

Name: Andrew Cole

Student: 17378354

Course: Sustainable Development 1

Lecturers: Professor Mark Swilling and Eve Annecke

Due date: 26 March 2012

Word count: 5750

Sustainable Development 1 – Individual Assignment

“I hereby confirm that the assignment is the product of my own work and research, and has been written by me, and further that all sources used therein have been acknowledged.”

Table of Contents

Part A: Literature Review

Introduction	3
Sustainable Development – an evolving concept	3
Multidisciplinary Study	3
Measuring ‘natural capital’	4
Social capital and human development	5
Unsustainable and unequal growth	6
Sustainability’s soft conscience – Deep Ecology	8
Deep versus shallow ecology	9
The Gaia Hypothesis	9
Social ecology: living with the planet	10
The ‘ecological self’ and lessons of the past	11
Envisioning the future	11
The hope and curse of technology	13
The lie of ecological modernisation and industrial ecology	14
Are we deeply scared yet?	15
Does deep ecology beget a movement?	15
Conclusion	17

Part B: Application and Insight

We have lost the way	18
Introduction	18
Collaborative consumption: living a leaner lifestyle	19
Starting young: Beavers and global friendships	20
No money equals stronger community	21
The UBUNTU Girl	22
Deep ecology values in practice	23
No Money Guy	24
The Community Exchange System	24
The resurgence of cooperatives	25
Conclusion	27
Further study	27
Sources	29

Introduction

In reviewing the different approaches to define, contextualise and implement sustainable development, the centrality of values and ethics emerges as essential to understanding the term, as well as how it is practiced by humankind in trying to sustain all forms of life on Earth.

It is now clear that humanity is responsible for the polycrisis of climate change and ecological degradation, and gaining a deeper understanding of the motivating factors behind our actions (and inactions) to address this grave situation is fundamental to appreciating the possible initiatives we may pursue in addressing socio-economic inequities and persistent poverty. The following discussion will examine the historical evolution of the term sustainable development with a particular focus on deep ecology and the importance of ‘first principles’ in appreciating the radical interconnectedness of nature and humanity, and thus, the vitality of community required to better care for the planet.

Sustainable Development – an evolving concept

The publication of the Brundtland Report – *Our Common Future* – in 1987, was a critical “temporal marker” that established a starting point for a more thorough examination of the concept of sustainable development. In this seminal paper, sponsored by the UN’s World Commission on Environment and Development, there was a call to re-examine the role and impact of institutions at all levels, taking into account the effects of economic development on the well-being of humanity and the overall health of the planet (Sneddon, Howarth & Norgaard, 2005).

Effectively putting the proverbial stake in the ground in terms of how the world would begin to understand and refine its approach to sustainable development, the Brundtland Report’s definition stated “sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Sachs, 1999:28).

Multidisciplinary Study

The report spurred criticism, as well as collaboration. Numerous experts and opinions began to emerge arguing what constitutes development and sustainability, leading to a far more interdisciplinary examination of sustainable development, incorporating perspectives on societal, religious and cultural

influence. With it, the science of sustainable development began to give way to more academic, ethical and political analysis (Mebratu, 1998).

Emerging as an increasingly politicised topic, sustainable development was described by one author as “not only a highly complex moral notion, but also a highly contestable political concept” (Hattingh, 2002: 20). In the face of divergent views among government, business and various sectors of society around the world, the opinion of one author was that the Brundtland Report tried to be “be all things to all people” (Dresner, 2002:70). As much as this may have been true, what was starting to emerge was a fuller appreciation of the interrelatedness and complexity of the socio-economic and ecological ramifications of sustainable development.

Measuring ‘natural capital’

The definition of sustainable development was further broken down in the late 1990s, with the introduction of more measurability to the concept in terms of social, economic and environmental sustainability. This approach brought with it the concept of quantifying ‘natural capital’ or the collection of assets provided by the environment, including organisms, plants and soil. With this, the definition of sustainable development was revised so that it looked less at human ‘needs’ and increasingly at throughputs of matter and energy in the context of the Earth’s regenerative and absorptive capacities (Goodland and Daly, 1996).

This vital nuance to the discussion and measurement of sustainable development introduced the idea that if the improvement of well-being is to be pursued, let alone calculated, it must take into account environmental costs and benefits within a global ecosystem and economy. Most importantly, it involved the reconfiguring of the understanding of the Earth as having a finite number of resources and a finite capacity to cope with ‘waste’ resulting from industrial and human production. In fact, under this new paradigm, these ‘wastes’ should rather be put in the context of a closed system of systems (Goodland and Daly, 1996).

A fuller understanding of the totality of the costs of production emerged with the concept of ‘natural capitalism’, introduced in 1999. According to this worldview, the Earth is the source of all natural capital. This meant that the traditional industrial model that saw a forest as simply the source for wood, began to evolve toward a more comprehensive understanding that the forest was, in fact, part of a complex system providing essential ecological services such as water storage and flood management (Hawken, Lovins & Lovins, 1999).

Recognising then the interdependence between human production and use of various kinds of capital – including natural capital in the form of incalculable biological services, for example pollination by insects and oxygen supply through plant photosynthesis – capitalism itself began to be fundamentally redefined to incorporate four types of capital: human, financial, manufactured and natural. In doing so, it is understandable why some authors at that point described capitalism as a “non-sustainable aberration of human development”, arguing that it no longer conformed to its own accounting principles; essentially consuming capital and calling it income (Hawken et al., 1999:5).

It became clear then that the most important (and underappreciated) limiting factor to economic development was the availability of the life-supporting functions of nature. Without these free, yet priceless, services in place, we would not have an economy and we would not have development, as it is most basically defined (Hawken et al., 1999). In effect, sustainability demands that we interact with the environment in such a way as to not jeopardize the flow of resources that nature provides (and consumes), otherwise fundamentally, we will compromise our ability to sustain ourselves economically.

Social capital and human development

Beyond the economics of natural capital, social capital became a vital element in the evolving definition of sustainable development. Developed from the understanding of ‘basic human needs’ promulgated in the 1970s that saw investments in education, nutrition and health care as necessary to sustaining human capital, the concept of social capital shifted in its emphasis from per capita income measures to improved quality of life outcomes. This newly developed paradigm of human development, emerging in the 1980s, culminated in the publication of the Human Development Report in 1990 by the United Nations Development Programme (UNDP) with a strong focus on poverty and inequality as they relate to democracy, public engagement and empowerment (Harris, Wise, Gallagher & Goodwin, 2001).

Integral to this influential report was the introduction of the Human Development Index measure or HDI, an adjunct to per capita Gross Domestic Product (GDP); effectively adding life expectancy at birth and two measures of educational access to the measure. A few years later, the UNDP expanded beyond income measures of poverty with its Human Poverty Index or HPI to recognise different levels of deprivation relevant to developing and industrialised countries (Harris, et al, 2001).

