How Green Is Our Future?
Thor Chemicals - A Case Study in South African Environmental Policy

Adrian Flint

Supervisor: Louise Vincent

In Fulfillment of the Requirements of the Master of Arts Degree.

Department of Political Studies
Rhodes University
January 1998

CONTENTS

ACKNOWLEDGEMENTS

I wish to thank my supervisor, Louise Vincent, for her contribution to this work. Her patience and insight were invaluable throughout this study. Thanks too to Dave Pottie for his advice concerning social movements.

Special thanks must also go to the Environmental Justice Networking Forum in Pietermaritizburg, in particular Chris Albertyn and Bobby Peek. They were exceedingly generous in providing me with information on Thor and other aspects of the case study. This organisation and its staff are a credit to the NGO sector and their work in the field of social justice has been indispensable.

Rhodes University made funds available to me through the Graduate Assistance Programme. Without this help I would not have been able to continue my studies.

I am grateful to my partner Jill Payne for her support, advice and reassurance throughout the year. Finally, to my parents, thanks for reading me *Noddy.*

For Peter Cele, Albert Dlamini And Engelbracht Ngcobo
And The Other Victims Of Thor

ABSTRACT

This study focuses on South African Environmental policy; in particular its policies regarding hazardous waste. These policies are addressed within the framework of a case study which serves as basis to critically evaluate government environmental policies both past and present.

The thesis examines South African environmental policy against the backdrop of competing schools of thought regarding the relationship between growth and development on the one hand and long term environmental security on the other. Development strategies such as Sustainable Development and the government's Growth, Employment and Redistribution as well as philosophies such as Deep Ecology will be discussed. The thesis argues that Non-Governmental Organisations are the holders of a real environmental ethic and thus their role in preventing environmental degradation is of critical importance. Furthermore, it is imperative that this ethic be disseminated across society if South Africa is to successfully pursue sound environmental policies.

This argument is pursued by way of a case study, Thor Chemicals: a company responsible for the running of the largest mercury recovery facility in the world. This plant, which operated in Cato Ridge, KwaZulu-Natal, has been the source of much controversy since it was found that many of its employees and ex-employees were suffering from severe mercury poisoning resulting in two fatalities. The company was also involved in the importation of hazardous wastes as well as the pollution of the surrounding environment. Thor is currently the subject of inquiry by the government-appointed Davis Commission.

It is pointed out that in the past South Africa held no real environmental ethic and environmental degradation ensued as a result. The presented thesis argues that, despite assurances to the contrary, the present government is also without a true environmental ethic that will be effective in preventing future degradation.

ABBREVIATIONS

ANC	African National Congress
CWIU	Chemical Workers Industrial Union
DEAT	Department of Environmental Affairs and Tourism
DNHPD	Department of National Health and Population Development
DOH	Department of Health
DOL	Department of Labour
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EJNF	Environmental Justice Networking Forum
ELA	Earthlife Africa
GATT	General Agreement on Tariffs and Trade
GEAR	Growth, Employment and Redistribution
IMF	International Monetary Fund
NGO	Non-Governmental Organisation
RDP	Reconstruction and Development Programme
WCS	World Conservation Strategy

TIMELINE OF EVENTS: THOR CHEMICALS

1963 Thor Chemicals opens its South African Division.

1976 First major mercury catalyst contract with AECI.

1986 Thor begins to import hazardous waste.

1988 Thor UK transfers all its mercury operations to South Africa.

Umgeni Water Board finds high levels of mercury in the Umgeni River. Source of pollution found to be Thor Chemicals.

1989 USA journalist discovers exceedingly high levels of mercury in the Mngeweni River situated nearby the Thor Chemicals site in Cato Ridge.

1990 Greenpeace does tests on samples taken from nearby the plant. High levels of mercury discovered in both soil and water samples.

South African government puts a halt to all imports of hazardous waste yet indicates to Thor that this ban does not apply to it.

1991 American Cyanamid halts all shipments of waste to Thor.

1992 Peter Cele, Albert Dlamini and Engelbracht Ncogbo admitted to hospital with severe mercury poisoning.

Department of Manpower conducts an enquiry into the health and safety standards at Thor.

1993 Peter Cele dies.

Charges of culpable homicide brought against three Thor officials. The company itself is charged with forty-two breaches of the occupational safety laws.

1994 Thor halts all importation of waste.

1995 Thor found guilty of minor breaches of the Machinery and Occupational Health and Safety Act.

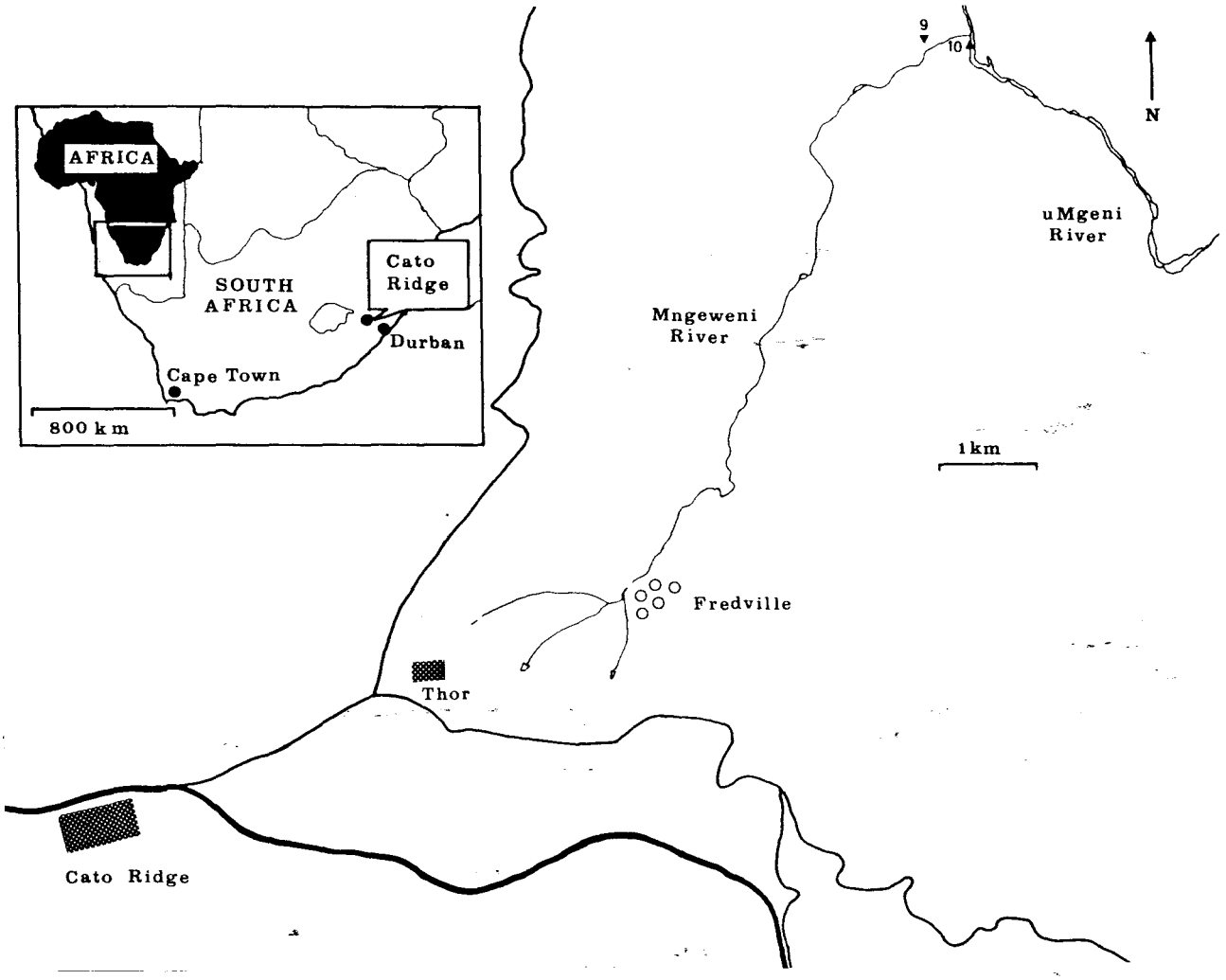
Davis Commission appointed to investigate Thor.

