every dimension of life. It is a way of life and a vision in which 'surpluses' are used to support communal education, communication, art, health care, transportation, sanitation, water and waste management, housing, etc. Given that directive there are countless opportunities and challenges for development and innovation. The guidelines highlighted before serve as a criterion for evaluating forestry communities and cooperatives.

Community forestry in Europe and North America

If silva culture guidelines are truly followed and practiced, many present 'managed' forests can be maintained and developed further for conservation purposes, Small local wood-based enterprises can serve as genuine alternatives, whether in the developed or developing world. There are many examples of small local logging companies. Many tree farms could be developed on land that is not suitable for farming, like the plantations of the Spanish company, EcoForests (eco-Bosques). Very selective harvesting of mature trees can sustain a small tree cutting and processing company and maintain the integrity of the forest. Wood carving and other handicrafts can provide additional income for others, especially in tropical areas where there is a rich carving culture. Forest products can provide a valuable source of food and additional income, like mushroom gathering in British Columbia among the Nis people.

Community forestry in Europe takes on different forms, from England's and Scotland's community forests to the longstanding family forestry tradition in Scandinavian countries, to the many variations in Western Europe. The main concern seems to be how to integrate conservation practices, ecologically sustainable management and harvesting and protection against climate change. There are several new and exciting integrative approaches that can serve as model alternatives to industrial forestry practices. The Ebrach State Forest Enterprise in Bavaria, Germany is one of several such examples of a complex integrative system of forest management that combines biodiversity conservation and timber production across the entire forest area. Whether state, family, or community owned, there seems to be a deep commitment to protect and enhance forests both as adaptation to climate change and for future use. Family and community owners tend to have a deep personal commitment to ensure the continual regeneration and growth of their forests for future generations. In spite of these promising practices there is a growing pressure from agriculture, urbanization and economic development to intensify the use of forests. Ironically concern about global warming and climate change may help resist those pressures and encourage local people to take charge of their forests. As Sally Jeanrenaud already concluded in her 2001 study, *Communities and Forest Management in Western Europe*, (p. 128):

"... the question of whether international and national policies can exert effective influence over increasingly powerful corporate interests, is an emerging issue of global significance. Analysis of successful policy change for CIFM (Community Involvement in Forest Management) at all levels, such as *Crofter forestry* in Scotland, demonstrates how the sustained and strategic political action of coalitions of local and non-local groups is critical in effecting policy changes. In short, despite the emerging international and national 'enabling policy context', decision making within the forest sector continues to be influenced by various layered and intersecting structures of power. Further progress towards holistic, decentralized, multiple-objective management which supports CIFM is needed within Europe."

To preserve the world's forests and to mitigate and adapt to climate change, every nation would need to add many more national parks and forest reserves with strict governance and enforcement by local communities. In Canada, many First Nations people could be given formal legal jurisdiction to govern many wilderness parks and regions of the Boreal forests. They could designate other areas that could become wilderness parks with restricted use by their own people.

Island Woods. Working for Alternative *BorealForest*. Forest management in Scandinavia: an overview. Retrieved from http://www.borealforest.org/world/scan_mgmt.htm

Cocksedge, W. (2001). The role of co-operatives in the non-timber forest product industry: exploring issues and options using the case study of Salal (*Gaultheria shallon*; Ericaceae). *B.C. Institute for Co-operative Studies*. Retrieved from https://www.uvic.ca/research/centres/ccbe/assets/docs/publications/practitioner/Cocksedge_NonTimberForestProducts.pdf

Community Forests and Planning Policy, Baseline Review. (April 2013). England's community forests. Retrieved from <http://www.communityforest.org.uk/resources/Community%20Forests%20and%20Planning%20-%20baseline%20report.pdf>

European Union Business and Biodiversity Platform. (September 2010). Forestry sector and biodiversity conservation: best practice benchmarking. Retrieved from http://ec.europa.eu/environment/archives/business/assets/pdf/sectors/Forestry_Best%20Pratic%20Benchmarking_Final.pdf

Forest Stewardship Council. (November 8, 2010). FSC Pesticides Policy: pest management alternative procedure. Retrieved from <https://pt.fsc.org/preview.pest-management-alternative-procedure.a-239.pdf>

Jeanrenaud, S. (2001). Communities and forest management in Western Europe. *IUCN, The Working on Community Involvement in Forest Management*. Retrieved from <https://portals.iucn.org/library/efiles/edocs/2001-061.pdf>

Kraus, D. and Krumm, F. eds., (2013). Integrative approaches as an opportunity for the conservation of forest biodiversity. *European Forest Institute*. Retrieved from http://www.efi.int/files/attachments/publications/integrate_2013.pdf

Mergner, U. and Kraus, D. (March 2012). Protection despite utilization – the biodiversity concept of the Ebrach State Forest Enterprise. *European Forest Institute, Integrate Project News*, No. 2. Retrieved from http://library.eawag.ch/EAWAG-Publications/openaccess/Eawag_07015.pdf

Molnar, A. et al., (2011). Community-Based Forest Management: the extent and potential scope of community and smallholder forest management and enterprises. *The Rights and Resources Initiative*. Retrieved from <http://www.illegal-logging.info/sites/files/chlogging/uploads/CBFE2065.pdf>

Mosandl, R. (November 13, 2013). Forestry in Germany: on the track towards a 'close to nature' – forest. *Institute of Silviculture*. Retrieved from https://akela.mendelu.cz/~xcepl/inobio/inovace/Pesteni_lesu_II/zl_Mosandl_Close-to-nature-forestry%20Brno%20November%202013.pdf

Nordic Family Forestry. (April 17, 2014). LRF Skogsagarna's agenda for forest and climate. Retrieved from *Nordic Family Forestry*. (March 3, 2009). Nordic family forest owners' position on forests and climate change. Retrieved from <http://www.eustafor.eu/organization/bureau-of-nordic-family-forestry-nff/>

Nordic Family Forestry. The Nordic family forestry. Retrieved from http://www.nordicforestresearch.org/wp-content/uploads/2011/03/NV_2005_6.pdf

Par, A. et al., (February 2005). A Cut Above: a look at alternatives to clearcutting in the Boreal forest. *Wildlands League*. Retrieved from <http://wildlandsleague.org/attachments/A%20Cut%20Above.pdf>

Rhode Forest Products. Retrieved from <http://web.uri.edu/rhodeislandwoods/files/102.pdf>

Village forestry and climate adaptation in the global South

Forest peoples and local villages have managed their forests for centuries and developed ingenious ways to revitalize and maintain the integrity of their forests. Today there is a new recognition and many examples in different countries that forest tribes, indigenous people and local villages are best suited to protect their surrounding forests. If they benefit directly from the forests' resources and are given the legal right to govern and maintain their forests they have shown how they can make a livelihood and at the same time preserve and regenerate their forests. More recently many local forestry cooperatives and village-run small enterprises have developed, like the ones in Mexico and elsewhere. These communities are able to create a living and well-being from the many products the forests provide, from lumber, to medicinal plants, oil, honey, resins, etc. The key to their success seems to be self-governance, participation of the entire community, a fair sharing of the benefits and communal use of any 'surpluses'. Particularly in the tropical and semi-tropical forests, there is an abundance of fruits, nuts, spices and medicinal plants that can be harvested and cultivated. Coffee, tea, cocoa, vanilla beans, bananas, can all be grown in the shadow or intermixed with larger trees. The rainforests can provide latex, cork, resins, spices, natural oils, and a host of other materials that can be harvested in a sustainable manner. Many of these forest products can be grown, harvested and processed by local communities.

Abeysinghe, A.C. (October 6, 2014). Least developed country leaders say 'follow us' to tackle climate change. *IIED*. Retrieved from <http://www.iied.org/least-developed-country-leaders-say-follow-us-tackle-climate-change>

Academia.edu. Community forestry practices in Myanmar. Retrieved from http://www.academia.edu/5042453/COMMUNITY_FORESTRY_PRACTICES_IN_MYANMAR

Badore, M. (August 1, 2014). How protecting forest community rights fights global climate change. *TreeHugger*. Retrieved from <http://www.treehugger.com/climate-change/how-protecting-forest-community-rights-fights-global-climate-change.html>

Biron, C.L. (July 25, 2014). Community control of forests could help combat climate change. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2014/jul/25/forests-land-rights-deforestation-climate-change>

Bolin, A. (February 4, 2015). Locally controlled forestry enterprises could teach us all a thing or two. *IIED*. Retrieved from <http://www.iied.org/locally-controlled-forestry-enterprises-could-teach-us-all-thing-or-two>

Bray, D.B. et al., (June 2003). Mexico's community-managed forests as a global model for sustainable landscapes. *Conservation Biology*, Vol. 17 (3). doi: [10.1046/j.1523-1739.2003.01639.x](https://doi.org/10.1046/j.1523-1739.2003.01639.x)

Brown, L.R. (July 31, 2012). We can reforest the earth. *Earth Policy Institute*. Retrieved from http://www.earth-policy.org/book_bytes/2012/wotech10_1

Cannon, J.C. (December 12, 2014). Indigenous communities 'among the very few best protectors' of Peruvian Amazon.

Mongabay. Retrieved from <https://news.mongabay.com/2014/12/indigenous-communities-among-the-very-few-best-protectors-of-peruvian-amazon/>

Schiffman, R. (March 9, 2015). What lies behind the recent surge of Amazon deforestation. *Yale Environment 360*. Retrieved from http://e360.yale.edu/feature/what_lies_behind_the_recent_surge_of_amazon_deforestation/2854/

ScienceDaily. (September 28, 2011). Managing future forests for water. Retrieved from <https://www.sciencedaily.com/releases/2011/09/110928131806.htm>

World Rainforest Movement. (May 2004). Melanesia: Community-based ecoforestry protecting forests. Retrieved from

<http://wrm.org.uy/oldsite/subjects/CBFM.html>

WWF. Living Planet Report 2014: Species and spaces, people and places. Retrieved from

http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

Zulu, L. (2013). Bringing people back into protected forests in developing countries: insights from co-management in Malawi. *Sustainability*, 5, 1917-1945. Retrieved from www.mdpi.com/2071-1050/5/5/1917/pdf

The Center for People and Forests (ROCEFTC) organization has published a series of reports on its work in Asia and the Pacific for the development of community forestry. There are over 2 billion people living in rural areas in that region who will bear the brunt of the effects of climate change. It is their conviction that community forests and different forms of agroforestry can both enhance their livelihoods and help them adapt to the impacts of climate change. More than 450 million people depend directly on the forests for part of their livelihood to survive, especially during times of food scarcity. The forests provide them with a great variety of forest products and food, from fuel, building materials, tools, fodder, rattan, resin, medicinal plants, to insects, nuts, fruits, berries, mushrooms, fungi, bamboo shoots, vegetables, etc. Their traditional knowledge and skills makes them effective forests managers; they hold the key to healthy forests. If given the legal power, long-term tenure or the formal recognition of their customary rights and the direct benefits of their work, they will have a direct stake and interest in caring for and maintaining their forests.

Where needed the RECOFCT projects support local villages to develop communal structures that allow everyone to have a voice and an equal share of the forest products. They provide technical assistance and knowledge to improve existing practices that will enhance protection and adaptation to climate change. Most of all they help communities to gain official legal status and advocate on their behalf with different levels of government and provide initial funding from supporting organizations. Besides regional efforts, they have assisted in a series of local projects in 8 different countries: Cambodia, China, Indonesia, Lao-PDR, Myanmar, Nepal, Thailand and Vietnam. In some general introductory reports called, *Community Forestry in Asia and the Pacific: Pathways to Inclusive Development*, (2013), and in *Current Status of Social Forestry in Climate Change Mitigation and Adaptation in ASEAN regions: Situational Analysis 2013*, they have presented an overview of their approach. In a number of special reports called *Community Forestry Adaptation Roadmaps to 2020-Asia*, they have given an account of their work in five countries with several case studies and short videos, "Voices from the Forest".

The millions of people living in the coastal regions and the river deltas of Asia and the Pacific are particularly vulnerable to flooding, storm surges, typhoons, mud slides, intrusion of salt water, unpredictable and changing monsoons, upward migration of plants and animals, more pests and diseases, invasive species, forest fires, higher average temperatures, longer lasting droughts and lack of drinking water. These extreme weather events and increasing number of disasters have killed hundreds of thousands of people and made many more homeless. Changing annual rainfall and higher temperatures are also impacting the yields of different staple crops, especially rice, increasing poverty and hunger. In the more mountainous areas, melting glaciers and glacier lakes that can suddenly give way, pose a special threat. In the face of these changes, RECOFCT along with many other organizations believe that forest ecosystems are better suited and more resilient to climate change than (mono culture) agricultural ecosystems. Village forestry, more than any other measures, can help vulnerable people everywhere to adapt to these changes in climate. Forests can preserve water,

prevent erosion and mud slides, regulate microclimates, protect the great biodiversity of forest plant and animal life, provide habitats for key pollinators and a host of other eco functions

Community-based mangrove management is of special importance given the increase in typhoons, storm surges, flooding and rising sea levels. With their large root systems mangrove forests can break the force of large waves, withstand extreme storms and limit severe coastal erosion. If managed well, the mangrove forests are an important source of food and additional income for local people. To counter erosion and provide protection from storms surges blocks of rubber cubes have been placed along seafronts and bamboo poles in mudflats. These kinds of community-based restorations have provided a rich habitat and nurseries for marine life. It has improved yields of crabs and other marine resources and provided a supplemented source of income and food. The biggest threat to the mangrove forests is their conversion to palm oil plantations, the development of commercial shrimp farming and the production of charcoal. These commercial ventures continue to destroy the mangrove coastal regions. Thousands of hectares of mangrove forests have been lost due to erosion and commercial exploitation. The community managed mangrove forests offer an ecologically and economically sustainable alternative. Much can be done to adapt to the changing climate by local villages, both inland and along the coasts by restoration, good management and re-forestation.

Like the exemplary projects sponsored by *TerrAfrica*, the work of the *Center for People and Forests (RECOFTC)* also presents a mixed and conflicted approach. On the one hand there are many promising pilot projects that are of great benefit to local communities in different countries and climate regions. Over the decades they have built up valuable experiences and insights that could be adopted in many other places. On the other hand the actual field work shows all the limitations of the global market approach to economic development. There is a strong awareness of the legal roadblocks and resistance of many governments to transfer forest land to local communities and grant them full legal rights over the forest resources. All the national governments involved claimed strong commitments to drastically increase village forestry as the most promising answer to deforestation and adaptation to climate change. So far progress has been 'very slow' and the 'results have been very limited'. Like the African nations, the Asian region is a house divided against itself. On the one hand it is deeply committed to the neoliberal market model for economic development and at the same time it seeks to protect itself against the effects of climate change that is increasingly threatening the entire region. Ironically, it is the neoliberal economic policies and practices that are primarily responsible for the increase in global warming during the last forty years. The ambitious and promising program of *RECOFTC* and others like it are ultimately stranding on the clash between their micro-economic, local, communal approach and the macro-economic policies of the East-Asian governments, international corporations, trade organizations and banks. The two approaches are in direct conflict with each other; they represent two opposing visions and ways of life. The *RECOFTC* reports assume that opening up local production to national and global markets is a desirable goal, seemingly unaware how that will compromise local efforts. As to the legal obstacles to village forestry, the hope seems to be that step by step with political pressure progress will be made. The reality is that they are up against a fundamentally different vision and power structure.

DiGirolamo, M. (October 16, 2015). "Study finds local people do forest monitoring as well as scientists", *Mongabay*. <https://news.mongabay.com/2015/10/study-finds-local-people-do-forest-monitoring-as-well-as-scientists/>

FAO, *RAP*. (June 2010). Southeast Asian forests and forestry to 2020: subregional report of the second Asia-Pacific forestry sector outlook study. Retrieved from <http://www.fao.org/docrep/013/i1964e/i1964e00.htm>

Fern, (April, 2016). "LULUCF: what would a good proposal look like?". Retrieved from, http://www.fern.org/sites/fern.org/files/briefingnote%20Lulucf_FINAL21April.pdf

Fern, (December, 2015). "What role should land and forests play in the Paris agreement?". Retrieved from, http://www.fern.org/sites/fern.org/files/land%20sector%20policy%20brief_final.pdf

Greenpeace. (June 26, 2012). Forests and People: the need for universal REDD+ safeguards. Retrieved from

<http://www.greenpeace.org/international/en/publications/Campaign-reports/Forests-Reports/People-First/>

Htun, K. (July 2009). Myanmar forestry outlook study. *FAO. Asia-Pacific Forestry Sector Outlook Study II*. Retrieved from <http://www.fao.org/3/a-am252e.pdf>

IIED, FFF. (January 25, 2014). FFF activities in support of producer organizations in Gambia, Nicaragua, Nepal and Guatemala. Retrieved from <http://www.fao.org/partnerships/forest-farm-facility/40166-03a5df5cb5be1b9ece510f6fadd87e9d0.pdf>

IIED, *Forest Farm Facility (FFF)*. Market Analysis & Development. Retrieved from <http://www.iied.org/forest-farm-facility>

IIED. Testing REDD+ in Mozambique. Retrieved from <http://www.iied.org/testing-redd-mozambique>

Lang, C. (June 27, 2014). Entrenched injustices continue to characterize forest governance in the global south, says the Global Environmental justice research group. *REDD Monitor*. Retrieved from <http://www.redd-monitor.org/2014/06/27/entrenched-injustices-continue-to-characterize-forest-governance-in-the-global-south-says-the-global-environmental-justice-research-group/>

Lemie, K. (June 2012). Forests for community-based adaptation: Roadmaps to 2020. *RECOFTC* – The Center for People and Forests. Retrieved from <http://www.recoftc.org/news-and-features/forests-community-based-adaptation-roadmaps-2020>

Nhantumbo, I. (January 29, 2014). What's missing from private-sector REDD+? *IIED*. Retrieved from <http://www.iied.org/what-s-missing-private-sector-redd>

RECOFTC. (May 2014). Current status of social forestry in climate change mitigation and adaptation in ASEAN regions: Situational Analysis, 2013. Retrieved from PDF: www.recoftc.org/recoftc/download/12591/1400

RECOFTC. (November 2014). Community forestry adaptation roadmap to 2020 for Cambodia. Retrieved from <http://www.recoftc.org/research-papers/community-forestry-adaptation-roadmap-2020-cambodia>

RECOFTC. (November 2014). Community forestry adaptation roadmap to 2020 for Thailand. Retrieved from <http://www.recoftc.org/research-papers/community-forestry-adaptation-roadmap-2020-thailand>

RECOFTC. (November 2014). Community forestry adaptation roadmap to 2020 for Lao PDR. Retrieved from <http://www.recoftc.org/research-papers/community-forestry-adaptation-roadmap-2020-lao-pdr>

RECOFTC. (November 2014). Community forestry adaptation roadmap to 2020 for Vietnam. Retrieved from <http://www.recoftc.org/research-papers/community-forestry-adaptation-roadmap-2020-vietnam>

RECOFTC. Community forestry adaptation roadmap to 2020 for Nepal. Retrieved from PDF: www.recoftc.org/recoftc/download/4672/871

RECOFTC. *Policy Brief*. Community forestry adaptation roadmaps to 2020-Asia. Retrieved from <http://www.recoftc.org/policy-briefs/community-forestry-adaptation-roadmaps-2020-asia>

Sikor, T. et al., (November 2013). Community forestry in Asia and the Pacific: pathways to inclusive developments. *RECOFTC*. Retrieved from <http://www.recoftc.org/research-papers/community-forestry-asia-and-pacific-pathway-inclusive-development>

Stephenson, J. (November 29, 2012). Stepping out of the REDD+ shadow – forests and adaptation. *RECOFTC*. Retrieved from <https://recoftc.wordpress.com/2012/11/29/stepping-out-of-the-redd-shadow-forests-and-adaptation/>

Deforestation, fragmentation of forests, illegal logging, granting massive concessions for logging and industrial agriculture, building new dams for hydroelectric power, extracting coal, oil and gas, mining of minerals and metals, privatization of natural resources; they all continue on in spite of wide-spread warnings about the impact on climate change. All of these practices lead to the decline of the remaining forests and add to global warming. The GDP may be increasing in many of these emerging economies, but that does not reflect the levels of poverty, hunger, stunted development of children, widespread use of firewood, lack of food security, diseases, sanitation, health care and education. There is human trafficking, sex trade, corruption, bribery, human rights violations, poor prison conditions, army and police brutality, mistreatment of minorities and indigenous peoples, unequal income distribution. There are international conflicts about dams, water for irrigation; natural resources in the oceans, etc. in each of these countries. Within a one-dimensional economic framework, none of these difficulties can be resolved. The neoliberal ideology only allows for piecemeal and surface adjustments that do not bring about basic structural changes. This economic reductionism severely limits efforts of international bodies and development and aid organizations. What is needed is a radical change in direction inspired by a different vision of life.

The Bolivian statements about the *Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests, (JMA Mechanism)*, (2012; 2014) and the *Norwich Declarations on Environmental Justice* (2013, 2014) about democratic forest governance (2013; 2014) articulate such an alternative non-market approach, especially with regard to forest degradation, deforestation, forestry ecosystems and forest-dependent people. The second Norwich declaration in their critique of *REDD+ (Safeguards on Reducing Emissions from Deforestation and Forest Degradation, 2010)* summarizes the key issues well:

“We assert that indigenous peoples and local communities’ demands for forest justice and rights are multi-dimensional and context specific, concerned not solely with equity in the distribution of benefits and responsibilities, but also with recognition of cultural identity and diversity of peoples, and local visions and experiences of forest management, as well as participation in democratic forest governance processes. We argue that current (REDD+) safeguard processes fail to highlight the primary importance of recognising indigenous peoples and local communities’ territorial rights and customary law, including their implications for forest tenure rights and

decentralized governance of forests and forest land.”
(*Second Norwich Declaration on Environmental Justice*, p.2)

The REDD+ approach essentially allows polluters to continue polluting if they buy ‘carbon credits’ from developing countries. In opposition to this ‘carbon market’ program the JMA Mechanism has presented a different approach that “reinforces the principle that environmental functions of the forests must not be converted into commodities and the understanding that forests are much more than mere reservoirs of carbon” (p.10). When forests are reduced to reservoirs of carbon, people can indeed ask the absurd question of who *owns* the carbon in the trees and who is allowed to sell this resource? Such questions can only arise within a one-dimensional, reductionistic economic framework. Within that perspective trees are first reduced to commodities, like stands of two-by-fours or containers of wood chips, and when that leads to an increase in carbon dioxide emissions and global warming, they still have economic value as stores of carbon. In his address at the *Peoples Summit on Climate Change* in Lima in 2014, Evo Morales president of Bolivia cut through the rhetoric of the GOP20 summit and highlighted the core of the issues facing humanity.

“Let us create a climate agreement using the philosophy and values of those peoples (the great Indigenous civilization of Abya Yala) based on a anticolonialist vision. Climate change has become once again the safety valve to avoid discussing substantive questions like the voracious model of capitalist development that is putting an end to humanity. We are losing time because the dialogue is not between equals; it is an unsuccessful monologue. We must say to you, nothing has changed in those 30 years.

On behalf of my people, I can only say that we feel betrayed once again faced with this simulacrum of international agreements that are never enough. Our people are tired of this deception, they are tired of suffering the increase in temperature, the melting of our mountain caps, of the heavy rains, the cruel flooding and the heartbreaking droughts, which each time make us poorer.

We want to get at the fundamental root of the problem of climate change. We don’t want more protocols, we want more structural solutions, overcoming capitalism, saving the peoples of the world.

Basically the problem is the supposedly civilizing model that is based on a greedy financial architecture in which wealth is concentrated in the hands of a few, producing poverty for the majority. I want to tell you, sisters and brothers, that unless we change the centre of gravity of all the financial, economic, political, ecological and social distortions confronting our century and the planet, the search for a consensual agreement will be nothing than a chimera.

The second root of the problem of climate change is the war politics of the great powers and the huge budget devoted to it. With only a fifth of the money spent on the military by the five major military powers of the world we would be able to resolve 50 percent of our environmental problems.

The third root of climate change has to do with the exaggerated industrialization, disproportionate consumption and pillaging of resources that would alleviate the major ills of humanity. The economic model upholding the financial architecture and war politics has as its nucleus the politics of the free market, that is, the voracious capitalist policy that pays no attention to anything other than profit, luxury, and consumerism. People are treated as things and Mother Earth as a commodity.

We have to put the brakes to capitalist accumulation, the endless accumulation of commodities. We need another civilization, another society, another mentality, other values, another culture that prioritizes the satisfaction of human needs, not profit, that believes in human beings and Mother Nature, not the ‘money god’. Either we change global capitalist society or it annihilates the world’s peoples and nature itself. The environment is a common heritage of all the peoples of the world, of the ancient peoples, of the present peoples and the peoples who are to come.”

(Major excerpts translated by Richard Fidler as reported in *The Bullet* and *Climate & Capitalism*, December, 2014.)

To whatever extent Bolivia itself has been able to implement this vision is a secondary question. Without a radical new direction and vision nothing basic can change. There are formidable roadblocks for nations' as a whole to free themselves from the neoliberal ideology. It will take Bolivia as well as other nations time and many struggles to realize an alternative vision. Meanwhile there are an abundance of local farming and forestry projects that point the way; they provide food and well-being for many families and protect against climate change. For millions of people these smallhold and village projects are the best adaptation to global warming.

EJOLT. (July 17, 2014). From safeguards to safeguarding: engaging indigenous peoples and local communities on REDD+. Retrieved from

<http://www.ejolt.org/2014/07/from-safeguards-to-safeguarding-engaging-indigenous-peoples-and-local-communities-on-redd/>

Fidler, R. (January 11, 2013). Evo Morales' historic speech at the Isla del Sol. Retrieved from <http://lifeonleft.blogspot.ca/2013/01/evo-morales-historic-speech-at-isla-del.html>

Fidler, R. (December 16, 2014). After Lima fiasco, Bolivia plans global assembly to fight climate change. *Climate & Capitalism*. Retrieved from

<http://climateandcapitalism.com/2014/12/16/lima-fiasco-bolivia-plans-global-assembly-fight-climate-change/>

Fidler, R. (December 17, 2014). Bolivia to host 2015 meeting of social movements to fight climate change: In wake of UN's COP20 failure, ALBA Summit backs proposal to draft alternative plan. *The Bullet*. Retrieved from <http://www.socialistproject.ca/bullet/1062.php>

Fidler, R. (June 20, 2014). A new world order for living well, Evo Morales' message of global solidarity. *Life on the Left*. Retrieved from

<http://lifeonleft.blogspot.ca/2014/06/a-new-world-order-for-living-well.html>

Global Environmental Justice Group. (July 10, 2013). Norwich Declaration on Environmental Justice: Money Can't Buy Environmental Justice. Retrieved from

<https://www.uea.ac.uk/documents/439774/0/Norwich+Declaration>

Global Environmental Justice Group. (May 16, 2014). Second Norwich Declaration on Environmental Justice: from safeguarding to mainstreaming local rights, democratic forest governance as pre-requisite for a just and effective REDD+. Retrieved from

<https://www.uea.ac.uk/documents/439774/6205791/Second+Norwich+Declaration+on+Global+Environmental+Justice.pdf/8c39f1a2-456f-4f68-9ee4-76f25b282251>

Macqueen, D. (November 25, 2014). Bolivia's indigenous peoples drive forest farm innovation to benefit Mother Earth. *IIED*. Retrieved from

<http://www.iied.org/bolivias-indigenous-peoples-drive-forest-farm-innovation-benefit-mother-earth>

Muller, R. et.al., The context of deforestation and forest degradation in Bolivia: drivers, agents, and institutions. CIFOR, Occasional Paper 108, 20-14. Retrieved from

http://www.cifor.org/publications/pdf_files/OccPapers/OP-108.pdf

Plurinational State of Bolivia. (December 2014). The joint mitigation and adaptation mechanism for the integral and sustainable management of forests (JMA).