Around this time, the integration of social capital into the expanding definition of sustainable development began to encompass civic associations and other forms of trust-building interaction; translating social capital into a vital measure of the effectiveness of state institutions (Harris et al., 2001). As this interpretation of social capital became popularized by such organisations as the World Bank, the role of governments in guaranteeing civil and political rights as means of running a pluralist society began to take hold. This broadening perspective on sustainable development also assimilated the expansion of political, economic and social freedoms as the best route to achieving sustainable human and economic development (Harris et al., 2001).

It is with this expanded perspective of sustainable development, having linked economics and ecology, that it is possible to pursue a deeper understanding of the term with an examination of the values that underlie it, and more importantly, its praxis. In order to do so, however, it is essential to first understand the context of what it is humanity is trying to sustain and the extent to which it is failing (and has failed) to do so.

Unsustainable and unequal growth

Over the past few decades, several international reports have alerted humanity to a dire situation in terms of the sustainability of global consumption and the significant strain this has placed on the Earth's resources. Some of the more pivotal reports relating to this discussion include the UN's Millennium Eco-system Assessment (MEA) of 2005, the work of the Intergovernmental Panel on Climate Change (IPCC) of 2007, the Human Development Report (HDR) of 1998 and the 'game-changing' views of the peak oil community. The significance of each of these will be briefly discussed below.

One of the most critical publications in terms of highlighting the relationship between poverty, inequality, development and sustainability was the HDR. Notably, it exposed some of the distorted consumption patterns that have emerged since the start of the 20th century. For example, it showed that the 20 percent of the global population living in the richest countries account for 86 percent of total private consumption expenditure, with the poorest 20 percent accounting for just 1.3 percent. In terms of global resource consumption, it demonstrated that the wealthiest fifth of civilisation account for 45 percent of all meat and fish eaten, 59 percent of energy consumed, 85 percent of the world's paper used and 84 percent of its vehicles driven (Swilling & Anneck, 2012). It would seem that the Brundtland understanding of universal human 'needs' had been further distorted by the greed and gluttony of a minority of the world's

citizens and their views on what exactly constitutes a need.

With this in mind, from a socio-economic perspective, the world has been described as having developed “in two opposite directions” (Sachs, 1999:25). As state-directed industrialization has given way to multinationals controlling the flow of resources around the planet, massive inequalities have emerged between, and within, nations. Effectively, the race toward ‘development’, as modelled by the developed world, has become a competition of meaningless additional consumption (Dresner, 2002).

Another telling report released seven years ago was the MEA. Initiated by the UN Secretary-General Kofi Annan and compiled by 1,360 scientists from 95 countries, it confirmed that 60 percent of the eco-systems upon which human systems depend for survival were degraded and that water consumption had doubled in the previous four decades. With a comprehensive analysis of the relationship between ‘human well-being’ and ‘eco-system health’ it clearly demonstrated that during the preceding 50 years, humans had changed eco-systems more rapidly than ever before, causing substantial and irreversible loss in biodiversity (Swilling & Annecke, 2012).

The IPCC’s Fourth Assessment Report, released two years later, reiterated the threat of global warming and that these temperature increases were due to an increase in concentrations of greenhouse gases (carbon dioxide, etc.) in the atmosphere as the result of human activities; mainly the burning of fossil fuels, deforestation and agricultural production. Most significantly, the report argued that unless economic development policy takes into account both mitigation (i.e. reducing greenhouse gases) and adaptation (responding to global warming), the environmental degradation and climate change would continue into the foreseeable future (Swilling & Annecke, 2012).

Finally, the Peak Oil perspective is the ‘devil in the dirt’ with respect to sustainable development. According to this community of experts, oil discovery peaked in the last 1970s and as a result, they predicted that oil production would peak about 25 years later. The impact of this has been rising oil prices as oil companies spend more to expand capacity in the face of declining supply. Considering that oil production has likely peaked and the era of cheap oil is over, it is significant that 60 percent of the world’s energy needs are still provided by oil, and that we are seeing oil-dependent economies like China massively increasing their rate and quantity of consumption of a non-renewable and planet-damaging resource (Swilling & Annecke, 2012).

From these findings it would seem that humanity’s insatiable quest for growth is

not only unsustainable, but also, in many cases, detrimental to human life. Since the publication of these reports, it has become even more apparent that we are living in a time of environmental, political, technological and economic upheaval, and as we look to respond as the only species capable of correcting the damage we have caused, it is vital that we effectively redefine what is 'progress' and how much do we actually need. In doing so, it is important that the thinking and behaviours that have led to the current polycrisis are examined. Following this, it is then possible to look at what value systems and ethics must be considered in changing the way we approach future human development so that it is sustainable for all and forever, rather than for some, for now.

Sustainability's soft conscience – Deep Ecology

With these findings in place, it is clear that there is an interconnection between humanity, its actions and the state of the natural world. As we consider the dire situation of the planet and threats to human life in the form of global warming, peak oil, economic inequities and environmental degradation, the question arises as to how we respond to the polycrisis, and more fundamentally, what attitudes inform these responses. In directing these actions in an ecologically sensitive manner (taking into account the negative impacts humanity's actions have had on nature to-date), it is important to revert to 'first principles' as far as our views toward, and engagement with, nature are concerned. Inasmuch as we look at an uncertain future and a present ecology that is grossly destabilised, there are some answers to be found in the manner in which humanity has responded to ecological crises historically. Following is a brief discussion of the importance of developing a personal ecological philosophy that 'digs into' the perceived hierarchy of nature that positions humans as the most dominant, and seemingly authoritative, species on the planet.

Described by some as a "softer approach to sustainability" (Hatting, 2001:3), this shift in perspective toward the natural world requires putting greater emphasis on humanity's connection with nature – an ecocentric approach – as opposed to seeing nature as available to us as natural capital to exploit or capital with apparently measurable utility – an anthropocentric approach (Sachs, 1999). Core to the ecocentric approach is that nature is a self-organizing system that changes, responds and evolves over time and that it has no goals or purpose other than sustaining life, whatever form it takes (Mebratu, 1998).

Deep versus shallow ecology

Appreciating not simply a connectedness between humanity and nature, but a fundamental interdependence among all life on Earth, also requires a profound rethink in how most of humanity identifies itself as separate from nature. This calls into question a mindset that has clearly led to global domination and destruction of nature. Broadly categorised, what results in rethinking the way we 'feel' about the world and our place or role within it, results in two domains of thought on ecology: 1) Shallow Ecology – a limited worldview that essentially takes on environmental problems at face value without tackling underlying causes or considering the philosophical assumptions that inform our thinking and 2) Deep Ecology, a term coined by the Norwegian philosopher Arne Naess in the 1970s that supports a biocentric view of the world, that sees the richness and diversity of life as values in themselves, and humans as a highly evolved species, but with the same value as other life forms on the planet (Mebratu, 1998).