1997 Davis Commission issues its first report.

MAP

The Thor Chemicals Plant and its Surrounds

(Copyright Earthlife Africa - Used With Permission)



CHAPTER ONE: INTRODUCTION

Environmental problems can be dealt with in a number ways. They can be ignored, the system perpetuating the problems can be reformed or even radically altered so as to prevent degradation. It will be argued that ignorance or reform are inadequate measures in the prevention environmental problems and only a more radical approach to the environment will prevent future problems. This radical approach is, however, out of the reach of government at the present time. Environmental problems cannot be solved merely by legislation but only through a shared concern for the earth. Thus, it is only when people develop a consciousness of their impact on the environment that there can be any hope for solving the problems that we face.

Environmentalism, the belief that care for the natural environment is of critical importance, stands or falls on whether it can be proven that the earth is actually under threat from humankind. This question presents a serious debate between environmentalists on one hand and certain economists on the other. At stake is the 'limits to growth' economic model. Environmentalists argue that there are limits to economic growth and that by refusing to accept that there are limits to growth we are seriously endangering the environment; that at current rates of consumption resources are rapidly becoming depleted. In contrast economists such as Grossman and Krueger[1] maintain that

---

[1] Grossman and Krueger argue that there is no evidence to prove that environmental degradation is a necessary result of economic development ("Economic Growth and the Environment" in *Quarterly Journal of Economics*, May 1995).

the environmental "crisis" as depicted by environmentalists is over-stated and incorrect as it does not take into account the environmental benefits of economic growth. It is maintained that only the restriction of human potential can put limits on economic growth.

The limits to growth debate has practical ramifications. The most important of these, especially in the South African context, involves the issue of employment. The environmental movement's critics contend that environmentalism is a threat to people's livelihoods as it insists on more expensive technology and more expensive procedures in order to reduce waste and pollution. If there is no real environmental crisis, this is a costly and needless sacrifice. If environmental problems are being overstated then environmentalists are threatening the economic development of South Africa. This is the basis of the argument used by certain government officials in South Africa who have accused environmentalists of being racist and unconcerned with the plight of the poor. This issue needs serious consideration. South Africa is a lower-middle income country in desperate need of economic development and foreign investment and it is easy to see why the immediate need for jobs may be regarded as a distinct priority over seemingly distant matters such as environmental degradation. Economic development, so the argument goes, is a priority; any resulting problems will be able to be dealt with at a later stage when there is improved technology, expertise and education at hand.

NEO-MODERNISM

Is there an environmental crisis? The fact that paradigms such as Sustainable Development are

rapidly gaining currency as the acceptable face of economic growth suggests that there is a crisis. The vast numbers of signatories to treaties such as *Agenda 21* are an indication that governments are becoming aware of environmental problems. However, there is a growing body of literature by both scientists as well as economists that suggests that environmentally based paradigms are largely unnecessary and are in fact an obstacle to economic growth. Many of the pillars of the "global environment crisis" are now being questioned.

In 1985 it was reported that there was a "hole" in the ozone layer above Antarctica. It is not literally a hole but in this area ozone levels are reduced to approximately a third of their normal value (Mims 111, 1995:1). This "hole" presents a significant problem as declining ozone levels are reported to lead to increased rates of skin cancer as well as crop failure (Reuter Information Service, 1995:1). The "hole" is said to have been caused by the introduction of chloroflourocarbons (CFCs) into the atmosphere which act in such a way as to destroy ozone particles (Dunbar, 1994:1). CFCs are found in refrigerators, aerosol cans and are used in the production of foam packaging. Reports by scientists from the North American Space Agency (NASA) and the United Nations have agreed that the ozone hole is a result of human induced factors (Dunbar, 1994:1) (Reuter Information Service, 1995:1). The hole is said to be increasing in size.

The "hole" in the ozone layer resulted in the Montreal Protocol in which signatories agreed to phase out all CFCs by the year 2000. This has meant that new alternatives have had to be found to replace CFCs and in some instances has led to loss of jobs. New evidence however suggests

that the "hole" in the ozone layer could well be caused by other factors. Studies on ozone levels in the Antarctic during the 1950s by French and British scientists recorded extremely low ozone levels, consistent with those discovered in 1985. These scientists concluded the low levels were as a result of volcanic aerosols in the atmosphere and thus a natural phenomenon. These results however have been challenged by NASA scientists (Mims 111, 1995:1-2). If it can be shown that the "hole" in the ozone layer is a natural phenomenon and any further depletion will have little effect, then the campaign against CFCs has been a needless and costly one.

Another global environmental "crisis" now under attack is that of global warming. Global warming was a central issue at the 1992 Rio Earth Summit. Certain scientists have claimed that gases such as carbon dioxide, methane and CFCs are causing what is described as a "greenhouse effect" whereby they trap heat in the earth's atmosphere and prevent it from escaping. This, it is claimed, has resulted in a net global temperature increase, the effects of which could lead to the gradual melting of polar ice caps as well as the increased spread of disease due to the fact that many viruses will have a longer range due to the higher temperatures (Jackson, 1995:570-574). But it is claimed by scientists such as Professor Richard Lindzen that global warming has been greatly exaggerated and that greenhouse gases only contribute to two percent of the greenhouse effect, the remaining ninety-eight percent is what makes life on earth possible (Lindzen, undated:2). Lindzen maintains that the models used to predict future rises in temperature are hopelessly flawed and present greatly exaggerated readings (undated:4). He claims that the whole concept of global warming has been blown out of proportion, that in reality there is no scientific consensus on the issue, and that in fact all carefully studied evidence pointed

against it. Lindzen asserts that a "crisis", created by the environmental movement in conjunction with the media, has now become entrenched in the popular imagination. A Gallop poll of scientists involved in studying climate change in the USA revealed that the majority had serious doubts as to whether there has been any human-induced global warming (Lindzen, undated:5-6). Attempts to cut back on the production of greenhouse gases have been extremely costly to the point that in America there are increased tax levels for industries that do not keep the production of these gases under control.

