

4.4 ECOLOGICAL SKEPTICISMS

4.4.1 Introduction

"Over the past 500 million years, since complex life colonized the seas, then the continents, there have been five major global extinction events. For one or other reason - asteroid hits, vast volcanic activity, global CO₂ poisoning, abrupt climatic change, and oceanic stagnation - perhaps 90 percent of all life forms (species) have gone extinct in a geological moment. The last such event, the fifth, was when the dinosaurs died out 65 million years ago". (Anderson, 2000: 23)

Compared to the destruction of species caused by natural forces, human intervention and pollution is nothing. If nature has and could at any time wipe out life as we know it, why care, why conserve at all? Some skeptics believe that human damage to the environment is either minimal or less important in its likely consequences than the benefits that damaging economic development brings, others believe that any significant future damage will be fixed by yet-to-be invented technology, while others believe that major elements of the environment are in fact improving over time. (Environmental Skepticism, Wikipedia, 2006)

The notion of asteroids hitting the Earth and causing mass global extinctions ignited something of a revolution in thinking about the history of life. Through the rest of the 1980's, extinctions and their causes became very lively science. The previous Big Five extinctions were dissected and debated at great length; and slowly the Sixth - ours - has become more tangibly defined (Anderson, 2000: 23). Only within the last decade, with the pair of books by Edward O. Wilson, "The Diversity of Life (1992) and Richard Leakey "The Sixth Extinction: Biodiversity and its Survival" (1995), has the term "the Sixth Extinction" begun to emerge in academic circles.



- 22 Destruction the constant denominator
- 22 Left A Factory polluting the air
- 22 Right A volcano polluting the air

Environmental skepticism is an umbrella term that describes those that believe certain claims put forward by environmentalists, particularly alarming claims, are exaggerated to some degree. Sometimes a view may be labeled as environmental skepticism when the term environmental cynicism may be more accurate. (Environmental Skepticism, Wikipedia, 2006)

Historically, a small number of extreme Environmental skeptics have been linked to the interests of large and polluting industries such as Rachael Carson's Silent Spring ("dilution is the solution to pollution"). It is also pointed out that the environmentalists also employ much of "science" which is spinned toward the political purpose of environmentalist group. (Environmental Skepticism, Wikipedia, 2006)

4.4.2 The Skeptical Environmentalist: Measuring the Real State of the World

The Skeptical Environmentalist (TSE) is a controversial book by political scientist Bjorn Lomborg, which argues that claims made about global warming, overpopulation, declining energy resources, deforestation, species loss, water shortages, and a variety of other global environmental issues are exaggerations and unsupported by a proper analysis of the relevant data.

The Skeptical Environmentalist challenges many popular examples of serious environmentalist concerns by assembling and interpreting data from a large number of sources, and suggests that, by presenting false claims, environmentalists cause resources to be diverted to environmental issues, when those resources could be better spent elsewhere. TSE cites some 3,000 individual references from primary and secondary material. Much of its methodology and integrity have been subject to criticism from scientists who argue that Lomborg has distorted the various fields of research he covers.

Lomborg implies that overly pessimistic claims are made and as a result bad policies are implemented. He cites accepted mainstream sources, like the US government and UN agencies. His preference is for global long-term data, as opposed to regional and short-term. (The Skeptical Environmentalist, Reference.com, 2006)

The book is arranged around four major themes:

1. Human prosperity from an economic and demographic point of view
2. Human prosperity from an ecological point of view
3. Pollution as a threat to human prosperity
4. Future threats to human prosperity

4.4.3 Human prosperity from an economic and demographic point of view

Lomborg analyses three major themes: life expectancy, food and hunger, and prosperity. He finds that, contrary to what is often claimed, life expectancy and health levels have dramatically improved over the past centuries, even though several regions of the world remain threatened, in particular by AIDS. Similarly, he dismisses Thomas Malthus's theory that the increase in the world's population will lead to widespread hunger. Lomborg shows on the contrary that food is widespread and the world's daily intake of calories is increasing steadily. Indeed, technological improvements in agriculture should help humankind eradicate hunger. However, Lomborg notes that Africa in particular still produces too little food, an effect he attributes to the continent's dismal economic and political systems. Concerning prosperity, Lomborg argues that wealth, as measured by GDP/head, should not be the only criterion to judge prosperity. Lomborg points to improvements in education, safety, leisure, and ever more widespread access to consumer goods as signs that prosperity is increasing in most parts of the world.