Considered the conscience of the sustainable development movement, Deep Ecology has a strong focus on the inter-relatedness of natural systems, their incalculable complexity, and a worldview that has a strong, underlying morality. Contrasted with shallow ecology, it casts the components of ecology, including humanity, in a whole new light. One of its core tenets is that the earth does not belong to humans and that we are simply part of nature, rather than being separate or superior to it (Blewitt, 2008). This awareness of ourselves and the planet we inhabit, called the "Great Turning" by some, demands that we put aside our "species arrogance" as it fundamentally threatens humanity's existence (Macy & Young-Brown, 1998:46).

The Gaia Hypothesis

In stark contrast to the anthropocentric view of the world, Deep Ecology sees the Earth as an organism, of which humanity is one of its constituents. This viewpoint emanates from, or at least has co-evolved from a theory developed by James Lovelock, called the Gaia hypothesis (Blewitt, 2008). This theory highlights the interdependencies between and among species of flora and fauna, as well as organic and inorganic matter within a self-sustaining system.

Interestingly, 20 years after the emergence of the Gaia Hypothesis, a simple rule emerged that should give humanity pause: "any organism destabilizing Gaia will experience feedbacks which will reduce its numbers" (Blewitt, 2008:46). If Gaia cannot be harmed and we as a species can be eradicated like any other

organism that makes up Gaia, to what extent could the anthropocene destabilisation of the planet's climate lead to Gaian feedbacks? While these philosophical questions are perhaps unanswerable without hindsight and outside the scope of this paper, the view of another author who describes our species as "a cancer on the Earth that has begun to destroy the vital organs of the planet" (Devall, 2001:35), will be considered in Part B of this paper, particularly around humanity's collective response to this planetary diagnosis.

Social ecology: living with the planet

It is clear that the degree of respect shown toward our planet has been, to say the least, inadequate, as humanity has increased in number and consumed many of the resources provided to us. With the awareness that our planet is in decline ecologically, and in pondering our 'next steps', one should consider a view of Naess that as much as environmental reforms of social and economic systems are important to counter the destruction of our environment; we must look at the cultural values that legitimize the domination of nature as the deeper roots of our current crisis (Mebratu, 1998).

This requires the introduction of social ecology, a broad and deep concept that leads on from, or is at least built into, deep ecology. Essentially, social ecology is the way in which we humans and our societies interact with the wider ecology, or biophysical component of our planet (Gollop, 2003). More significantly, among the societies that form and affect the natural world we are part of, what is it within our *individual natures* that we need to consider if we want to *collectively* perpetuate more sustainable societies?

Some clues are to be found in several of the nine principles put forward in *Caring for the Earth*, a vision articulated by the World Conservation Strategy, that suggests a framework of ethics and basic values of sustainable living, namely (Hattingh, 2001:6):

- Respect and care for the community of life (This is an ethical principle that defines a duty of care for other people and all forms of life, now and in the future).
- Conserving the vitality and diversity of the Earth.
- Changing personal attitudes and practices, in accordance with an ethics for sustainable living.
- Forming a world alliance to implement sustainability on a global scale.

The 'ecological self' and lessons of the past

This selection of statements can be seen as a significant step forward from some of the academic posturing, definitional debates and politicking by academics, economists and policy experts involved in the sustainable development sphere. What is suggested is that as advanced as we are as civilizations, we should revert to 'first principles' in order to develop progressively as a species. Beyond principles, however, our highly industrialised civilization must translate the values and 'intuition' of deep ecology into action through purposeful, collective action and attention to the 'ecological self' (Devall, 2001); something that is easier stated than accomplished.

This step forward by first 'going within' also requires a step back historically to see what ecology lessons past societies have learned from their experiences. While we may make the mistake that humanity's recklessness toward nature has been the only factor causing ecological disaster, it would seem that ecological factors were key elements in the rise and fall of several ancient civilizations, including agricultural and industrial transformations. For example, lead pollution is considered as one of the major factors that contributed to the fall of Rome and according to some environmental archaeologists, the Babylonian Empire may have collapsed because of environmental degradation (Mebratu, 1998).

Therefore, inasmuch as we think we are realizing 'new knowledge' with scientific discovery and new technologies, 'old knowledge' should be placed in a new light the more we discover about nature. This "living intelligence of nature" (Harding, 2006: 20) must be acknowledged; the indigenous aspect in each of us, where we come from and humanity's commonality within nature. To explain, what we call sustainable development today was part of how we were taught to live (and in many respects, did live) many years ago. As one researcher puts it:

"An in-depth look at the different religious teachings, medieval philosophies, and traditional beliefs as the major repositories of human knowledge besides modern science reveals that, aside from the variation in semantics, most of them contain a strong component of living in harmony with nature and with one another" (Mebratu, 1998:517).

Envisioning the future

So then if we are able to capture learning from our mistakes and ecological mishaps, how is it we should see the future so that we can secure humanity's ongoing existence? What mental framework should we consider in the event that we are culturally grounded, have the right ethical foundations in place and feel

ecologically connected? According to one writer, one of the key deciding factors in creating a vision (and ideally, an action plan) for the future depends on “one’s degree of faith in technological progress” (Costanza, 2009:368).

The underlying assumption of this worldview is that technological progress can solve all current and future problems, including ecological degradation. It is essentially a continuation of the hierarchical view of the world where there is natural capital to be exploited and that humans may continue to dominate nature. Based on this, a schism in this worldview can be created between ‘techno optimists’ (the default view of current Western society) and ‘techno sceptics’, who believe the rescuing of our planet and our species depends less on technology and more on social and community development (Costanza, 2009).

Payoff Matrix for Technological Optimism Versus Skepticism

Four Visions of the Future

		Real State of the World	
		Optimists Are Right (Resources are unlimited)	Skeptics Are Right (Resources are limited)
World View & Policy	Technological Optimism Resources are unlimited Technical Progress can deal with any challenge Competition promotes progress; markets are the guiding principle	Star Trek Fusion energy becomes practical, solving many economic and environmental problems. Humans journey to the inner solar system, where population continues to expand (mean rank 2.3)	Mad Max Oil production declines and no affordable alternative emerges. Financial markets collapse and governments weaken, too broke to maintain order and control over desperate, impoverished populations. The world is run by transnational corporations. (mean rank -7.7)
	Technological Skepticism Resources are limited Progress depends less on technology and more on social and community development Cooperation promotes progress; markets are the servants of larger goals	Big Government Governments sanction companies that fail to pursue the public interest. Fusion energy is slow to develop due to strict safety standards. Family-planning programs stabilize population growth. Incomes become more equal. (mean rank 0.8)	EcoTopia Tax reforms favor ecologically beneficent industries and punish polluters and resource depleters. Habitation patterns reduce need for transportation and energy. A shift away from consumerism increases quality of life and reduces waste. (mean rank 5.1)

Figure 1: Costanza, 2009:368

The model goes on to divide the envisioning of the future into four scenarios, charmingly referred to as Star Trek, Mad Max, Big Government and Ecotopia (Figure 1). Apart from optimism or pessimism shown toward technological progress, the two other quadrants of this vision mapping exercise are determined by the ‘real state of the world’ and the extent to which it matches the views of those who believe we have limited resources, and those who believe resources

are unlimited. The vision that corresponds to those who see the world as having limited resources and who are techno skeptics is called “Ecotopia”, named after a book published in 1975 by Callenbach (Costanza, 2009).