Other economists such as Grossman and Krueger maintain that large scale economic development is not a threat to the environment. It is stated that while environmental degradation is an initial consequence of development, the levels of degradation diminish rapidly once development has taken place, provided development is in the form of "the best available technology" (Stern, Common & Barbier, 1996:1151). These economists claim that once development has occurred people start to graduate to information technology, resulting in higher levels of education and awareness of the environment. This, they argue, decreases levels of environmental degradation (Stern, Common & Barbier, 1996:1152).

This demonstrates a growing backlash against environmentalism. The movement is criticised as being anti-people. The environmental stance against indiscriminate consumerism has also been criticised as being naive. Consumerism is said to create wealth and only once wealth is created can there be any talk about redistributing resources. It is argued that only once developing countries become fully consumerist will they develop (Sanera & Shaw, undated:4). Such sectors,

represented in part by the Wise Use Movement, claim that pollution and the threat to wildlife have been greatly embellished by the environmental movement. The Defense of Free Enterprise, a group within the Wise Use Movement, maintains that efforts to protect endangered wildlife result in huge expenditure, funded largely by the tax payer, as well as unemployment and a lack of job creation. They cite the case of the spotted owl as an example of needless environmental legislation in the USA. During the 1980s, it was believed that the spotted owl was on the brink of extinction, with an estimated one-thousand-five-hundred breeding pairs in existence. The USA federal government suspended logging across vast areas in an attempt to save the bird. Recent surveys, however, show that there are some ten thousand breeding pairs of spotted owl, which indicates that the logging industry has not been a threat to their survival. The result of this suspension of logging has been the loss of up to eighty-five thousand jobs and an increase in the price of timber, thus augmenting building expenses (Easterbrook, undated:1-5).

Economists like Professor Julian Simon maintain that there is no reason why economic growth should not continue at present levels throughout the twenty-first century. He points out that life expectancy is higher than ever and, regarding the environment, states that raw materials are actually becoming more abundant; not decreasing (Simon, undated:3). He also asserts that scares over issues such as air and water pollution are greatly overstated. Simon claims that rapid economic growth, such as that witnessed after the Second World War, creates short term pollution and scarcity of resources. Society, he maintains, must be left to find solutions to any problems that arise and for this to occur there needs to be political, social and economic freedom (Simon, undated:5). Government legislation on issues such as environmental degradation are, for

Simon, a hinderance to the development of society.

THE PRECAUTIONARY PRINCIPLE

While there may be no scientific consensus on environmental degradation, however, there is sufficient evidence to stress caution. The statement, *Global Warning to Humanity*, lists over one-thousand-seven-hundred prominent scientists, including many Nobel laureates, who have warned that the earth is under serious threat, highlighting issues such as pollution, overpopulation and the destruction of animal and plant life as serious threats to our species (Kendall, 1992:1-6). Future developments may render these problems insignificant, but there is no a guarantee that this will happen.

> Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about...Uncertainty over the extent of these effects cannot excuse complacency or delay in facing the threats (Kendall, 1992:1-3).

Brazil loses an acre of rainforest every nine seconds while Canada loses an acre of ancient forest every twelve seconds. Such large-scale assaults on forests has resulted in a situation where seventy-six percent of the planet's primary forests have been dramatically degraded with the

resultant repercussion being the loss of approximately fifty-thousand plant species a year (Greenpeace, 1997:2). It is further estimated that at current rates of decline, nearly half of the animal species on this planet will have become extinct before the end of the next century (Greenpeace, 1997:1). Thus even if one were to discount theories such as global warming or the "hole" in the ozone layer as unproven, there is irrefutable evidence that the planet's bio-diversity is rapidly declining. This is important as it is difficult to predict what impact this loss of bio-diversity will have on the earth's ability to support life. Accordingly, caution, would seem to be the more reasonable option.

The need for South Africa to adopt a precautionary attitude toward the environment is of vital importance. People died as a result of the events at the Thor Chemicals plant in Cato Ridge. Moreover, a significant number have had their health irreparably damaged due to the high levels of mercury that they were exposed to. The deaths occurred because many people, especially in government, refuse to recognise the impact of environmental degradation can have on human lives. Until such time as the prevention of environmental degradation as a result of development is prioritised, environmental disasters such as that which occurred at Thor will continue to reoccur.

A GREEN SOUTH AFRICA?

The political and economic situation in South Africa is complex. Apartheid, through a long process of struggle by the liberation movements as well as political and economic pressure from abroad, was eventually dislodged when the African National Congress (ANC) came to power in 1994 after South Africa's first democratic election. Political power was wrested away from the white minority. However, due to the nature of the political transformation, the white minority has succeeded in maintaining its economic dominance. This has placed the ANC in a precarious position; as a democratically elected government it has a duty to fulfil its promises to its electorate. Amongst these was economic growth and the accompanying increased levels of employment and social rights such as housing, health care and education.

The ANC is thus concerned with a short term future in which the party has to prove itself worthy of government and has promised to attempt to boost South Africa's economic growth rate to six percent per year. Environmentalists maintain that such short term economic planning can have disastrous long term results and that short term economic gains can create problems in the long term. The government's role in environmental issues is very important because government priorities are a primary consideration in determining the effectiveness of environmental legislation.

To complicate matters even further, South African economic and environmental policy cannot be treated in isolation. One has to consider the nature of South Africa's economic ties both with

the North and the South. Does South Africa trade as an equal partner with other countries in the global market or does its relative poverty mean that South Africa's economic policies are dictated by factors other than just the desire for economic growth? Inequalities in economic wealth mean that countries in the North often take advantage of the poor economic position of countries in the South with the result that the South is often regarded as a dumping ground for the wastes produced by the north or by its "dirty" industries.

The case study to be presented in this research - that of Thor Chemicals Pty Ltd - encapsulates many of these issues. It involves issues such as the Apartheid legacy, black impoverishment, the nature of the global economy, environmental degradation and the role of government in environmental affairs. It also draws attention to certain theoretical issues. Assuming that there is an environmental crisis, and this study will attempt to prove that such a crisis does exist, how best is this crisis to be addressed, and in what manner should change occur?