Retrieved from https://unfccc.int/files/cooperation_and_support/financial_mechanism/standing_committee/application/pdf/annex_1_the_joint_mitigation.pdf

The Plurinational State of Bolivia, Presented to the UNFCCC. (August 2012). The Joint mitigation and adaptation mechanism for the integral and sustainable management of forests. Retrieved from https://unfccc.int/files/bodies/awg-lca/application/pdf/3_bolivia_ws_redd+_bkk_august_2012.pdf

Conclusion

The challenge of every cooperative and small business is to keep developing a vision that reinforces doing justice to all the dimensions of life, to give everyone and everything its rightful place. Following such a direction is a daily challenge; it means following a life-enhancing and life-honoring direction, step by step. Ultimate security can only be found in the fullness of life. When we do, as the prophets of old proclaimed, there will be shalom, everything doing what it can be expected to do, the heavens responding to the earth, and the early and late rains responding to the pastures and the flocks, the olive trees and the vineyards responding to the rains and bearing fruit, then there will be peace and abundance. As we highlighted in chapter 8, the prophets' messages are against the violation and the disintegration of life that results from deifying the powers inherent in creation. Whatever powers there may be, they are all creatures and not gods; such was the prophet's message. Ultimate convictions exist to remind us of the direction in which we are walking.

4) Ecologically sustainable fisheries

As we described in Chapter 2, in order for many fish species to survive and for stocks to be restored, commercial fishing needs to be drastically cut back. Different equipment, off-limit areas and strict fishing quotas need to be enforced. Subsidies to the fishing industry need to be phased out. If all this were to happen, the majority of commercial fishing companies would not survive. That would not be a loss but a gain for the biodiversity of life in the oceans and the well-being of millions of small-scale fishers and their families. Their livelihoods would improve and they would become more

food secure. Ecologically sustainable ways of fishing primarily require the restoration of coastal fisheries and the management by local communities of protected areas to restore the fish populations. Such a turn-about would involve a change from neoliberal capitalism to a third alternative economy that serves all of life. The capitalist market economy has nearly destroyed life in the oceans with many species on the edge of going extinct. The commercial fishing industry is deeply committed to the on-going expansion of large-scale fisheries, including the rapidly expanding aquaculture fisheries. This market and profit oriented approach does not allow for any major *structural* changes. In view of what is happening to the oceans and fish stocks, some limited corrective measures will not be sufficient, nor will international reports and agreements. They are too little and too late, especially if we take into account the on-going degradation, warming, acidification, chemical and plastic pollution, and the changing air and ocean currents.

Another way is relatively simple: first and foremost, support and restore local fisheries on every continent, affirming their right to traditional fishing grounds, providing information and equipment that fit and enhance their traditional practices. Secondly, support and train local fishing communities to control and manage any 'protected areas' that may overlap or touch upon their fishing territory. Thirdly, increase 'marine sanctuaries' that are not part of local villages' fishing grounds to at least 30%, excluding all large-scale commercial fishing, mining and tourism from those areas. The re-establishment and development of local small-scale fisheries is all the more important in view of the crucial role they play in providing high protein food for local villages and regions. All together they supply over 50% of the fish and fish products worldwide and in certain regions that percentage is much higher. Small-scale fishers provide more jobs and feed more people than their industrial counterparts. The hope of alleviating hunger and poverty does not depend on the expansion of industrial farming or fishing, but on peasant farmers, small family farms, forest peoples, and small-scale fishers.

There are many different kinds of small-scale fishing communities and cooperatives on every continent, from Mexico, Brazil, Ecuador, Honduras, Belize, Panama, Costa Rica, to Gambia, Uganda, Tanzania, Senegal, to India, Cambodia, Philippines, Bangladesh, Sri Lanka, Indonesia, Solomon Islands and many other countries. They are supported by international and regional small-scale fishing organizations, like the *International Collective in Support of Fishworkers (ICSF)*, the *World Forum of Fisher Peoples (WFFP)*, the *World Forum of Fish Harvesters and Fish Workers (WFF)*, the *Small-Scale Fisheries*, and many other national and regional organizations. These local communal enterprises and cooperatives are not necessarily all ideal associations that are well-organized, egalitarian, inclusive of women and minorities, safety conscious, mindful of all the needs of the community and fostering ecologically sustainable practices. Some may be more profit oriented and dependent on the global market with its fluctuating prices, while others may use any surplus for the benefit of their community and their more immediate region. Many are trapped between micro-economic approaches and macro-economic national policies, between traditional fishing practices and changing conditions. Most are struggling with overfishing, diminishing local catches and the effects of climate change, like coastal erosion, rise in sea level, storm surges, changing fish populations, seasonal variations, dying corals, and so on.

For most local communities 'fishing for a living' has been a total way of life. Small scale fishing cannot be reduced to purely economic issues of tenure rights, fish quotas, equipment, governance, processing, landing sites, registration, inspection, access to international markets, availability of credit, etc. There is a growing recognition, also internationally, that small-scale fishing cooperatives are not just business associations but that they involve all aspects of a community. The *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* (2012), affirms that "land, fisheries and forests have social, cultural, spiritual, economic, environmental and political value" (p.14). Or as the *Right to Food and Nutrition Watch* (2013) put it, "Small-scale fisheries provide the first and most important link in a long chain of social, cultural and economic activities that contribute to the health and well-being of local communities and wider society, where fishing constitutes far more than

merely an economic activity but rather forms part of the culture, identity and way of life of fishing communities, with customs, food habits, rhythms of life, rituals, spiritual beliefs, value systems, traditions and social organization closely linked to fisheries, and to the aquatic milieu on which their livelihoods depends” (p. 54). There are many encouraging reports and small case studies from every continent of fishing communities and cooperatives that are trying to maintain their cultural identity while adjusting to changing circumstances.

The important questions in considering these different approaches are what basic way of life motivates a cooperative or community? What worldview guides and supports their activities? Do they need support to achieve their goals and overcome environmental and political obstacles? Are they open to change, resilient, transformative and able to adapt? Most of all, are these communities egalitarian, inclusive, empowering, benefitting everyone equally, tending to all the needs of the community, and ecologically sustainable? On a more structural level, *The Coastal Resource Center* (2014) lists a number of common characteristics of successful fishing communities and cooperatives. Well-functioning groups tend to be homogeneous and committed to work toward clear goals. They tend to have strong, open and capable leaders that can foster communal discussion and decision making. The community tends to have the ability to reflect, gather information, learn, consider long-term goals and take risks. Crucial aspects are that they have control over their fishing grounds, have a voice in pricing their products, access to nearby markets and availability of credit, information and training. With regard to ecological sustainability, collectively they need to be able to impose or lengthen closed seasons; adopt gear that will reduce bycatch; establish size limits; and set total allowable catches for certain species. Each village and cooperative is unique and may have its own special needs and ways of organizing themselves. The most crucial element seems to be that a community or group has full ownership and control over their fishing activities and receive adequate support to deal with changing or threatening situations.

There are many examples of successful local fisheries and cooperatives. Mexico’s longstanding cooperatives with their co-management and community-based structure are often mentioned as examples of successful fisheries. Nine of the 26 lobster cooperatives are organized together in the *Regional Federation of Cooperative Societies of Baja California (FEDECOOP)*. They have exclusive access and area-based fishing rights, called concessions that are granted by the government for periods of twenty years and renewable depending on strict conditions of sustainable management. They determine the allocation of traps and fishing areas, enforce their regulations, invest in equipment and monitor the health of the lobster population and environment. In return they receive funding for social programs and infrastructure and the cooperatives themselves invest in community related projects like education, roads and electricity. *FAO & IFAD* (2008) in their “Cooperatives in small-scale fisheries: enabling successes through community empowerment”, mention two other cooperatives in Mexico, the *Sian Ka’an Biosphere Reserve* and the *Tamiahua* lagoon cooperatives. In the coastal communities of *La Encrucijada* the *RARE* organization supports six cooperatives. They have a unique approach in helping fishers discover for themselves how they can develop ‘recovery zones’ or reserves with exclusive fishing access for the cooperatives in the surrounding waters. The fishers discovered that by following this approach their catches increased. They learned to keep track of their catches and release small fish back into the water. It is inspiring to watch their reactions in the small documentaries. There are similar groups in Brazil, like the *Cananeia Oyster Producers’ Cooperative* and the projects supported by *RARE*. Since the Brazilian fisheries are on the brink of collapse as a result of the destruction of their mangroves, which are the third largest in the world, their coastal ecosystems with about 50.000 acres of seagrasses, the establishment of recovery zones with exclusive access to the surrounding waters is a crucial development to counter overfishing. *RARE* is helping local fishing communities to manage and safeguard their fishing waters.

Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. (January 2014). Exploring opportunities in working with small-scale fisheries cooperatives and producer associations. Case 1: Mexico Lobster

Cooperatives in the Gulf of California (single species); Case 2: Senegal processors/buyers band together to improve sustainability (single species); Case 3: Indonesia blue crab association sets size limits and obtain price premium (single species); Case 4: The Lesser Sunda sustainable fisheries initiative (multi-species). Retrieved from http://www.crc.uri.edu/download/RKF13_ExploringOpportunities.pdf

FAO. (2012). Cooperatives in small-scale fisheries: enabling successes through community empowerment. Retrieved from <http://www.fao.org/docrep/016/ap408e/ap408e.pdf>

FishForever. Why Belize? Retrieved from <http://www.fishforever.org/where/belize/#.V5vqmcXvaRM>

FishForever. Why Brazil? Retrieved from <http://www.fishforever.org/where/brazil/#.V5vq28XvaRM>

FishForever. Why Mozambique? Retrieved from <http://www.fishforever.org/where/mozambique/#.V5vrUcXvaRM>

FishForever. Why the Philippines? Retrieved from <http://www.fishforever.org/where/philippines/#.V5vrG8XvaRM>

Lytton, C. (October 2, 2013). It's the small-scale producers who feed the world – promote and protect them. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2013/oct/02/herman-kumara-sri-lanka-fisheries>

McCord, J. (December 1, 2013). Write it down, monitoring a fishery involves more than counting fish. *FishForever*. Retrieved from <http://www.fishforever.org/write-it-down-monitoring-a-fishery-involves-more-than-counting-fish/#.V5vsmcXvaRM>

McCord, J. (March 21, 2013). Go Fish! Teaching fishery management can be fun...and sweet! *FishForever*. Retrieved from <http://www.fishforever.org/go-fish-teaching-fishery-management-can-be-fun-and-sweet/#.V5vsssXvaRM>

There are other brief case studies from every part of the world, from Belize with its successful exclusive access areas and fish recovery zones; to the Philippines' fishing villages trying to cope with the ill-conceived plan of the *Coral Triangle Initiative*, disregarding already established local initiatives; to Indonesia, the Pacific Islands, the African coasts of Gambia and Mozambique and many others. It is only a sampling and each country and region presents its own complexity and faces its own struggles. What seems fundamental is that local villages and fishers have control over their shores and fishing grounds to deal with overfishing and the effect of climate change. Secondly many fisher groups need support to establish and maintain their local fish recovery areas (Marine Protected Areas) and their exclusive access to the adjacent fishing grounds. When they can, fish catches tend to increase by half or double within a few years. Given this basic security many other difficulties can be dealt with as well as ensuring their livelihood. Unfortunately many of the case studies of cooperatives and fishing communities are too limited to see to what extent they are able to implement an integral vision of life, or whether instead they are drawn further into the global market economy.

Berkes, F. (June 2004). Rethinking community-based conservation. *Conservation Biology*, Vol. 18, Issue 3, pp. 621-630. Retrieved from [doi: 10.1111/j.1523-1739.2004.00077.x](https://doi.org/10.1111/j.1523-1739.2004.00077.x)

Berkes, F. and Tikaram. (2006). Development and conservation: indigenous businesses and the UNDP Equator Initiative. Retrieved from https://umanitoba.ca/institutes/natural_resources/pdf/Indigenous%20Businesses%20and%20the%20UNDP%20Equator%20Initiative%20FB%20BTA.pdf

Bernal, B. (June 4, 2015). Fisherfolk suffer from PH seas degradation. *Rappler*. Retrieved from <http://www.rappler.com/move-ph/30854-fisherfolk-suffer-over-ph-seas-degradation>

Blythe, J.L. et.al., Historical perspectives and recent trends in the coastal Mozambican fishery. *Ecology and Society*, 18 (4): 65. Retrieved from <http://www.ecologyandsociety.org/vol18/iss4/art65/>

Calvan, D. F. and Ablola, J.M.S. (January 2011). Highly extractive fishing activities and privatization of foreshore lands: impact on the everyday lives of municipal fisherfolks. *The International Land Coalition*. Retrieved from <http://www.landcoalition.org/en/resources/highly-extractive-fishing-activities-and-privatisation-foreshore-lands-impact-everyday>

Coastal Resources Center (CRC). Ba Nafaa: Gambia-Senegal sustainable fisheries project. Retrieved from http://www.crc.uri.edu/projects_page/gambia-senegal-sustainable-fisheries-project-usaidba-nafaa/

Coral Triangle Initiative. (2014). State of the Coral Triangle: Philippines. Retrieved from <http://coraltriangleinitiative.org/sites/default/files/resources/SCTR-PHL.pdf>

Franco, J. et.al., (September 2, 2014). Competing conservations: the Coral Triangle Initiative in Calatagan, Philippines, (p. 29). *The Global Ocean Grab*. Retrieved from http://worldfishers.org/wpcontent/uploads/2015/01/The_Global_Ocean_Grab-EN.pdf

Hipolito, R.R. (September 2008). The right to adequate food in the Philippines. *FIAN*. Retrieved from <http://www.fian.org/fileadmin/media/publications/Parallel-Report-The-Right-to-Adequate-Food-in-the-Philippines-2008.pdf>

Indigenous peoples' and community conserved territories and areas (ICCAs). A bold frontier for conservation, sustainable livelihoods and the respect of collective rights. Retrieved from <http://www.iccaconsortium.org/>

International Journal of Entrepreneurship and Small Businesses, Vol. 3, No. 6. Retrieved from doi: <http://dx.doi.org/10.1504/IJESB.2006.010920>

Ousman, et.al., (July 2011). The use of local knowledge : application to the management of the Sole fishery in the Gambia. *Coastal Resource Center*. Retrieved from http://www.crc.uri.edu/download/Use_Local_Knowledge_Sole.pdf

Paffe, H. (August 12, 2013). How a growing partnership is reducing overfishing in Belize and beyond. *RARE*. Retrieved from <http://blogs.edf.org/edfish/2013/08/12/how-a-growing-partnership-is-reducing-overfishing-in-belize-and-beyond/>

Poe, M. R. et.al., (May/June 2014). Cultural dimensions of socioecological systems: key connections and guiding principles for conservation in coastal environments. *Conservation Letters*, vol. 7, issue 3. doi: [10.1111/conl.12068](https://doi.org/10.1111/conl.12068)

Solis, V. and Barguil, D. (July 2011). The sea gives us everything: several lessons can be learned about the conceptual and practical linkages between artisanal fishing communities and marine protected areas in Costa Rica, *Samudra Report*, Issue No 59. Retrieved from <http://www.icsf.net/en/samudra/detail/EN/3618.html?detpag=mapart>

State of the World, Innovations that Nourish the World. (2011). Turning the catch of the day into better livelihoods. (p.108). Retrieved from <https://books.google.ca/books?id=R4TCBgAAQBAJ&pg=PA108&lpg=PA108&dq=Turning+the+catch+of+the+day+into+better+livelihoods.+State+of+the+World+Innovations+that+nourish+the+world&source=bl&ots=ISxPlwR-IV&sig=0NTdFJQO2fVmd5Ca9j13KuBcqfE&hl=en&sa=X&ved=0ahUKFwi0MuU9JnOAhVh9YMKHZwVC9wQ6AEIGzAA#v=onepage&q=Turning%20the%20catch%20of%20the%20day%20into%20better%20livelihoods.%20State%20of%20the%20World%20Innovations%20that%20nourish%20the%20world&f=false>

Sylvester, O. (January 17, 2012). From sea to market: Tarcoles and artisanal fishing. *Farms Forests Foods*. Retrieved from <http://farmsforestsfoods.blogspot.ca/2012/01/from-sea-to-market-tarcoles-and.html>

UNDP. (October 30, 2013). Case studies UNDP: Coope Tarcoles, Costa Rica, Equator Initiative Case Studies. Retrieved from <https://www.scribd.com/document/180222684/Case-Studies-UNDP-COOPE-TARCOLES-Costa-Rica>

UNDP. (September 2014). Community-based action in small island developing states: best practices from the Equator initiative. Retrieved from <http://pipap.sprep.org/content/Community-Based-Action-Small-Island-Developing-States-Best-Practices-Equator-Initiative>

USAID. (2014). Gambia-Senegal sustainable fisheries project (USAID/BaNafaa), Final Report. Retrieved from http://www.crc.uri.edu/download/BAN09_finalreport_508.pdf

The Guna Peoples, an example

At this point it is instructive to look once more at a traditional community to see how an integral community that is guided by a clear vision of life actually functions. For such a more detailed account of a unified way of life we are dependent on 'participatory', 'collaborative' and holistic studies that focus on a people's real-life situations and their integral way of life. Berkes 'participatory' study of the Cree fishers is an exemplary account of such an 'inside' view of their traditional ways. Apgar and colleagues offer another more recent account (2015) of a traditional way of life; that of the Guna (Kuna) peoples of Panama. Their account is more limited and focuses primarily on what factors contribute to their resilience and their ability to adapt and transform their way of life. In spite of many outside influences and pressures, they have been able to maintain their independence and unique way of life. Officially established in 1953 after a long struggle, the Comarca (district) of Guna Yala is the semiautonomous territory of the Guna people. Most of the approximate 49 communities of around 50,000 people live in the San Blas Archipelago which contains more than 400 coral islands in the Caribbean Sea and a large stretch of old-growth forest along the coast. They provide for themselves through fishing, some agriculture along the edges of the forests, hunting, and more recently, through a small ecotourism business and the sale of a few marine species and crafts. Some of their young people have gone on to study in Panama City, like the well-known Damian Catillo, an anthropologist at the University of Costa Rica, Heraclio Herrera, a biologist, and many others. All those that have gone outside their communities to study or work face the challenge of how to maintain their heritage and values in the midst of a commercialized and individualistic way of life.

The authors attribute the resilience of the Guna people and their ability to change in the face of new circumstances to a few core factors: their *overarching knowledge system*, based on their experience, and their *underlying worldview* within which their experience and knowledge is embedded. Their spiritual vision of life affirms and supports their ecological practices, which in turn deepen their integral knowledge of all life-systems, including their social relationships. The specific way in which their practice and knowledge is reinforced by their spiritual vision allows them to deal with change and adapt to new situations. Their holistic worldview is open-ended, evolving, allowing for feed-back and taking in new information. This open-endedness allows the people to deal with uncertainty and complexity, just like the Cree's worldview. It is the opposite of a deterministic, predictable and mechanistic vision of life. This openness, flexibility, ability to reflect on their experience and take in new experiences is the key to their resilience.

At the centre of their spiritual worldview is a belief in the 'Way of the Great Father', Bab Igar. The Great Father (sky) and the Great Mother (earth) are seen as the co-creators of life and the people as descendents and protectors of Mother Earth. This creation story which is like that of many other indigenous people, gives the Guna an identity and a purpose: to be the protectors of life. Mother Earth is sacred and provides an abundance of resources that are to be used with care and gratitude. The Guna have passed down this story and many others, orally from one generation to the next by chanting and interpretations at their communal gatherings. Within this worldview all things and beings are interconnected. Rocks, minerals, plants, flowers, animals, and people all have life or spirit (burba) and are part of one interrelated system. It is the foundation of their conservation philosophy and social relations. People are part of one

social-ecological system, which connects them to the earth and to one another. This spiritual framework guides their entire collective decision-making processes at their communal gatherings and their governance practices. It is the frame of reference they can appeal to whatever the issue may be.

There are three basic ways in which their spiritual worldview is maintained and passed on: by the development of leadership, through personal development, and by means of their many social interactions. The Guna govern themselves by means of two over-arching 'institutions': the Congresso General Guna which is their political and administrative body and the Congresso General de la Cultura which is their cultural and spiritual body. Their governance practice mirrors that of the local communities. All the local communities participate directly in the governing assemblies that are guided by the political and administrative leaders. The leaders direct the collective management of resources and territory and are skilled in fostering dialogue, reflection and learning. Through their training in the community gatherings they develop strong leadership skills which allow them to understand emotional and social dynamics and foster collective decision-making processes. Leaders are often called upon for information sharing during community sessions. Others, through a long apprenticeship process are trained in chanting and interpreting the oral traditions, directing rituals, maintaining the language and re-enforcing the spiritual vision of life. They are the spiritual leaders in the community gatherings. Some become specialized in healing and make use of their knowledge of medicinal plants and therapeutic chants. Within their holistic view healing is based on the interaction between the physical, organic, social, cultural, spiritual and environmental and sacred spaces.

A unique feature of Guna child rearing practices is the development of a strong sense of personal and relational identity. The children are guided by many adults who share the responsibility of raising children. This diversity of role models teaches them that community life depends on the engagement and contributions of many persons. The Way of the Great Father, Bab Igar, reinforces the idea of reciprocity and respect for all creatures, including humans. This relational spirituality of all beings teaches children from early on that they can contribute to the community from out of their own experience and knowledge. Every person is expected to share their uniqueness in making collective decisions, showing their solidarity with all the others. A holistic view of the world promotes the development of relational people that interrelate as unique members of the group. It creates a very close sense of community and interaction with the natural environment. Their sense of personhood is much broader than just human agency in itself. Personhood includes a collective identity, while a collective identity is rooted in a unique sense of personhood. This unique kind of personhood is nurtured through the family, involvement with many adults, participation in the community meetings and the rituals. It makes for a deep sense of community and of leadership that fosters egalitarian relations and communal decision making. The great variety of social networks gives rise to many informal interactions of new interest groups, specific community activities and joining together for special tasks.

Unfortunately, in their descriptions the authors prematurely and unnecessarily take recourse to a number of abstract concepts that do not add to the understanding of the Guna people's way of life. Concepts like 'social-ecological systems' (SES) and 'complex adaptive systems' (CAS) to explain their resilience and ability to adapt to changing situations. Social-ecological systems are complex adaptive systems (CAS) that are seen as "evolving and self-organizing with feedbacks between multiple parts and scales". "Social-ecological resilience is fundamentally about people and nature operating as interdependent systems". These concepts are not just generalizations based on their actual study of the Guna people, but they represent the authors' basic presuppositions. Their hope is that their perspective can provide guidelines to solve issues of 'climate change', 'environmental degradation', 'peak oil consumption' and the unsustainable relation between the 'social and environmental sphere'. They hope that 'sustainability science' using the concept of social-ecological resilience can create new understanding and influence the way people relate to their environment. "We argue that the historical experiences of the indigenous peoples that have coevolved with ecosystems provide

opportunities to explore how relationships between societies and nature may be managed toward social-ecological resilience and sustainability and can mutually inform change, both adaptation and transformation, across scales from the local to the global". *That perspective prevents them from seeing that it is a people's way of life in interaction with their vision of life that is foundational.* Adaptation and transformation in the face of global warming and environmental degradation requires a structural change for most peoples, which means adopting a different way of life and worldview. 'Sustainability science' and the study of 'social-ecological resilience' offer little hope for the survival of humanity. It is also naive in relation to the dominant global power structures and the re-enforcing power of neoliberal ideology.

The most important thing for our purposes is that the Guna peoples' way of life, in constant interaction with their spiritual vision, illustrates what a different way of living and using the earth's resources can be like. Their traditional way of life illustrates how egalitarian relationships can work and how different forms of leadership can promote dialogue, respect, reflection and communal decisions. Perhaps their most unique contribution is that a person can develop a very strong sense of personhood that includes a collective identity. Many cultures and religions can learn from their way of parenting and communal guidance. Certainly the Christian religion has always been very weak in fostering a deep sense of personal identity and belonging to a community of faith because of its emphasis on guilt and confession. Other cultures may err on the side of an over-emphasis on not bringing shame to the community, which results in submerging personal identity and conviction. Finally, because of their holistic view of health and well-being, they may be better able to integrate and complement their traditional healing methods and use of medicinal plants with modern synthetic drug treatment and surgery. All together they add to our understanding of the guideline for nurturing, guiding, healing, and communal participation from out of a unique sense of self.

These characteristics of the Guna people does not mean we need to idealize their way of life or that of any other indigenous community that still has a more integral way of life. The Guna people have their own struggles and difficulties, but they basically hold to a life-enhancing vision they can appeal to and use as their guideline in new situations. Right now they are in need of a lot of support in dealing with plastic and other waste generated by 'modern' society, better sanitation measures and the influx of tourists. Most of all they need support to deal with global warming and rising sea levels that are expected to accelerate in the coming years. Some of the 40 inhabited islands will be in danger of inundation in the decades to come. Their traditional practice of expanding their islands with coral and land fill will need changing, if they are to avoid erosion and protect themselves against sea and storm surges. Being able to sell lobster for cash on a regular basis has led to overfishing. Small short-term pilot projects have shown them how they can develop effective conservation measures. It will be a test of their ability to adapt and transform their practices in the face of these new situations. They also have had to deal with severe flooding as a result of heavy rains, endangering their gardens, and higher temperatures that are damaging to their mainland crops. The developed world owes them a great deal of support to deal with these changes. The Guna people and other indigenous tribes in Panama did not create and have contributed very little to climate change. Like the Inuit people in the Arctic, there are limits to their ability to adapt to climate change. The restoration and protection of their fishing grounds as well as some changes in their agro-forestry would go a long way to help them adapt to environmental and social infringements on their way of life.

Apgar, M.J. et al., (2015). Understanding adaptation and transformation through indigenous practice: the case of the Guna of Panama. *Ecology and Society* 20, (1) 45. Retrieved from <http://www.ecologyandsociety.org/vol20/iss1/art45/>

Arango, T. J. G. et al., (May 14, 2005). Coral reef restoration and shore protection projects in Ukupseni, Kuna Yala, Panama: 2005 Progress Report. *Global Coral Reef Alliance*. Retrieved from http://www.globalcoral.org/reef_restoration_projects.htm

Conservation Biology News. (November 8, 2012). The ecological effects and implications of coral mining and natural disturbances. Retrieved from <https://conservationbiologynews.wordpress.com/2012/11/08/the-ecological-effects-and-implications-of-coral-mining-and-natural-disturbances/>

Guide, R. (October 3, 2014). Balu Wala, or the Kuna 'good life': how one indigenous tribe is passing on the traditions. *Mongabay*. Retrieved from <https://news.mongabay.com/2014/10/balu-wala-or-the-kuna-good-life-how-one-indigenous-tribe-is-passing-on-its-traditions-photos/>

Guzman, H. et al., (October 2003). Natural disturbances and mining of Panamanian coral reefs by indigenous people. *Conservation Biology*, Volume 17, no. 5. Retrieved from [doi: 10.1046/j.1523-1739.2003.02308.x](https://doi.org/10.1046/j.1523-1739.2003.02308.x)

In contrast to the Guna peoples and that of other indigenous tribes in Panama the 'developed' world has long ago chosen a very different life-direction and worldview: an ecologically unsustainable course of action and a way that violates human rights. Panama's government and business elites have adopted the economic policies and practices of neo-liberalism along with its individualistic and consumer way of life, at least, for the privileged. Because of the strategic location of the Panama Canal for global commerce it has basically become a 'neo-colonial' country, complete with hydro-electric power dams, large open-pit gold and copper mines, poisonous holding ponds, deforestation, cattle ranching, expanding harbours, and a mega-city for about half the country's population. Especially the indigenous people in the western part of Panama, the Ngobe people and other tribes are suffering most from these mining developments and construction of dams for generating electricity. Large indigenous peoples' territories are being flooded, rivers are being poisoned and over time poisonous tailings and ponds will be left behind. People have been displaced from their traditional territories; protestors have been injured and harassed. In spite of strong national and international protests it is business-as-usual for Panama, for the time being. What is happening to many indigenous people in Panama, is also taking place in Columbia, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, Belize and Mexico. Neo-colonialism with its plunder of resources and violation of human rights is the order of the day. For the indigenous people throughout Central America the struggle for survival and social justice continues on.