Unsurprisingly, the survey respondents who formed the basis of this research were mostly averse, on average, to the negative Mad Max vision in which oil production declines, financial markets collapse, governments crumble and multinationals rule the world. The next most appealing future scenario was Star Trek where energy, economic and environmental worries are solved and human development expands into the universe. Big Government was, on average, seen as mildly positive, however, there were wide variations depending on the culture of the respondent. The Ecotopia vision – encompassing a society where those who damage ecological systems are punished, energy needs are reduced dramatically and consumerism gives way to less waste and more quality of life - was, unsurprisingly, seen as “very positive” (Costanza, 2009).

The hope and curse of technology

It then begs the question: if there is an innate human disposition toward an ecological utopia and that we have finite amount of resources on a planet with a climate and ecosystems in decline, is there possibly something wrong with the worldview that technology can be the saviour of humanity? It would seem that as much as computers, satellites, cars and aeroplanes have made our lives easier, they have not exactly led us down a rosy road to a new Eden on Earth. In fact, technological developments are probably at the core of the anthropocentric destruction of our planet and disruption of millions of lives. As highlighted in the film *The End of Suburbia*: a single computer involves tonnes of material to produce and it takes 90 barrels of oil to make one car.

The more technology advances, the more we want, and the more resources we consume. In the process, we displace, discard or destroy massive amounts of raw materials in either manufacturing or transporting the products we feel that we ‘need’. Our modern culture of consumerism and obsession with ‘the next big thing’ in technology seems to be at the heart of the current zeitgeist. This past month, for example, a new iPad was launched by Apple, and stories about the new device hit the mainstream news all over the world. This was making headlines, while the price of oil surpassed \$126 a barrel. While societies are increasingly interconnected with such devices and the expanding Internet, it seems that they are losing sight of our connectedness with nature and the principles of Deep Ecology.

The lie of ecological modernisation and industrial ecology

While there is an argument to be had for the progress we have made as societies as the result of technologies invented and applied, what are the costs, and how do they stack up against the perceived benefits? Are these benefits and costs confined to certain echelons of society or do they extend to the broader society? Similarly, to what extent are technological advancements helping, hindering or even reshaping societies?

Two academic derivations of Deep Ecology, briefly discussed below, introduce a 'modernist mindset' or at least a technology-influenced belief system that demonstrates technological development resulting in environmentally beneficial outcomes. These two takes on deep ecology include 1) Ecological Modernization (EM) and its by-product; 2) Industrial Ecology (IE), both of which emerged in the 1980s and 1990s (Blewitt, 2008), incorporating some of the language associated with Deep Ecology and touting technological solutions (including nuclear power) as 'clean options' to some of humanity's problems.

The emergence of EM and IE thinking led to the supposition that technological innovations are resulting in more human connectedness and quality of life (for example, motorised transport allows for faster and wider delivering of products and the Internet delivers instant global communication). Proponents of EM and IM argue that technology has permanently changed how we live, work, travel and learn, as well as the fact that cars, computers and smart phones have spurred economic activity and added conveniences to many of our lives. However, inasmuch as technological advancement may be a means to combat climate change and other global issues, many of the problems that we are experiencing in the world, from pollution to global warming, can be attributable themselves to burgeoning technology use in society. Cars produce CO₂, cell phones are composed of non-renewable – and rarely recycled – rare earth metals (McCullum, 2011) and old computers, filled with numerous toxic components (Carroll, 2008), are simply dumped in landfill sites or shipped off to developing countries to process.

It would seem that as the consumption of cars, cell phones and iPads continues, the less we connect with nature, and the more we do harm to the planet. The insatiable desire to improve our perceived quality of life through the acquisition and use of technology is based on the belief that the benefits of these technologies outweigh the environmental costs in producing them. Unfortunately, if we look at the correlation between high GDP and the gross global imbalance of natural resource consumption among the top fifth of the world's population, it

would seem economists' dream of incessant growth is resulting in an environmental nightmare, particularly for those in developing countries.

The question now is what will it take for the world to wake up from this fantasy?

Are we deeply scared yet?

Clearly, as Paul Gilding – an activist for a sustainable economy and the author of *The Great Disruption* – states in a recent TED talk: “we have created too much stuff” ... are “living beyond our means” ... and “can’t have infinite growth on a finite planet” (Gilding, 2012: Videocast). It would seem that while a cancer of consumerism is affecting the planet, the fear response that an individual might have being afflicted with such a life-threatening disease is not yet playing out substantially enough at societal or even global level.

It is Gilding's belief that humanity requires a massive, society-threatening crisis in order for us (or more specifically, the United States, the nation with the highest per capita consumption in the world), to respond. Crises in the past have prompted rapid and profound responses from the world's largest economy, with Pearl Harbour as an example cited by Gilding. Just four days after the Japanese attack on American soil, the U.S. government banned all civilian automobile production and within a few years, millions of 'Victory Gardens' were planted by everyday civilians, producing food to sustain local communities as well as to support the troops fighting in World War II (Heimer, 2008).

But where are examples of gumption and passion in modern Western society when it comes to a collective response to climate change? It would seem that the panic has not yet set in, and that the mindset of “we're in it together, to win” has not yet penetrated society *en masse*. The dream continues while a nightmare unfolds.

With this in mind, it is a depressing thought to consider a statement by Naess, the 'godfather of Deep Ecology', when he ominously predicted: “I foresee no definite victories scarcely before the twenty-second century” (Devall, 2001:33).

Does deep ecology beget a movement?

Herein lies one of the key problems with Deep Ecology: its incapacity to elicit a response from the majority of society. The tidal wave of “stuff” referred to by Gilding has inundated the psyches of much of the Western World, overwhelming their sense of nature. While devices, networks and technologies of the modern

age have helped societies feel more connected, it is mainly a superficial connection, with many in the West increasingly disconnected physically from one another in sprawling suburbs and unaware of the ecological ramifications of their lifestyles of excess. Unfortunately, Deep Ecology remains to most “a pedagogical tool to assist people in the process of developing their own statement of ecosophy and as a device to stimulate dialogue between supporters of and critics of [it]” (Devall, 2001:23).