The thesis will endeavour to discuss the extent of South African environmental degradation and will highlight problems with South African legislation regarding the environment as well as people's perceptions of the environment. This will be achieved by focusing on various instances of environmental degradation in South Africa but specifically the Thor Chemicals case study. The case study will also serve to emphasize the role of government and the non-governmental sector in fostering positive environmental attitudes and meaningful environmental legislation.

It will be contended that it is necessary for society to develop a new system of values if

environmental degradation is to be brought under control, as the current mindset is not convinced about the severity of the problem. Until a better approach can be found a strong environmental movement already in possession of such values, is needed in order to attempt to bring about wide scale acceptance of these new values. Until then any environmental legislation prescribed will be inadequate as it will be maintained that such legislation is contrary to perceived government goals, thus making real implementation unlikely.

THE ARGUMENT

Since values are a central theme in this thesis, special attention will be paid to the value systems that dominate the way in which people perceive the environment and the degree of importance they attach to its preservation. In this way Chapter Two will begin with a discussion of how these values were formed and how they impact on the environment. This chapter will include a discussion on how Modernism has shaped perceptions and the challenges being mounted against Modernism in an effort to protect the environment, namely the Sustainable Development paradigm and Deep Ecology philosophy. The need for a shift away from the Modernist paradigm will be demonstrated in order to stress the consequences of the continuation of this paradigm on the natural environment. It will be argued that Sustainable Development alone is merely a reformist paradigm that is incapable of putting a halt to environmental degradation. Likewise Deep Ecology is an ineffective challenge to Modernism as it is often an inconsistent philosophy. Sustainable Development, if it is to be effective, desperately needs to adopt the astute environmental consciousness advocated by Deep Ecology. It is only once society embraces a

new environmental ethic that there is any possibility of degradation being brought under control.

Chapter Three will provide an introduction to Thor Chemicals and the events that took place at its Cato Ridge plant in KwaZulu-Natal. This will be done in order familiarise the reader with the case study, which was built upon archival research at the headquarters of the Environmental Justice Networking Forum (EJNF)[2] in Pietermaritzburg, KwaZulu-Natal. The archives contain a number of important documents which serve to give greater insight into what occurred at Thor. The archival material includes letters from Thor officials, government employees, government ministers as well as testimony and submissions to various commissions of inquiry.

The Apartheid government's policies and attitudes regarding the environment will be the focus of Chapter Four. The general aspects of Apartheid environmental policy will be examined; in particular the National Party government's attitudes towards conservation, pollution and environmental degradation in the former homelands. The discussion will then shift to the former government's involvement in the Thor Chemicals case study. The former government's relationship with Thor typifies South African environmental policy before 1994 and the examples of government incompetence and collusion in the case resulted in the deaths of two workers and severely impacted on many others. Thor's operations were also responsible for the degradation

---

[2] Environmental Justice Networking Forum is an umbrella group representing approximately three-hundred-and-fifty groups throughout South Africa including Earthlife Africa, workers unions, student groups, civic organisations and churches. These groups are united in their quest for social justice - part of which is the assertion of the individual's right to a healthy and clean environment.

of much of the surrounding area representing a severe health risk to nearby communities.

It was hoped that the post-1994 ANC led government would usher in a new era putting an end to the National Party government's Apartheid environmental policies. This has not happened. Chapter Five will argue that despite the appearance of new environmental policy documents, there has been little effective change in the government's attitude toward the environment. There are a number of reasons for this. The government has adopted a strict neo-liberal economic policy which has resulted in a prioritising of government policies focusing on short term economic benefits. Unfortunately, environmentalism does not feature highly amongst these priorities. It will be asserted that there is a great deal of continuity in attitudes toward the environment between the former and present governments albeit for different reasons. In sacrificing environmentalism as a priority the ANC led government is serving to perpetuate the inequalities of Apartheid while simultaneously allowing for future cases such as Thor.

There is also an international aspect to the Thor case study and these will be discussed in Chapter Six. There are various international treaties that concern the transnational trade in hazardous waste and South Africa's reluctance to become a signatory to these treaties is indicative of the government's attitude toward the environment. By the early 1990s Thor was supposed to be governed by the prescriptions of the Basel Convention. These prescriptions were not enforced by the former government. The ANC led government has also shown antipathy towards such treaties and is yet to ratify the Organisation of African Unity's Bamako Convention which would prohibit the importation of any hazardous waste into Africa. Likewise, the government only

grudgingly signed the LoméIV convention, which would severely restrict the waste trade, in order to gain access to the European Union's markets. The government's attitude to such treaties demonstrates that it is not fully committed to upholding every South African's right to a healthy environment.

Chapter Seven will focus on the importance of the environmental movement and the non-governmental sector in creating awareness of new environmental attitudes as well as serving to emphasize instances of deliberate environmental degradation. The dynamics of these groups, in relation to government, will be addressed in order to highlight why these groups, despite their size and relative lack of funding, are more effective in bringing about a change in people's attitudes towards the environment than is government. The role of the Environmental Justice Networking Forum will be singled out for its part in the events that took place at the Thor Chemicals plant. However, it will be noted that the environmental movement alone cannot effectively police the environment and until such time as people become aware of their impact on nature, any legislation governing the environment is unlikely to be effective.

As Chapter Eight will demonstrate, the conclusion to the Thor saga has been unsatisfactory. The Davis Commission, set up to investigate possible solutions for safely disposing of Thor's waste, has come out in favour of a wholly inappropriate manner of disposing of this waste. Despite a great deal of evidence highlighting the dangers the commission has decided to incinerate the waste at the Thor plant with safety levels far below those that would be acceptable in Northern countries. This is yet another example of the desperate need for South Africans to prioritise the

environment as the current perceptions will have long term future consequences.

Without sufficient belief that the environment is a priority government environmental legislation is likely to have little real impact. Working within a Sustainable Development paradigm that suggests that reform is possible means that from the outset there is a weakening of resolve when it comes to dealing with environmental concerns. New values are needed if environmental degradation is to be stopped and it is only once these new values have been accepted by society at large that government legislation can have any meaningful impact.

CHAPTER TWO: VALUES AND ENVIRONMENT

Much of this thesis hinges on peoples' attitudes towards the economy and their natural environment. There are two broad schools of thought regarding economic development and environmental degradation. The first is commonly referred to as Sustainable Development whilst the second can be described as the 'limits to growth' theory. With regards to the natural world the current worldview which dominates how people perceive their environment has become deeply engrained. This dominant world view has come about as a result of a number of factors which will be discussed at the outset of this chapter. If any challenge is to be mounted against the dominant prevailing attitudes then it is of fundamental importance that the origins of these attitudes be understood.