Cultural Survival. (September 2014). Observations on the state of indigenous human rights in Panama in light of the UN Declaration on the rights of indigenous peoples. Retrieved from https://www.culturalsurvival.org/sites/default/files/media/panamaupr_2014.pdf

Forest Peoples Programme. (February 18, 2013). Costa Rica: indigenous peoples suffer violent attacks for demanding recognition of their land rights. Retrieved from <http://www.forestpeoples.org/topics/rights-land-natural-resources/news/2013/02/costa-rica-indigenous-peoples-suffer-violent-attac>

Fung, M. (December 4, 2012). The new conquistadors: mining policy as foreign policy. *CBC and Pulitzer Center*. Retrieved from <http://www.cbc.ca/thenational/thenewconquistadors/>

Fung, M. and Burgess, L. (June 19, 2012). The new conquistadors: Canadian miners search for gold in Panama. *CBC and Pulitzer Center*. Retrieved from <http://pulitzercenter.org/projects/panama-canada-gold-copper-mining-protests-environmental-destruction>

Helmore, E. (February 19, 2012). Panama's village leader Silva Carrera defies a president. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2012/feb/19/panama-protest-silvia-carrera>

IC Magazine. (April 18, 2013). Broken Valley. (documentary). Retrieved from <https://intercontinentalcry.org/broken-valley/>

Kumar, P. (March 20, 2015). The Ngabe people of Panama demand recognition. *International Accountability Project*. Retrieved from <https://medium.com/@accountability/seven-years-later-the-ng%C3%A4be-people-of-panama-demand-recognition-21c2277d300#.1ex37lff8>

Ortiz, D. A. (April 2, 2014). How indigenous tribes are fighting the drug cartels. *Motherboard*. Retrieved from <http://motherboard.vice.com/read/indigenous-tribes-vs-the-drug-cartels>

Schertow, J.A. (February 16, 2011). Panama: indigenous people getting ready for massive demonstration. *IC Magazine*. Retrieved from <https://intercontinentalcry.org/panama-indigenous-people-getting-ready-for-massive-demonstration/>

Schertow, J.A. (May 10, 2012). Urge development banks to walk away from Barro Blanco dam. *IC Magazine*. Retrieved from <https://intercontinentalcry.org/urge-development-banks-to-walk-away-from-barro-blanco-dam/>

Tuckman, J. (May 24, 2013). Panama's indigenous people see Redd over UN forest conservation scheme. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2013/may/24/panama-indigenous-people-un-forest-conservation>

Yan, K. (February 11, 2011). 5000 indigenous peoples ignored in grab for carbon credits. *International Rivers*. Retrieved from <https://www.internationalrivers.org/blogs/246/5-000-indigenous-peoples-ignored-in-grab-for-carbon-credits>

When it comes to destructive mining practices, Canadian companies are leading the pack. They will continue to rob the Central American countries of their resources without the full, informed and prior consent of the people. The Canadian government is refusing to hold the companies that have their headquarters in Canada accountable for their mining practices that violate local people's rights to their traditional homelands. Within Canada successive governments have pursued a policy of *termination* of First Nations' historical treaties in order to establish a 'modern legislative framework'. It is based on individual rights and private property for Indian Reserves rather than communal rights. It essentially converts their homelands into ethnic municipalities. In this endless negotiating process the government is playing out one First Nation against the other. It is a devious game. Important Supreme Court decisions in favor of some First Nations have not stopped the Canadian government in pursuit of its termination policy. Meanwhile the native grassroots movement *Idle No More* continues to make its voice heard. It will not be silenced or made to compromise; the issues are a matter of survival, ecologically and culturally. Native peoples' protests will continue, involving many young people, in spite of compromises by some chiefs and some First Nations.

The Bear River Nation in Nova Scotia will seek to persevere in the face of political pressure and the imposition of fishing quotas. To the L'sitkuk community fish are not to be treated as 'private property'. The Supreme Court ruled in their favor, judging that the federal fisheries legislation was an unjustified infringement of the Mi'kmaq Treaties. Supreme Court decisions and international agreements have not stopped Canada's unsustainable neo-colonial policies and practices, whether at home or abroad. Peaceful protests will continue to put up roadblocks to the neoliberal ideology in Canada and elsewhere, even in the face of police brutality and violations of human rights. The residential schools for native children have been closed, the last one in 1996. An extensive report of their experiences and the fall-out for First Nations' communities has been written, *Honouring the Truth, Reconciling for the Future* (2015). The main conclusion is that Canada has engaged in *cultural genocide* of the First Nation's people. Cultural assimilation as a long-standing government policy has been replaced during the last decades by a policy of *termination of their treaties*. Nothing much has changed and very little has been learned, except that the language of the new policies is more sophisticated and hides the governments' intentions. The missionaries and Christian teachers have been replaced by negotiators and the Christian gospel by the neoliberal religion. The one thing that is different is that First Nation lawyers themselves are informing their communities, providing legal expertise and giving support to informed protest in their demands for change and self-determination. *Idle No More*.

Bell, J. (June 2, 2015). TRC: Aboriginal residential schools amounted to 'cultural genocide'. *NUNATSIAQ*. Retrieved from http://www.nunatsiaqonline.ca/stories/article/65674trc_aboriginal_residential_schools_amounted_to_cultural_genocide/

Diabo, R. (November 9, 2012). Harper launches major First Nations Termination Plan: as negotiating tables legitimize Canada's colonialism. *IC Magazine*. Retrieved from <https://intercontinentalcry.org/harper-launches-major-first-nations-termination-plan-as-negotiating-tables-legitimize-canadas-colonialism/>

Ecojustice. (July 23, 2015). What the Dutch climate court win could mean for Canada. Retrieved from <http://www.ecojustice.ca/what-the-dutch-climate-court-win-means-for-canada/>

Ford, S.J. (December 23, 2013). Sovereignty: do first nations need it? *Idle No More*. Retrieved from http://www.idlenomore.ca/sovereignty_do_firstnations_need_it

Gage, A. (July 26, 2015). Dutch climate court win – what does it mean for Canada? *West Coast Environmental Law*. Retrieved from <http://wcel.org/resources/environmental-law-alert/dutch-climate-court-win-what-does-it-mean-canada>

Global Research Newsletter. (March 14, 2014). The blossoming of 'Idle no more', Canada's First Nations movement. Retrieved from <http://www.globalresearch.ca/the-blossoming-of-idle-no-more-canadas-first-nations-movement/5373516>

Hadley, C. (February 22, 2014). In Canada every system of oppression is organized around settler colonialism. *Halifax Media Co-Op*. Retrieved from <http://halifax.mediacoop.ca/story/canada-every-system-oppression-organized-around-se/21813>

Healing Foundation. (2012). *Speaking my truth: reflections on Reconciliation and Residential schools*. Retrieved from <http://speakingmytruth.ca/>

Lukacs, M. (October 21, 2014). The indigenous land rights ruling that could transform Canada. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/true-north/2014/oct/21/the-indigenous-land-rights-ruling-that-could-transform-canada>

Mann, S. (October 23, 2014). Harper vs. First Nations: the assimilation agenda. *Idle No More*. Retrieved from http://www.idlenomore.ca/harper_v_first_nations_the_assimilation_agenda

McMahon, R. (December 20, 2012). The Round Dance Revolution: Idle No More. *Indigenous Music Culture*. Retrieved from <http://rpm.fm/news/the-round-dance-revolution-idle-no-more/>

Montgomery, M. (June 3, 2015). The summary of the Truth and Reconciliation Commission in Canada. *RCI*. Retrieved from <http://www.rcinet.ca/en/2015/06/03/the-summary-of-the-truth-and-reconciliation-commission-in-canada/>

Palmater, P. (May 16, 2014). Harper's assimilation agenda just collided with First Nations resistance – and lost. Retrieved from <http://rabble.ca/blogs/bloggers/pamela-palmater/2014/05/harpers-assimilation-agenda-just-collided-first-nations-resis>

Pictou, S. (November 2009). How deep are our treaties. *DPH*. Retrieved from <http://base.d-p-h.info/es/fiches/dph/fiche-dph-8135.html>

Pictou, S. About Bear River. *Defenders of the Land*. Retrieved from http://www.defendersoftheland.org/bear_river

Seswick, A. (January 27, 2015). Weekend focus: Marshall decision still ripples through native fishery. *Chronicle Herald*. Retrieved from <http://thechronicleherald.ca/novascotia/1265170-weekend-focus-marshall-decision-still-ripples-through-native-fishery>

Sinclair, J.M. (2015). *Honouring the Truth, Reconciling for the Future*. Summary of the final report of the Truth and Reconciliation Commission of Canada. Retrieved from http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Exec_Summary_2015_05_31_web_o.pdf

Worldfishers. (August 26, 2014). Mi'kmaq indigenous people in Canada: Netukulimk against ITQs. Retrieved from <http://worldfishers.org/2014/08/26/mikmaq-indigenous-people-canada-netukulimk-itqs/>

5) Transformative and sustainable communities:

Given alternative sources of energy, ways of conserving energy, re-cycling of materials, new technologies, different forms of public transportation, water and waste management, education, health care, local and regional self-governing, and community arts; *we have all the ingredients to create transitional, self-sustaining communities; communities for living and well-being.*

Adams, E. (March 19, 2015). Rightsizing, city sustainability and the growth dilemma. *URBACT*. Retrieved from <http://urbact.eu/rightsizing-city-sustainability-and-growth-dilemma>

Bayerl, F. (June 2011). Public housing can create vibrant, healthy neighbourhoods. *CCPA Monitor*. Vol 18. (2).

Burton, E. (December 3, 2012). Cities of the future should be designed with wellbeing in mind. *The Guardian*. Retrieved from <https://www.theguardian.com/sustainable-business/blog/cities-future-wellbeing-design-spaces>

Conaty, P. and Lewis, M. (March 2014). Community land trusts aid households, communities, taxpayers. *CCCR*. Retrieved from <http://communityrenewal.ca/affordability-locked-in>

Dodman, D. (February 19, 2015). Collaboration and communication: how research can help cities rebuild resilience. *IIED*. Retrieved from <http://www.iied.org/collaboration-communication-how-research-can-help-cities-build-resilience>

Farr, D. (2007). *Sustainable Urbanism: Urban Design with Nature*. Wiley.

Kaye, L. (November 7, 2011). Cohousing provides opportunity for more sustainable communities. *The Guardian*. Retrieved from <https://www.theguardian.com/sustainable-business/us-co-operative-housing-sustainable-communities-resource>

Manning, R. (July 17, 2014). Milwaukee sees the light: how one rustbelt city found the key to its rebirth, bringing nature and people closer together. *OnEarth*. Retrieved from <http://archive.oneyearth.org/articles/2014/07/who-needs-portlandia-when-youve-got-milwaukee>

McDonough, W. (April 23, 2014). Designing cities and factories with urban agriculture in mind. *The Guardian*. Retrieved from <https://www.theguardian.com/sustainable-business/food-blog/designing-cities-factory-urban-agriculture>

Mills, S. (2014). *Sustainable Cities: Inspirational Case Studies*. doi: <http://dx.doi.org/10.3362/9781780440002>

Moser, C. and McIlwaine, C. (December 2014). New frontiers in 21st century urban conflict and violence. *IIED*. doi: [10.1177/0956247814546283](https://doi.org/10.1177/0956247814546283)

Smedley, T. (June 5, 2013). Sustainable urban design: lessons to be taken from slums. *The Guardian*. Retrieved from <https://www.theguardian.com/sustainable-business/sustainable-design-lessons-from-slums>

van Vark, C. (December 17, 2013). Food security: an urban issue. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2013/dec/17/africa-peri-urban-food-security>

There are many alternative ways of *building*, making cement, manufacturing steel, developing new kinds of building materials, retrofitting old buildings and ways of creating green spaces, community gardens, urban farming and forests. With regard to *transportation* there is a whole range of alternative possibilities, from public transportation, to other forms of delivering goods, shipping and possibly aviation. Strict fuel and exhaust standards for cars and trucks could add their part on saving energy and cutting down on pollution. Electric cars continue to improve. An increase and improvement in public transportation could replace or cut back on the use of cars. Easily accessible cars and bikes at designated curb sites and places around cities, like in Montreal and other cities could become common practice.

Anderson, S. H. et.al., (2002). Future green steelmaking technologies. *EIA*. Retrieved from PDF: <https://www.enviroportal.sk/eia/dokument/48488>

Ashden. Low-energy buildings. Retrieved from <https://www.ashden.org/low-energy-buildings>

Bello, D. (August 17, 2008). Cement from CO₂: a concrete cure for global warming? *Scientific American*. Retrieved from <http://www.scientificamerican.com/article/cement-from-carbon-dioxide/>

Hedges, C. (June 2013). Corporatization of public transportation in US disastrous. *CCPA Monitor*. Vol 20; (2); p. 16.

Hinnant, L. (March 15, 2014). Paris drops transit fares in response to pollution. *Toronto Star*. Retrieved from <http://torontostar.newspaperdirect.com/epaper/viewer.aspx>

Niels Bohr Institute. (September 16, 2013). Environmentally friendly cement is stronger than ordinary cement. *Science Daily*. Retrieved from <https://www.sciencedaily.com/releases/2013/09/130916111002.htm>

OECD. (2011). Environmental impacts of international shipping: The role of ports. doi: [10.1787/9789264097339-en](https://doi.org/10.1787/9789264097339-en)

Orr, D. W. (2006). *Design on the Edge: the making of a high performance building*. *The MIT Press*. Cambridge, Massachusetts. Retrieved from <https://mitpress.mit.edu/books/design-edge>

Phillips, A. (September 5, 2014). As aircraft emissions skyrocket, EPA looks into regulation for first time. *ClimateProgress*. Retrieved from <http://thinkprogress.org/climate/2014/09/05/3563670/aircraft-emissions-regulation-epa/>

Renner, M. (December 17, 2013). Air transport keeps expanding. *Vital Signs*. Retrieved from <http://vitalsigns.worldwatch.org/vs-trend/air-transport-keeps-expanding>

Vidal, J. (April 9, 2009). Health risks of shipping pollution have been 'underestimated'. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2009/apr/09/shipping-pollution>

Worldsteel Association. Sustainable steel at the core of a green economy. Retrieved from <https://www.worldsteel.org/dms/internetDocumentList/bookshop/Sustainable-steel-at-the-core-of-a-green-economy/document/Sustainable-steel-at-the-core-of-a-green-economy.pdf>

There are alternative ways to provide clean drinking water and managing waste. Alternative *energy* sources can empower entire cities. Local, low-tech solutions through the use of solar power can distill water at high temperatures and sun-catchers can provide hot water. Integrated and alternative *health care* approaches are available that could provide integrated care and living, especially for the disabled and for aging populations. Alternative forms of *education* are widely known and available, providing the schools our children deserve. Community libraries and adult literacy and training programs beg for further implementation instead of cutbacks. Restorative communal *justice* as well as local participatory *governance* could be the order of the day. Local and traditional *arts* have always played a pivotal role in the life of communities for celebration, communication and teaching. Community arts and creativity as a part of every local

endeavor can be in the service of life's enhancement, enrichment and enjoyment. Each of these aspects of alternative community living deserves separate attention. The small sampling of references below point to the many sources for alternative solutions and possibilities that are available for both urban and rural living.

Brennan, B. et.al., (2005). *Reclaiming public water: Achievements, struggles, visions from around the world*. Transnational Institute. Retrieved from <https://www.tni.org/en/tnibook/reclaiming-public-water-book>

Catalan Integral Cooperative. Open Cooperatives. Retrieved from http://wiki.p2pfoundation.net/Open_Cooperatives

Cooperativa Integral Catalana. Catalan supply center. Retrieved from <http://cooperativa.cat/en/catalan-supply-center/>

Cooperativa Integral Catalana. Housing. Retrieved from <http://cooperativa.cat/en/>

Cooperativa Integral Catalana. Transport. Retrieved from <http://cooperativa.cat/>

Dafermos, G. (December 8, 2014). Open design commons and distributed manufacturing. *CommonsTransition*. Retrieved from <http://commonstransition.org/open-design-commons-and-distributed-manufacturing/>

Gavroche, J. (March 12, 2013). Revolution from below: Cooperativa Integral Catalana. *Autonomies*. Retrieved from <http://autonomies.org/?s=cooperativa+integral>

Hachfeld, D. et.al., (February 3, 2009). Progressive public water management in Europe: in search of exemplary cases. *Transitional Institute*. Retrieved from <https://www.tni.org/en/report/progressive-public-water-management-europe>

Holdstock, N. (January 1, 2014). How long till China is self-sufficient in recycled waste? *China Dialogue*. Retrieved from <https://nickholdstock.com/recent-publications/>

Manrique, P. (April 10, 2015). Catalan Integral cooperative. *Peer to Peer Foundation (P2P)*. Retrieved from <https://blog.p2pfoundation.net/tag/catalan-integral-cooperative>

May, E. (January 24, 2014). The globalization of the work force. *Island Tides*. Retrieved from <http://elizabethmaymp.ca/publications/island-tides/2014/01/24/the-globalization-of-the-workforce/>

Minter, A. (2013). *Junkyard Planet: Travels in the Billion-dollar trash trade*, Bloomsbury Press.

Ortega de Miguel, E. and Mulas, A. S. (November 2005). Water management in Cordoba (Spain): a participative, efficient and effective public model. *Transnational Institute*. Retrieved from <https://www.tni.org/files/waterspain.pdf>

Pigeon, M. et.al., eds., (March 2012). *Remunicipalisation, Putting water back in public hands*. Transnational Institute. Retrieved from https://www.tni.org/files/download/remunicipalisation_book_final_for_web_0.pdf

Along with alternative ways of farming, forestry, and fishing, local villages too can be restored again to be centres of community. Small towns and villages can be connected through regular public bus and train services. They can be vibrant places to live and be connected to the larger world by electronic communication. Small communities can be revitalized and enriched by local health care services, a general store, farmers market, credit union, book store, community centre, etc. There can be exchanges of goods and services, of equipment and know-how. All services can be managed by local citizen groups and equal participation. Different 'values' and convictions can be struggled with. Common grounds can be established.

Towns and villages do not exist for the sake of the financial gains of developers and investors. They do not exist for the profit of water and waste management companies, nor for the sake of hydro-electric corporations. They are not primarily places for box stores, banks, law offices, drug stores, fast food chains, gas stations, car dealers, shopping plazas, veterinary services, garden centres, lawn care businesses, book store chains, etc.; all in predictable lay-out with deadening and ugly architecture. One town looks much like every other town. You know what to expect at the outskirts and in the centre. One has to search for history. Towns and villages do not primarily exist for making a profit and economic development. Cities and small towns exist first of all for community, for the enhancement of neighbourhoods, places where people can meet and interact, places where people can work and play together. The basic question for any kinds of changes and developments is, do they serve and enhance community? In spite of high rises and sprawling suburbs, or run-down areas and slums, people everywhere find ways to create neighbourhoods, ways to gather together, interact, talk, and help and support each other.

The emerging Transition Towns in England and many other countries are witness that another way of living together is possible, and so are the many traditional villages and communities that still exist, especially in the global South. They may not all be exemplary, or they may be controlled by stifling traditions or discriminatory practices; many may be in need of transformation, renewal or opening-up to new possibilities, but they can hardly be worse than the many isolating and commercialized places of the North. Communities do not have to be stagnant, raised to the ground or modernized. Like with everything else, it is the basic direction that prompts renewal and change that counts. There is a

countless stream of creative suggestions and pilot projects that are hard to keep up with. The *Architects of Change's* weekly TV program from the Knowledge Channel in B.C. is just one of those inspiring sources for alternative and creative possibilities. Peoples' creativity and ingenuity never ceases to amaze; possibilities are endless.

It is a vision of an alternative way of living that beckons and calls for implementation, step by step. It is a vision of well-being and community. Without an alternative vision we easily get lost for there are many counter voices. But once we have our bearings we need to be on the way, for it is the journey that counts. We will always be on the way, giving form to our lives, creating a future. That is our calling and our joy to create well-being for all. Along the way there may be rest stops and time for celebration or mourning for those who were jailed or killed for the path on which they were walking; but then we have to be on our way again creating new possibilities for ourselves and our children...

Anglin, R. (2011). *Promoting sustainable local and community economic development*, London: CRC Press.

<http://www.crcnetbase.com/doi/pdf/10.1201/9781420088113-1>

CTV. (September 27, 2013). Sherbrooke Community Centre: A Canadian success story. Retrieved from <http://www.ctvnews.ca/w5/sherbrooke-community-centre-a-canadian-success-story-1.1474069>

David Suzuki Foundation. (2014). Canada's cities lead on climate action. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2014/07/canadas-cities-lead-on-climate-action/>

Davis, M. (2006). *Planet of slums*, London: Verso.

Evans, T. (February 15, 2012). A different kind of Europe. *Transnational Institute*. Retrieved from <https://www.tni.org/en/article/different-kind-europe>

Gubbins, N. (2010) *The Role of Community Energy Schemes in Supporting Community Resilience*. (York: Joseph Rowntree Foundation).

Henfrey, T. & Kenrick, J. (2015). *Climate, commons and hope*. TNI.

Hopkins, R. (2008). *The Transition Handbook, From oil dependency to local resilience*. Cambridge: Green Books.

Hopkins, R. (2011). *The transition Companion, Making your community more resilient in uncertain times*. Totnes: Green Books.

Jamie, A. (August, 2016). How urbanization became the 'disease' of global cities. *Eco-Business*.

Langendoen, R. (2002). Resources for commoners. *YES!, A Journal of Positive Futures*. Retrieved from <http://www.yesmagazine.org/>

Leach, M., I. Scoones & A. Stirling, 2010. *Dynamic Sustainabilities*. London: Earthscan. P. 100.

Lewis, M. & P. Conaty, 2012. *The Resilience Imperative*. Gabriola Island, BC: New Society Publishers. Scott Cato, M., 2013. *The Bioregional Economy*. London: Earthscan

North, P., 2010. *Local Money: how to make it happen in your community*. Totnes: Green Books.

Platform Duurzame Solidaire Economie. (May 11, 2012). Samen werken aan de grote transitie. Retrieved from <http://platformdse.org/>

Rogers, A. ed., (1995). *Taking Action: an environmental guide for you and your community*, UNEP, Earthprint.

Steffen, A. ed., (2011, rev. ed.), *Worldchanging, a user's guide for the 21st century*. New York: Abrams.

Walker, B. & Salt, D. (2006). *Resilience thinking: Sustaining ecosystems and people in a changing world*. Washington, US: Island Press.

c. Postscript to the Paris Climate Agreement

General reactions

Here are some reactions to the Paris Climate Agreement: "This is a major leap for mankind" (Francois Hollande); "We did it! – a turning point in human history" (Avaaz); "a global turn from fossil fuels" (Reuter); "a transformative moment" (Environmental Defense); "a magnificent failure" (Globe and Mail); "By comparison to what it could have been, it's a miracle; by comparison to what it should have been, it's a disaster" (George Monbiot, The Guardian); "No action, just promises" (Degrowth); "Paris deal: epic fail on a planetary scale" (New Internationalist); "Trading carbon: how Paris set us up for failure" (Counterpunch); "Seven wrinkles in the Paris climate deal" (Foreign Policy in Focus). "weaker than Copenhagen", (Tyndall Centre for Climate Change Research); "a failure for humanity", (Climate Justice Alliance); "exploitative, deceitful and hollow, favoring the rights and voices of corporations over people", (Rising Tide North America); "Claim no easy victories. Paris was a failure, but a climate justice movement is rising" (Guardian); "Only people power can bridge the gap between ambition and action in Paris Agreement" (Friends of the Earth).

These are just a few of the responses from a diversity of sources. They range from euphoric to disastrous. After the first relief passed that at least something had been accomplished, the negative reactions multiplied. The general consensus

from many different sources is that the Paris agreement is a failure for humanity and a disaster for the global environment. These negative reactions are well-founded. Here's why.

The core issue

For 195 national leaders to commit themselves to any climate agreement at all is indeed a miracle, especially given past failures from Kyoto to the present. Some say that 'politically' it was probably the best that could be achieved. However, the best in this case means the triumph of the 'free market' and 'market-based' solutions to climate change and mitigation measures. By means of political pressure, manipulation, bullying and threats particularly by the US negotiators, opposing voices were silenced, including those from the Global South. Even in the face of massive public protests and the efforts of countless civil organizations '*business-as-usual*' triumphed. The global leaders were able to stall the process of more immediate climate action and a more rapid reduction of CO₂ emissions. They gave themselves ample time to put (lucrative) 'market-based' solutions in place that will maintain the use of fossil fuel energy for decades to come. It reflects their deep commitment to global corporate capitalism with its unlimited growth, 'free market' policies and unequal 'rewards' while externalizing environmental and social justice costs.

Unfortunately, *climate change does not respond to global economic practices nor to political pressure and manipulation*. The rise in CO₂ and other gasses, leading to global warming, is a matter of *scientific observation* and requires *solutions that are in keeping with current science and not market-based*. Or, on a more practical level, climate change is a matter of global experience by millions of people and requires down-to-earth solutions and people-power. In this respect most of the world leaders are 'climate change deniers' that do not really take the evidence of science into account in developing their policies. They are committed to an ideology that makes them blind to the reality and urgency of global warming. For example, it is estimated, *based on present usage* – especially by industrial agriculture – that over 1½ billion people will suffer *absolute water scarcity* by 2025 and that billions more will experience *severe water shortage*. That is only 10 years from now. In ten years Canada will have barely begun to make significant reductions in its carbon emissions. It is just one example.

There are many other major concerns that are the direct result of global warming. None of these issues were addressed in Paris, like the increasing acidification of the oceans and slow decline in phytoplankton which supplies about half of the earth's oxygen; the melting of Arctic glaciers and rising sea levels threatening the inundation of many coastal areas, cities and islands; the global decrease in topsoil and biodiversity with its implications for food security; the increase in pollution and rise in GHG from industrial agriculture; the on-going deforestation and displacement of indigenous people; and many other pressing issues.

Stopping and reversing global warming and climate change is not just a matter of reducing the burning fossil fuels or capturing carbon at the stack or exhaust pipe. It involves all the interrelated aspects of our environment that are affected by our economic practices and by climate change. These interconnected ecological concerns, now largely given to us in our experience as observable phenomena – from the changes in the atmosphere to the oceans, weather, water, lands, forests, biodiversity, chemical pollution, etc. and many distressing global social justice issues – should be sufficient for all world leaders to see what is really happening in many regions of the globe and to the lives of millions of adults and children. However, this is not the case. Ideology has once again conquered common sense, actively repressing basic truths of our contemporary social and environmental reality. The political leaders have failed humanity in Paris, while the corporate leaders have 'succeeded'.

The illusion of making significant carbon reductions by 2020, 2030, and 2050

The commitment to, "holding the increase in the global average temperature to well below 2° C above pre-industrial levels", certainly cannot be met by 2030 or 2050 *given present economic practices and planning*. In view of the commitments by 176 nations, the promise "to pursue efforts to limit the temperature increase to 1.5° C" is an empty gesture. It would mean that by 2030 – that is in 15 years – we would have to stop burning fossil fuels on a global scale;

radically change our agricultural practices; change our ways of transportation and building; stop the development of new dams; and many other environmentally destructive practices.

Instead, given the total number of committed reductions, *we are presently headed for an increase of over 3° C*, which will make life in many regions of the world impossible. The agreement acknowledges that “*much greater emissions reduction efforts will be required to meet even the 2-degree target*”. However, the new agreement does not go into effect until 2020 and then it will be years before there is any significant reduction in CO₂ emissions. By that time the chance to hold global warming to 1.5° C will be gone unless global corporations and the world’s largest economies radically change direction. Such a dramatic change would mean a turn away from corporate capitalism to a ‘third alternative’ of an ‘economy of enough’ or a ‘no-growth economy’ as many have recommended.