As Macy and Young-Brown put it, Deep Ecology is “neither an ideology or a dogma” (1998:47). While ecosophy impels some people to ask deeper questions as part of exploring their connection with nature, it has not inspired enough to cause a mainstream rethink of lifestyles and consumption patterns. Certainly there are factions in society preaching that we should get in touch with universal truths about ourselves and our collective role in nature, but the commercialisation of nature persists as humankind continues to control rather than respect ecological systems. It would seem then that as much as appreciating nature is important to sustainable development, for most of the world, the tendency to preserve or sustain ecology is blindsided by the overwhelming agenda to ‘develop’ the environment.

This sentiment was captured in the lyrics of the activist/musician Joni Mitchell in her iconic ecological protest song ‘Big Yellow Taxi’:

*“Don't it always seem to go
That you don't know what you've got 'til it's gone
They paved paradise and put up a parking lot*

*They took all the trees and put 'em in a tree museum
And they charged all the people a dollar and a half just to see 'em
(Mitchell, 1970)”*

A catchy tune, but it did not stop corporate America from becoming a dominant (and domineering) economic force around the globe, exploiting natural capital in the name of development. While it can be said that some minor ‘victories for the environment’ may have been realized since, in retrospect, these gestures, such as governments creating national parks (ecological homelands comparable to the Apartheid regime’s approach to placating voices of dissent by parcelling up land for different races to ‘rule’ over), do not reflect a radical re-engineering of how people fundamentally live.

Beyond this, discussion of the environment and 'saving the planet' in mainstream media seem to have been deprioritised by the ruling elites in favour of economic growth, political one-upmanship and securing strategic resources in the face of a socio-cultural-religious uprisings. As the United States continues to involve itself in conflicts around the world to protect its interests, counter terrorist threats and enforce the security of what it owns, we remain "confronted with a world where ... environmental policy and sustainability concerns are seen as even more secondary by a majority of the world's governmental actors" (Sneddon, Howarth and Norgaard, 2006:257).

Conclusion

From this brief examination of some literature relevant to Deep Ecology, it is evident that understanding this fundamental eco-philosophy is crucial to appreciating sustainable development and the essential interconnectedness of humanity and nature. It is also evident that the vision of Deep Ecology has been trumped by the persistent advancement of our industrialised society and priorities that emanate from civilization's obsession with economic growth. It would appear that ecological sustainability has given way to economic development and as a result, humanity is now dealing with the polycrisis of environmental degradation, climate change and gross socio-economic imbalances.

The values and ethics of ecological connectedness and responsibility that are core to Deep Ecology have yet to translate into more "lean consumption" (Sachs, 1999: 41), particularly in the developed world. It is this lifestyle U-turn that will be the focus of Part B, showcasing some of the social movements and organisations beginning to emerge that demonstrate how collaboration and the sharing of the Earth's finite resources are viable alternatives (or at the least, complementary) to capitalism. As the world wrestles with the increasingly apparent reality that economic growth is finite, some of the fundamental tenets of Deep Ecology are beginning to 'trickle up' into some cooperative projects that are ecologically sensitive, counter-cultural and community enhancing. As this occurs, the thin neck of the proverbial "champagne glass" of socio-economic development (Goodland and Daly, 1996:1015) may begin to fatten (rather than lengthen), as more of humanity is going back to the 'old ways' of sharing and caring for each other, and in turn, the planet.

Part B - Application

We have lost the way

“In this world there is room for everyone and the good earth is rich and can provide for everyone ... but we have lost the way.

Greed has poisoned men's souls, [and] goosed us into misery and bloodshed. ... Machinery that gives abundance has left us in want. Our knowledge has made us cynical; our cleverness hard and unkind. We think too much and feel too little.

More than machinery, we need humanity. More than cleverness, we need kindness and gentleness. Without these qualities life would be violent and all will be lost. The airplane and the radio have brought us closer together - the very nature of these inventions cries out for ... universal brotherhood, for the unity of us all.”

- Charlie Chaplin, *The Great Dictator*

Introduction

The above quote is from a film produced, directed and acted by Charlie Chaplin that came out during the Second World War. Although the movie was mainly a powerful satire of Nazi Germany, many of its themes aptly connect the subjects of societal excess, humanity's disconnection from nature and the dangers of power concentrated in few hands. The previous section examined some of the principles of Deep Ecology and the importance of connecting with nature to more fully appreciate its value, humanity's role within a highly complex ecology and the overall interdependence of life on our planet. The following discussion will present some examples of individuals and organisations applying the ethic of sharing and cooperation, an essential tenet of the Deep Ecology movement. It includes a mix of desktop research, personal experiences – including some introspection – as well as interviews with two practitioners of money-free living, to arrive at a conclusion about several ways in which the sharing ethos of Deep Ecology is being gradually integrated into our lifestyles, societies and broader economy; a phenomenon that could lead to more respect for, and practice of, sustainable development throughout the world.

Collaborative consumption: living a leaner lifestyle

As has been demonstrated, the exploitation of the planet's resources has resulted in a distorted distribution of wealth where the world's wealthiest fifth (according to per capita GDP) consumes the vast majority of the planet's resources. Addressing this imbalance and the decadent lifestyles associated with it is a vital component of implementing sustainable development. As Sachs succinctly puts it (1999:36): "There will be no equity unless the corporation-driven consumer classes ... become capable of living well at a drastically reduced level of resource demand. Such a transformation of wealth is the central challenge of sustainability."

One of the catalysts for applying to the Sustainable Development programme was a fascinating book entitled *What's Mine is Yours*. In it are various stories about entrepreneurs and businesses doing more with less, but more importantly, doing more *together*. The simple idea of the book – one that is profoundly counter-cultural in many ways – is that we need to make better use of consumer goods that often sit idle, thereby reducing how much we buy individually. Effectively, the book demonstrates some ways in which new businesses are answering Sachs' call for wealth transformation through more lean consumption.

The theory of collaborative consumption is that frequent, collective use of a single asset, as opposed to individual, infrequent use of the same asset, should result in more efficient resource consumption. In other words, taking advantage of idling capacity in existing assets should make for a better use of these assets, reduce the need to create and consume more, particularly among the richest fifth of the world's population. What should result, is less overall consumption of assets, less CO₂ emitted and relatively less financial cost for 'collective-minded' consumers versus traditional private vehicle ownership.

One of the successful models of collaborative consumption pointed out in the book is the car sharing services like Zip Car (<http://www.zipcar.com>). Rather than seeing cars as crucial assets to own, urbanites in some developed countries are now 'sharing' cars, using them only when they require a vehicle to transport something more than just themselves. For a finite period during the day (one to three hours, for example), the car is 'microrented'. Demonstrating that humanity has a capacity and interest in sharing, such services have grown and now operate in more than 18 nations and on four continents. As an example of an emerging success story, Zip Car now serves over 673,000 members with a fleet of at least 9,000 vehicles in North America and Europe, having grown its membership by 25 percent last year (Shaheen & Cohen, 2007).