The dominant worldview espoused by the developed nations is the cumulation of approximately three hundred years of philosophy, science and economics. These values developed largely as a result of the evolution of capitalism in the Italian Renaissance city states, and it is only recently that a significant challenge to them has been raised. The worldview that preceded the growth of capitalism was very different to the one that replaced it. The birth of what historians refer to as 'Modernism' was a combination of a number of revolutionary changes in the way in which people perceived the world. These ranged from the heliocentric views of Copernicus and Galileo to the 'invisible hand' of Adam Smith and the mechanistic universe of Newton. These new ideas were to signal the end of the medieval period and usher in an era that served as the foundation for much of the current paradigm. Present-day values regarding private property, democracy, the

primacy of the individual and the environment can all be seen as an outgrowth of Modernism. Modernism was so completely unprecedented in that it was a combination of so many different elements. It included movements such as the Reformation, the Renaissance, the birth of modern physics, the Industrial Revolution and the development of capitalism. The combination of these new developments brought about changes in the way people viewed everything from religion to art. This period was extremely influential in determining present day attitudes towards the environment.

THE CHURCH AND MEDIEVAL THOUGHT

Medieval thought was, to a large extent, dominated by the Christian Church. The Church was the key figure in art, economics, science, philosophy and in morality. Economically, medieval society was based on land ownership. There was no concept of a market economy. Instead, much of the economy revolved around the prescriptions of the church (Oelschlaeger, 1991:71). The serf was expected to dutifully work for the land owner as his poverty and hard work would be rewarded in heaven, while the nobleman was expected to provide for those who laboured under him. Art was used for the glorification of God and almost always had a religious motif. Philosophy dealt with religious aspects such as faith and reason while science was restricted to anything that did not threaten the teachings of the Church and generally confined itself to alchemy (Oelschlaeger, 1991:71).

The church maintained that nature was proof of God's existence, but that God was not part of

nature. God was believed to be above all things and thus nature was not perceived as being sacred in the way that many Pagan religions believed that it was. It was seen to be the duty of all Christians to exert their God-given dominion of the earth and to civilise nature, thereby fulfilling God's Divine Plan (Oelschlaeger, 1991:70). It was believed that the earth was created for the sake of humankind, and that humankind was to exert its control over the earth. Thus in the Garden of Eden, Adam and Eve had complete authority over all animals, which were all believed to have been tame, and plants only produced flowers and fruit, no thorns or poisonous substances. Only after the "fall", when humans were expelled from Eden, was this perfect dominion over nature ended. Thereafter, the human relationship with nature was to be more of a struggle (Thomas, 1983:17).

Despite this, the concept of humankind's dominion over nature remained. Christianity in medieval times was thus extremely homocentric in its outlook. The natural world was believed to be evidence of God's greatness, or his Divine Order: creation was deemed perfect, all facets of the natural world operated in accordance with God's will, any negative aspects being explained away as challenges put to humankind by God. Lice, for example, were claimed to be God's way of ensuring personal hygiene. It was further asserted that predators were created as nocturnal beings because in this way they did not impact on humans who retired to the safety of their houses at night (Thomas, 1983:18).

RENAISSANCE, ECONOMICS AND RELIGION

The Renaissance was to pose a serious challenge to the dominance of the medieval church. The Renaissance developed in Italy during the fifteenth and sixteenth centuries. This period saw a renewal of interest in art, science and philosophy, and effectively spelled the death of medieval thought. The result was that God was shifted from being the focus of all aspects of people's lives. This was to have tremendous consequences as it destroyed the justification for feudal government and replaced it with one in which people rather than God became the focus. By removing God as the focus, it allowed people to contemplate the "good life" here on earth without having to wait for it in the afterlife (Oelschlaeger, 1991:74).

The church had resisted the economic growth embodied in capitalism as it was seen as being in contradiction to Christian theology that viewed profit-making as a vice. However, the Church was unable to prevent the burgeoning merchant class from coming to dominate the economic world. The feudal economy, based on agriculture and land ownership began to give way to a market-orientated economy which tended to be based in urban areas thereby depriving land owners of their influence and power.

The Reformation brought about a more secularised society, in which the teachings of the church did not control all facets of life. The new teachings stressed that the individual was responsible for his or her own salvation. This was to have a dramatic effect on the way in which people perceived themselves in the world in terms of philosophy, physics and economics as well as their

relationship to the environment. The new shift in thinking resulted in people increasingly coming to view nature as an exploitable economic resource (Oelschlaeger, 1991:75).

THE NEW SCIENCE

The era generally referred to as the Modernist era by historians, saw great advances in science, starting with the heliocentric beliefs of Nicholas Copernicus and cumulating in Newtonian physics. This development in science was to have a profound effect on the way that people came to view their environment. Nature came be regarded as an object for study with the implicit belief that by understanding nature one could control it (Thomas, 1983:27). Men such as Francis Bacon envisaged a "new" world in which humankind could control nature through science. In this way he believed that humankind had the potential to be the master of all things. Wild nature was something to be feared because humankind had no control over it. In this respect Bacon and Hobbes had very similar concepts regarding what Hobbes termed "a state of nature". For Bacon, science was the means through which humankind could regain Eden: the period when humans had complete dominion over the earth. This "new" world would have all the characteristics of Eden, with no poverty, no hunger and no war. Bacon's views were undeniably homocentric:

> Man, if we look to the final causes, may be regarded as the centre of the world (Bacon in Thomas, 1983:18).

It was this strong sense of homocentresism that came to dominate the thinking of this period and

was successfully passed on to future generations forming the basis for many people's attitudes towards nature today.

Descartes took such homocentric views to extremes. He asserted that animals were no more than machines and like machines incapable of feelings (Oelschlaeger, 1991:88). Animals could thus be seen purely in terms of economic or use value, thereby distancing humans from the natural world to an even greater degree. Animals were deemed so far below humans that in England, between 1534 and 1861, bestiality was considered a capital crime whereas incest only became a secular offence during the twentieth century (Thomas, 1983:39). Humankind was seen as being superior to all other life forms and it was considered an important undertaking to try and conquer any "animal" aspects of one's nature.

Newton's work with physics was an outstanding product of this new age and brought about what can be described as a scientific revolution. Newton had a very mechanistic view of the world. Nature was matter in motion. This motion occurred in a predictable fashion, allowing one to determine a sequence of events (Oelschlaeger, 1991:88). The earth as well as the universe was perceived as being largely predictable and thus controllable - it was merely up to the scientist to discover the "rules" that governed it.

THE NEW IDEAS AND THE NEW ECONOMY

The Age of Enlightenment can be seen as the philosophical wing of the Modernist movement.