4.4.4 Human prosperity from an ecological point of view

In this section, Lomborg looks at the world's natural resources. First, he analyses food again, this time from an ecological point of view. Again, he notices that most food products are not threatened by human prosperity. Next, Lomborg looks at forests. He finds no indication of widespread deforestation, and notes that even the Amazon forest still retains more than 80% of its cover in 1978. Lomborg points out that deforestation is linked to poverty and poor economic conditions in the concerned countries, and proposes higher economic growth to tackle the problem of deforestation. Concerning energy, Lomborg notes that oil is not being depleted as fast as is claimed, and that improvements of technology will provide us with fossil fuels for a long time still. Lomborg also points out that many alternatives already exist, and that with time they will replace fossil fuels as our energy source. Concerning other resources, such as metals, Lomborg notes again that these are widely available and that we should not expect problems with. Water is another controversial topic. Lomborg notes that, contrarily to common thought, wars will probably not erupt because of water. He emphasizes the need for better water management as water is distributed unequally around the world. (The Skeptical Environmentalist, Reference.com, 2006)

4.4.5 Pollution as a threat to human prosperity

Lomborg looks at pollution from different angles. Concerning air pollution, Lomborg notes that it has steadily decreased in recent decades in rich countries. He finds that air pollution levels are highly linked to economic development, with moderately developed countries polluting most. Again, Lomborg argues that faster growth in emerging countries would help them reduce their air pollution levels. Concerning water pollution, Lomborg notes again that it is linked to economic development. He also notes that water pollution in major Western rivers have recovered quite fast after sewage systems became widespread. Concerning waste, Lomborg

notes once again that fears are overblown, as the entire waste produced by the United States of America in the 21st century could fit into a square whose side would be 28 sq. km, 0.009 % of the total surface of the United States (The Skeptical Environmentalist, Reference.com, 2006).

4.4.6 Future threats to human prosperity

Lomborg first looks at our fear of cancer especially linked to chemicals such as pesticides. He again notes a vast exaggeration in public perception, as alcohol and coffee are the foods that create by far the greatest risk of cancer, as opposed to vegetables which have been sprayed with pesticides. Lomborg also criticizes the exaggerated claims of a vertiginous decline in biodiversity, proposing a number of 0.7% of species extinct in 50 years. While this is still a problem, as Lomborg admits, it is not the catastrophe clamored by some. Global warming is another very popular subject at the moment. Lomborg first criticizes the models used by some scientists to evaluate global warming. Indeed, Lomborg argues that these models do not take enough into account future technological developments, and that some of them do not take into account that humankind can, through a number of measures such as taxation, reduce global warming in the future. Lomborg agrees that most of the data points to an increase in temperature, but disagrees on the measures proposed to counter global warming. He argues that the cost of cutting CO2 emissions have to be compared to other costs, such as fighting poverty and aiding poor countries. Lomborg also points out that there are not only costs to global warming, but also benefits, as large parts of Russia and Canada, for instance, could be put to agricultural use, which would benefit those countries. He therefore asks for a global cost-benefit analysis to be made before deciding on the best measures to take. (The Skeptical Environmentalist, Reference.com, 2006)

4.4.7 Praise

Wikipedia reports that in spite of intense criticism in most of the scientific press, *TSE* generally received extremely positive reviews from the mainstream media, Wikipedia then proceeds to including the following (Environmental Skepticism, Wikipedia, 2006):

- *The Economist* – "This is one of the most valuable books on public policy - not merely environmental policy - to have been written for the intelligent general reader in the past ten years.... *The Skeptical Environmentalist* is a triumph."
- *New York Times* – "The primary target of the book, a substantial work of analysis with almost 3,000 footnotes, are statements made by environmental organizations like the Worldwatch Institute, the World Wildlife Fund and Greenpeace."
- *Wall Street Journal* – "...a superbly documented and readable book."
- *Washington Post* – "Bjorn Lomborg's good news about the environment is bad news for Green ideologues. His richly informative, lucid book is now the place from which environmental policy decisions must be argued. In fact, *The Skeptical Environmentalist* is the most significant work on the environment since the appearance of its polar opposite, Rachel Carson's *Silent Spring*, in 1962. It's a magnificent achievement."
- *Rolling Stone* – "Lomborg pulls off the remarkable feat of welding the techno-optimism of the Internet age with a lefty's concern for the fate of the planet."

The amount of TV, radio and press attention around the world was tremendous, and is perhaps best characterized by this statement (as excerpted in Lomborg/Cambridge University Press media clippings): <http://www.lomborg.com/books.htm>

"*The Skeptical Environmentalist* marks a critical environmental moment.... We can forget those dreary old idols: Paul Ehrlich,

Lester Brown with his Worldwatch Institute, Greenpeace and all the others. They have been exiled into the darkness. Eco-optimism can begin to rise over the Earth. After Lomborg, the environmental movement will begin to wither."