The notion of ‘what’s mine is yours’ put forward in *Collaborative Consumption* is in line with ethics and values of sustainable living put forward by the World Conservation Strategy (Hattin, 2001). It is also a starting point for reconfiguring mindsets about personal consumption and a re-examination of the ethics and values that are the foundation of capitalism. This collective approach to living and asset utilisation is a growing global social movement – mainly in developed countries –and has been documented through over 1000 examples on a website to complement the book (www.collaborativeconsumption.com). Clearly, living a leaner lifestyle requires changing attitudes and practices according to a new ethic; a social ecology that encompasses sharing within an interconnected world. Having co-opted and redefined concepts such as sharing, trading, renting and lending, collaborative consumption comes across as one of the most powerful ways to transform businesses, consumption patterns and the way in which many people live throughout the planet.

Starting young: Beavers and global friendships

The historical context for my inclination toward sharing (and belief that it has been an absent ethic in much of modern Western society) is based, to some degree, on my experience as a Beaver when I was a young boy living in Canada. The Beaver programme is part of the Scouts Movement, founded by Lord Baden-Powell (interestingly, after which the highway upon which the Sustainability Institute is located, is named). The Beaver Scouts programme is based on the concept of co-operation and sharing. An example of Deep Ecology in practice, I believe the organisation has subconsciously informed my worldview and inclination toward sharing. I also believe that it, as well as similar kinds of youth clubs, can play an important role in educating young people in future generations to be more mindful of their role within nature and society, as well as cultivating more respect for the natural world and all it contains. For example, the Beaver programme is based on a story *Friends of the Forest* and following are the values of the organisation (<http://www.scouts.ca/ca/programs/beaver-scouts>):

- Beaver Promise: I promise to love God and help take care of the world.
- Beaver Law: A Beaver has fun, works hard and helps their family and friends.
- Beaver Motto: Sharing, Sharing, Sharing

Another organisation that was instrumental in the early development of my global mindset toward collaboration is CISV, originally standing for Children’s

International Summer Village. An organisation that grew out of the devastation of World War II, it has as its overarching goal the establishment of world peace. Founded by Dr. Doris Allen (who lost out to Mother Teresa for the Nobel Peace Prize), CISV is now an international movement that encourages respect for cultural differences and the development of self-awareness. A four-week summer camp, involving delegations of 11-year-olds representing different countries under the supervision of teenager and adult leader, is the flagship initiative of CISV (<http://www.cisv.org/index.html>).

With personal experience in two programmes conducted by this organisation – including a summer camp in Denmark where I represented Canada, and an exchange with West Germany when I was 15-years-old – I can safely say that organisations such as these play a valuable role in helping to create more socially-minded global citizens and a deeper appreciation for the value of the diversity of life on our planet, in line with the Deep Ecology platform.

I believe that the opportunities I had to learn about different races, languages and customs were instrumental in the development of my character and outlook, and should be modelled in other parts of the world so that human diversity is seen as vital to human well being as much as biological diversity is essential to ecological systems. Today, young children have the Internet and other forms of instant communication at their disposal to further complement and sustain any face-to-face sharing of ideas and perspectives that I had. I suspect that fostering these sorts of exchanges, whether online or offline, is invaluable in building better understanding and collaboration between different countries and cultures.

No money equals stronger community

In more deeply appreciating nature, a lifestyle change is at the heart of the Deep Ecology platform. While living in a cabin in the middle of the woods is an extreme take on this, as demonstrated by Naess, there is an undeniable need for more community among humanity. We face a critical time in the planet's history and the responses we take must be based on shared learning and experiences. Given the finite nature of the planet's resources, it is clear that any future economic growth can only be attained with higher costs. Clearly the competitiveness of humanity must give way to the ethos with which the planet provides for us. Just as we are given natural resources free of charge by the planet, we should share our own unique assets, including skills or knowledge, with others.

Two of the best local examples of appreciating this spirit of sharing and caring for others, are two South Africans I encountered as MC of PechaKucha, a progressive to presentations (www.pecha-kucha.org). These two individuals have both taken on personal missions to live in very countercultural ways. In doing so, they are setting an example that others may follow and learn from, as we try to address the destructive aspects of consumerism afflicting our society and natural environment. Following are extracts from interviews conducted with them in order to better appreciate their perspectives on living a lifestyle in stark contrast to the materialism that seems to be overcoming the world.

The UBUNTU Girl

The first individual I interviewed was Sonja Kruse, otherwise known as The UBUNTU Girl (<http://www.theubuntugirl.co.za>). In October 2009, she quit her job, gave her car away and travelled around South Africa to over 100 towns with a backpack, a camera and a phone. Not interested in a self-indulgent gap year trip, she had R100 on her when she departed on a simple mission to connect with as many different kinds of people as possible across the country.

Ubuntu is originally a Xhosa and Zulu word, concept and practice. According to Sonja, it has as one of its definitions “I am what I am because of who we all are” (Kruze, 2012: Personal Interview), much like the term *kanyini* (connectedness) from the Aboriginal people, who learned to restrict ‘mine-ness’ by developing ‘our-ness’, with the understanding we should have an innate sense of responsibility for all things, including our fellow human beings (Blewitt, 2008). Sonja describes Ubuntu as:

“It is about acknowledging that our individual actions have an impact on our collective consciousness. I have a strong inner voice and it speaks about the need for us to recognize one another and to nurture those connections. If somebody was to say to me that it is not possible for a young woman to travel around South Africa unharmed and receive hospitality wherever she may go, I can point out that in my experience, it is possible. It is my hope that we can use this Ubuntu journey to build social bridges and change our collective language about our country, for the better” (Kruze, 2012: Personal Interview).

The UBUNTU Girl certainly followed through on this philosophy, exploring its meaning and digging into the depths of ‘human ecology’. In her words:

“In order to see the humanity in other people, we have to cultivate that very essence of Ubuntu within ourselves. It starts with each individual. As I started understanding that simple concept, I started recognizing the spirit of Ubuntu in everybody around me” (Kruse, 2012: Personal Interview).

Depending entirely upon the generosity of others, Sonja stayed with 150 different families, representing over a dozen cultures. Along the way, she was taken in by people from all walks of life, “from townhouses to townships; from shacks to millionaires; from pensioners to students; from the ANC Youth League to the AWB...” (Kruse, 2011).