It was essentially a product of the eighteenth century and centred itself on the industrial revolution (Bridges, 1997:2). The Enlightenment was basically an attempt to create a sense of neutrality between people of different religious persuasions in order that they might be able to discuss issues rationally (Bridges, 1997:2). The basis for this neutrality was to be reason and knowledge while the essence of the movement could be said to have been objectivity. In this way ideas generated could be claimed to be universal as they were free from cultural bias. The proponents of Enlightenment argued that society could attain fulfilment once individuals managed to overcome their emotions (Verheggen, 1996:1). There was a great sense of conviction that the human mind would be able to overcome the animal part of its nature and would be able to distance itself from issues such as cultural bias, experience and religion (Verheggen, 1996:1). Anything that would stand in the way of pure rationality had to be overcome. This went a long way in negating the influence of religion in academic circles as knowledge had to be acquired through rationalism. It was maintained that there could be no truth in faith or revelation because such knowledge had not come about through reasoning (Tyler, 1995:2). Rationality and reason were seen as a way of creating a sense of order out of the chaotic and unexplainable world in which people lived. It was maintained that these two pillars of Enlightenment would be capable of transforming peoples lives. Enlightenment was also to develop into a philosophy of the individual, maintaining that every individual had the power to take control of his or her life through the use of reason and rationality, thereby overcoming irrational "animal" passions (Tyler, 1995:2). It was out of this tradition that liberalism emerged.

The new economic system based on capitalism was given its first insightful analysis by the

British philosopher and economist, Adam Smith. Smith approached economics in an extremely Newtonian manner, believing that people operated according to certain natural laws, thereby making their behaviour predictable. Smith maintained that consumption was a natural human desire and therefore out of necessity if an individual is to be happy then, he or she needs to have sufficient resources to pursue this urge to be a consumer (Oelschlaeger, 1991:93). Like Hobbes and Bacon, Smith maintained that a state of nature represented poverty and misery. For Smith only wealth and economic development could ensure happiness.

The Industrial Revolution became the "engine" for this economic growth and capitalism rapidly came be a dominant economic force and, with its accompanying values and norms, was responsible for much of humankind's attitude towards the environment today. The earth is viewed as a natural resource. There is little question as to whether humans are entitled to exploit the earth for financial gain; it has been engrained in the collective mindset over the past three centuries.

THE BIRTH OF EGO

The development of capitalism had a penetrating impact on the value systems of European countries. The communal ethic was replaced by an extremely egocentric cosmology. The concept that what was good for the individual was in turn good for society became a pillar of the emerging world view. This change in ethics was to form the foundation for both liberalism and laissez-faire capitalism (Merchant, 1992:63). This in turn combined very well with the

Protestant ethic that the individual is responsible for his or her own salvation through their good deeds, one of which was considered to be hard work. The environmental impact of this was that it was considered appropriate that individuals exploit the resources around them as long as their actions caused no harm to others. Hobbes was a key figure in this change in attitude. He instilled the idea that living in what he termed a "state of nature" was impossible as human are by their nature competitive to the point of destructiveness. It was claimed that the best system to deal with such competitiveness was capitalism. This type of egocentricism can be directly attributed to the development of mechanistic science, wherein matter is made up of individual building blocks and where the whole is equal to the sum of its parts (Merchant, 1992:55). Thus in liberalism the individual good is the highest good.

Capitalism was seen to be the natural economic structure in a world governed by liberal principles, as it too focuses on the individual, promoting the individual's accumulation of wealth and necessitating that the individual be allowed to act as freely as possible. The mindset that arose out of this system was one that viewed success and happiness in terms of the individual's ability to accumulate wealth (Naess, 1992:25). The boundary between standard of living and quality of life has become increasingly blurred. The standard of living in the developed countries is the highest in the world, and with the failure of socialism and "third ways," such as self reliance in Tanzania, has resulted in capitalism being seen as the only alternative to poverty (Duchin, 1996:321). Along with technology transfers come lifestyle and value transfers from North to South, resulting in increasing global conformity as people in the South adopt the values of the North (Duchin, 1996:321).

A NEW NEW AGE

The Modernist paradigm remained largely unchallenged for a considerable period. There were challenges from areas such as the arts, notably that by the English Romantic poets during the nineteenth century who maintained that nature was a living entity and not merely a mechanistic object. There were also challenges from certain religious sectors which wished to see humankind living in harmony with God's creation. However this opposition was scattered and not united in its challenge of these precepts of Modernisation.

It was only during the 1960s that it became clear to an increasing number of people that the Modernist paradigm was beginning to pose a threat to human existence. Ecological problems were brought to the attention of the world by Rachel Carson's *Silent Spring* which highlighted the dangers of pesticides such as DDT. It was effectively the first challenge to the "miracle" of modern science (Taylor, 1994:2). It was later proved that DDT was having a negative impact on the environment as well as appearing in the human bloodstream. Ecological groups such as the Environmental Defence Fund took the matter to court in the USA and succeeded in having DDT banned (Taylor, 1994:3). A number of court cases followed, funded not only by the Environmental Defence Fund but also groups such as the Sierra Club, the National Wildlife Federation and the National Audubon Society. As a result, new legislation regarding pollution controls was implemented in the USA and demands for cleaner air and water began to be articulated (Taylor, 1994:4). This movement in the late 1960s and early 1970s can seen as the

birth of the Sustainable Development paradigm which includes environmental considerations as a development issue. However, many believed that Sustainable Development was an inadequate critique of Modernism and that a far more radical agenda was necessary if there was to be any effective challenge mounted against environmental legislation. Deep Ecology, a philosophy developed by the Norwegian, Arne Naess, maintains that a reformist approach to the current economic paradigm will have little lasting impact in securing truly sustainable development. Instead the core values giving rise to people's attitudes toward their natural environment need to be profoundly altered.

SUSTAINABLE DEVELOPMENT

Sustainable Development requires that present needs be catered for without negatively affecting the ability to meet future needs. The promoters of Sustainable Development maintain that unless certain reforms are instituted by industry and the world economic order as a whole, future generations will be adversely affected. What is implicit is that while there are environmental problems that need to be addressed these can be dealt with within the current system, making use of technological advancement and reforms within the system.

The Sustainable Development paradigm is essentially a homocentric philosophy in which only humans have intrinsic value and everything else is given a value in terms of its usefulness to humankind. In this way it differs little from the basic concepts of the Modernists. From an environmental standpoint humans are seen to be the stewards of the earth and the earth is viewed

as being there to provide for, and be exploited by, humankind (Merchant, 1992:67). In this way it differs little from the Protestant ethic of humankind subduing the earth and as such is only a variation on already existing ideas. Like the Modernist, those advocating Sustainable Development still maintain that humankind is aloof from the environment as well as being entitled to exploit it.