Another questionable aspect of the climate agreement in Paris has to do with how several reduction commitments take 2005 as their base line and not 1990 or the pre-industrial level. This means, for example, that the US’s commitment of a 28 percent reduction in GHG emissions by 2030 only amounts to a very low 14 percent reduction compared to other nations that take 1990 as their base line. What is needed is a reduction of 30 to 50 percent by 2030 in order to slow down and stop the increase in CO₂. Both the US and the EU have refused to agree to additional cuts and, at present, will fall well short of their fair share of international efforts to limit global warming.

There are also no legally binding targets. All we have are voluntary pledges and there are no penalties for breaking their commitments. The Paris Agreement only commits countries to come back after 2020 (and every 5 years after that) to re-assess their commitments and progress in cutting GHG. If they have not met their targets or have not made sufficient progress five or ten year later, all they have to do is promise to do better during the following five years. By that time we are a decade or two further down the road to a 3 degree increase in global warming. According to the best scientific predictions we have a narrow window of around 2 decades to turn things around and that is not taking into account any re-enforcing changes in the climate or tipping points.

Other specific issues

The commitment in Copenhagen to establish a climate fund of \$100 billion a year by 2020 for developing countries to adapt to climate change has not materialized. So far only \$2 billion a year or at most \$20 billion has been put in dedicated climate funds by the developed countries that have created the bulk of pollution. No new funds have been made available. *Climate Fairshares* estimates that at least \$400 billion a year is needed to mitigate and adapt to climate change, especially for vulnerable communities and eco systems. Developed countries that have exploited the global South are backing away from taking any responsibility for the ecological damages they have left behind and are still creating. They have refused to accept any liability for these damages and any demands for reparations, either now or in the future.

Climate scientists have repeatedly warned that we need to leave over 80% of the remaining fossil fuels in the ground if we are to avoid increasing levels of CO₂ with its impact on global warming. The Paris Agreement has avoided and eliminated any references to this recommendation. There is no commitment to decarbonize the global economy within the next two decades. Instead, the suggested alternatives are *Carbon Capture and Storage (CCS)*, a ‘new’ *carbon trading or offsetting system* to replace the present failed system, and massive *removals of carbon by sink*, which could include ‘re-forestation’ by means of mono culture tree plantations. All these measures are market-based, technical solutions. They are either expensive, unproven on any large scale, or will require huge acreage and volumes of water. They have been called ‘false solutions’ since they will not lead to significant reductions in CO₂. Instead they will further entrench present global economic policies. (See below what these ‘solutions’ mean for Canada). In view of the need for a total decarbonisation, there is no strong endorsement of renewable energy nor a commitment to phase out subsidies to the fossil fuel industry (more than \$500 billion a year globally; \$34 billion a year for Canada) and re-direct these funds to renewable energy, organic farming, re-building infra-structures and rapid public transit, etc.

International flights and shipping is excluded from the agreement even though they account for more than 5% of the global pollution and are estimated to triple (flights) and quadruple (shipping) by 2050. More serious than all the other omissions, there is no specific mention of the intense impact of industrial agriculture and the food processing industry on global warming, second only to the extraction and burning of fossil fuels. Neither is there any mention of the effect on climate change regarding the increasing conversion of forests and grass lands to mono cultures; nor of the use of synthetic fertilizers and pesticides. Additionally, there is no mention of the impact of large dams for generating hydro power on global warming and its destruction of the environment and displacement of millions of people. In fact, thousands of dams are being built or planned, including in the Amazon, with the support of the World Bank. And while the Paris negotiations were going on, several international trade agreements like TTIP, TTP and many other bi-lateral agreements were quietly pushed forward along with its secret alternative international corporate legal system. These trade agreements alone will lock the global economy into a business-as-usual approach for many decades to come. These agreements might all be de-railed by catastrophic economic and climate events, like another speculative financial collapse, massive crop failures, food riots, extreme weather events, increasing water shortages, large groups of climate refugees overwhelming other nations, etc.

An interrelated problem

Climate change, global warming, and environmental degradation are the result of many interrelated systems and interacting factors. The extraction and burning of fossil fuels is only one crucial factor of climate change. Even a near total change to renewable energy within the next two decades would not stop the increase in global warming and changes in climate. Much more would be needed to stop and reverse present trends. None of these complex and interrelated causes were addressed in Paris and any issues of social justice were generally ignored. The 'free market' triumphed and the environment and social justice lost out.

When the market is the only morality that is acknowledged, world leaders become morally bankrupt. The common human values of freedom, equality, justice, the rule of law, participatory democracy, care, respect, mutual responsibility, community, and so on, have been relegated to the fringes or left to individual initiatives, especially in the global North. Greed, power and profit, and personal enrichment by the few at the expense of the majority and the earth, are the order of the day. What is needed is a new commitment to the *multi-dimensional unity of life* in which each dimension of life can come to its own. Such a vision is the opposite of a one-dimensional view of life which gives priority to the economic aspect at the expense of everything else.

Case study: Canada as an example

Meanwhile, globally the extraction of oil, gas and coal continues unabated, as well as the expansion of industrial agriculture and food processing, land and water grabbing, overfishing, deforestation and illegal logging, increase in shipping and air travel, development of new dams, unsustainable building practices and rapid urban expansion. These on-going investments and developments commit the global economy to a 20 to 40 year increase in global warming.

In terms of counter-movements and transformative struggle, we can take Canada as an example of what needs to change and what challenges citizens' organizations face. After the first euphoria about joint action and disillusionments about the outcome of the Paris negotiations subsided, citizens' groups and First Nations are taking up the struggle again where they left off in early December. This time they are doing so with even more determination than ever, knowing that it is up to civil society to bring a halt to climate change. They know more clearly that we can't depend on political and corporate leaders to stabilize and reduce global warming.

Although coal prices have gone down, some coal mines in BC and Alberta have been shut down, and new projects have been moth-balled – while the major coal exporting ports in BC are now working below capacity – there is still hope within the coal industry that the slowdown will be temporary. The expectation is that the export of steel-making metallurgical coal (coking coal) to Asia and even thermal coal will continue or survive the slump. Globally there is still a

(slowed-down) increase in developing coal fired plants for generating electricity. Alberta depends for 55% of its electricity production on thermal coal-fired plants. These plants are slated for decommissioning in 15 years, assuming there are no loopholes, postponements, equivalency substitutes, or increase in political lobbying and pressure. It calls for a lot of vigilance, pressure and action on the part of citizens' groups to hold BC's and Alberta's governments to their commitments. It will be especially challenging to make sure that adequate job transition training is provided for the approximately 42,000 people that are employed in the coal industry either directly or indirectly. Hopefully better training possibilities will be made available than those of the Cape Breton coal miners in the late 1990's – the workers of these mines had to transition to work in call centers, of all things.

In contrast, Saskatchewan is investing billions of dollars in carbon capture and storage (CCS). It is a post-combustion, commercial scale CCS for coal-fired power plants. SaskPower, a crown corporation, has encountered many technical problems and increasing costs. In spite of these set-backs they hope that they can make a commercially and environmental viable case for the continued use of 'clean' coal and 'green' oil. By combining capturing emissions from three units of the power plant (one a very high percentage and two very low) they hope to meet the minimum allowable emission targets. Saskatchewan has been selling its carbon to an Alberta oil company to pump carbon into exhausted oil wells to extract even more oil. It is called 'Enhanced Oil Recovery' techniques. The subsidized CCS plant (\$2 billion in public money so far) turns out to be a way of subsidizing oil producers. Along with Alberta, the province is one of Canada's big polluters.

To reduce their carbon emissions, Ontario and Quebec have committed themselves to a dubious cap- and-trade or offsetting scheme, which allows the buying and selling of carbon credits to achieve an overall reduction of emissions. In the past these carbon markets have collapsed, been subverted and resulted in unscrupulous dealings.

In the cap-and-trade scenario, the government 'caps' the total amount of carbon pollution that an industry is allowed and issues permits that companies can purchase. Companies can sell any excess credits if they are under their allowance, or buy extra credits from less polluting industries if they have exceeded their limits. No carbon pricing system has been worked out yet, which in itself can become very complex and vary for each industry. The price for the carbon permits has not been worked out either. If the price and the yearly increases are set too low there will be little incentive to invest in carbon reduction devices and measures and carbon credits will soon lose their value as they have in the past. The Ontario Federation of Agriculture is already figuring out how farmers can make some extra money by selling credits earned from sequestration of carbon in the soil. From the first reports it is clear that establishing and obtaining those carbon credits will be a very complicated and long process. Meanwhile, evidence is appearing that storing carbon in the soil may not be as stable as was thought before and much more limited as a result of the increase in CO₂ in the atmosphere.

Support for a New Market Mechanism broke down in Paris, which would have replaced project-by-project schemes with a new system focusing on whole industries at a time. There are no common accounting rules for international carbon markets. There is some push now to develop national, domestic carbon markets, in this case, provincial markets in Ontario and between Ontario and Quebec (along with California to create a larger carbon credit market). Will Ontario and Quebec be able to avoid the pitfalls, failures and corruption of past and present cap-and-trade schemes in Europe, Russia, Ukraine and other countries? The first indications seem doubtful. Already the Ontario government is talking about exemptions for some industries and free permits for others (as Quebec has done), which has opened the door to fierce lobbying, even before more details of the scheme are made public.

Ontario is aiming for a 15% reduction of 1990 levels by 2020, which it seems may only amount to a 10% reduction. How Ontario will achieve its stated target of an 80% reduction by 2050 remains a mystery. In 35 years it would have to lower its emissions from 150 Megatonnes to 35 Mt of CO₂. Instead, given present policies and initiatives overall emissions are expected to rise to 190 Mt by 2030.

Carbon markets, carbon pricing, carbon offsetting and carbon trading basically function as a delaying tactic. There has been no attempt in Paris to deal with the *supply-side* of fossil fuel energy and putting a moratorium on any further extraction of oil, gas and coal. Instead the focus has been on capturing emissions at the smoke stack or tail pipe. There has been little incentive to develop low-carbon modifications *at source*. No doubt, small improvements in many industries and sectors have been and will be made in every province in the coming decades. David Suzuki summarized what has been accomplished in each province and what needs to happen to further cut carbon emissions. Present achievements will not be sufficient to bring down the overall carbon emissions in Canada in the foreseeable future. For such reductions to happen, much more drastic action will be needed. Most important of all, as has already been pointed out, these various carbon capturing schemes are market-based solutions that do not tackle the core of the problem. These market-based solutions are subject to the up-and-downs of the carbon credit market, speculation, corruption, technical complications and bureaucracy. For many years a carbon tax has been widely advocated as the best possible way to limit carbon emissions. Depending how the tax is implemented, it is the fairest way to pay for a reduction in carbon emissions. To be effective a lot depends on whether the tax is high enough with yearly increases to stimulate the adoption of carbon reduction measures. Generally there has been strong opposition by industry to any attempts to implement such a tax on a global level.

The peoples' response to Paris

As Alberto Saldamando (human rights expert and attorney) concluded after the Paris Climate Agreement, "The Paris accord is a trade agreement, nothing more". This is as good a summary as any. During and right after the Paris agreement, it was business-as-usual as is clear from the flood of news items and articles since Paris from many organizations, like *Mining Watch Canada, SumOfUs, Ecojustice, Beyond Pesticides, Avaaz, CCPA, EcoWatch, Transnational Agrarian Movements (TAM), Via Compesina International, International Labour Movement, Indigenous World Association, Cultural Survival, Waterkeeper Alliance, Worldwatch Institute, Food First, Grist, Organic Consumers Association, David Suzuki Foundation, Global Justice Now, FERN, GMWatch, National Farmers Union* and many other alternative and watchdog organizations. The hard reality is that business will continue as usual, except for the setbacks of low oil prices and the low Canadian dollar. *It is as if Paris has never happened.*

Indeed, since Paris it has become clearer than ever that we will not be able to depend on our provincial or national government, nor on Canadian industries to reduce green house gas emissions within the next few decades to prevent a 3° C rise in global warming. It is clear that the Canadian government and industry will not take strong action to leave 80% of carbon in the ground and instead expedite the development of renewable energy and a host of other measures. Nor will they initiate a broad public debate about the changes that need to be made if Canada is to live up to its commitments. New mining explorations are continuing as usual, as well as the expansion of industrial agriculture for export, including factory beef and hog production. New dams and hydro projects are being developed and the forest industry will carry on as usual, especially in the Canadian north.

During the coming decades, subsidies for all these developments will not readily be transferred to renewable energy projects, small-scale forestry and coastal fishing cooperatives, funds for transitioning to organic farming, increasing the recycling of metals, upgrading buildings, developing sustainable ways of making cement, investments in rapid public transport, containing urban sprawl, supporting adaptation measures for low-lying coastal areas like the east coast, or reforming the prison system. It will be an uphill battle to stop the use of dangerous chemicals, restore climate change research, provide public information, free the media and public education from corporate control, restore democracy and proportional representation, invest in preventative health care, and a host of other urgent issues. There will be no radical change in direction.

No doubt some significant environmental improvements will be made, as well as some good legislative initiatives, some adjustments in the way business operates, and so on, but there will be no fundamental change in government and corporate policies. A radical change would require a commitment to an integrated view of life in which each area of society gets it due, and a new conception of political economy based on this more reconciled view of life.

The building of resistance and transformative power

After Paris, citizens' groups are going forward with new inspiration and purpose as the many news briefs and articles indicate. They are taking up the challenge from where they left off before last December. Already protest and action groups in B.C. are challenging the government and industry to halt further pipeline developments and the extension of port facilities for the export of liquid gas and coal. The citizens' of Kamloops, B.C. are organizing themselves to protest the development of a new copper and gold mine close to their town. MiningWatch Canada has taken up the struggle again informing us and protesting the destructive practices of many Canadian-based mining companies, especially overseas, including the demands and protests of local communities against HudBay Minerals in Peru.

As their news items, articles and reports show, each citizen's organization and protest group has taken up the 21st century challenge again with new determination. In Paris it became clearer than ever that citizens worldwide are the not-so-silent majority and that it will be up to international, regional and local education and action groups to hold governments and corporations accountable – and hold them to a basic change in policies that are ecologically and socially just and will begin to halt and reverse global warming.

Such programs of action will lead to a fundamental 'systemic change' politically and economically, and not just climate change. Such a systemic change would not lead to a new form of capitalism, nor to a purely Marxist or socialist approach, but to a third and far more comprehensive and multidimensional alternative that would bring healing to the planet and well-being to all peoples. It will be a truly equalitarian, inclusive, fair and from the bottom-up movement of integral change. If there is a new realization that it is up to citizens' organizations, climate action groups, farmer and fishing cooperatives, youth and students groups and many others to bring about the change that is needed, establishing solidarity between the diverse sites of resistance and transformation will prove vital. Together we can give new inspiration, motivation and meaning to the activities of all citizen groups globally and in our local communities. Together we must persevere for the sake of our children and all children of the world. Only people power can bridge the deep gap between non-binding national pledges made in Paris and actual initiatives and action.

This leads me to a final note in my analysis of the situation we face. There is one social justice issue among several others that does not get a lot of attention – it is one of the many consequences of global economic practices and the structural adjustment programs (SAP) enforced by the WB and International Monetary Fund (IMF), World Trade Organization (WTO) and other lending institutions. That is the issue of the imprisonment and enslavement of millions of children across the globe. It highlights all that is wrong with corporate capitalism and its neo-colonialism. These heart-wrenching conditions of children's prisons are the result of forced cut-backs in social programs, education, and health care. When political and corporate leaders are driven by a *one-dimensional worldview of economic progress* at the expense of everything else, they do not see the ecological decline of the environment nor the countless instances of social injustice across the globe. These consequences become mere externalities. They are of no concern to governments and industry unless it stands in the way of economic progress.

The cries of millions of imprisoned children in Africa, Asia, South America and Eastern Europe living under the most degrading and hopeless conditions will not be silenced. Nor will the cries of the thousands of Palestinian children and young people in Israeli prisons be silenced or forgotten. Nor will the agony of millions of enslaved and bonded boys and girls throughout the world go unnoticed, nor the street kids everywhere sniffing glue to dull their pain, stealing or selling their bodies to survive, or just ending their short lives. Their faces are on YouTube for all to see. It's heartbreaking to hear them talk and watch their faces. Many have lost the will to live and no longer care what happens to them. Their cries echo through the universe. To deal with such evils and injustices will require a societal transformation of values and priorities.

It will be up to the children, teenagers, students and young adults of the world to free humanity from a system of deep injustice and take up the cause of all those who suffer – to seek justice for crimes against humanity and create a liveable and reconciled society. They need all of us to stand by and prepare the way.

People shouldn't be surprised that the deal is bad. Industry has heavily influenced these negotiations. Grassroots people who are advocating for the alternatives are not allowed in these negotiations. So we shouldn't be surprised. Instead we are using this moment to reinvigorate our base, to continue forward demanding climate justice, and to show the world, show the countries, show the corporations what people can do when we unite for climate justice. (Dallas Goldtooth of Indigenous Environmental Network)

References

- Anderson, T. (June, 2015). Caught in the net: how 'net-zero emissions' will delay real climate action and drive land grabs. *Actionaid*. Retrieved from www.actionaid.org/sites/files/actionaid/caught_in_the_net_actionaid.pdf
- Anderson, M. (May 14, 2014). IMF pegs Canada's fossil fuel subsidies at \$34 billion (a year). In *The Tyee*. Retrieved from, <http://thetyee.ca/Opinion/2014/05/15/Canadas-34-Billion-Fossil-Fuel-Subsidies/>
- Adler, B. (December 9, 2015.). The Paris climate agreement won't call for keeping fossil fuels in the ground'. *Grist*. Retrieved from <http://grist.org/climate-energy/the-paris-climate-agreement-wont-call-for-keeping-fossil-fuels-in-the-ground/>
- Bast, E., et.al. (November, 2015). Empty Promises: G20 subsidies to oil, gas and coal production. *OILCHANGE International*. Retrieved from, <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9957.pdf>
- Bello, W. (December 2, 2015). No climate deal is better than a bad one. *Foreign Policy in Focus*. Retrieved from <http://fpif.org/no-climate-deal-better-bad-one/>
- Bochenek, M. (2016). Children behind bars; the global overuse of detention of children. *Human Rights Watch*. Retrieved from, <https://www.hrw.org/world-report/2016/children-behind-bars>
- Bohm, S. (December 16, 2015). Trading carbon: how Paris set us up for failure. In *Counterpunch*. Retrieved from <http://www.counterpunch.org/2015/12/16/trading-carbon-how-paris-set-us-up-for-failure/>
- Brune, M. (August 18, 2015). Muslim leaders release first-of-its-kind 'Islamic declaration on climate change'. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/08/18/islamic-declaration-climate-change/>
- Burkett, C. (October, 2015). Why isn't big ag's huge contribution to climate change on the agenda at COP21?. Retrieved from <http://ecowatch.com/2015/10/08/cop21-big-ag/>
- Cayley-Daoust, D. (November/December, 2015). Civil disobedience as a tool for setting Canada's climate agenda. In *Monitor*, p.37.
- Catanoso, J. (October 27, 2015). Catholic bishops ask for binding, transformative COP21 climate treaty. *Mongabay*. Retrieved from <http://news.mongabay.com/2015/10/catholic-bishops-ask-for-binding-transformative-cop21-climate-treaty/>
- Chivers, D. and Worth, J. (December 12, 2015). Paris deal: epic fail on a planetary scale. In *New Internationalist*. Retrieved from <http://newint.org/features/web-exclusive/2015/12/12/cop21-paris-deal-epi-fail-on-planetary-scale/>
- Cimons, M. (2015). Keep it in the ground. *Sierra Club*. Retrieved from <https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/Keep%20it%20in%20the%20Ground%20-%20January%202016.pdf>
- Corporate Europe Observatory*, July 21, 2014. "Life beyond emissions trading; briefing for MEPS". <http://www.conferenceboard.ca/hcp/details/environment/greenhouse-gas-emissions.aspx>
- Corporate Europe Observatory*, (November 2015). Lobby Planet Paris, a guide to corporate COP21. Retrieved from, <http://corporateeurope.org/environment/2015/11/lobby-planet-paris-guide-corporate-cop21>
- Corporate Europe Observatory*, (June 10, 2016). European parliament carbon market report keeps emissions trading off target. Retrieved from, <http://corporateeurope.org/blog/european-parliament-carbon-market-report-keeps-emissions-trading-target>
- Davidson, G. and Shah, R. (Fall, 2015). Canada's failure to reduce emissions; unlawful or above the law?. In *Monitor*, pp. 20-21.
- David Suzuki Foundation, (July 29, 2016). Will biofuels drive us to a cleaner future? Retrieved from, <http://www.davidsuzuki.org/blogs/science-matters/2016/07/will-growing-our-fuels-drive-us-to-a-cleaner-future/>
- De Schutter, O. (November 16, 2015). The New Alliance for Food Security and Nutrition in Africa. *Directorate-General For External Policies, European Parliament*. Retrieved from [http://www.europarl.europa.eu/RegData/etudes/STUD/2015/535010/EXPO_STU\(2015\)535010_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2015/535010/EXPO_STU(2015)535010_EN.pdf)
- Dooley, K. (January 13, 2016). What does the Paris climate agreement mean for forest peoples' rights?. *FERN*. Retrieved from <http://www.redd-monitor.org/2016/01/26/what-does-the-paris-climate-agreement-mean-for-forests-and-forest-peoples-rights/>
- Dodswell, A. (January 15, 2016). Who is telling the truth about the New Alliance and farmers in African countries?. *Global Justice Now*. Retrieved from <http://www.globaljustice.org.uk/blog/2016/jan/15/whos-telling-truth-about-new-alliance-and-farmers-african-countries>
- Dru Oja, Jay. (June 15, 2015). Net zero is not zero: inside the G7's dystopian decarbonization scheme. *Geoengineering Monitor*. Retrieved from <http://www.geoengineeringmonitor.org/2015/06/net-zero-is-not-zero-the-g7s-dystopian-decarbonization/>
- Encyclical Letter LAUDATO SI' of the Holy Father Francis, on care for our common home*. (May 24, 2015). Retrieved from http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html
- Fairley, P. (July 26, 2016). If carbon pricing is so great, why isn't working?. *Eco-Business*. Retrieved from <http://www.eco-business.com/news/if-carbon-pricing-is-so-great-why-isnt-it-working/>
- Fair Shares*. (October 2015). Fair shares: a civil society equity review of INDCS. Retrieved from https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/ib-civil-society-review-climate-indcs-191015-en_2.pdf
- Government of Ontario*. (November 4, 2015). Cap and Trade. Retrieved from <https://www.ontario.ca/page/cap-and-trade>.
- Global Justice Now*. (December, 2015). Silent but deadly – estimating the real climate impact of agribusiness corporations. <http://www.globaljustice.org.uk/sites/default/files/files/resources/cop-paris-briefing-online.pdf>
- Holmes, M., et al. (2012). All Over The Map 2012: A comparison of provincial climate change plans. *David Suzuki Foundation*. Retrieved from <http://www.davidsuzuki.org/publications/downloads/2012/All%20Over%20the%20Map%202012.pdf>

Howard, E. (September 10, 2015). Desmond Tutu's climate petition tops 300,000 signatures. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/sep/10/desmond-tutu-climate-petition-tops-300000-signatures>

Iresco Solutions. (December 6, 2015). Enabling offsets at scale in Ontario's agricultural sector. Submitted to OFA. <http://www.ofa.on.ca/issues/additional-information/enabling-offsets-at-scale-in-ontarios-agricultural-sector>

Ismi, A. (January 2016). South African students take on neoliberalism and the ANC. In *Monitor*, pp. 48-50.

Jacobs, S. (January 15, 2016). These five countries are responsible for up to 60% of plastic in the ocean. *Grist*. Retrieved from <http://grist.org/science/these-five-countries-are-responsible-for-up-to-60-percent-of-the-plastic-in-the-ocean/>

Jones, A. (November 24, 2015). Ontario climate strategy short on details, critics say. *iPolitics*. Retrieved from <http://ipolitics.ca/2015/11/24/ontario-climate-strategy-short-on-details-critics-say/>

Karambelas, A. (December 14, 2015). What the Paris Climate Agreement means for indigenous rights and hydroelectric dams. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/12/14/indigenous-rights-cop21/>

Law, V. (August 19, 2016). Private prisons are far from ended: 62 percent of immigrant detainees are in privatized jails. Truthout. Retrieved from <http://www.truth-out.org/news/item/37306-private-prisons-are-far-from-ended-62-percent-of-immigrant-detainees-are-in-privatized-jails>

Lazarus, M. (October 2015). Supply-side climate policy: the road less taken. *Stockholm Environment Institute*. Retrieved from <https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-13-Supply-side-climate-policy.pdf>

Leslie, K. (November 13, 2015). Document outlines Ontario Liberals' plan for cap-and-trade system. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/document-outlines-ontario-liberals-plan-for-cap-and-trade-system/article27255667/>

Lukacs, M. (December 15, 2015). Claim no easy victories. Paris was a failure, but a climate justice movement is rising. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/true-north/2015/dec/15/claim-no-easy-victories-paris-was-a-failure-but-a-climate-justice-movement-is-rising>

Mann, M. (December 24, 2015). How close are we to 'dangerous planetary warming?'. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/12/24/dangerous-planetary-warming/>

McGrath, M. (August 25, 2015). Carbon credits undercut climate change actions says report. *BBC*. <http://www.bbc.com/news/science-environment-34042115>

McKibben, B. (November 19, 2015). The Paris summit is missing one of the great world leaders on climate. *The Guardian*. <http://www.theguardian.com/environment/2015/nov/30/paris-summit-is-missing-one-of-great-world-leaders-on-climate-change>

Mellino, C. (February 23, 2015). Teens sue government for failing to address climate change for future generations. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/02/23/teens-sue-government-climate-change/>

Mellino, C. (June 29, 2015). Dalai Lama endorses Pope Francis's Encyclical on climate change. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/06/29/dalai-lama-pope-encyclical/>

Mellino, C. (January 20, 2016). There will be more plastic than fish in the ocean by 2050. *EcoWatch*. Retrieved from <http://ecowatch.com/2016/01/20/more-plastic-than-fish-in-ocean/>

Miller, G. (June 5, 2013). Failing Our Future. *Environment Commissioner of Ontario*. Retrieved from <http://eco.on.ca/2013-ghg-failing-our-future/>

MiningWatch Canada. (January 19, 2016). Groups urge B.C., Federal governments to halt Ajax Mine Project Review until full feasibility study is released. Retrieved from <http://miningwatch.ca/news/2016/1/19/bc-federal-governments-urged-halt-ajax-mine-project-review-until-full-feasibility>

Monbiot, G. (December 12, 2015). Grand promises of Paris climate deal undermined by squalid retrenchments. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/georgemonbiot/2015/dec/12/paris-climate-deal-governments-fossil-fuels>

NO REDD in Africa Network. (December 12, 2015). This COP will determine how Africa will be colonized again, through climate change – Boaventura Monjane on the Paris Climate Talks. Retrieved from <http://no-redd-africa.org/index.php/video/167-this-cop-will-determine-how-africa-will-be-colonized-again-through-climate-change-boaventura-monjane-on-the-paris-climate-talks>

National Non-Food Crops Centre (2015). *Bioeconomy Factsheet*. Netherlands. Retrieved from <http://www.nnfc.co.uk/publications/bioeconomy-factsheet-netherlands>

Olden, M. and Neumann, J. (2015). Double jeopardy: coal's threat to forests. *FERN*. Retrieved from http://www.fern.org/sites/fern.org/files/CoalForest_Report.pdf

Our Children's Trust. (n.d.). Youth Engagement. <https://ourchildrenstrust.org/youth-engagement>

Our Children's Trust. (January 20, 2016). Pope Francis part of Amicus Brief filed in support of teen's landmark climate change lawsuit. Retrieved from <http://ecowatch.com/2016/01/20/climate-change-lawsuit/>