Deep ecology values in practice

It is interesting to note the values to which The UBUNTU Girl holds true are quite similar to the fundamentals of Deep Ecology (Kruse, 2012: Personal Interview):

- To honour our interconnectedness
- Exist, extend and expand with the spirit of Ubuntu
- Value myself enough to ask how my actions will impact others
- To see one another, to hear one another, to feel one another

In terms of Sonja’s awareness of, connection with nature, she says:

“When I connect with nature, I see clearly that everything is connected and I am but one part in it all. It reminds me that I am a pixel in the bigger picture. That is why I walk. A generous individual offered me the use of a car whilst I am in Cape Town, but I declined because when I walk, I am aware” (Kruse, 2012: Personal Interview).

This is a powerful statement. It not only demonstrates Sonja’s perspective on the scope of nature and her role within it, but the importance of foregoing technology, convenience and modern living, so that she can actually reconnect and be closer to the natural world and more attuned to her own nature.

Sonja’s experience of Ubuntu in South Africa has also led her to tap into the wider community, online and offline, to support her ongoing efforts to spread the spirit of Ubuntu through her powerful story. She is currently setting up a foundation with the mission to “unite the spirit of Ubuntu across all races and creeds, inspiring a culture of community, compassion through the simple act of story sharing” (Kruse, 2012: Personal Interview). Related to this is crowdfunding

a book. Sonja, through the help of evly – www.evly.com – a locally run crowdsourcing platform, is securing financial assistance, cooperation and attention from a broad spectrum of individuals in order to publish a book. A small example of the Great Turning that Macy and Young-Brown speak of.

No Money Guy

In the Joburg Memo, the lead author referred to “organized irresponsibility” ruling the world, the need to change our societies to be more hospitable to people and mindful of nature, as well as the necessity to “reform of wealth” in order to eradicate poverty (Sachs, 2002:37). Another South African I have met who is radically challenging society’s obsession with monetary wealth is Adin van Ryneveld, otherwise known as the No Money Guy. We met one another at the first PechaKucha I attended in Cape Town several years ago and his energy and zest for living are as palpable today as they were then. As a young man who embarked on a journey in May 2009 to live without spending money for five years, he has done remarkably well for himself, and by all accounts, is more than happy with his life. Clearly, he has grown rich with well-being, rather than with monetary wealth.

As someone who believes and practices Ubuntu, Adin says:

“Our world needs Ubuntu now more than ever, as it's essential for creating sustainable solutions to the challenges we face. I intend to show that doing things without money is not only possible, but necessary. It is about exploring more community-centric ways of living and doing business” (Van Ryneveld, 2012: Personal Interview).

Through public talks, networking and the strength of his personality, Adin has become quite popular – as of the end of March, 2012, he had accumulated approximately 3500 friends on Facebook and over 2100 followers on Twitter. He is also extremely resourceful. Adin currently resides, free of charge on the rooftop of Penthouse on Long Backpackers, where he tends bar. He also works at Truth Coffee, where he is an apprentice *barista*, with the business effectively employing him by paying his rent; as well as throwing parties to support an initiative called Ubuntu Digital, an attempt at creating a hybrid economy.

The Community Exchange System

Key to this notion of a hybrid economy is the Web-based CES or the Community Exchange System, a global network of people who exchange ‘talents’ rather than spending money. CES is composed of 389 exchanges in 42 countries – including 32 in South Africa – an organisation that is “not based on debt and controlled by a global monetary elite that seems happy about destroying our planet in the pursuit of profit” (<http://ces.org.za/index.asp>).

Since being created in 2002 in Cape Town by a group of monetary activists, CES has demonstrated it is as versatile as the conventional money system, and in some ways more efficiently. According to one of the co-founders of CES:

“In the new era of declining energy and other resources, the global economy is inevitably going to have to contract. The debt-based money system looks increasingly unstable in the current low-growth situation and definitely cannot operate in a de-growth environment. A new exchange system operating something along the lines of CES is going to be required. ... As interest is removed as a factor in exchange, the growth imperative is removed as well as the debt bondage that most of us live under. ... The decentralisation of control and lack of opportunities to hijack the exchange system for private gain will return the ‘money power’ to ordinary people. No longer will those who currently control the financial system be the ones who decide where society puts its efforts and how it allocates its resources” (Jenkin, 2011:1).

This is a fascinating insight or prediction given the financial state of affairs in many countries around the world that are debt-laden. Money is often described as the root of all evil and it would seem that in improving to the *roots of society* (in other words, *community*), it may be a more sustainable option to forego cash in lieu of community-focused sharing of resources. As The UBUNTU girl puts it:

“... money [can] be a big divider of people. Because of its pre-conceived value, it affects the way we treat one another. It’s almost easier to be human without money. ... Though I am now living with money again, it is not the money that is the challenge for us, as much as it is choosing relationships with money at the cost of our relationships with people” (Kruse, 2012: Personal Interview).

The resurgence of cooperatives

Carrying on from the statement referenced earlier by Hawken *et al* about

capitalism being a “non-sustainable aberration of human development”, it is interesting to note the emergence and success of other collaborative systems of sharing beyond the CES. At a recent talk I attended entitled ‘Getting to the Next Economy’ - presented by Catherine Cameron, director of a consultancy specialising in sustainability and a senior associate of the Cambridge Programme for Sustainability Leadership - the speakers informed the audience that 2012 has been recognised as the International Year of Co-operatives by the United Nations. This is an acknowledgement by the international community that co-operatives drive the economy, respond to social change, are resilient to the global economic crisis and are serious, successful businesses creating jobs in all sectors.

Co-operatives (or coops) incorporate some of the key values of Deep Ecology and, it would seem, are making progress in becoming alternatives systems of commerce. According to the International Co-operative Alliance:

- The world’s largest 300 co-operatives generated revenues of USD 1.6 trillion in 2011, which is comparable to the GDP of the world’s ninth largest economy (Spain).
- Co-operatives are owned by nearly one billion people across the globe and employ nearly 100 million people – 20 percent more than multinational enterprises.
- Co-operatives operate in a range of sectors, including banking, housing, health, retail, food, utilities and agriculture (www.2012.coop).

According to the Stern Report, international co-operation is critical in driving an effective, efficient and equitable response to climate change (Stern, 2007). It would appear as if co-operatives are, in fact, providing meaningful on-the-ground impetus for such collaboration and at the same time, are presenting alternative models of conducting business that are both economically viable and socially responsible. In South Africa, Stokvels are one example of the power of co-ops. In 2003, 9 percent of the adult population in the country belonged to a co-op (Townsen & Mosala, 2008).

Some other international statistics point to the strength and impact of the co-operative business model (Bollier, 2012):

- Canada: four in 10 are coop members (70 percent in Quebec).
- U.S.A.: 25 percent of the population belongs to at least one co-op.
- Brazil: 37 percent of all agricultural production is from co-ops.
- Singapore: co-ops account for 55 percent of supermarket purchases.

- Korea and Japan, 90 percent of farmers belong to co-ops.
- Kenya, co-ops account for 45 percent of the GDP

According to the UN Secretary General Ban Ki-moon: “Co-operatives are a reminder to the international community that it is possible to pursue both economic viability and social responsibility” (<http://www.2012.coop>).