4.4.8 Longer-term impact of TSE

The *Skeptical Environmentalist* became a high-profile international bestseller. In 2005, the fourth year following its English-language publication, an informal survey of publicly accessible online sources indicates that *TSE* continues to be highly controversial. However, there is no obvious evidence of it having a major public impact on environmental issues, and in spite of intent of the author to "provide the best possible information about how things have progressed and are likely to develop in the future" and "leave to the individual reader the political judgment as to where we should focus our efforts", *TSE* currently appears on the reading list of a variety of university courses as recommended or required reading on subjects as diverse as biodiversity and eco-terrorism. (The *Skeptical Environmentalist*, Reference.com, 2006)

23

A graphic metaphor exploring the relationship between exploitation of nature and our own suicide.



4.5 ANTHROPOCENTRIC AND SHORT TERM IMPACT

"Perhaps an even more effective way of grasping our extreme recentness as a part of this 4.5-billion-year-old picture is to stretch your arms to their fullest extent and imagine that width as the entire history of the Earth. On this scale the distance from the fingertips of one hand to the wrist of the other is Precambrian. All complex life is in one hand, 'and in a single stroke with a medium-grained nail file you could eradicate human history...' (Bryson, 2003: 289)

Compared to the Earth's history our human existence is brief. And if one compares the number of species that have gone extinct because of human interference with the number of species that have gone extinct from non-human activities - one realizes how naive we are in thinking that we have a long term ecological impact on the environment. We have a short term ecological impact but in the history of life on Earth we have no impact, we almost don't exist.

"...Each of these massive transformations, as well as many smaller ones between and since, was dependent on that paradoxically important motor of progress: extinction. It is a curious fact that on Earth species death is, in the most literal sense, a way of life. No-one knows how many species of organisms have existed since life began. Thirty billion is a commonly cited figure, but the number has been put as high as four thousand billion. Whatever the actual total, 99.99 per cent of all species that have ever lived are no longer with us..." (Bryson, 2003: 302).

This implies that if we could conserve 100 per cent of nature, totally have no human impact on the environment, 99.99 per cent of all the species would go extinct nevertheless. The environment is ever changing. Conservation tries to stop that change by looking at nature through the human perception of time.

The conclusion can then be made that conservation, sustainability, and ecological landscape design are all anthropocentric and short term exercises dealing with the short term survival and well being of the human species.

This thesis proceeds, in the next section point 4.6, in proving the above conclusion incorrect. Environmental alteration is not an anthropocentric process. Nor is it primarily a physical activity.

As the next section will explain, environmental alteration is a metaphysical manifestation and merely a byproduct of memetic procreation strategies, enabled by random and spontaneous events much like genetic mutation and evolution.



24

The only constant of life is that it goes extinct

99.99%

4.6 EVOLUTION: FROM GENES TO MEMES

The beauty of the Gaia hypothesis is the manner in which existing, evolving and new information may be incorporated. Each detail can be shown or assumed to form an aspect or part of Gaia. We are constantly introduced to fresh and powerful ways of perceiving our role amongst all that surrounds and supports us.

The Gaia hypothesis was criticized by Richard Dawkins in his book *The Extended Phenotype*; therein he argues that Gaia could never exist because it would be impossible for genes to express themselves on a planetary scale (Dawkins, 1982). Lovelock reacts to that and proves that genes can express themselves globally in a chapter called "Gene, cell and planet" (Lovelock, 2000: 95)

This thesis presents and proves the theory that the evolutionary step preceding genes are represented by memes and that currently it is memes that are responsible for altering the physical environment, not humans.

The term meme refers to any piece of information transferable from one mind to another. Examples include thoughts, ideas, habits, song and dance. Different definitions of meme generally agree that a meme consists of some sort of self-propagating unit of cultural evolution having a resemblance to a gene (Meme, Wikipedia, 2006).

Memes have, as their fundamental property, evolution via natural selection in a way very similar to Charles Darwin's ideas concerning biological evolution, on the premise that replication, mutation, survival and competition influence them. For example, while one idea may become extinct, others will survive, spread and mutate – for better or worse – through modification. Not only the memes most beneficial to their hosts will necessarily survive; rather, memes supposedly spread by functioning as the most effective replicators, which allows for the possibility that successful memes prove detrimental to their hosts (Meme, Wikipedia, 2006).