The first major policy document for the proponents of Sustainable Development, the *Brundtland Report*, was published in 1987. The report strongly urges a better attitude to, and management of, resources (Hinrichsen, 1987:7). It also demands that the costs of economic growth be included in equations such as Gross Domestic Product (GDP). Factors such as wastage and the destruction of non-renewable resources need to be calculated as part of the economic growth and development equation (Hinrichsen, 1987:7). For example countries such as Zaire and Brazil are making money from logging but when the last of the hardwood trees have been felled that source of income will disappear for ever.

The origins of Sustainable Development can be traced back to the nineteenth century. Hunters in Europe, America and the various colonies became concerned about falling game levels and campaigned for the formation of game reserves in order to ensure that game levels could be managed. Areas of natural beauty were also to be preserved in order to prevent their exploitation by miners, farmers or settlers. In 1864 the Yosemite Valley in the USA was declared a national park followed in 1872 by the Yellowstone National Park (Taylor, 1994:1). In 1891 it was decided to reserve certain forested land against private ownership in order to ensure that these

forests were properly managed (Taylor, 1994:2). This move towards conservationism combined with the growth of the science of ecology to form a paradigm within which nature could be effectively managed (Adams, 1990:23). The American president Theodore Rosevelt stated that:

> Forest protection is not an end in itself, it is a means to increase and sustain the resources of our country and the industries which depend upon them. The preservation of our forests is an imperative business necessity (Rosevelt in Taylor, 1994:2).

The ideals stated above dwindled during the Depression and the Second World War. It was only during John F Kennedy's period in office that conservationism became prominent once again. It was this period that witnessed the birth of the "new" environmental movement.

The United Nations Conference on the Human Environment in 1972 was attended by representatives of one-hundred-and-thirteen countries. It put forward the idea that development need not have an adverse effect on the environment (Adams, 1990:38). An attempt was also made to address the problems of environmental degradation and development in the Third World. The representatives eventually agreed on twenty-six principles and one-hundred-and-nine recommendations, but little was said about how these principles and recommendations could be implemented (Adams, 1990:39).

It was only in 1980 with the publication of the *World Conservation Strategy* (WCS), prepared by the World Wildlife Fund, that a definite attempt was made to provide ways of addressing the

question of Sustainable Development (Adams, 1990:45). One of the central problems addressed was the fact that environmental planning varied from country to country. It was thus necessary to make such planning more global. The document also suggested Environmental Impact Assessments (EIA) for all new projects in order to enhance planning and awareness of the environmental impact of such projects. In essence the strategy attempted to create a global framework for the conservation movement. However the WCS never really defined what it meant by terms such as "Sustainable Development"

Neither the WCS nor the Human Environment Conference dealt with issues such as national economic policies or international political economy. In an attempt to gain more insight into the problem the World Commission on Environment, working under the auspices of the United Nations Organisation, was established in 1983. It released its findings and recommendations in 1987 in a report called *Our Common Future,* otherwise known as the *Brundtland Report* after the Commission's chairman, former West German Chancellor, Willie Brandt (Commission on Global Governance, undated:1).

The report encouraged multilateralism and interdependence as a way of making sustainable growth possible. It tried to encourage people to view the environment and development as one issue and not two single issues that needed to be dealt with separately (Hinrichsen, 1987:8). The *Brundtland Report* highlighted the fact that problems have arisen due to high rates of extraction and from the exorbitant levels of waste that are generated within the current economic paradigm which does not consider the impact of such processes. This, combined with the introduction into

the environment of unnatural substances such as plastic, has aggravated the situation. It is also estimated that three-hundred-and-seventy-five million tons of hazardous waste are produced every year (Hinrichsen, 1987:28). A great deal can be done to put a halt to this degradation. Until recently, technology has not had to make an effort to become more "environmentally friendly". By applying pressure to the industries, means can be found to ensure that technology is developed in such a way as to make sustainable development possible (Duchin & Lange, 1994:4). Issues such as pollution control, the use of renewable energy sources and the reduction of wastes must become high priorities. Poverty in the South also needs to be addressed: falling prices for exports from Southern countries on the world market has resulted in many of these countries being forced to adopt policies that, while generating valuable foreign currency, all but destroy the country's ability to achieve sustainable development. With these issues in mind seven key principles emerged from the Commission's report:

(1) Economic growth needs to be revived around the world.

(2) The quality of economic growth needs to be addressed.

(3) There must be a system capable of supplying basic needs.

(4) It is crucial that population growth be brought under control.

(5) There is a need to both conserve and enhance natural resources.

(6) Technologies need to be developed in such a way as to assist the above principles.

(7) The environment and economic development need to be addressed simultaneously.

(Adams, 1990:60)

It is clear that there is a need for increased global co-operation as economic pressure, especially in the South, is having a detrimental effect on the environment, leading to soil degradation, the extinction of species and the pollution of the oceans (Kendall, 1992:1-3). This in turn demands fairness in trade between the countries in the North and the countries in the South. For the authors of the *Brundtland Report,* the environmental crisis that has developed is a clear indication that some form of multilateral co-operation is not only necessary but vital (Henrichsen, 1987:7).

The report asserts that ecology and economics can no longer be discussed as separate entities, but need to be viewed as being closely intertwined (Hinrichsen, 1987:8). A system needs to be developed that is capable of producing surpluses without depleting resources. This, however, poses certain problems for many developing countries which, saddled with large debts and desperate for quick access to foreign currency, are prepared to take only a short term approach to their natural environment. This means, for example, that many such countries are prepared to accept hazardous waste from developed countries in exchange for much needed foreign currency (Hinrichsen, 1987:28). The essential thrust of the *Brundtland Report* is that it is the quality of growth and not merely degree of growth that needs to be considered.

Agenda 21, an outgrowth of the 1992 Earth Summit held in 1992 in Rio de Janeiro, Brazil, was produced as a successor to the *Brundtland Report.* It is an international treaty that sets out Sustainable Development guidelines that signatories, of which South Africa is one, have promised to follow. Both *Agenda 21* and the *Brundtland Report* are in favour of continuing the present economic system only with certain stipulations. Thus humankind must become more responsible

as the stewards of nature. Consequently, Sustainable Development is concerned with reforming the present economic paradigm, attempting to make it more responsible for its actions in order to enable future generations to make use of the same resources. The current economic system itself is not faulty. It is the people who are being short sighted and acting in a manner that will not allow for long term growth that need to be brought in line with the concept of Sustainable Development.

The attitude espoused by the champions of this view is termed "shallow ecology" by groups in favour of more radical environmentalism as it deals with environmental degradation purely in terms of economic reforms. The thrust of the *Brundtland Report* and other documents such as *Agenda 21* proposing Sustainable Development are largely concerned with economic

> ...development that meets the needs of the present without compromising the ability of future generations to meet their own needs *(Brundtland Report* in Adams, 1990:59).