Conclusion

While much of humanity has ‘lost the way’, as we attempt to right our ecological wrongs and practice sustainable development it is important to remember the power of the collective and tapping into the interconnectedness that forms the basis of Deep Ecology. The current American President was elected with the slogan “Yes We Can” that in retrospect, could be a call to action to all citizens of the world to be far more collaborative in how they live and care for the planet, and in so doing, shifting to leaner lifestyles. In pursuing sustainable development – an evolving multi-disciplinary field of study, and a term that means different things to different people depending on their worldview – appreciating Deep Ecology is not only fundamental to exploring its ethical underpinnings, but also the collective conscience necessary in practising social ecology. Acknowledging the interdependence of humanity within nature and the importance of adopting a sharing ethic into our lifestyles are fundamental to effectively addressing ecological disharmony, dwindling finite resources, socio-economic inequities and climate challenges that are before us.

Further study

In pursuing a Deep Ecology approach to sustainable development further, it is recommended that additional study be conducted into the practical implementation of the values and ethics of this eco philosophy. While Deep Ecology may not have resulted in lifestyle changes by the majority of the population, several examples of how its tenets are being applied in modern society have been demonstrated.

In the context of our highly globalised world, the values and ideals of Deep Ecology seem to still hold true across cultures, yet the practice of these ethics is less apparent. It is recommended that in further examining the praxis of social ecology in the form of co-operatives, a broadened investigation of successful

coops should be conducted among a range of sectors throughout the world. Assessing the ingredients of success – including the origin and perpetuation of the Deep Ecology ethic of sharing – in these collaborative collectives would provide valuable insights, particularly in contrast to hierarchical organisations functioning under the traditional capitalist system. To further complement this study, it is recommended that the social, cultural and religious influences and their alignment with the Deep Ecology philosophy, *vis-a-vis* co-operatives, also be examined as far as the ethical framework with which these organisations function and originate.

Beyond this, more personal use of the CES to discover the kinds of people who participate in this system would be valuable to further appreciating its utility and scope of use. It would also be valuable to spend time with one of the founders of CES to determine how it has evolved and how robust and resilient the CES is compared to the debt-based money system.

Sources

Blewitt, J. 2008. *Understanding sustainable development*. London: Earthscan. Chapter 2.

Botsman, R. & Rogers, R. 2010. *What's Mine is Yours: the Rise of Collaborative Consumption*. HarperCollins Publishers: New York.

Carroll, C. 2008. *National Geographic*.
<http://ngm.nationalgeographic.com/2008/01/high-tech-trash/carroll-text>.

Chaplin, C. 1941, *The Great Dictator*, motion picture, U.S.A.

Costanza, R. 2009. Science and Ecological Economics: Integrating of the Study of Humans and the Rest of Nature. *Bulletin of Science Technology Society*, 29(5): 358-373.

Devall, B. 2001. The Deep Long Range Ecology Movement. *Ethics and the Environment*, 6(1):18-41.

Dresner, S. 2002. *The Principles of sustainability*. London: Earthscan.

Gallopin, G. 2003. *A systems approach to sustainability and sustainable development: Project NET/00/063*. Santiago: Economic Commission for Latin America.

Gildin, P. 2012. *The Earth is Full*. TED Talk, Long Beach, California, February, http://www.ted.com/talks/paul_gilding_the_earth_is_full.html.

Goodland, R. & Daly, H. 1996. Environmental Sustainability: Universal and Non-Negotiable. *Ecological Applications*, 6(4):1002-1027.

Harris, J., Wise, T., Gallagher, K. and Goodwin, N. (Eds.) 2001. *A Survey of Sustainable Development*, Washington/Covelo/London: Island Press.

Hattingh, J. 2001. Conceptualizing Ecological Sustainability and Ecologically Sustainable Development in Ethical Terms: Issues and Challenges. *Annale*, 2.

Hawken, P., Lovins, A.B. & Lovins, J.H. 1999. *Natural capitalism: the next industrial revolution*. London: Earthscan. Chapter 1.

Heimer, L.E. 2008. <http://sidewalksprouts.wordpress.com/history/wwii/>

Jenkin, T. 2011. *Reinventing Money – A Community Exchange System from South Africa Conquers the World*.

<http://www.digital-development-debates.org/06-innovation/transparency/reinventing-money-a-community-exchange-system-from-south-africa-conquers-the-world.html#page-1>.

Kruse, S. 2012. Personal Interview. 19 March, Cape Town.

Macy, J. & Young-Brown, M. 1998. *Coming Back to Life*. British Columbia: New Society. Chapter 3.

Mitchell, J. 1970. *Big Yellow Taxi*. <http://jonimitchell.com/music/song.cfm?id=208>.

McCullum, G. 2011. *Venture Beat*. <http://venturebeat.com/2011/06/24/rare-earth-metals-and-recycling-what-cell-phone-makers-have-to-learn-from-ev-companies/>.

McLaren, D. (2003) Environmental Space, Equity and Ecological Debt. In Agyeman, J., Bullard, R., D. & Evans, B. (Eds). *Just Sustainabilities: Development in an unequal world*. London: Earthscan. pp.19-37.

Mebratu, D. Sustainability and Sustainable Development: Historical and Conceptual Review. *Environment Impact Assessment Review*, 18:493-520.

Peet, R. & Watts, M. (Eds). 1996. *Liberation Ecologies: Environment, Development, Social Movements*. London: Routledge. pp.1-45.

Sachs, W. 1999. Sustainable Development and the Crisis of Nature: On the Political Anatomy of an Oxymoron. In: F. Fisher and M.A. Hajer (Eds). *Living with Nature*. Oxford: Oxford University Press.

Sachs, W. 2002. *The Joburg Memo: Fairness in a Fragile World*. Berlin: Heinrich Boll Foundation.

Shahee, S.A. & Cohen, A.P. 2007 Worldwide Carsharing Growth: an international comparison. *Transportation Research Record*, 1992: 81–89.

Sneddon, H., Howarth, R.B. & Norgaard, R.B. 2006. Sustainable development in Post-Brundtland World. *Ecological Economics*, 57:253-268.

Stiglitz, J.E., 2002. *Globalization and its discontents*. London: Penguin Press. Chapter 1.

Swilling, M. & Annecke, E. 2012. *Just Transitions: Explorations of sustainability in an unfair world*. South Africa: UCT Press.

Townsen, S & Mosala, T. 2008. The Stokvel Sector: Opportunities and Challenges. Graduate School of Business Administration, University of the Witwatersrand.

<http://www.dgrvsa.co.za/Publications/The%20Stokvel%20Sector%20in%20South%20Africa.pdf>.

Van Ryneveld, A. 2012. Personal Interview. 29 February, Cape Town.