Outside. (November 3, 2011). Why is 17-year-old Alec Looz suing the government over climate change? Retrieved from <http://www.outsideonline.com/1894031/why-17-year-old-alec-loorz-suing-government-over-global-warming>

Page, D. (January 20, 2016). How we're continuing the fight for climate change action. *Ecojustice*. Retrieved from <http://www.ecojustice.ca/how-were-continuing-the-fight-for-climate-change-action/ce>

Pidcock, R. (January 19, 2016). Heat absorbed by oceans has doubled since 1997. *EcoWatch*. Retrieved from <http://ecowatch.com/2016/01/19/heat-absorbed-oceans-has-doubled/>

Radford, T. (January 7, 2016). The future of hydropower looks dim as heat and drought intensify. *Climate News Network*. Retrieved from <http://ecowatch.com/2016/01/07/hydropower-climate-change/>

Radford, Tim. "Alaska's rapidly melting glaciers: a major driver of global sea level rise". *EcoWatch*. Retrieved from <http://ecowatch.com/2015/06/30/alaska-glaciers-sea-level-rise/>

Reguly, E. (December 19, 2015). Paris climate talks were a noble failure. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/report-on-business/rob-commentary/paris-climate-talks-were-a-noble-failure/article27859263/>

Ross, A. (December 14, 2015). Gray not green: a technocratic climate accord in Paris. *Counterpunch*. Retrieved from <http://www.counterpunch.org/2015/12/14/gray-not-green-a-technocratic-climate-accord-in-paris/>

Reyes, O. (December 9, 2015). COP21 and the carbon market menace. *New Internationalist*. Retrieved from <http://newint.org/features/web-exclusive/2015/12/05/cop21-and-the-carbon-market-menace/>

Reyes, O. (December 12, 2015). Seven wrinkles in the Paris climate deal. *Foreign Policy in Focus*. Retrieved from <http://fpif.org/seven-wrinkles-paris-climate-deal/>

Roulac, J. W. (November 18, 2015). Soils and oceans omitted from Paris COP21 agenda. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/11/18/soil-oceans-paris-cop21/>

Rubin, J. (April 13, 2015). Why cap-and-trade schemes are little more than a cash grab. In *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/why-cap-and-trade-schemes-are-little-more-than-a-cash-grab/article23894822/>

Sarmadi, D. (January 14, 2016). TTIP: the downfall of European agriculture?. *EurActiv*. Retrieved from <http://www.euractiv.com/section/agriculture-food/news/ttip-the-downfall-of-eu-agriculture/>

Schreiner, M. (April 14, 2015). We can't let climate liberals turn cap-and-trade into a cap in hand. *Green Party of Ontario*. Retrieved from <http://gpo.ca/blog/2015-04-14/we-cant-let-ontario-liberals-turn-cap-and-trade-cap-hand>

Shaikh-lesko, R. (March 25, 2013). Harnessing religious teachings about stewardship to protect the planet – an interview with Sikh activist Bandana Kaur. *Mongabay*. Retrieved from <http://news.mongabay.com/2013/03/harnessing-religious-teachings-about-stewardship-to-protect-the-planet-an-interview-with-sikh-activist-bandana-kaur/>

Smith, K. (May 11, 2015). Emissions trading and 'clean development' – climate policies that don't work. *Climate and Capitalism*. Retrieved from <http://climateandcapitalism.com/2007/05/21/emissions-trading-and-clean-development-climate-policies-that-dont-work/>

Smolker, R. (November 10, 2014). Uncertainties' is an understatement, when it comes to BECCS. *Forum for Climate Engineering Network*. Retrieved from <http://dcgeoconsortium.org/2014/11/10/uncertainties-is-an-understatement-when-it-comes-to-beccs/>

Stainsby, M. (December 7, 2015). The collaborative model takes root in Alberta's tar sands. *Counterpunch*. Retrieved from <http://www.counterpunch.org/2015/12/07/the-collaborative-model-takes-root-in-albertas-tar-sands/>

Suzuki, D. (November 27, 2015). Canada's oceans matter, at the Paris climate talks and Beyond. *David Suzuki Foundation*. Retrieved from <http://www.davidsuzuki.org/blogs/science-matters/2015/11/canadas-oceans-matter-at-the-paris-climate-talks-and-beyond/>

Tramel, S. (January 27, 2016). The heat is on: Via Campesina and allies challenge climate capitalism. *Common Dreams*. Retrieved from <http://www.commondreams.org/views/2015/01/27/heat-campesina-and-allies-challenge-climate-capitalism>

Transnational Institute, (November 4, 2015). The bioeconomy. Retrieved from, <https://www.tni.org/en/publication/the-bioeconomy>

Transnational Institute, (November 27, 2015). The 'false' promises of the bioeconomy-strategies. Retrieved from, <https://www.tni.org/en/article/the-false-promises-of-the-bioeconomy-strategies>

UNEP. (2015). Emissions Gap Report: a UNEP Synthesis Report. Retrieved from http://uneplive.unep.org/media/docs/theme/13/EGR_2015_301115_lores.pdf

Van Hasselt, H. and Lazarus, M. (December 18, 2015). Fossil fuel supply 'a crucial omissions' from Paris climate deal. *Stockholm Environment Institute*. Retrieved from <http://www.sei-international.org/cop-21-news-opinion/3297-fossil-fuel-supply-a-crucial-omission-from-paris-climate-deal>

Vidal, J. et.al. (December 13, 2015). World leaders hail Paris climate deal as 'a major leap for mankind. *The Guardian*. Retrieved from <http://www.theguardian.com/environment/2015/dec/13/world-leaders-hail-paris-climate-deal>

Wocner, G. (October 6, 2015). The hydropower methane bomb no one wants to talk about. *EcoWatch*. Retrieved from <http://ecowatch.com/2015/10/06/hydropower-methane-bomb/>

Wood, Kiki. (January 11, 2016). A shift in power is just beginning. *The Canadian Youth Climate Coalition*. Retrieved from <http://www.ourclimate.ca/>

Bibliography:

1. Climate Change and Ecological Sustainability
2. Capitalism and the Economy
3. Phenomenology and the Sociology of religion
4. Religious Reflections on the Environment, Climate Change and Neoliberalism
5. Experiential Knowledge and Scientific Knowledge
6. History and Historiography
7. Existential Anxiety and Existential Trust

1. Climate Change and Ecological Sustainability

Agyeman, J. (2013). *Introducing just sustainabilities: Policy, planning and practice*. London: Zed Books.

Ali, S.H. (2009). *Treasures of the earth: need, greed, and a sustainable future*. New Haven: Yale University Press.

Anderson, A.B. (1990). *Alternatives to deforestation: Steps toward sustainable use of the Amazon rain forest*. New York: Columbia University Press.

Anderson, E. (1996). *Ecologies of the heart: Emotions, belief, and the environment*. New York: Oxford University Press.

Anderson, P. (2009). *The new old world*. London: Verso.

Anglin, R.V. (2011). *Promoting sustainable local and community economic development*. London: CRC Press.

Arias-Maldonado, M. (2012). *Real green: Sustainability after the end of nature*. Farnham: Ashgate

Atkinson, A. (2009). *The sustainability transformation: How to accelerate positive change in challenging times*. London: Earthscan

Atkinson, G., Dietz, S. and Neumayer, E. eds. (2007). *Handbook of sustainable development*. Cheltenham: Edward Elgar.

Attfield, R. (2003). *Environmental ethics: An overview for the twenty-first century*. Cambridge:

- Polity.
- Baker, N. (2008). *Body toxic*. New York:North Point Press.
- Bakker, H. (2011). *Food security in Africa and Asia: Strategies for small-scale agricultural development*. Wallingford: CABI.
- Banerjee-Guha, S. ed. (2010). *Accumulation by dispossession: Transformative cities in the new global order*. Los Angeles: Sage.
- Barlow, M. (1999). *Blue gold: The global water crisis and the commodification of the world's water supply*. International Forum on Globalization.
- Basili, M., Franzini, M. and Vercelli, A. eds. (2006). *Environment, inequality and collective action*. London: Routledge.
- Bigman, D. (2011). *Poverty, hunger, and democracy in Africa: Potential and limitations of democracy in cementing multiethnic societies*. Houndsmills: Palgrave Macmillan.
- Beckerman, W. & Pasek, J. (2001). *Justice, posterity, and the environment*. Oxford: Oxford University Press.
- Beckerman, W. (2011). *Economics as applied ethics: Value judgements in welfare economics*. Houndsmills: Palgrave Macmillan.
- Beckman, D. (2010). *Exodus from hunger: We are called to change the politics of hunger*. Louisville: John Knox Press.
- Berry, R.J. ed. (2000). *The care of creation: Focusing concern and action*. Leicester: Inter-Varsity Press.
- Berry, W. (1981). *The gift of good land*. San Francisco: North Point Press.
- Biswas, A.K., & Tortajada, C. eds. (2005). *Appraising sustainable development: Water management and environmental challenges*. Oxford: Oxford University Press.
- Boelens, R. (2008). *The rules of the game and the game of the rules*. Wageningen: Wageningen University.
- Bouguerra, M.L. (2006). *Water under threat*. Black Point NC.: Fernwood.
- Brown, L.R. (2008). *Plan B 3.0: Mobilizing to save civilization*. New York: W.W. Norton & Co.
- Brunkhorst, H. (2005). *Solidarity: From civic friendship to a global legal community*. Cambridge, Mass.: The MIT Press.
- Buhr, T. (2009). *Environmental integration: Our common challenge*. Albany: State University of New York Press.
- Burroughs, W. (2005). *Climate change in prehistory: The end of the reign of chaos*. Cambridge: Cambridge University Press.
- Cable, S. (2012). *Sustainable failures: Environmental policy and democracy in a petro-dependent world*. Philadelphia: Temple University Press.
- Carter, N. (2001). *The politics of the environment: ideas, activism, policy*. Cambridge: Cambridge University Press.
- Chambers, F. & Ogle, M. eds. (2002). *Climate change: Critical concepts in the environment*. London: Routledge.
- Chambers, N., Simmons, C. & Wackernagel, M. (2000). *Sharing nature's interest: Ecological footprints as an indicator of sustainability*. London: Earthscan.
- Chapin III, F.S., Sala, O.E. & Huber-Sannwald, E. eds. (2001). *Global biodiversity in a changing environment: Scenarios for the 21st century*. New York: Springer-Verlag.
- Chartres, C. & Varma, S. (2010). *Out of water: From abundance to scarcity and how to solve the world's water problems*. Upper Saddle River: FT Press.
- Cherry, T.L. & Ickman, D.S., eds. (2010). *Environmental amenities and regional economic development*. London: Routledge.
- Chiras, D. & Wann, D. (2003). *Superbia!: 31 ways to create sustainable neighbourhoods*. Gabriola Island: New Society Publishers.
- Clapp, J. & Dauvergne, P. (2011 2nd ed.). *Paths to a green world: The political economy of the global environment*. Cambridge: MIT Press.
- Claussen, E. exec. ed. (2001). *Climate change: Science, strategies & solutions*. Pew Centre on Global climate change. Leiden: Brill.
- Collectif Argos. (2010). *Climate refugees*. Massachusetts Institute of Technology.
- CMHC, (2000). *Practices for sustainable communities*. Government of Canada.
- Convention on Biological Diversity (2006). *Global biodiversity outlook 2*. Montreal: Secretariat of

- the Convention on Biological Diversity.
- Cox, S. (2008). *Sick planet: Corporate Food and Medicine*. London: Pluto Press.
- Crate, S. A. (2006). *Cows, kin, and globalization: An ethnography of sustainability*. Lanham: Rowman and Littlefield Publishers, Inc.
- Cromwell, D. & Levene, M. (2007). *Surviving climate change: The struggle to avert global catastrophe*. London: Pluto Press
- Davies, M., Quilty, P.G. and Selkirk, P. eds. (2009). *Environmental change in the sub-antarctic*. Hobart: The Royal Society of Tasmania.
- Davis, M. (2006). *Planet of slums*. London: Verso.
- Davis, W. (2009). *The wayfinders: Why ancient wisdom matters in the modern world*. Toronto: Anansi Press.
- Dawson, B. & Spannagle, M. (2009). *The complete guide to climate change*. New York: Routledge.
- Deane-Drummond, C.E. (2004). *The ethics of nature*. Oxford: Blackwell Publishing.
- Derber, C. (2010). *Greed to green: Solving climate change and remaking the economy*. Boulder: Paradigm Publishers.
- Devillers, J. & Pham-Delegue, M. (2002). *Honey bees: Estimating the environmental impact of chemicals*. London: Taylor & Francis.
- Devereux, S. ed. (2007). *The new famines: Why famines persist in an era of globalization*. New York: Routledge.
- DiMento, J.F.C. & Doughman, P. eds. (2007). *Climate change: What it means for us, our children, and our grandchildren*. Cambridge: MIT Press.
- Doherty, B. (2002). *Ideas and actions in the green movement*. London: Routledge.
- Dobson, A. (2007 4th ed.). *Green political thought*. London: Routledge
- Doods, W.K. (2008). *Humanity's footprint: Momentum, impact, and our global environment*. New York: Columbia University Press.
- Doucet, C. (2007). *Urban meltdown: Cities, climate change and politics as usual*. Gabriola Island: New Society Publishers.
- Dragoni, W. & Sukhija, B.S. eds. (2008). *Climate change and groundwater*. London: The Geological Society.
- Ehrenfeld, J. & Hoffman, A.J. (2013). *Flourishing: A frank conversation about sustainability*. Stanford: Stanford University Press.
- Eisner, M.A. (2007). *Governing the environment: The transformation of environmental regulation*. Boulder: Lynne Rienner Publishers.
- Elkington, J. (2012). *The zeronauts: Breaking the sustainability barrier*. London: Routledge.
- Ellis, R. (2003). *The empty ocean: Plundering the world's marine life*. Washington: Island Press.
- Eigland, E. (2015). *Social Ecology and Social Change*. Porsgrunn, Norway: New Compass Press.
- Emmerson, C. (2010). *The future history of the Arctic*. London: The Bodley Head.
- Environment Canada. (2008). *Frequently asked questions about the science of climate change: 2008 update*. Toronto: Environment Canada.
- Eversole, R., Mcneish, J.-A., & Cimadamore, A. D., eds. (2005). *Indigenous peoples and poverty: an international perspective*. London: Zed Books.
- Feldman, D.L. (2012). *Water*. Cambridge: Polity Press.
- Fishman, C. (2011). *The big thirst: The secret life and turbulent future of water*. New York: Free Press.
- Flescher, A.M. & Worthen, D.L. (2007). *The altruistic species: Scientific, philosophical, and religious perspectives of human benevolence*. Philadelphia: Templeton Foundation Press.
- Floyd, R. & Matthew, R.A. (2013). *Environmental security: approaches and issues*. London: Routledge.
- Folbre, N. (2001). *The invisible heart: Economics and family values*. New York: The New Press.
- Ford, B.J. (2000). *The future of food*. London: Thames & Hudson.
- Foster, J.B. (2009). *The ecological revolution: Making peace with the planet*. New York: Monthly Review Press.
- F.A.O. (2012). *The state of food insecurity in the world*. Rome: FAO.
- F.A.O. (2015). *The state of food insecurity in the world*. Rome: FAO.
- Fujita, R. (2003). *Heal the ocean: solutions for saving our seas*. Gabriola Island: New Society

- Publishers.
- Funken, K. & Cooper, P. eds. (1995). *Old and new poverty: The challenge for reform*. London: Rivers Oram Press.
- Gardiner, S.M. (2011). *A perfect moral storm: The ethical tragedy of climate change*. Oxford: Oxford University Press.
- Giampietro, M. and Mayumi, K. (2009). *The biofuel delusion: The fallacy of large-scale agro-biofuel production*. London: Earthscan.
- Gibbs, D. (2002). *Local economic development and the environment*. London: Routledge.
- Gibson, M. (2012). *The feeding of nations: redefining food security for the 21st century*. Boca Raton: CRC Press.
- Girardet, H. ed. (2007). *Surviving the century: Facing climate chaos and other global challenges*. London: Earthscan.
- Godrej, D. (2001). *The no-nonsense guide to climate change*. Oxford: New Internationalist Publ.
- Goettemoeller, J. & Goettemoeller, A. (2007). *Sustainable ethanol*. Maryville: Prairie Oak Publ.
- Goetz, S. & Brouwer, F. (2010). *New perspectives on agri-environmental policies: A multidisciplinary and transatlantic approach*. London: Routledge.
- Gore, A. (2013). *The future: Six drivers of global change*. New York: Random House.
- Gouldson, A. & Roberts, P. eds. (2000). *Integrating environment and economy: Strategies for local and regional government*. London: Routledge.
- Goulson, D. (2003). *Bumblebees: Their behaviour and ecology*. Oxford: Oxford University Press.
- Goody, D.G. (2007). *Globalization, spirituality, and justice: Navigating the path to peace*. Maryknoll: New York.
- Groombridge, B. & Jenkins, M.D. (2000). *Global biodiversity: Earth's living resources in the 21st century*. Cambridge: World Conservation Press.
- Gupta, J. & Van Der Grijp, N. eds. (2010). *Mainstreaming climate change in development cooperation: Theory, practice and implications for the European Union*. Cambridge: Cambridge University Press.
- Guzman, A.T. (2013). *Overheated: The human cost of climate change*. Oxford: Oxford University Press.
- Hahnel, R. (2011). *Green economics: Confronting the ecological crisis*. London: M.E. Sharpe.
- Hall, P., McCalla, R.J., Comtois, C. & Slack, B. (2011). *Integrating seaports and trade corridors*. Farnham: Ashgate.
- Halter, R. (2009). *The incomparable honeybee & The economics of pollination*. Victoria: Rocky Mountain Books.
- Hamilton, C. (2010). *Requim for a species: Why we resist the truth about climate change*. London: Earthscan.
- Hansen, J. (2011). *Storms of my grandchildren*. New York: Bloomsbury.
- Harper, M., Iyer, L. & Rosser, J. (2011). *Whose sustainability counts?: Basix's long march from microfinance to livelihoods*. Sterling: Kumarian Press.
- International Conference on revisiting the socio-political and technological dimensions of climate change*. University of Central Lancashire: Emerald.
- Hedges, C. (2015). *Wages of rebellion*. Toronto: Knopf.
- Heinberg, R. (2005 rev. ed.). *The party's over: Oil, war and the fate of industrial societies*. Gabriola Island: New Society Publishers.
- Heinberg, R. (2007). *Peak everything: Waking up to the century of declines*. Gabriola Island: New Society Publishers.
- Henn, R. L. & Hoffman, A.J. (2013). *Constructing green: The social structures of sustainability*. Cambridge: The MIT Press.
- Hepburn, H.R. & Radloff, S.S. (1998). *Honeybees of Africa*. Berlin: Springer.
- Hertsgaard, M. (2011). *Hot: Living through the next fifty years on earth*. Boston: Houghton Mifflin Harcourt.
- Hillel, D. & Rosenzweig, C. eds. (2011). *Handbook of climate change and agroecosystem: Impacts, adaptation, and mitigation*. London: Imperial College Press.
- Holm, J. ed. (1994). *Attitudes to nature*. London: Pinter Publishers.
- Hornborg, A. (2011). *Global ecology and unequal exchange: Fetishism in a zero-sum world*. London:

- Routledge.
- Imamichi, T. (2009). *An introduction to eco-ethica*. Lanham: University Press of America.
- Ingram, J., Ericksen, P. & Liverman, D. eds. (2010). *Food security and global environmental change*. London: Earthscan.
- International Energy Agency. (2003). *Energy to 2050: Scenarios for a sustainable future*. Paris: OECD.
- Jackson, R. (2012). *Occupy world street: A global map for radical economic and political reform*. White River Junction: Chelsea Green Publishing.
- Jackson, T. (2009). *Prosperity without growth: Economics for a finite planet*. London: Earthscan.
- Jacques, P.J. (2009). *Environmental skepticism: ecology, power and public life*. Farnham: Ashgate.
- Jager, J. (2008). *Our planet: How much more can earth take?* London: Haus Publishing.
- Jamieson, D. (2008). *Ethics and the environment*. Cambridge: Cambridge University Press.
- Johannes, R.E. ed. (1989). *Traditional ecological knowledge: A collection of essays*. Cambridge: IUCN.
- Johansen, B.E. (2006). *Global warming in the 21st century: Our evolving climate crisis*. Westport: Praeger Perspectives.
- Jones, S. & Carswell, G. eds. (2004). *The earthscan reader in environment, development and rural livelihoods*. London: Earthscan.
- Joshi, N.K. & Singh, V. eds. (2010). *Traditional ecological knowledge of mountain people: Foundation for Sustainable Development in the Hindu Kush-Himalayan Region*. Delhi: Daya Publishing House.
- Jouzel, J., Lorius, C. & Raynaud, D. (2013). *The white planet: The evolution and future of our frozen world*. Princeton: Princeton University Press.
- Kaosa-ard, M. & Adam, A. eds. (2009). *Feeding the dragon: Agriculture-China and the GMS*. Chaing Mai: Chaing Mai University Press.
- Kearns, C.A. & Thomson, J.D. (2001). *The natural history of bumblebees: A sourcebook for investigations*. Boulder: University Press of Colorado.
- Keller, D.R. ed. (2010). *Environmental ethics: The big questions*. Malden: Wiley-Blackwell.
- Khagram, S. (2005). *Dams and development: Transnational struggles for water and power*. Oxford: Oxford University Press.
- Khalili, N.R. (2011). *Practical sustainability: From grounded theory to emerging strategies*. Houndmills: Palgrave Macmillan.
- Kister, C. (2005). *Arctic melting: How global warming is destroying one of the world's largest wilderness areas*. Monroe: Common Courage Press.
- Klein, N. (2008). *The shock doctrine: The rise of disaster capitalism*. Toronto: Vintage.
- Klein, N. (2014). *This changes everything: Capitalism vs. the climate*. Toronto: Knopf.
- Krummelbein, J., Horn, R. & Pagliai, M. eds. (2013). *Soil Degradation*. Reiskirchen: Catena Verlag GMBH.
- Kusuda, T. ed. (2010). *The Yellow River: Water and life*. London: World Scientific Publishing Co.
- Kutting, G. (2004). *Globalization and the environment: Greening global political economy*. Albany: State University of New York Press.
- Kutting, G. (2010). *The global political economy of the environment and tourism*. Houndmills: Palgrave Macmillan.
- Langeveld, H., Sanders, J. & Meeusen, M., eds. (2010). *The biobased economy: biofuels, materials and chemicals in the post-oil era*. London: Earthscan.
- Lappe, F.P., Collins J. & Rosset, P. (1998). *World hunger: Twelve myths*. New York: Grove Press.
- Latouche, S. (2009). *Farewell to growth*. Cambridge: Polity.
- Laudine, C. (2009). *Aboriginal environmental knowledge: Rational reverence*. Farnham: Ashgate.
- Lavaca Collective (2004). *Sin Patron: Stories from Argentina's worker-run factories*. Chicago: Haymarket Books.
- Lawrence, F. (2008). *Eat your heart out: Why the food business is bad for the planet and your health*. London: Penguin.
- Logan, W.B. (2012). *Air: The restless shaper of the world*. New York: Norton.
- Lourie, B. & Smith, R. (2013). *Toxin toxout: Getting harmful chemicals out of our bodies and our world*. Toronto: Knopf.
- Lowy, M. (2015). *Ecosocialism: A radical alternative to capitalist catastrophe*. Chicago: Haymarket

Books.

- Lovecraft, A.L. & Eicken, H. (2011). *North by 2020: Perspectives on Alaska's Changing Social-ecological Systems*. Fairbanks: University of Alaska Press.
- Low, P.S. ed. (2005). *Climate change and Africa*. Cambridge: Cambridge University Press.
- Maass, P. (2009). *Crude world: The violent twilight of oil*. New York: Knopf.
- MacCracken, M., Moore, F. & Topping, J. eds. (2007). *Sudden and disruptive climate change: exploring the real risks and how we can avoid them*. London: Earthscan.
- Mackay, R. (2005 2nd ed.). *The atlas of endangered species*. London: Earthscan.
- Magdoff, F. & Tokar, B. (2010). *Agriculture and food in crisis: Conflict, resistance and renewal*. New York: Monthly Review Press.
- Magdoff, F. & Bellamy Foster, J. (2011). *What every environmentalist needs to know about capitalism: A citizen's guide to capitalism and the environment*. New York: Monthly Review Press.
- Managi, S. (2011). *Technology, natural resources and economic growth: Improving the environment for a greener future*. Cheltenham: Edward Elgar.
- Martens, P. & Rotmans, J. (1999). *Climate change: An integrated perspective*. Dordrecht: Kluwer Academic Publishers.
- Martinez-Alier, J. (2005). *The environmentalism of the poor: A study of ecological conflicts and valuation*. Oxford: Oxford University Press.
- Matondi, P. B., Havnevik, K. & Beyene, A. eds. (2011). *Biofuels, land grabbing and food security in Africa*. London: Zed Books.
- Mwangi, E., Markelova, H. & Meinzen-Dick, R. (2012). *Collective action and property rights for poverty reduction: Insights from Africa and Asia*. Philadelphia: University of Pennsylvania Press.
- Mayoux, L. ed. (2003). *Sustainable learning for women's empowerment: Ways forward in micro-finance*. New Delhi: Samskriti.
- Mazur, L. ed. (2010). *A pivotal moment: population, justice & the environmental challenge*. Washington: Island Press.
- McCormick, P. (2008). *Eco-ethics and an ethics of suffering: Ethical innovation and the situation of the destitute*. Heidelberg: Universitätsverlag Winter.
- McQuaide, L. (2004). *It's the crude, dude: War, big oil and the fight for the planet*. Toronto: Doubleday.
- Meadows, D., Randers, J. & Meadows, D. (2004). *Limits to growth: The 30 – year update*. White River Junction: Chelsea Green Publ. Co.
- Meltzer, E. (2009). *The quest for sustainable international fisheries*. Ottawa: NRC Research Press.
- Mitchell, D. (2011). *Biofuels in Africa: Opportunities, prospects and challenges*. Washington: The World Bank.
- Monbit, G. (2006). *Heat: How to stop the planet from burning*. Toronto: Doubleday.
- Montgomery, D. R. (2012). *Dirt: The erosion of civilizations*. Berkeley: Univ. of California Press.
- Montgomery, S.L. (2010). *The powers that be: Global energy for the twenty-first century and beyond*. Chicago: The University of Chicago Press.
- Moore, K.D. & Nelson, M.P., eds. (2010). *Moral ground: Ethical action for a planet in peril*. San Antonio: Trinity University Press.
- Morse, S. (2010). *Sustainability: A biological perspective*. Cambridge: Cambridge University Press.
- Moss, M. (2013). *Salt sugar fat: How the food giants hooked us*. Toronto: McClelland & Stewart.
- Musil, R.K. (2009). *Hope for a heated planet: How Americans are fighting global warming and building a better future*. London: Rutgers University Press.
- Mukherjee, R. & Banet-Weiser, S., eds. (2012). *Commodity activism: Cultural resistance in neoliberal times*. New York: New York University Press.
- Muller-Rommel, F. & Poguntke, T. eds. (2002). *Green parties: In national governments*. London: Frank Cass.
- Muntz, R. & Reiterer, A.F. (2009). *Overcrowded world? Global population and international migration*. London: Haus Publishing.
- Navarro, V. ed. (2007). *Neoliberalism, globalization and inequalities: Consequences for health and quality of life*. Amityville: Baywood Publishing Company.
- Northcott, M.S. (2007). *A moral climate: The ethics of global warming*. Maryknoll: Orbis Books.
- Nurnburger, K. (1999). *Prosperity, poverty and pollution: Managing the approaching crisis*. London:

- Zed Books.
- Nwankwo, S. & Ahmed, A. (2011). *African entrepreneurship in global contexts: Enterprise solutions to sustainable development*. Brighton: WASD.
- OECD. (2008). *Growing unequal? Income distribution and poverty in OECD countries*. OECD.
- OECD. (2008). *OECD environmental outlook to 2030*. OECD.
- OECD. (2010). *Globalisation, transport and the environment*. OECD.
- OECD. (2012). *OECD environmental outlook to 2050*. OECD.
- Oldfield, F. (2005). *Environmental change: Key issues and alternative approaches*. Cambridge: Cambridge University Press.
- Oxley, J.C. (2011). *The moral dimensions of empathy: Limits and applications in ethical theory and practice*. Houndmills: Palgrave Macmillan.
- Parkinson, C.L. (2010). *Coming climate crisis? Consider the past, beware the big fix*. Lanham: Rowman & Littlefield Publishers, Inc.
- Paarlberg, R. (2010). *Food politics: What everyone needs to know*. Oxford: Oxford University Press.
- Packer, L. (2010). *Keeping the bees: Why all bees are at risk and what we can do to save them*. Toronto: HarperCollins.
- Page, E.A. (2006). *Climate change, justice and future generations*. Cheltenham: Edward Elgar.
- Palast, G. (2011). *Vulture's picnic: In pursuit of petroleum, pigs, power pirates, and high-finance carnivores*. New York: Plume/Penguin.
- Park, C. (2001 2nd ed.). *The environment: Principles and applications*. London: Routledge.
- Partridge, K. ed. (2011). *The politics of the oceans*. Ipswich: The Reference Shelf.
- Patel, R. (2007, 2012 2nd ed.). *Stuffed and starved: The hidden battle for the world food system*. New York: Melville House.
- Paton, G.J. (2011). *Seeking sustainability: On the proposal of an ecological liberalism*. London: Routledge.
- Pearce, F. (2006). *The last generation: How nature will take her revenge for climate change*. London: Transworld Publishers.
- Pearce, F. (2007). *With speed and violence: Why scientists fear tipping points in climate change*. Boston: Beacon Press.
- Pearce, F. (2010). *The coming population crash: And our planet's surprising future*. Boston: Beacon Press.
- Pearce, F. (2012). *The land grabbers: The new fight over who owns the earth*. Boston: Beacon Press.
- Perry, M. ed. (2009). *Assessing the costs of adaptation to climate change: A review of the UNFCCC and other recent estimates*. London: International Institute for Environment and Development.
- Peters, M., Fudge, S. & Jackson, T. eds. (2010). *Low carbon communities: Imaginative approaches to combating climate change locally*. Cheltenham: Edward Elgar.
- Phipps, B. (2007). *Cause for hope: Humanity at the crossroads*. Kelowna: CopperHouse.
- Pilkey, O.H. & Young, R. (2009). *The rising sea*. Washington: Island Press.
- Platform Duurzame en Solidaire Economie. (2012). *Beter meten van welvaart en welzijn*.
- Platform Duurzame en Solidaire Economie. (2012). *Macro economische verkenning*.
- Powell, J.L. (2011). *The inquisition of climate science*. New York: Columbia University Press.
- Pretty, J. (2007). *The earth only endures: On reconnecting with nature and our place in it*. London: Earthscan.
- Ray, L. (2007). *Globalization and everyday life*. London: Routledge.
- Reddy, D.N. & Mishra, S. eds. (2009). *Agrarian crisis in India*. Oxford: Oxford University Press
- Reinhard, S. & Folmer, H. eds. (2009). *Water policy in the Netherlands: Integrated management in a densely populated delta*. Washington: Resources for the Future.
- Relman, D.A., Hamburg, M.A., Choffnes, E.R. & Mack, A. rapporteurs. (2008). *Global climate change and extreme weather events: Understanding the contributions to infectious disease emergence*. Workshop summary. Washington: The National Academic Press.
- Reynolds, H., Brondizio, E.S. & Robinson, J.M. eds. (2010). *Teaching environmental literacy: Across campus and across the curriculum*. Bloomington: Indiana University Press.
- Riggs, M.Y. & Logan, J.S. eds. (2012). *Ethics that matter: African, Caribbean, and African American Sources*. Minneapolis: Fortress Press.