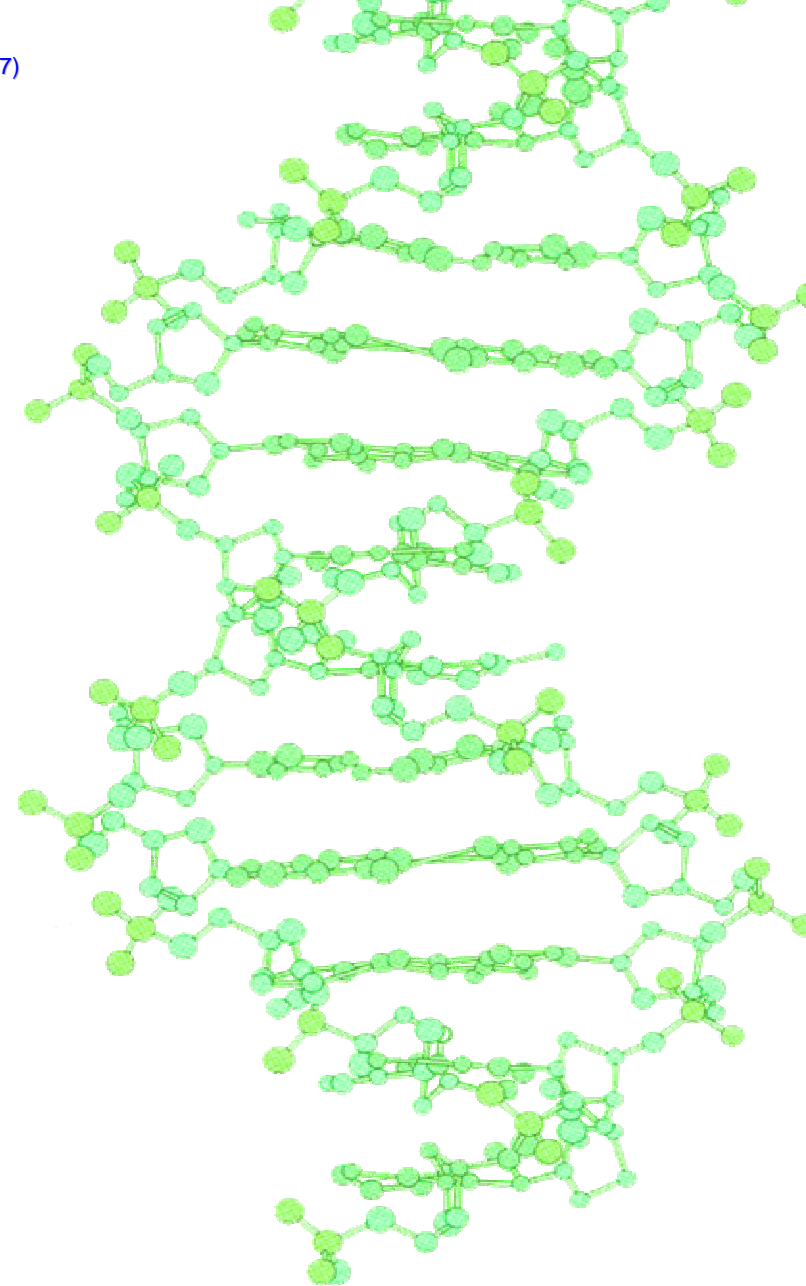
If we accept that Lovelock has proven that genes have the ability to express globally, then one can prove, with the following example, that memes, just like genes, have the ability to express on a planetary scale and that they are currently altering our physical environment.

When looking at the types of impacts that humans have had on the planet over the course of human history, we see that it relates to a dominant paradigm (a collection of ideas) of that specific time. Each distinct paradigm implied a different type of environmental alteration. Looking at the paradigms described in *The Web of Life* (Capra, 1997: 5-50) and the impact of those ideas on the environment, the human is the common denominator. It is the "ideas" or memes that reside within the human that evolves and shapes the environment differently. So it becomes apparent that it is not humans that are expressing themselves globally, but rather memes.

"...Human beings have never lived in harmony with nature. If they caused fewer disturbances in earlier times it is because of the smaller size of populations and the more primitive technology available..." (Hallam, 2004: 199).

The above statement can then be dismissed as being incorrect. 'Genetic human' lived in equilibrium with nature, as all other mammals, not having a negative global environmental impact, only a local and short term impact. 'Memetic humans' conversely challenge the natural equilibrium as a result of the memetic code's purpose to replicate above all cost, similar to computer viruses.