- Robbins, P. (2012 2nd ed.). *Political ecology: a critical introduction*. Chichester: Wiley Blackwell.
- Roberts, C. (2012). *The ocean of life: The fate of man and the sea*. New York: Viking.
- Roberts, J. (2011 2nd ed.). *Environmental policy*. Abingdon: Routledge.
- Roberts, M. (2011). *Crops and carbon: Paying farmers to combat climate change*. London: Earthscan.
- Robertson, A. ed. (2004). *Food and health in Europe: A new basis for action*. Copenhagen: WHO Regional Publications European Series, No.96.
- Rodgers, A. ed. (1995). *Taking action: An environmental guide for you and your community*. Nairobi: United Nations Environment Programme.
- Rogers, H. (2010). *Green gone wrong: How our economy is undermining the environmental revolution*. New York: Scribner.
- Rosa, E.A., Diekmann, A., Dietz, T. & Jaeger, C.C., eds. (2010). *Human footprints on the global environment: Threats to sustainability*. Cambridge Mass.: The MIT Press.
- Ruben, J. (2009). *Why the world is about to get a whole lot smaller: Oil and the end of globalization*. New York: Random House.
- Rubin, J. (2012). *The big flatline: Oil and the no-growth economy*. New York: Palgrave Macmillan.
- Ruland, V. (2002). *Conscience across borders*. New York: Fordham University Press.
- Sachs, J.D. (2008). *Common wealth: Economics for a crowded planet*. New York: Penguin Press.
- Sagasti, F. & Alcalde, G. (1999). *Development cooperation in a fractured global order*. Ottawa: International Development Research Centre.
- Sagoff, M. (2008 2nd ed.) *The economy of the earth: Philosophy, law, and the environment*. Cambridge: Cambridge University Press.
- Sale, P.F. (2011). *Our dying planet: An ecologist's view of the crisis we face*. Berkeley: University of California Press.
- Sancléments, M. (2014). *Plastic purge*. New York: St. Martin's Griffin.
- Sanderson, M. (2004). *Weather and climate in Southern Ontario*. Waterloo: University of Waterloo.
- Sandford, R.W. (2012). *Cold matters: The state and fate of Canada's fresh water*. Victoria: Rocky Mountain Books.
- Saul, B., Sherwood, S., McAdam, J., Stephens, T. & Slezak, J. (2012). *Climate change & Australia: Warming to the global challenge*. Leichhardt: The Federation Press.
- Scarce, R. (2006 updated ed.). *Eco-warriors: Understanding the radical environmental movement*. Walnut Creek: Left Coast Press.
- Schacker, M. (2008). *A spring without bees: How colony collapse disorder has endangered our food supply*. Guilford: The Lyons Press.
- Scharmer, O. & Kaufer, K. (2013). *Leading from the emerging future: From ego-system to eco-system to eco-system economics*. San Francisco: Berrett-Kowhler.
- Schlösser, E. (2001). *Fast food nation: The dark side of the all-american meal*. Boston: Mariner.
- Scoones, I. (2015). *Sustainable Livelihoods and rural development*. Halifax: Fernwood Publishing Press.
- Sen, A. (1981). *Poverty and famines: An essay on entitlement and deprivation*. Oxford: Clarendon Press.
- Shull, T. (1999). *Redefining red and green: Ideology and strategy in European political ecology*. Albany: State University of New York Press.
- Sipes, J.L. (2010). *Sustainable solutions for water resources: Policies, planning, design and implementation*. Hoboken: John Wiley & Sons.
- Smith, P., Okoye, S., de Wilde, J. & Deshingkar, P. (1994). *The world at the crossroads: Towards a sustainable, equitable and liveable world. A report to the Pugwash council*. London: Earthscan.
- Sodhi, N.S. & Brook, B.W. (2006). *Southeast Asian biodiversity in crisis*. Cambridge: Cambridge University Press.
- Spaargaren, G., Oosterveer, P. & Loeber, A. eds. (2012). *Food practices in transition: Changing food consumption, retail and production in the age of reflexive modernity*. New York: Routledge.
- Spivak, M., Fletcher, D.J.C. & B reed, M. eds. (1991). *The "African" honey bee*. Boulder: Westview Press.
- Spray, S.L. & McGlothlin, K.L. eds. (2003). *Loss of biodiversity*. Lanham: Rowman & Littlefield.
- Speth, J.G. ed. (2003). *World's apart: Globalization and the environment*. Washington: Island Press.
- Speth, J.G. & Haas, P.M. (2006). *Global environmental governance*. Washington: Island Press.

- Stahler-Sholk, R., Vanden, H.E. & Kueker, G.D. eds. (2008). *Latin American social movements in the twenty-first century*. Lanham: Rowman & Littlefield Publ.
- Steffen, A. ed. (2011 revised and updated). *World changing: A user's guide for the 21st century*. New York: Abrams.
- Struzik, E. (2009). *The big thaw: Travels in the melting North*. Mississauga: Wiley.
- Struzik, E. (2011). *The big thaw: Adventures in the vanishing Arctic*. Mississauga: Wiley
- Suzuki, D. (2010). *More good news: Real solutions to the global eco-crisis*. Vancouver: Greystone Books
- Suzuki, H., Dastur, A., Moffatt, S., Yabuki, N. & Maruyama, H. (2010). *Eco2 Cities*. Washington: The World Bank.
- Swaminathan, M.S. (2011). *In search of biohappiness: Biodiversity and food, health and livelihood security*. London: World Scientific.
- Talshir, G. (2002). *The political ideology of green parties: From the politics of nature to redefining the nature of politics*. Houndmills: Palgrave Macmillan.
- Tomain, J.P. (2011). *Ending dirty energy policy: Prelude to climate change*. Cambridge: Cambridge University Press.
- United Nations (2002). *Proceedings of international symposium on building partnerships between citizens and local governments for sustainable lake management*. Osaka: International Environmental Technology Centre.
- United Nations Development Program. (2012). *African human development Report 2012: Towards a food secure future*. New York: United Nations Development Program.
- van Dijk, J.M. (2008). *Water and environment in decision-making: Water assessment, environmental impact assessment, and strategic environmental assessment in Dutch planning. A comparison*. Delft: Eburon.
- Van Kooten, G.C. (2004). *Climate change economics. Why international accords fail*. Cheltenham: Edward Elgar.
- Veltmeyer, H. ed. (2011). *The critical development studies handbook: Tools for change*. Black Point: Fernwood.
- Von Weizsacker, E.U. (1994). *Earth politics*. London: Zed Books Fernwood
- Wagner, G. (2011). *But will the planet notice? How smart economics can save the world*. New York: Hill and Wang.
- Wagner, J.R. ed. (2013). *The Social Life of Water*. New York: Berghahn.
- Walker, A. Sinfield, A. & Walker, C. eds. (2011). *Fighting poverty, inequality and injustice*. Bristol: The Polity Press.
- Walker, B. & Salt, D. (2012). *Resilience practice: Building capacity to absorb disturbance and maintain function*. Washington: Island Press.
- Walker, G. & King, D. (2008). *The hot topic: How to tackle global warming and still keep the lights on*. London: Bloomsbury.
- Weart, S.R. (2008 rev. expanded). *The discovery of global warming*. Cambridge: Harvard University Press.
- Weaver, A. (2004). *Hard choices: Climate change in Canada*. Waterloo: Wilfred Laurier University Press.
- Weaver, A. (2008). *Keeping our cool: Canada in a warming world*. Toronto: Viking Canada.
- Weber, M. (1909, 1976 trans. by R.I. Frank). *The agrarian sociology of ancient civilizations*. London: Atlantic Highlands: Humanities Press.
- Weisman, A. (2007). *The world without us*. New York: St. Martin's Press.
- Welton, N. & Wolf, L. (2001). *Global uprising: Confronting the tyrannies of the 21st century: Stories from a new generation of activists*. Gabriola Island: New Society Publishers.
- Weston, A. (2012). *Mobilizing the green imagination*. Gabriola Island: New Society Publishers.
- White, D.F. & Wilbert, C., eds. (2009). *Technonatures: Environments, technologies, spaces, and places in the twenty-first century*. Waterloo: Wilfred Laurier University Press.
- WHO, (2003). *Foodborne disease in OECD countries*. Paris: OECD.
- Williams, B. (2010). *Greening the economy: Integrating economics and ecology to make effective change*. London: Routledge
- Williams, C. (2010). *Ecology and socialism*. Chicago: Haymarket Books.

- Wilson, J. & Law, S. (2007). *A brief guide to global warming*. London: Robinson.
- Wohl, E. (2010). *A world of rivers: Environmental change on ten of the world's greatest rivers*. Chicago: University of Chicago Press.
- The World Economic Forum Water Initiative. (2011). *Water security: The water-food-energy-climate nexus*. Washington: Island Press.
- World Wildlife Federation. (2012). *Living planet report*.
- Worldwatch Institute. (2011). *2011 State of the world: Innovations that nourish the planet*. New York: W.W. Norton & Co.
- Worldwatch Institute. (2015). *State of the world 2015: Confronting hidden threats to sustainability*. Washington: Island Press.
- Wurzel, R. & Connelly, J. eds. (2011). *The European Union as a leader in international climate change politics*. London: Routledge.
- Wyatt, C. (2011). *The defetshized society: New economic democracy as a libertarian alternative to Capitalism*. New York: Continuum.
- Yaccato, Thomas, J. (2003). *The 80% minority: Reaching the real world of women consumers*. Toronto: Viking.
- Yadav, S.N. (2010). *Energy security and environmental sustainability*. New Delhi: Global Vision Publishing House.
- Zhang, ZX. (2011). *Energy and environmental policy in China: Towards a low-carbon economy*. Cheltenham: Edward Elgar.

2. Capitalism and the Economy

- Abouharb, M.R. & Cingranelli, D. (2007). *Human rights and structural adjustment*. Cambridge: Cambridge University Press.
- Achterhuis, H. (1988). *Het rijk van de schaarste; van Thomas Hobbes tot Michel Foucault*. Baarn: Ambo.
- Achterhuis, H. (1992). *Technologie en filosofie:beeld en werkelijkheid*. Baarn: Ambo.
- Achterhuis, H. (2010). *De utopia van de vrije markt*. Amersfoort: Lemniscaat.
- Aguiar, L. & Herod, A. eds. (2006). *The dirty work of neoliberalism: Cleaners in the global economy*. Oxford: Blackwell Publishing.
- Albert, M. (1991, 1993 Eng.). *Capitalism against capitalism*. London: Whurr.
- Amin, S. (2003). *Obsolescent capitalism: Contemporary politics and global disorder*. London: Zed Books.
- Arestis, P. & Sawyer, M., eds. (2011). *New economics as mainstream economics*. Houndmills: Palgrave MacMillan.
- Armstrong, C. (2012). *Global distributive justice*. Cambridge: Cambridge University Press.
- Aroca, P. & Hewings, G. eds. (2006). *Structure and structural change in the Chilean economy*. New York: Palgrave Macmillan.
- Assenza, G. (1992). *Beyond the market*. West Hoathly: New Economy Publications.
- Aune, J.A. (2001). *Selling the free market: The rhetoric of economic correctness*. New York: The Guilford Press.
- Ayres, R.L. (1983). *Banking on the poor: The World Bank and world poverty*. Cambridge: The MIT Press.
- Banerjee, D. & Goldfield, M. (2007). *Labour, globalization and the state: Workers, women and Migrants confront neoliberalism*. London: Routledge.
- Barbier, E.B. (2010). *A global green new deal: Rethinking the economic recovery*. Cambridge: Cambridge University Press.
- Barone, C.A. (2004). *Radical political economy: A concise introduction*. New York: M.E. Sharpe.
- Bauman, Z. (2007). *Consuming life*. Cambridge: Polity Press.
- Bauman, Z. (2008). *Does ethics have a chance in a world of consumers*. Cambridge: Harvard University Press.
- Bello, W. ed. (2001). *The future in the balance: Essays on globalization and resistance*. Oakland: Food First Books. Co-published: Focus on the Global South.
- Berendsen, B. ed. (2009). *Emerging global scarcities and power shifts*. Amsterdam: KIT Publishers.
- Berendsen, B. ed. (2011). *Common goods in a divided world*. The Netherlands: KIT Publishers.

- Berghoff, H. & Spiekermann, U., eds. (2012). *Decoding modern consumer societies*. New York: Palgrave MacMillan.
- Bermudez, J. M. (2012). *The neoliberal pattern of domination: Capital's reign in decline*. Leiden: Brill.
- Best, S., Kahn, R., Nocella II, A. & McLaren, P. eds. (2011). *The global industrial complex: Systems of domination*. Lanham: Lexington Books.
- Biel, R. (2000). *The new imperialism: Crisis and contradictions in north-south relations*. London: Zed.
- Blackledge, P. (2004). *Perry Anderson, marxism and the new left*. London: The Merlin Press.
- Blad, C. (2011). *Neoliberalism and national culture: State-building and legitimacy in Canada and Quebec*. Leiden: Brill.
- Blakeley, R. (2009). *State terrorism and neoliberalism: The North in the South*. London: Routledge.
- Blossfield, H.P., Klijzing, E., Mills, M. & Kurz, K. eds. (2005). *Globalization, uncertainty and youth in society*. London: Routledge.
- Bockman, J. (2011). *Markets in the name of socialism: The left-wing origins of neoliberalism*. Stanford: Stanford University Press.
- Boggs, C. (2012). *Ecology and revolution: Global crisis and the political challenge*. New York: Palgrave Macmillan.
- Bonefeld, W. ed. (2008). *Subverting the present: Imagining the future*. New York: Autonomedia.
- Bowles, P. (2007). *Capitalism*. Harlow: Pearson, Longman.
- Boyle, D. & Simms, A. (2009). *The new economics: A bigger picture*. London: Earthscan.
- Braathen, N. A. ed. (2011). *Environmental impacts of international shipping: The role of ports. OECD and the sustainable harvesting, processing and marketing of their products*. Rome: Food and Agriculture Organization of the United Nations.
- Brennan, G. & Eusepi, G. (2009). *The economics of ethics and the ethics of economics: Values markets and the state*. Cheltenham: Edward Elgar.
- Broad, R. ed. (2002). *Global backlash: Citizen initiatives for a just world economy*. Lanham: Rowan & Littlefield Publishers Inc.
- Brown, D. (2002). *Insatiable is not sustainable*. London: Praeger.
- Bruinsma, J. ed. (2003). *World agriculture: towards 2015/2030: An FAO perspective*. London: Earthscan.
- Buckingham, D. (2011). *The material child: Growing up in consumer culture*. Cambridge: Polity Press.
- Buckland, J. (2004). *Ploughing up the farm: Neoliberalism, modern technology and the state of the world's farmers*. Black Point: Fernwood Publishing.
- Burkett, P. (2006). *Marxism and ecological economics: Toward a red and green political economy*. Leiden: Brill.
- Bush, R. (2007). *Poverty and Neoliberalism: Persistence and reproduction in the Global South*. Ann Arbor: Pluto Press.
- Cahill, D., Edwards, L. & Stilwell, F. Eds. (2012). *Neoliberalism: Beyond the Free Market*. Cheltenham: Edward Elgar.
- Cameron, S. (2002). *The economics of sin: Rational choice or no choice at all?* Cheltenham: Edward Elgar.
- Carson, R.B., Thomas, W.L. & Hecht J. (2005 8th ed.). *Macroeconomic issues today: Alternative Approaches*. Armonk: M.E. Sharpe.
- Casey, C. (2011). *Economy, work and education: Critical connections*. New York: Routledge.
- Cassidy, J. (2009). *How markets fail: the logic of economic calamities*. Toronto: Viking.
- Cavanagh, J. & Mander, J. A report of the International Forum on Globalization (2002). *Alternatives to economic globalization: A better world is possible*. San Francisco: Berrett-Koehler.
- Chakravorty, S. (2006). *Fragments of inequality: Social, spatial, and evolutionary analyses of income distribution*. New York: Routledge.
- Chambers, I. & Humble J. (2010). *Developing a plan for the planet: A business plan for sustainable living*. Burlington: Gower.
- Chamlee-Wright, E. (2010). *The cultural and political economy of recovery: Social learning in a post-disaster environment*. London: Routledge.
- Chang, H. (2002). *Kicking away the ladder: Development strategy in historical perspective*. London: Anthem Press.

- Chang, H. (2007). *Bad Samaritans: Rich nations, poor policies, and the threat to the developing world*. London: Random House.
- Clapp, J. & Wilkinson, R., eds. (2010). *Global governance, poverty and inequality*. Abingdon: Routledge.
- Clarke, M. (2010). *Challenging choices: Ideology, consumerism and policy*. Bristol: The Policy Press.
- Clunies-Ross, A. & Huq, M. (2014). *The universal social safety-net and the attack on world poverty: pressing need, manageable cost, practical possibilities, favourable spillovers*. London: Routledge.
- Coffey, D.C. & Thornley, C. (2009). *Globalization and varieties of capitalism: New labour, economic policy and the abject state*. New York: Palgrave Macmillan.
- Collier, P. (2007). *The bottom billion: Why the poorest countries are failing and what can be done about it*. Oxford: Oxford University Press.
- Conlon, J. (1990). *Geo-justice: A preferential option for the earth*. Winfield: Wood Lake Books.
- Copelovitch, M.S. (2010). *The International Monetary Fund in the global economy: Banks, bonds and bailouts*. Cambridge: Cambridge University Press.
- Coyle, D. (2011). *The economics of enough: How to run the economy as if the future matters*. Princeton: Princeton University Press.
- Dale, G. (2010). *Karl Polanyi: The limits of the market*. Cambridge: Polity.
- Dallmayr, F. (2010). *Integral pluralism: Beyond culture wars*. Lexington: The University of Kentucky Press.
- Danaher, K. ed. (1994). *50 years is enough: The case against the World Bank and the International Monetary Fund*. Boston: South End Press.
- Das, S. (2011). *Extreme money: Masters of the universe and the cult of risk*. FT Press.
- Dauvergne, P. (2008). *The shadows of consumption: Consequences for the global environment*. Cambridge: The MIT Press.
- de la Barra, X. & Dello Buono, R.A. (2009). *Latin America after the neoliberal debacle*. Lanham: Rowman & Littlefield Publishers. Inc.
- de la Barra, X. (2011). *Neoliberalism's fractured showcase: another Chile is possible*. Leiden: Brill.
- De La Torre, M. (2010). *Latina/o social ethics: Moving beyond Eurocentric moral thinking*. Waco: Baylor University Press.
- de Noronha Vaz, T., Nijkamp, P. & Rastoin, J. eds. (2009). *Traditional food production and rural sustainable development: A European challenge*. Farnham: Ashgate.
- Desai, M. & Redfern, P. eds. (1995). *Global governance: Ethics and economics of the world order*. London: Pinter.
- Diamond, J. (2005). *Collapse: How societies choose to fail or succeed*. New York: Viking.
- Dietz, S. Michie, J. & Oughton, C. eds. (2011). *The political economy of the environment: An interdisciplinary approach*. London: Routledge.
- Dowd, D. (2000, 2004). *Capitalism and economics: A critical history*. London: Pluto Press.
- Dreher, S. (2007). *Neoliberalism and migration: An inquiry into the politics of globalization*. Hamburg: LIT VERLAG.
- Dumenil, G. & Levy, D. (2011). *The crisis of neoliberalism*. Cambridge: Harvard University Press.
- Eckes Jr., A. E. (2011). *The contemporary global economy: A history since 1980*. Chichester: Wiley-Blackwell.
- Ekstrom, K.M. & Glans, K., eds. (2011). *Beyond the consumption bubble*. New York: Routledge.
- Ellwood, W. (2001). *The no-nonsense guide to globalization*. Oxford: New Internationalist Publications.
- Emmott, S. (2013). *10 billion*. London: Penguin Books.
- Engelen, E. ed. (2011). *After the great complacency: Financial crisis and the politics of reform*. Oxford: Oxford University Press.
- Engler, Y. (2015). *Canada in Africa; 300 years of aid and exploitation*. Halifax: Fernwood Publishing.
- Fine, B. & Milonakis, D. (2009). *From economics imperialism to freakonomics: The shifting boundaries between economics and other social sciences*. London: Routledge.
- Fink, J., Lewis, G. & Clarke J., eds. (2001). *Rethinking European welfare: Transformations of Europe and social policy*. London: Sage Publications.
- Fones-Wolf, E. (1994). *Selling free enterprise: The business assault on labour and liberalism, 1945-*

60. Urbana: University of Illinois Press.
- Foster, J.B. (2011). *What every environmentalist needs to know about capitalism: A citizen's guide to capitalism and the environment*. New York: Monthly Review Press.
- Fowler, T. ed. (2013). *From crisis to austerity: Neoliberalism, organized labour, and the Canadian state*. Ottawa: Red Quill Books.
- Frank, T. (2000). *One market under God: Extreme capitalism, market populism, and the end of economic democracy*. New York: Doubleday.
- Fraser, N. (1997). *Justice interruptus: Critical reflections on the "Postsocialist" condition*. New York: Routledge.
- French, K.R. (2010). *The Squam Lake report: Fixing the financial system*. Princeton: Princeton University Press.
- Frericks, P. (2012). *European capitalist welfare societies: The challenge of sustainability*. Houndmills: Palgrave Macmillan.
- Fullbrook, E. (2003). *The crisis in economics: The post-autistic economics movement: the first 600 days*. London: Routledge.
- Fullbrook, E. ed. (2004). *A guide to what's wrong with economics*. London: Anthem Press.
- Fuller, D., Jonas, A. & Lee, R. eds. (2010). *Interrogating alterity: Alternative economic and political spaces*. Farnham: Ashgate.
- Galeano, E. (1973/1997). *Open veins of Latin America; five centuries of the pillage of a continent*. New York: Monthly Review Press.
- Gallagher, V.A. (2006). *The true cost of low prices: The violence of globalization*. Maryknoll: Orbis Books.
- Garside, N. (2013). *Democratic ideals and the politicization of nature: The roving life of a feral citizen*. New York: Palgrave Macmillan.
- Geyer-Allely, E. (2002). *Towards sustainable household consumption?: Trends and policies in OECD countries*. OECD.
- Gibbs, T. & Leech, G. (2009). *The failure of global capitalism from Cape Breton to Colombia and beyond*. Sydney: Cape Breton University Press.
- Gibson, D. (2011). *Wealth, power, and the crisis of laissez faire capitalism*. New York: Palgrave Macmillan.
- Gibson-Graham, J.K. (1996, 2006 new intro.) *The end of capitalism (As we knew it): A feminist critique of political economy*. Minneapolis: University of Minneapolis Press.
- Gilbert, J. (2008). *Anticapitalism and culture: Radical theory and popular politics*. Oxford: Berg.
- Giroux, H. (2008). *Against the terror of neoliberalism: Politics beyond the age of greed*. Boulder: Paradigm Publishers.
- Glyn, A. (2006). *Capitalism unleashed: Finance globalization and welfare*. Oxford: Oxford University Press.
- Gonzalez, F.E. (2012). *Creative destruction?: Economic crises and democracy in Latin America*. Baltimore: The John Hopkins University Press.
- Gonzalez, G.A. (2001). *Corporate power and the environment: The political economy of U.S. environmental policy*. Lanham: Rowman & Littlefield Publishers, Inc.
- Goudzwaard, B. (1979). *Capitalism and progress: A diagnosis of Western Society*. Grand Rapids: Eerdmans.
- Goudzwaard, B. (1980). *Toward reformation in economics*. Toronto: ICS.
- Goudzwaard, B., Vander Vennen, M. & Van Heemst, D. (2007). *Hope in troubled times: a new vision for confronting global crisis*. Grand Rapids: Baker Publishing.
- Gray, J. (2009). *False dawn; the delusions of global capitalism*. New York: New Press.
- Greve, B. (2006). *The future of the welfare state: European and global perspectives*. Aldershot: Ashgate.
- Haggard, S. & Kaufman, R.R. (2008). *Development, democracy and welfare states: Latin America, East Asia and Eastern Europe*. Princeton: Princeton University.
- Haghirian, P. ed. (2011). *Japanese consumer dynamics*. Houndmills: Palgrave Macmillan.
- Hale, D. & Hughes Hale, L. eds. (2011). *What's next?: Unconventional wisdom on the future of the world economy*. New Haven: Yale.
- Hamilton, C. (2003). *Growth fetish*. Crows Nest, Australia: Allen & Unwin.

- Hardisty, P.E. (2010). *Environmental and economic sustainability*. Boca Raton: CRC Press.
- Hart, J.T. (2006). *The political economy of health care: A clinical perspective*. Bristol: Policy Press.
- Haworth, A. (1994). *Anti-libertarianism: Markets, philosophy and myth*. London: Routledge.
- Hay, C. & Wincott, D. (2012). *The political economy of European welfare capitalism*. New York: Palgrave Macmillan.
- Heal, G. ed. (2010). *Is economic growth sustainable?* Houndmills: Palgrave Macmillan.
- Hebron, L. & Stack, J.F. Jr. (2011 2nd ed.). *Globalization: Debunking the myths*. Boston: Longman.
- Hedges, C. (2009). *Empire of illusion: The end of literacy and the triumph of spectacle*. Toronto: Knopf.
- Hedges, C. (2010). *Death of the liberal class*. Toronto: Knopf.
- Heilbroner, R.L. (1963). *The making of economic society*. New York: Harper.
- Heilbroner, R.L. & Milberg, W.S. (1996). *The crisis of vision in modern economic thought*. Cambridge: Cambridge University Press.
- Henderson, D. (2001). *Anti-Liberalism 2000: The rise of new millennium collectivism*. London: The Institute of Economic Affairs.
- Hernandez, A. (2014). *Narcoland: The Mexican drug lords and their godfathers*. London: Verso.
- Hershberg, E. & Rosen, F. (2006). *Latin America after neoliberalism*. New York: The New Press.
- Heslem, P. ed. (2004). *Globalization and the good*. London: Society for Promoting Christian Knowledge.
- Hewitt, W.F. (2013). *A newer world: Politics, money, technology, and what's really being done to solve the climate crisis*. Durham: University of New Hampshire Press.
- Heynen, N., McCarthy, J., Prudham, S. & Robbins, P. eds. (2007). *Neoliberal environments: False Promises and unnatural consequences*. London: Routledge.
- Hill, C. (2002). *Anti-capitalism: The social economy alternative*. Nottingham: Spokesman Russell Press.
- Hiro, D. (2008). *Blood of the earth: the global battle for vanishing oil resources*. New York: Nation Books.
- Hobgood, M.E. (2009 rev. ed.). *Dismantling privilege: An ethics of accountability*. Cleveland: The Pilgrim Press.
- Hobson, J. & Seabrooke, L. eds. (2007). *Everyday politics of the world economy*. Cambridge: Cambridge University Press.
- Holliday, C.O. Jr., Schmidheiny S. & Watts. P. (2002). *Walking the talk: The business case for sustainable development*. San Francisco: Greenleaf: Publ.
- Holmes, L. (2006). *Rotten states? Corruption, post-communism, and neoliberalism*. Durham: Duke University Press.
- Hossay, P. (2006). *Unsustainable: A primer for global environmental and social justice*. London: Zed Books.
- Howard, M.C. & King, J.E. (2008). *The rise of neoliberalism in advanced capitalist economics: A materialist analysis*. Houndmills: Palgrave Macmillan.
- Huerta de Soto, J. (2008). *The Austrian school: Market order and entrepreneurial creativity*. Cheltenham: Edward Elgar.
- Ikerd, J. (2005). *Sustainable capitalism: A matter of common sense*. Bloomfield: Kumarian Press.
- Jackson, T. (2009). *Prosperity without growth: Economics for a finite planet*. London: Earthscan.
- Karimi, S. (2015). *The tragedy of social democracy*. Halifax: Fernwood Publishing.
- King, S. (2010). *Losing control: The emerging threats to western prosperity*. New Haven: Yale University Press.
- Kivel, P. (2004). *You call this a democracy? : Who benefits, who pays and who really decides*. New York: Apex Press.
- Konings, P. (2011). *Crisis and neoliberal reforms in Africa: Civil society and agro-industry in Anglophone Cameroon's plantation economy*. Bamenda: Langaa Research and Publishing Common Initiative Group.
- Korten, D.C. (1995). *When corporations rule the world*. West Hartford and San Francisco: Kumarian Press.
- Korten, D.C. (1999). *The post-corporate world: Life after capitalism*. West Harford: Kumarian Press.
- Kovel, J. (2002). *The enemy of nature: The end of capitalism or the end of the world?* Nova Scotia:

- Fernwood.
- Kuczynski, P. & Williamson, J. eds. (2003). *After the Washington consensus: Restarting growth and reform in Latin America*. Washington: Institute for International Economics.
- Laeyendecker, L., et.al. (1998). *Sociale overbodigheid*. Nijmegen: KSGV.
- Lacher, H. (2006). *Beyond globalization: Capitalism, territoriality and the international relations of modernity*. London: Routledge.
- Lanchester, J. (2010). *I.O.U.: Why everyone owes everyone and no one can pay*. Toronto: McClelland and Stewart.
- Latouche, S. (2010). *Farewell to Growth*. Cambridge: Polity.
- Hiwaki, K. (2003). *Sustainable development and global community. Vol.IV*. Windsor: International Institute for Advanced Studies in Systems Research and Cybernetics.
- Laszlo, E. (2001). *Macrosift: Navigating the transformation to a sustainable world*. San Francisco: Berrett-Koehler Publ. Inc.
- Lawrence, F. (2008). *Eat your heart out: Why the food business is bad for the planet and your health*. London: Penguin.
- Leach, M. Scoones, I. & Stirling, A. (2010). *Dynamic sustainabilities: Technology, environment, social justice*. London: Earthscan.
- Lebowitz, M.A. (2006). *Build it now: Socialism for the twenty-first century*. New York: Monthly Review Press.
- Leech, G. (2012). *Capitalism: A structural genocide*. London: Zed Books.
- Legrain, P. (2002). *Open world: The truth about globalisation*. London: Abacus.
- Legrain, P. (2010). *Aftershock: Reshaping the world economy after the crisis*. London: Little Brown.
- Leitner, H., Peck, J. & Sheppard, E.S. (2007). *Contesting neoliberalism: Urban frontiers*. Guilford: New York.
- Lemeri, C., Elliott, A., Chaffee, D. & Hsu, E. eds. (2010). *Globalization: A reader*. London: Routledge.
- Leonard, H.J. ed. (1985). *Divesting nature's capital: The political economy of environmental abuse in the Third World*. New York: Holmes & Meier.
- Leplat, F. & Onaran, O. eds. (2012). *Capitalism: Crisis and alternatives*. London: Resistance Books.
- Lerch, D. (2007). *Post carbon cities: Planning for energy and climate uncertainty*. Sebastopol: Post Carbon Press.
- Lester, D. (2006). *The gruesome acts of capitalism*. Winnipeg: Arbeiter Ring Publishing.
- Lovens, L. H. & Cohen, B. (2011). *Climate capitalism: Capitalism in the age of climate change*. New York: Hill and Wang.
- Loxley, J. ed. (2007). *Transforming or reforming capitalism: Towards a theory of community economic development*. Halifax: Fernwood Publishing and Manitoba: Canadian Centre for Policy Alternatives. Palgrave Macmillan.
- Lundsgaarde, E. ed. (2012). *Africa toward 2030: Challenges for development policy*. Houndmills: Palgrave Macmillan.
- Macarov, D. (2003). *What the market does to people: Privatization, globalization and poverty*. Atlanta: Clarity Press, Inc.
- Macartney, H. (2011). *Variiegated neoliberalism: EU varieties of capitalism and international political economy*. London: Routledge.
- Macdonald, L. & Ruckert, A. eds. (2009). *Post-neoliberalism in the Americas*. Houndmills: Palgrave Macmillan.
- MacEwan, A. (1999). *Neoliberalism or democracy? Economic strategy, markets, and alternatives for the 21st Century*. Halifax: Fernwood.
- Macklin, M.C. & Carlson, L. eds. (1999). *Advertising to children: Concepts and controversies*. Thousand Oaks: Sage.
- Malik, K. (2014). *The Quest for a Moral Compass; a global history of ethics*. Brookln, NY: Melville House Publishing.
- Manning, J.G. & Morris, I. eds.(2005). *The ancient economy: evidence and models*. Stanford: Stanford University Press.
- McCann Jr., C. R. (2004). *Individualism and the social order: The societal element in liberal thought*. London: Routledge.Island Press.

- Mitchie, J., ed. (2011 2nd ed.). *The handbook of globalisation, second edition*. Cheltenham: Edward Elgar.
- Mosini, V. (2012). *Reassessing the paradigm of economics: Bringing positive economics back into the normative framework*. London: Routledge.
- Myers, N. & Kent, J. (2001). *Perverse subsidies: How tax dollars can undercut the environment and the economy*. Washington: Island Press.
- Nelson, A. (1999). *Marx's concept of money: The god of commodities*. London: Routledge.
- Newell, P. & Paterson, M. (2010). *Climate capitalism: Global warming and the transformation of the global economy*. Cambridge: Cambridge University Press.
- Ocampo, J.A., ed. (2005). *Beyond reforms structural dynamics and macroeconomic vulnerability*. Palo Alto: Stanford University Press.
- Ocampo, J.A. & Stiglitz, J.E. eds. (2008). *Capital market liberalization and development*. Oxford: Oxford University Press.
- Olsen, M. (2009). *Liberalism, neoliberalism, social democracy: Thin? communitarian perspectives on political philosophy and education*. New York: Routledge.
- O'Reilly, T. & Tennant, M. (2009). *The age of persuasion: How marketing ate our culture*. Toronto: Knopf.
- Ostrom, E. (1990). *Governing the commons; the evaluation of institutions for collective action*. Cambridge: Cambridge University Press.
- Overbeek, H. & van Apeldoorn, B., eds. (2012). *Neoliberalism in crisis*. Houndmills: Palgrave Macmillan.
- Parks, R.H. (2011). *The end of capitalism: Destructive forces of an economy out of control*. Amherst: Prometheus Books.
- Peck, J. (2010). *Constructions of neoliberal reason*. Oxford: Oxford University Press.
- Peikoff, L. (1993). *Objectivism: The philosophy of Ayn Rand*. New York: Penguin.
- Petras, J. (2003). *The new development: The age of empire building and new social movements*. Aldershot: Ashgate.
- Petras, J. & Veltmeyer, H. (2003). *Systems in crisis: The dynamics of free market capitalism*. Black Point: Fernwood.
- Petras, J. & Veltmeyer, H. (2005). *Empire with imperialism: The globalizing dynamics of neo-liberal capitalism*. Black Point: Fernwood.
- Petras, J. & Veltmeyer, H. (2011). *Beyond neoliberalism: A world to win*. Farnham: Ashgate.
- Petras, J. & Veltmeyer, H. (2011). *Social movements in Latin America: Neoliberalism and popular resistance*. New York: Palgrave Macmillan.
- Pierson, C. (2007 3rd ed.). *Beyond the welfare state: The new political economy of welfare*. University Park: Pennsylvania State University Press.
- Plehwe, D, Walpen, B. & Neunhoffer, G. (2006). *Neoliberal hegemony: A global critique*. London: Routledge.
- Polanyi, K. (1968). *Primitive, archaic, and modern economics*. New York: Anchor Books.
- Polanyi, K. (2001). *The great transformation*. Boston: Beacon Press.
- Polanyi, K. (1977). *The livelihood of man*. New York: Academic Press.
- Purdy, S.J. (2010). *Economic growth, the environment and international relations*. Oxford: Routledge.
- Rainford, J. (2015). *A Short History of Social Democracy*. London: Resistance Books.
- Rajaec, F. (2000). *Globalization on trial: the human condition and the information civilization*. Ottawa International Development Research Centre.
- Rapley, J. (2004). *Globalization and inequality: Neoliberalism's downward spiral*. Boulder: Lynne Reiner Publ.
- Rasmus, J. (2010). *Epic recession: Prelude to global depression*. New York: Pluto Press. University Press.
- Reiff, M.R. (2013). *Exploitation and economic justice in the liberal capitalist state*. Oxford: Oxford University Press.
- Rodriguez, I. (2009). *Liberalism at its limits: Crime and terror in the Latin American cultural text*. Pittsburgh: University of Pittsburgh Press.
- Roncaglia, A. (2010). *Why economists got it wrong: The crisis and its cultural roots*. London:

- Anthem Press.
- Roubini, N. & Mihm, S. (2010). *Crisis economics: A crash course in the future of finance*. New York: The Penguin Press.
- Roussopoulos, D. (2015). *Political Ecology*. Porsgrunn, Norway: New Compass Press
- Royrvik, E.A. (2011). *The allure of capitalism: An ethnography of management and the global economy In crisis*. New York: Berghahn Books.
- Sainsbury, D. (2013). *Progressive capitalism: How to achieve economic growth, liberty and social justice*. London: Biteback Publishing.
- Salman, T. & de Theije, M. eds. (2011). *Local battles, global stakes: The globalization of local conflicts and the localization of global interests*. Amsterdam: VU University Press.
- Satz, D. (2010). *Why some things should not be for sale: The moral limits of markets*. Oxford: Oxford University Press.
- Sauer-Thompson, G. & Smith, J.W. (1996). *Beyond economics: Postmodernity, globalization and national sustainability*. Aldershot: Avebury.
- Sawyer, M. (1989). *The challenge of radical political economy: An introduction to the alternatives to neo-classical economics*. New York: Harvester Wheatsheaf.
- Sawyer, M. & O'Donnell, K. (1999). *A future for public ownership*. London: Lawrence & Wishart.
- Sayer, A. (1995). *Radical political economy: A critique*. Oxford: Blackwell.
- Scherff, J. ed. (1999). *The piracy of America: Profiteering in the public domain*. Atlanta: Clarity Press.
- Scholte, J.A. (2000). *Globalization: A critical introduction*. London: Macmillan Press.
- Schor, J. B. (2004). *Born to buy*. New York: Scribner.
- Schutz, E. (2001). *Markets and power: The 21st century command economy*. Armonk: M.E. Sharpe.
- Scorse, J. (2010). *What environmentalists need to know about economics*. Houndmills: Palgrave.
- Scott, N. & Seglow, J. (2007). *Altruism*. Maidenhead: Open University Press.
- Serra, N. & Stiglitz, J.E. eds. (2008). *The Washington consensus reconsidered: Towards a new global governance*. Oxford: Oxford University Press.
- Shaanan, J. (2010). *Economic freedom and the American dream*. Houndmills: Palgrave Macmillan.
- Shefner, J. & Fernandez-Kelly, P. (2011). *Globalization and beyond: New examinations of global power and its alternatives*. University Park: The Pennsylvania University State Press.
- Silver, M. (1985). *Economic structures of the Ancient Near East*. London: Croom Helm.
- Sim, S. (2012). *Addicted to profit: Reclaiming our lives from the free market*. Edinburgh: Edinburgh University Press.
- Simms, A. & Smith, J. eds. (2008). *Do good lives have to cost the earth?* London: Constable.
- Sinn, H-W. (2012). *The Green Paradox: A supply-side approach to global warming*. Cambridge: MIT Press.
- Sklair, L. (2002 3rd ed.). *Globalization: Capitalism and its alternatives*. Oxford: Oxford Univ. Press.
- Smith, D. (2010). *The age of instability: The global financial crisis and what comes next*. London: Profile Books.
- Smith, J.K.A. ed. (2008). *after modernity?: secularity, globalization & the re-enchantment of the world*. Waco: Baylor University Press.
- Soderbaum, P. (2000). *Ecological economics: A political economics approach to environment and development*. London: Earthscan Publications Ltd.
- Soper, K. & Trentmann, F., eds. (2008). *Citizenship and consumption*. Houndmills: Palgrave Macmillan.
- Sotiropoulos, D.P., Milios, J. & Lapatsioras, S. (2013). *A political economy of contemporary capitalism and its crisis*. Abingdon: Routledge.
- Speth, J.G. (2008). *The bridge at the edge of the world: Capitalism, the environment, and crossing from crisis to sustainability*. New Haven: Yale University Press.
- Standford, J. (2008). *Economics for everyone: A short guide to the economics of capitalism*. Halifax: Fernwood Publishing and Canadian Centre for Policy Alternatives.
- Standing, G. (2009). *Work after globalization: Building occupational citizenship*. Cheltenham: Edward Elgar.
- Steelman, T.A. (2010). *Implementing innovation: Fostering enduring change in environmental and natural resource governance*. Washington: Georgetown University Press.

- Stern, N. (2007). *The economics of climate change: The Stern review*. Cambridge: Cambridge University Press.
- Stern, N. (2009). *A blueprint for a safer planet: How to manage climate change and create a new era of Progress and prosperity*. London: The Bodley Head.
- Stiegler, B. (2010). *For a new critique of political economy*. Malden: Polity
- Tabb, W.K. (2012). *The restructuring of capitalism in our time*. New York: Columbia University Press.
- Tiemstra, J.P. ed. (1990). *Reforming economics: Calvinist studies on methods and institutions*. Lewiston: Edwin Mellen Press.
- Thai, K.V., Rahm, D. & Cogburn, J. (2007). *Handbook of globalization and the environment*. Boca Raton: CRC Press.
- Thrift, N. (2005). *Knowing capitalism*. London: Sage Publications.
- Tormey, S. (2004). *Anti-capitalism: a beginner's guide*. Oxford: Oneworld.
- Toulmin, S. (1982). *The return to cosmology: Postmodern science and the theology of nature*. Berkeley: University of California Press.
- Toussant, E. (2008). *The world bank: A critical primer*. London: Photo Press.
- Triner, G. (2011). *Mining the state in Brazilian development*. London: Pickering & Chatto.
- Tussie, D. (2000). *The environment and international trade negotiations*. New York: St. Martin's Press.
- van Apeldoorn, B., Drahokoupil, J. & Horn, L. eds. (2009). *Contradictions and limits of neoliberal European governance: From Lisbon to Lisbon*. Houndmills van der : Palgrave MacMillan.
- Vanderheiden, S. (2008). *Atmospheric justice: A political theory of climate change*. Oxford: Oxford University Press.
- Van der loo, H. & Van rijen W. (1997). *Paradoxen van modernisering*. Bussum: Dick Coutinho.
- van der Veen, R., Yerkes, M. & Achterberg, P. (2012). *The transformation of solidarity: Changing risks and the future of the welfare state*. Amsterdam: Amsterdam University Press.
- Varoufakis, Y., Halevi, J. & Theocarakis, N.J. (2011). *Modern political economics: Making sense of the Post-2008 world*. London: Routledge.
- Vaughn-Whitehead, D. ed. (2011). *Work inequalities in the crisis: Evidence from Europe*. Cheltenham: Edward Elgar.
- Vij, R. ed. (2007). *Globalization and welfare: A critical reader*. Houndmills: Palgrave Macmillan.
- Visser, W. (2009). *Landmarks for sustainability: Events and initiatives that have changed the world*. Sheffield: Greenleaf Publishing and University of Cambridge
- Vlachou, A., ed. (1999). *Contemporary economic theory: Radical critiques of neoliberalism*. London: St. Martin's Press.
- Wahl, A. (2011). *The rise and fall of the welfare state*. London: Pluto Press.
- Wall, D. (2005). *Babylon and beyond: The economics of anti-capitalist, anti globalist and radical Green movements*. London: Pluto Press.
- Wall, D. (2010). *The rise of the green left: Inside the worldwide ecosocialist movement*. New York: Pluto Books
- Wallach, L. & Sforza, M. (1999). *The WTO: Five years of reasons to resist corporate globalization*. New York: Seven Stories Press.
- Wallach, L. & Woodall, P. (2004). *Whose trade organization? A comprehensive guide to the WTO*. New York: The New Press.
- Wallerstein, I. (1983). *Historical capitalism*. London: Verso.
- Wallerstein, M. (2011). *Historical capitalism with capitalist civilization*. London: Verso.
- Weiss, J. (2002). *Industrialisation and globalisation: Theory and evidence from developing countries*. London: Routledge.
- Westra, R. (2010). *Political Economy and Globalization*. London: Routledge.
- Whitley, R. (2000). *Divergent capitalisms: The social structuring and change of business systems*. Oxford: Oxford University Press.
- Williams, R. & Elliott, L. (2010). *Crisis and recovery: Ethics, economics and justice*. Houndmills: Palgrave Macmillan.
- Williamson, T., Imbroscio, D. & Alperovitz, G. (2002). *Making a place for community: Local democracy in a global era*. New York: Routledge.

Wilson, H.T. (2002). *Capitalism after postmodernism: Neo-conservatism, legitimacy and the theory of public capital*. Leiden: Brill.

The World Bank. (2001). *Making sustainable commitments: An environment strategy for the World Bank*. Washington D.C.: The World Bank.

3. Phenomenology and Sociology of Religion

Aldridge, A. (2007 2nd ed.). *Religion in the contemporary world: A sociological introduction*. Cambridge: Polity.

Allan, K. (2011). *A primer in social and sociological theory: Toward a sociology of citizenship*. Los Angeles: Sage.

Ammerman, N.T., ed. (2007). *Everyday religion: observing modern religious lives*. New York: Oxford University Press.

Aupers, S. & Houtman D. eds. (2010) *Religions of modernity*. Leiden: Brill.

Avis, P. ed. (2003). *Public faith? The state of religious belief and practice in Britain*. London: SPCK.

Backhaus, G. & Psathas, G. eds. (2007). *The sociology of radical commitment: Kurt H. Wolff's Existential turn*. Lanham: Lexington Books.

Bailey, E. I. (1997). *Implicit religion in contemporary society*. Kampen: Kok Pharos Publishing House.

Bailey, E. (2001). *The secular faith controversy. Religion in three dimensions*. London: Continuum.

Bainbridge, W.S. (2007). *Across the secular abyss: From faith to wisdom*. Lanham: Lexington Books.

Banton, M. ed. (1966). *Anthropological approaches to the study of religion*. London: Tavistock.

Barker, E., Beckford, J.A. & Dobbelaere, K. eds. (1993). *Secularization, rationalism and sectarianism: Essays in honour of Bryan R. Wilson*. Oxford: Clarendon Press.

Beckford, J.A. & Luckman, T. eds. (1989). *The changing face of religion*. London: Sage.

Beckford, J.A. (2003). *Social theory and religion*. Cambridge: Cambridge University Press.

Beckford, J.A. & Richardson, J.T. eds. (2003). *Challenging religion: essays in honour of Eileen Barker*. London: Routledge

Beckford, J.A. & Walliss, J. eds. (2006). *Theorising religion: classical and contemporary debates*. Aldershot: Ashgate Publishing Company.

Beckford, J.A. & Demerath III, N.J. eds. (2007). *The Sage handbook of the sociology of religion*. London: Sage.

Berger, P.L. ed. (1999). *The desecularization of the world: Resurgent religion and world politics*. Grand Rapids: Eerdmans.

Bibby, R.W. (2002). *Restless gods: The renaissance of religion in Canada*. Toronto: Stoddart.

Borsboom, A. & Jaspers, F., eds. (2003). *Identity and religion: a multidisciplinary approach Vol. 42*. Saarbrücken: Verlag für Entwicklungspolitik Saarbrücken GmbH.

Braun, W. & McCutcheon, R.T. eds. (2000). *Guide to the study of religion*. London: Cassell.

Cabezón, J.I. & Davaney, S. G., eds. (2004). *Identity and the politics of scholarship in the study of religion*. New York: Routledge.

Carson, A. (2008). *Christ and culture revisited*. Nottingham: Apollos.

Casanova, J. (1994). *Public religions in the modern world*. Chicago: The University of Chicago Press.

Connolly, P., ed. (1999). *Approaches to the study of religion*. London: Cassell.

Conradie, E. M. ed. (2011). *Creation and salvation: Dialogue on Abraham Kuyper's legacy for contemporary ecotheology*. Leiden: Brill.

Cox, J.L. (2006). *A guide to the phenomenology of religion*. ????

Cox, J.L. (2010). *An introduction to the phenomenology of religion*. London: Continuum.

Cumpsty, J.S. (1991). *Religion as belonging: A general theory of religion*. Lanham: University Press of America.

Daneel, M.L. (2001). *African earthkeepers*. Maryknoll: Orbis Books

Davie, G. (2007). *The sociology of religion*. Los Angeles: Sage Publ.

Dekker, G. (1975). *De mens en zijn godsdienst*. Bilthoven: Aanboboeken.

Dekker, G. (1986). *Godsdienst en samenleving: inleiding tot de studie van de godsdienstesociologie*. Kampen: Kok.

Dekker, G. (1992). *De stille revolutie: De ontwikkeling van de Gereformeerde Kerken in Nederland tussen 1950 en 1990*. Kampen: Kok.

- Dekker, G., Luidens, D.A. & Rice, R.R., eds. (1997). *Rethinking secularization: Reformed reactions to modernity*. Lanham: University Press of America, Inc.
- Dekker, G. (2001). "De ontwikkeling van de godsdienst sociologie in Nederland," in *Nederlands Theologisch Tijdschrift*, 55, pp. 13-30.
- De Vriese, H. & Gabor, G., eds. (2009). *Rethinking secularization; philosophy and the prophecy of a secular age*. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Dobbelaere, K. (2002). *Secularization: An analysis at three levels*. Bruxelles: P.I.E.-Peter Lang.
- Dowson, M. & Devenish, S. eds. (2010). *Religion and spirituality*. Charlotte: Information Age Publ.
- Eliade, M. (1969). *The Quest: history and meaning in religion*. Chicago: Univ. of Chicago Pr.
- Ellenbogen, J. & Tugendhaft, A. eds. (2011). *Idol Anxiety*. Stanford: Stanford University Press.
- Eriksen, T.H. (2010, 3rd ed.). *Small places, large issues: an introduction to social and cultural anthropology*. London: Pluto Press.
- Falk, R. (2001). *Religion and humane global governance*. New York: Palgrave.
- Fenn, R. K., ed. (2001). *The Blackwell companion to sociology of religion*. Malden: Blackwell.
- Fenn, R.K. (2009). *Key thinkers in the sociology of religion*. London: Continuum.
- Fitzgerald, T. (2000). *The ideology of religious studies*. New York: Oxford University Press.
- Flanagan, K. & Jupp, P.C., eds. (1996). *Postmodernity, sociology and religion*. New York: St Martin's Press.
- Flood, G. (1999). *Beyond phenomenology: rethinking the study of religion*. London: Continuum.
- Fortmann, H.M.M. (1974). *Als ziende de onzienlijke, I, II*. Hilversum: Gooi and Sticht.
- Geertz, C. (1973). *The interpretation of cultures: selected essays by Clifford Geertz*. N.Y.: Basic Books.
- Gilkey, L. (1976). *Reaping the whirlwind: A Christian interpretation of history*. New York: Seabury Press.
- Halbertal, M. & Margalit, A. (1992). *Idolatry*. Cambridge: Harvard University Press.
- Hawkins Benedix, B. ed. (2009). *Subverting scriptures: Critical reflections on the use of the Bible*.
- Hinnells, J. ed. (2010 2nd ed.). *The Routledge Companion to the Study of Religion*. New York: Routledge.
- Honingmann, J.J. ed. (1973). *Handbook of social and cultural anthropology*. Chicago: Rand McNally.
- Hunt, S.J. (2002). *Religion in Western Society*. Hampshire: Palgrave.
- Hunt, S. (2005). *Religion and everyday life*. London: Routledge.
- Hunt, S. ed. (2010). *Indigenous religions*. Farnham: Ashgate.
- Idinopulus, T.A. & Yonan, E.A., eds. (1994). *Religion and reductionism: Essays and Eliade, Segal and the challenge of the social sciences for the study of religion*. Leiden: Brill.
- Idinopulus, T.A., Wilson, B. & Hanges, J.C. eds. (2006). *Comparing religions: Possibilities and perils?* Leiden: Brill.
- Jakelic, S. & Pearson, L., eds. (2004). *The future of the study of religion. Proceedings of Congress 2000*. Leiden: Brill.
- Jensen, T. & Rothstein, M., eds. (2000). *Secular theories of religion: current perspectives*. Copenhagen: Museum Tusulanum Press.
- Joas, H. & Wiegandt, K., eds. (2009). *Secularization and the world religions*. Liverpool: Liverpool University Press.
- Jones, P. Bradbury, L. & Le Boutillier, S. (2011 2nd ed.). *Introducing Social Theory*. Cambridge: Polity Press.
- Kenis, L., Billiet, J. & Pasture, P. eds. (2010). *The transformation of the Christian churches in Western Europe 1945/2000*. Leuven: Leuven University Press.
- Kim, Y. (2008). *The quest for plausible Christian discourse in a world of pluralities: The evolution of David Tracy's understanding of 'Public Theology'*. Bern: Peter Lang.
- King, E.F. (2010). *Material religion and popular culture*. New York: Routledge.
- Kurtz, P. (2010). *Multi-secularism: A new agenda*. London: Transaction Publishers.
- Leask, I. ed. (2010). *The Taylor effect: Responding to a secular age*. Newcastle Upon Tyne: Cambridge Scholars Publishing.
- Leopold, A.M. & Jensen, J.S., eds. (2004). *Syncretism in religion: a reader*. London: Equinox.
- Leustean, L.N. ed. (2013). *Representing religion in the European Union: Does God matter?* London: Routledge.