Memes are replicators and have as their prime goal to replicate and spread. This implies that the most successful memes are the ones inspiring their hosts to enable systems, connections and networks that in turn enable the memes primary function. This is manifested in the obsession of modern humans (highly infected with the latest memetic codes) to develop and to create networks enabling memetic



25

The Watson-Crick Model of DNA also representing a memetic network (Andersen, W. 1999. Genetics. London: Wadsworth Publishing Company)

outbreaks. Outstanding examples are: road network, airplanes routes and telecommunication network. Only now that memes have reached a stage that they are able to spread globally, through human constructed network, have humans started to have a global environmental impact, negative and lately starting to become more positive.

The relationship between genes and memes are of co-dependents and are either symbiotic or parasitic, depending on the environmental impact the memes survival mechanism demands. As said, "Not only the memes most beneficial to their hosts will necessarily survive."

Environmental alteration is not an anthropocentric process. Nor is it primarily a physical activity.

Our ethical sense of responsibility towards the environment is formed by the current and dominant, co-dependant group of memes (memeplex) or a paradigm.

The paradigm in turn is created by the random, non-linear replication of evolving and colliding memes.

This thesis proposes that memetic codes responsible for negative physical environment are weaker than codes that enable a positive environment for the carrier organism. This assumption is deducted from the observation that a self obstructing mechanism is implied in memes that enable harmful environments: when replication implies the motivation of the host organism to create detrimental physical environment, the code is imploding its own means of proliferation therefore defeating its own purpose.

Conversely, memes that manifest in enhanced physical environment enlarges their reproductive capacity, which in turn enhances the physical environment, creating an infinite loop.

Because the environmental enhancements only need to benefit the human species the paradigm might then be again considered to be anthropocentric. Refer to point 4.5. However the metaphysicality of the situation needs to be clearly understood.

It then follows that the likelihood of the current paradigm, dictating environmental development and alterations, being of a socio economic nature would be large. Please refer to the next section, point 4.7, wherein the theoretical aspects as discussed above are translated into practical guidelines for landscape design.

4.7 FROM THEORY TO CONCEPT

If one accepts that the metaphysical environment is the foremost shaper of the physical environment then the ecological footprint becomes the ecological shoe-print.



26

The shoe-print, as opposed to the ecological footprint, represents the theory that the metaphysical environment is altering the physical environment

Motloch in the section *Landscape Design as Memetics* (Motloch, 2001: 40) converts the theoretical aspect of memetics into practical guidelines for landscape design:

- Recognize the memes of your culture and other cultures.
- Appreciate memetic complexity.
- Envision desirable futures and design to influence others to pursue these futures.
- Recognize and respond to condition, integrate with system dynamics, apply principles, and pursue directions that simultaneously respond to ecological, physical, psychological, technological, political, and socioeconomic systems.
- Integrated management of diverse systems to promote natural and human physiological and psychological health.
- Pursue landscape management, planning and design that integrate into systems in dynamic equilibrium.
- Facilitate the emergence of more relevant management structures, planning strategies, and designs when systems are in dissipation.

Responding to the guidelines as set out by Motloch the following can be concluded:

Recognizing the memes of your cultures is especially relevant in the South African context- When one takes into account how South Africa survived a period of radical conflict and destabilization during colonialism and the apartheid era.

South Africa experienced racial and economic discrimination that led to extreme hardship and poverty amidst the plenty of nature.

It follows then that the dominant memes, currently altering the landscape in South Africa, are identified as being of socio-economic nature.

Considering the above mentioned socio-economic hardships, envisioning desirable futures for South African people becomes an automatic response.

The answer to the question asked by Brayer and Simonot, point 4.2, is that it is a socio-economic process that defines the South African concept of nature today and implies the

responsibilities of the architect towards the environment he is designing in.

Physical manifestations of current socio-economic memes are made visible through new legislation, policies and initiatives that dictate how the environment should be altered and developed. Examples of such documents, specifically relevant to the St. Lucia region are the *Coastal Management Policy* and the *Lubombo Spatial Development Initiative*. Please refer to point 3 of this thesis.

As predicted by Motloch, these documents respond to local conditions and integrate with system dynamics that simultaneously respond to ecological, physical, psychological, technological, political, and socio-economic systems.

This thesis concludes that the dominant paradigm of today can be described as socio-economical and that socio-economic development must be the main focus of any development or design.

It entails that material prosperity, cultural values and spiritual fulfillment has to be balanced with nature, and in so doing defining our concept of acceptable development and our perception of what ecological integrity is.