- Lewis-Williams, D. (2010). *Conceiving God: The cognitive origin and evolution of religion*. London: Thames & Hudson.
- Mansueto, A.E. (2010). *The death of secular messianism: Religion and politics in an age of civilizational crisis*. Eugene: Cascade Books.
- Marshall, P.A. ed. (1989). *Stained glass: worldviews and social science*. Lanham: Univ. Press of America.
- Martin, D. (2005). *On secularization: Towards a revised general theory*. Aldershot: Ashgate Publ. Co.
- Martin, D. (2011). *The future of Christianity: Reflections on violence and democracy, religion and secularization*. Farnham: Ashgate.
- Mattingly, T. (2005). *Pop goes religion: Faith in popular culture*. Nashville: W Publishing Group.
- McCutcheon, R.T. (1997). *Manufacturing religion: The discourse on Sui Generis Religion and the politics of nostalgia*. Oxford: Oxford University Press.
- McCutcheon, R.T. ed. (1999). *The insider/outsider problem in the study of religion. A reader*. London: Cassell.
- McCutcheon, R.T. (2001). *Critics not caretakers: redescribing the public study of religion*. Albany: State University of New York.
- McCutcheon, R.T. (2003). *The discipline of religion: structure, meaning, rhetoric*. London: Routledge.
- McCutcheon, R. T. (2007). *Studying religion: an introduction*. London: Equinox.
- McLeod, H. & Ustorf, W. eds. (2003). *The decline of Christendom in Western Europe, 1750-2000*. Cambridge: Cambridge University Press.
- Molendijk, A. L., Beaumont, J. & Jedan, C. eds. (2010). *Exploring the postsecular: the religious, the political and the urban*. Leiden: Brill.
- Niebuhr, H.R. (1951). *Christ and Culture*. N.Y.: Harper/Collins.
- Ostwalt, C. (2003). *Secular steeples: popular culture and the religious imagination*. Harrisburg: Trinity Press International.
- Ott, M.R. ed. (2007). *The future of religion: Toward a reconciled society*. Leiden: Brill.
- Pickel, G. & Muller, O. (2009). *Church and religion in contemporary Europe*. Wiesbaden: VS Verlag.
- Platvoet, J.G. (1982). *Comparing Religions: a limitative approach*. The Hague: Mouton Publ.
- Platvoet, J. & van der Toorn, K., eds. (1995). *Pluralism and identity: studies in ritual behaviour*. Leiden: Brill.
- Platvoet, J.G. & Molendijk, A.L., eds. (1999). *The pragmatics of defining religion: contexts, concepts and contests*. Leiden: Brill.
- Pollack, D., Muller, O. & Pickel G. eds. (2012). *The social significance of religion in the enlarged Europe: Secularization, individuation and pluralisation*. Farnham: Ashgate.
- Porterfield, A. (2001). *The transformation of American religion: The story of a late-twentieth-century Awakening*. Oxford: Oxford University Press.
- Possamia, A. (2009). *Sociology of religion for generations X and Y*. London: Equinox.
- Putman, H. (2002). *The collapse of the fact/value dichotomy: and other essays*. Cambridge: Harvard University Press.
- Reid, J.M. ed. (2003). *Religion and global culture: new terrain in the study of religion and the work of Charles H. Long*. Oxford: Lexington Books.
- Reisebrodt, M. (2010). *The promise of salvation: A theory of religion*. Chicago: Univ. of Chicago Press.
- Rennie, B.S. (1996). *Reconstructing Eliade: Making sense of religion*. Albany: State University of New York.
- Rieger, J. & Pui-lan, K. (2012). *Occupy religion: Theology of the multitude*. Lanham: Rowman & Littlefield Publishers.
- Ronner, L.S. ed. (1985). *Knowing religiously*. Notre Dame: Univ. of Notre Dame Press.
- Rosemont, H. Jr. & Smith, H. (2008). *Is there a universal grammar of religion?* Chicago: Open Court.
- Rosner, B. (1999). *How to get really rich: A sharp look at the religion of greed*. Leicester: InterVarsity Press.
- Ruf, H.L. (2007). *World religions in a postmodern age*. St. Paul: Paragon House.
- Ryba, T. (1991). *The essence of phenomenology and its meaning for the scientific study of religion*.

- New York: Peter Long.
- Saliba, J.A. (1999). *Christian responses to the New Age movement: A critical assessment*. London: Geoffrey Chapman.
- Schloss, J. & Murray, M.J. eds. (2009). *The believing primate: Scientific, philosophical, and theological Reflections on the origin of religion*. Oxford: Oxford University Press.
- Schwarz, H. (2005). *Theology in a global context: The last two hundred years*. Grand Rapids: Eerdmans.
- Seeskin, K. (1995). *No other gods: The modern struggle against idolatry*. West Orange: Behrman House, Inc.
- Segal, R.A. ed. (2006). *The Blackwell companion to the study of religion*. Malden: Blackwell Publishing.
- Sengers, E. ed. (2005). *The Dutch and their gods: Secularization and transformation of religion in the Netherlands since 1950*. Hilversum: Uitgeverij Verloren.
- Sharma, A. (2005). *Religious studies and comparative methodology: The case for reciprocal illumination*. Albany: State University of New York Press .
- Sharot, S. (2001). *A comparative sociology of world religions: Virtuosos, priests, and popular religion*. New York: New York University Press.
- Sharpe, E.J. (1975). *Comparative religion: a history*. Bristol: Duckworth.
- Singh, N.K. (2005). *Religion in secular society*. New Delhi: Global Vision Publishing House.
- Smart, N. (1981). *Beyond ideology; religion and the future of western civilization*. London: Equinox.
- Smart, N. (1983). *Worldviews: crosscultural explorations of human beliefs*. New York: C. Scribner's and Sons.
- Spencer, N. & White, R. (2007). *Christianity, climate change and sustainable living*. London: SPCK.
- Sobrinho, J. (2008). *No salvation outside the poor: prophetic-utopian essays*. MaryKnoll, New York: Orbis Books.
- Stalsett, S. J. ed. (2008). *Religion in a globalised age: Transfers & transformations, integration & resistance*. Oslo: Novus Press.
- Stark, R. & Finke, R. (2000). *Acts of faith; explaining the human side of religion*. Berkeley: Univ. Of California Pr.
- Stausberg, M. (2009). *Contemporary theories of religion: a critical companion*. London: Routledge.
- Stewart, C. & Shaw, R., eds. (1994). *Syncretism/anti-syncretism: the politics of religious synthesis*. London: Routledge.
- Stoffels, H., ed. (1996). *Onverwachete gasten. In gesprek met Gerard Dekker over kerk, godsdienst en cultuur*. Kakmpen: Kok.
- Stoker, W. (1996). *Is the quest for meaning the quest for God?* Amsterdam/Atlanta: Rodopi.
- Stoker, W. and Vroom, H. (2000). *Verhulde waarheid: over het begrijpen van religieuze teksten*. Zoetermeer: Meinema.
- Streib, H., Dinter, A. & Soderblom, K. eds. (2008). *Lived religion: Conceptual, empirical and practical-theological approaches essays in honour of Hans-Gunter Heibrock*. Leiden: Brill.
- Strenski, I. (1987). *Four theories of myth in twentieth-century history: Cassirer, Eliade, Levi-Strauss and Malinowski*. London: MacMillan Press.
- Strenski, I. (2003). *Theology and the first theory of sacrifice*. Leiden: Brill.
- Stringer, M.D. (2008). *Contemporary Western ethnography and the definition of religion*. London: Continuum.
- Stout, D.A. & Buddenbaum, J.M. eds. (2001). *Religion and popular culture: Studies on the interaction of worldviews*. Ames: Iowa State University Press.
- Sutcliffe, S. & Bowman, M. (2000). *Beyond New Age: Exploring alternative spirituality*. Edinburgh: Edinburgh University Press.
- Sutcliffe, S.J. ed. (2004). *Religion: Empirical studies*. Aldershot: Ashgate.
- Swidler, L. & Mojzes, P. (2000). *The study of religion in an age of global dialogue*. Philadelphia: Temple University Press.
- Taylor, C. (2007). *A secular age*. Cambridge: Harvard University Press.
- ter Haar, G. (2009). *How God became African: African spirituality and western secular thought*. Philadelphia: University of Pennsylvania Press.

- Thakur, S.C. (1996). *Religion and social justice*. Houndmills: Macmillan Press.
- Tyndale, W. (2006). *Visions of development: Faith-based initiatives*. Aldershot: Ashgate.
- Turner, C. (2010). *Investigating sociological theory*. Los Angeles: Sage.
- van der Broght, ed. (2006). *Religion without ulterior motive*. Leiden: Brill.
- van Harskamp, A. ed. (2006). *Playful religion: challenges for the study of religion*. Delft: Eburon.
- van Henten, J.W. & Houtepen, A., eds. (2001). *Religions identity and the invention of tradition*. Assen: van Gorcum.
- Volf, M. and Katerberg, W. eds. (2004). *The future of hope. Christian tradition amid modernity and postmodernity*. Grand Rapids: Eerdmans.
- Voye, L. & Billiet, J., eds. (1999). *Sociology and religions: An ambiguous relationship*. Leuven: Leuven University Press.
- Vroom, H. (2006). *Plaatsbepaling: Christelijk geloof in een seculiere en plurale cultuur*. Zoetermeer: Meinema.
- Wahlberg, M. (2012). *Reshaping natural theology: Seeing nature as creation*. London: Palgrave Macmillan.
- Weber, M. (1922). *The sociology of religion*. Boston: Beacon Press.
- Weber, M. (1962). *Basic concepts in sociology*. New York: Philosophical Library.
- Wiebe, D. (1981). *Religion and truth; towards an alternative paradigm for the study of religion*. The Hague: Moulton Publ.
- Wieggers, G., ed. (2002). *Modern societies & the science of religions: studies in honour of Lammert Leertouwer*. Leiden: Brill.
- Wolters, A.M. (1985/2005ed.). *Creation regained; Biblical basics for a Reformational worldview*. Grand Rapids: Eerdmans.
- Woodhead, L. ed. (2001). *Religions in the modern world: traditions and transformations, 2nd ed.* London: Routledge.
- Woodhead, L. ed. (2001). *Peter Berger and the study of religion*. London: Routledge.
- Yang, F. and Tamney, J.B. (2005). *State, market, and religions in Chinese societies*. Leiden: Brill.

4. Religious Reflections on the Environment, Climate Change and Neoliberalism

- Adkins, J., Occhipinti, L. & Hefferan, T. (2010). *Not by faith alone: Social services, social justice, and faith-based organizations in the United States*. Lanham: Lexington Books.
- Albertson, D. & King, C. eds. (2010). *Without nature? A new condition for theology*. New York: Fordham University Press.
- Asoanya, A. (2011). *The ecological crisis in Africa as a challenge to lasting cultural and sustainable development: A theological approach*. Frankfurt am Main: Peter Lang.
- Atherton, J. & Skinner, H. eds. (2007). *Through the eye of a needle: Theological conversations over political economy*. Werrington: Epworth.
- Atkinson, D. (2008). *Renewing the face of the earth: A theological and pastoral response to climate change*. Norwich: Canterbury Press.
- Ballor, J.J. (2010). *Ecumenical Babel: Confusing economic ideology and the church's social witness*. Grand Rapids: Christian's Library Press.
- Baptist Metz, J. & Schillebeeckx, E., eds. (1991). *No heaven without earth*. London: SCM Press.
- Bouma-Prediger, S. (1995). *The greening of theology: The ecological models of Rosemary Radford Ruether, Joseph Sittler, and Jurgen Moltmann*. Atlanta: Scholars Press.
- Bloomquist, K.L. ed. (2009). *God, creation and climate change: Spiritual and ethical perspectives*. Minneapolis: Lutheran University Press.
- Brennan, H.G. & Waterman, A.M.C. eds. (1994), *Economics and Religion: are they distinct?* Boston: Kluwer Academic.
- Carlos Susin, L. & Borgman, E. eds. (2011). *The economy and religion*. London: SCM Press.
- Cavey, B. (2007). *The End of Religion. Encountering the Subversive Spirituality of Jesus*. Colorado Springs: NavPress.
- Clarke, M. (2011). *Development and religion: Theology and practice*. Cheltenham: Edward Elgar.
- Cobb Jr., J.B. & Griffin, D.R. (1976). *Process theology: an introductory exposition*.

- Philadelphia: Westminster.
- Dalton, A. (1999). *A theology for the earth: The contributions of Thomas Berry and Bernard Lonergan*. Ottawa: The University of Ottawa Press.
- Deneulin, S. with Bano, M. (2009). *Religion in development: Rewriting the secular script*. London: Zed Books.
- Drummy, A.E. (2000). *Being and Earth: Paul Tillich's theology of nature*. Lanham: University Press of America.
- Duchrow, U. (1995). *Alternatives to global capitalism: Drawn from Biblical history designed for Political action*. Utrecht: International Books.
- Edwards, D. (2001). *Earth revealing – Earth healing: Ecology and Christian theology*. Collegeville: A Michael Glazier, The Liturgical Press.
- Edwards, D. (2006). *Ecology at the heart of faith: The change of heart that leads to a new way of Living on earth*. Maryknoll: Orbis Books.
- Faltin, L. & Wright, M.J. eds.(2007). *The religious roots of contemporary European identity*. London: Continuum.
- Freston, P. (2001). *Evangelicals and politics in Asia, Africa and Latin America*. Cambridge: Cambridge University Press.
- Gotlieb, R.S., ed. *The Oxford handbook of religion and ecology*. Oxford: Oxford University Press.
- Graafland, J.J. (2010). *The market, happiness, and solidarity: A Christian perspective*. London: Routledge.
- Gray, J. (2007). *Black mass: Apocalyptic religion and the death of utopia*. London: Allen Lane.
- Gregersen, N.H. & Wentzel van Huyssteen, J. (1998). *Rethinking theology and science*.
- Gutierrez, G. (1988). *A theology of liberation: history, politics, and salvation*. Maryknoll, N.Y.: Orbis Books.
- Lienemann-Perrin, C. et al., eds. *Reformed and ecumenical; on being Reformed in ecumenical encounters*. Amsterdam: Rodopi.
- Habel, N.C. ed. (2000). *Reading from the perspective of earth*. Sheffield: Sheffield Academic.
- Habel, N.C. ed. (2001). *The earth story in the psalms and the prophets*. Sheffield: Sheffield Academic Press.
- Habel, N.C. & Blabanski, V. (2002). *The earth story in the New Testament*. Sheffield: Sheffield Academic Press.
- Habel, N.C. & Trudinger, P. eds. (2008). *Exploring ecological hermeneutics*. Atlanta: Society for Biblical Literature.
- Hainsworth, D.K. & Paeth, S.R., eds. (2010). *Public theology for a global society: Essays in honor of Max L. Stackhouse*. Grand Rapids: Eerdmans.
- Hargrove, E.C. (1986). *Religion and environmental crisis*. London: The University of Georgia Press.
- Harvey, S.R. (2007). *Open theism and environmental responsibilities: A promotion of environmental ethics*. Berlin: VDM Verlag Dr. Muller.
- Hauerwas, S. (2000). *A better hope: Resources for a church confronting capitalism, democracy, and postmodernity*. Grand Rapids: Brazos Press.
- Haynes, J. (2007). *Religion and development: Conflict or cooperation?* Houndmills: Palgrave MacMillan.
- Hefferan, T., Adkins, J. & Occhipinti, L. eds. (2009). *Bridging the gaps: Faith-based organizations, Neoliberalism, and development in Latin America and the Caribbean*. Lanham: Lexington Books.
- Hessel, D. & Rasmussen, L. eds. (2001). *Earth habitat: Eco-injustice and the church's response*. Minneapolis: Fortress Press.
- Horrell, D.G. (2010). *The Bible and the environment: Towards a critical ecological Biblical Theology*. London: Equinox.
- Houtepen, A. (2005). *Geloven in gerechtigheid; bijdragen tot een soecumenische sociale ethiek*. Zoetermeer: Meinema.
- Janes, D. ed. (2008). *Shopping for Jesus: Faith in marketing in the USA*. Washington: New Academia
- Kung, H. (1990). *Global responsibility: In search of a new world ethic*. London: SCM Press. Press.
- Kung, H. ed. (1996). *Yes to a global ethic*. London: SCM Press.
- Maguire, D.C. (2005). *A moral creed: for all Christians*. Minneapolis: Fortress Press.

- McFague, S. (2008). *A new climate for theology: God the world, and global warming*. Minneapolis: Fortress Press.
- Moltmann, J. (1985). *God in creation: A new theology of creation and the spirit of god*. San Francisco: Harper & Row.
- Moltmann, J. (2010). *Sun of righteousness, arise!: God's future for humanity and the earth*. Minneapolis: Fortress Press.
- Noordegraaf, H. et.al. (1997). *De modern economie als juggernaut; het debat over theologie en economie*. Kampen: Kok.
- Nelson-Pallmeyer, J. (2005). *Saving Christianity*. N.Y.: Continuum. Grand Rapids: Eerdmans.
- Neusner, J. Chilton, B. eds. (2005). *Altruism in world religions*. Washington: Georgetown University Press.
- Niebuhr, R. (1945). *The children of light and the children of darkness*. New York: Scribner.
- Niebuhr, R. (2005). *Moral man and immoral society*. New York: Continuum.
- Niebuhr, H.R. (1951). *Christ and Culture*. San Francisco: Harper.
- O'Brien, K.J. (2010). *An ethics of biodiversity: Christianity, ecology, and the variety of life*. Washington: Georgetown University Press.
- Pandikattu, K. & Vonach, A. eds. (2003). *Religion, society and economics*. Frankfurt: Peter Lang.
- Pannenberg, W. (1993). *Toward a theology of nature: Essays on science and faith*. Westminster: John Knox Press.
- Pava, M.L. (2009). *Jewish ethics as dialogue: Using spiritual language to re-imagine a better world*. New York: PalgraveMacmillan.
- Pyysiainen, I., ed. (2010). *Religion, economy, and cooperation*. Berlin: De Gruyter.
- Raad van Kerken in Nederland. (2002). *Een duurzame mondiale samenleving, een oecumensche Bijdrage aan 'Johannesburg'*. Amersfoort.
- Ranger, T.O. ed. (2008). *Evangelical Christianity and democracy in Africa*. New York: Oxford University Press.
- Rieger, J. (2010). *Globalization and Theology*. Nashville: Abingdon Press.
- Robb, C.S. (2010). *Wind, sun, soil, spirit: Biblical ethics and climate change*. Minneapolis: Fortress Press.
- Roberts, R. ed. (1995). *Religion and the transformations of capitalism: Comparative approaches*. London: Routledge.
- Sheridan, E.F. ed. (1987). *Do Justice! The social teaching of the Canadian Catholic bishops*. Toronto: Jesuit centre for Social Faith and Justice.
- Sweetman, R., ed. (2007). *In the Phrygian mode: neo-Calvinism, antiquity and the lamentations of Reformed philosophy*. Lanham: ICS and Univ. Press of America.
- Tawney, R.H. (1962). *Religion and the rise of capitalism*. Gloucester: Peter Smith.
- Taylor, B. (2010). *Dark green religion: Nature spirituality and the planetary future*. Berkeley: University of California Press.
- Ter Haar, G. and Tsuruoka, Y. (2007). *Religion and society: An agenda for the 21st century*. Leiden: Brill.
- Ter Haar, G., ed. (2011). *Religion and development: Ways of transforming the world*. London: Hurst.
- Tickle, P.A. (2004). *Greed: The seven deadly sins*. Oxford: Oxford University Press.
- Van den Berg, (1998). *God and the economy*. Delft: Eburon.
- Van Dyke, F. (2010). *Between heaven and earth: Christian perspectives on environmental protection*. Santa Barbara: Praeger.
- Witte-Rang, G. et.al. (2005). *Uitsluitend participatie; theologische overwegingen bij globalisering*. Zoetermeer: Boekencentrum.

5. Experiential Knowledge and Scientific Knowledge

- Allen, R. (1990). *Thinkers of our time: Polanyi*. London: Claridge Press.
- Collins, H. (2010). *Tacit and explicit knowledge*. Chicago: Univ. of Chicago Press;
- Dua, M. (2003). *Tacit knowing: Mikhael Polanyi's exposition of scientific knowledge*. Munchen: Herbert Utz Verlag.

- Gil, J.H. (2000). *The Tacit Mode: Michael Polanyi's postmodern philosophy*. Albany: State Univ. of New York Press.
- Margitay, T.ed. (2010). *Knowing and being: Perspectives on Michael Polanyi*. Newcastle upon Tyne: Cambridge Scholars Publ.
- Polanyi, M. (1969). Edited by Grene, M. *Knowing and being: essays*. Chicago: University of Chicago Press.
- Smith, R.C. (2011). *Conscious and Revolt, An Exploration toward Reconciliation*. Heathwood Press.

6. History and Historiography

- Ankersmit, F.R. (1983). *Narrative logic: A semantic analysis of the historian's language*. The Hague: Martinus Nijhoff Publishers.
- Ankersmit, F.R. (1984). *Denken over geschiedenis; een overzicht van modern geschiedfilosofische Opvattingen*. Groningen: Wolters-Noordhoff.
- Ankersmit, F.R. and Varga, A.K., eds. (1993). *Akademische beschonwingen over het postmodernisme*. Amsterdam: Koningklijke Nederlandse Akademie van Wetenschappen Noord-Hollandsche.
- Ankersmit, F.R. and Kellner, H., eds. (1995). *A new philosophy of history*. London: Reaktion Books.
- Ankersmit, F.R. (2001). *Historical representation*. Stanford: Stanford University Press.
- Bakker, N.T. (1996). *Geschiedenis in opspraak; over de legitimatie van het concept geschiedenis*. Kampen: Kok.
- Breisach, E. (1993 2nd ed.). *Historiography: Ancient, medieval and modern*. Chicago: University of Chicago Press.
- Collingwood, R.G. (1946/1962). *The Idea of History*. Oxford: Clarendon Press.
- Dray, W.H. (1995). *History as re-enactment; R.G. Collingwood's idea of history*. Oxford: Clarendon Press.
- Evans, R.J. (1997). *In defense of history*. London: Granta Books.
- Handlin, O. (1979). *Truth in History*. Cambridge: Belknap Press of Harvard Univ. Pr.
- Jenkins, K. (2003). *Refiguring history; new thoughts on an old discipline*. London: Routledge.
- Le Roy Ladurie, E. (1981). (trans. Sian Reynolds and Ben Reynolds). *The mind and method of the historian*. Chicago: University of Chicago Press.
- Marino, J.A. ed. (2002). *Early modern history and the social sciences*. Kirksville: Truman State Univ. Press.
- Marsden, G. (1975). *A Christian view of history?* Grand Rapids: Eerdmans.
- McIntire, C.T. (1977). *God, history and historians: an anthology of modern Christian views of history*. New York: Oxford.
- Miller, J. (1979). *History and Human Existence: From Marx to Merleau-Ponty*. Berkley: University of California Press.
- Momigliano, A. (1966). *Studies in historiography*. London: Weidenfeld and Nicolson.
- Momigliano, A. (1990). *The classical foundations of modern historiography*. Berkley: University of California.
- Munslow, A. (2010). *The Future of History*. Hampshire: Palgrave Macmillan.
- Stanford, M. (1986). *The nature of historical knowledge*. Oxford: Basil Blackwell.
- White, H. (2010). *The fiction of narrative: essays on history, literature and theory: 1957-2007*. Baltimore: John Hopkins Univ. Press.

7. Existential Anxiety and Existential Trust

- Addis, M. (2006). *Wittgenstein: A guide for the perplexed*. London: Continuum.
- Bernstein, J.M. (2001). *Adorno: Disenchantment and ethics*. Cambridge: Cambridge Univ. Press.
- Binswanger, L. (1975). *Being-in-the-World*. London: Souvenir Press
- Brittain, C.C. (2010). *Adorno and theology*. London: T&T Clark.
- Cook, D. ed. (2008). *Theodor Adorno, key concepts*. Stocksfield: Acumen
- Eriksen, T.H. ed. (2010). *A world of insecurity: Anthropological perspectives on human security*. London: Pluto Press.

- Frankle, V. (2006), *Men's Search for Meaning*. Boston: Beacon Press.
- Fromm, E. (1955), *The Sane Society*. Greenwich: Facett Publishing.
- May, R. (1958), *Existence*. Oxford: The Rowman and Littlefield Publishing Group.
- May, R. (1977 rev.), *The Meaning of Anxiety*. New York: Norton.
- Mook, B. "J.H. van den Berg revisited: reflections on the changing nature of neurosis", *Janus Head* 10 (2), 461-475, 2008.
- Sartre, J.P. (1957). *Existentialism and human emotions*. New York: Philosophical Library;
- Schweppenhauser, G. (2009). *Theodor W. Adorno, an introduction*. trans. J. Rolleston. Durham: Duke University Press.
- Sherman, D. (2007). *Sartre and Adorno, the dialectics of subjectivity*. Albany: State University of New York Press.
- Sherman, D. (2009). *Camus*. Chichester: Wiley-Blackwell.
- Smith, R.C. (2011), *Conscious and Revolt, An Exploration toward Reconciliation*. Heathwood Press.
- Thomson, A. (2006). *Adorno: a guide for the perplexed*. N.Y.: Continuum.
- Tillich, P. (1952), *The Courage To Be*. New Haven: Yale University Press.
- Van den Berg, J.H. (1955), *A phenomenological approach to psychiatry: introduction to recent phenomenological psychopathology*. Springfield: Thomas.
- Van den Berg, J.H. (1983), *The Changing Nature of Man: Introduction to an historical psychology*. New York: Norton.
- Van Peursen, C.A. (1999, 10th edition), *Cultuur in Stroomversnelling*. Baarn: Agora.
- Van Peursen, C.A. (1992). *Verhaal en Werkelijkheid; Een deiktische ontology*. Kampen: Kok Agora.
- Van Peursen, C.A. (1994), *Na het Postmodernisme; Van metafysica tot filosofisch surrealism*. Kampen: Kok Agora.
- Wider, K. (1997). *The bodily nature of consciousness: Sartre and contemporary philosophy of mind*. Ithaca: Cornell Univ. Press.
- Zuidervaart, L. (2004). *Artistic Truth; Aesthetics, Discourse, and Imaginative Disclosure*. Cambridge: Cambridge University Press.
- Zuidervaart, L. (2007). *Social philosophy after Adorno*. Cambridge: Cambridge University Press;