THE SHALLOW AND THE DEEP[3]

The Sustainable Development paradigm is clearly gaining acceptance in the international arena, but this is largely because it does not challenge the society's perceived relationship with the environment. Natural systems are still perceived of as being no greater than the sum of their

---

[3] Heading derived from an article by Arne Naess in *Inquiry*, entitled, "The Shallow and the Deep, Long Range Ecology Movements: A Summary."

parts. Nature is still understood as being a "natural resource" and therefore open to exploitation. People's happiness is measured in terms of Gross Domestic Product (GDP) and humankind perceives itself as being separate from and superior to, nature.

Deep Ecology challenges the reformist agenda of the Sustainable Development paradigm, demanding instead an entirely new set of norms. The Deep Ecology platform argues that attempting to reform the present system is futile: the Sustainable Development paradigm is incapable of dealing with one of the major factors driving capitalist production - gross consumerism. Those intent on reform have not considered the underlying system that governs the world economy (Deval & Sessions, 1985:52). Deep Ecology argues for a complete change in people's attitude towards the environment, which in turn will usher in a new paradigm and a new system of ethics that will allow people to live as part of the natural order.

The term Deep Ecology was first coined by the Norwegian philosopher, Arne Naess, in 1973 (Deval & Sessions, 1985:65). In his approach to nature, Naess stresses a more spiritual strategy involving a sense of ecological consciousness. He maintains that humankind is part of nature and not above nature. The idea of humans as part of nature is not a new one. This is an important understanding for Naess as it is only when humankind takes cognisance of the fact that it as a species is part of a larger framework, that there can be any hope for the environment. For Naess it is becoming increasingly clear that people have to make a choice. It is not just a matter of targeting one group of people and getting them to change their attitudes. No single group is solely responsible for the degradation that is evident in the world today. In this way we as a

species can either allow the situation to continue as it is, or else our society as a whole needs to undergo a profound change in attitude. All people have the intellectual capacity to grasp the need for this change and thus Naess maintains that it is the responsibility of those who have grasped the seriousness of environmental degradation to disseminate their understanding (Naess, 1992:23). The ecological self-consciousness advocated by Naess consists of two tiers: namely *self-realisation* and *biocentic-equality.*

Self-realisation involves the individual extending his/herself further than merely an ego that is defined by its relationship with other individuals (Deval & Sessions, 1985:7). Naess maintains that individuals only attain *self-realisation* when they become aware of their relationship to the world around them. This goes beyond one's relationships with those around one to includes one's relationship with nature (Deval & Sessions, 1985:67). Regarding *biocentric-equality,* Naess and his followers, maintain that everything has a right to live; that all things on earth have intrinsic worth because they all form part of a single system. In this way nature has value regardless of whether it has any use or value for humankind. If the above is true then diversity is crucial. Consumerist ideas that assign to everything in nature a cash value need to be replaced with the concept that nature has intrinsic value within itself (Deval & Sessions: 1985:73)

There is a tendency for progress to be measured in terms of material accumulation. The "good life" has come to be assessed purely in terms of one's standard of living, rather than one's quality of life. Material accumulation has its drawbacks: namely long working hours, stress and boredom (Naess, 1992:25). Naess would like to see the current environmental crisis bringing

about a change in people's attitudes towards material accumulation.

At present a country's progress is commonly measured in terms of Gross Domestic Product (GDP). GDP however, is a very poor indicator of the quality of that growth. GDP growth gives no indication of whether a population is actually attaining a better standard of life, but in spite of this, GDP is treated as the barometer of a population's quality of life (Naess, 1995:34). GDP says nothing about the distribution of wealth, the waste caused by production or the exhaustion of resources. None of these aspects are accounted for when GDP is determined. The GDP of a country would be boosted however, if everybody were to smoke cigarettes or take expensive anti-depressant drugs. This would be very good for GDP while having devastating effects on society. In this way GDP has had very little impact on treating basic needs. It has been shown that an increase in the GDP of a country does not necessarily indicate a correlating reduction of poverty levels. In England between 1971 and 1991, the GDP rose by forty-six percent, yet in 1991 unemployment and crime rates were higher, while income distribution was even more extreme than in 1971 (Naess, 1995:34). Furthermore, GDP assumes that there are no limits to growth, making issues such as resource management irrelevant. In this way GDP is hardly an indication of quality of life or the quality of a country's growth.

For Naess, Bacon's dream of a new Eden created by technology is a dangerous utopia. What is needed is for humankind to readdress its homocentric stance. For the deep ecologist an ecocentric view of the world is crucial. Humankind as a species needs to be aware that all life on this planet has intrinsic value regardless of its economic value or general usefulness to people.

Diversity on earth is a value in itself and we as a species have no right to reduce diversity. We need to be aware of the effects of uncontrolled population growth on non-human life forms. It is critical that emphasis be placed on quality of life rather than merely on standard of living. This entails changes in how we view economic, technological and ideological issues (Deval & Sessions, 1985:29).

Deep Ecology as a theory has been subject to a great deal of criticism for being idealistic, having little scientific basis and neglecting the plight of the poor. In many respects these are valid criticisms, and Deep Ecology is open to critical attack. Deep Ecology can be seen more as an intellectual movement than a well argued paradigm, because it attempts to draw together people with similar views regarding the environment. As a paradigm it is useful in that it provides one of the few radical critiques of Modernism by rejecting reformism and stressing values. In rejecting GDP as a measure of human fulfilment, Deep Ecology attempts to probe the whole concept of "quality of life".

The concept of values is central to this study and responses to the Thor tragedy will be addressed in part, in terms of people's values pertaining to the environment. The Thor tragedy can be seen to be a result of the values generated by the Modernist paradigm. It will be suggested that any attempt at a possible solution to prevent future environmental degradation or to prevent tragedies such as Thor, necessitate a re-evaluation of these values. In this respect the Deep Ecology critique of Modernism does present some valuable insights.

Deep Ecology suggests that people need to be aware of why it is necessary to embark on an environmental agenda. Without any true sense of an environmental ethic, any changes that are brought about will be superficial. A lack of confidence in environmental policies makes it likely that they will only be implemented half-heartedly (Glasser, 1996:169). Take the case of the 1969 National Environmental Policy Act (NEPA) in the USA. The NEPA's stated purpose was to encourage people to perceive their environment as more than just a natural resource. The government of the time however, was not particularly interested in the NEPA and thus it received little by way of funding or personnel to implement it (Glasser, 1996:167). Although legislation was implemented, it had very little impact due to the lack of an environmental ethic to drive it. Likewise with Thor - there was legislation in place to prevent further importations of toxic waste into South Africa and yet Thor was allowed to operate in spite of this ban. To be effective, legislation needs to be implemented by those who believe implicitly in its merit. Furthermore, in order for legislation to achieve it's purpose it is necessary that it be backed by a society in which people hold these values and who are prepared to ensure that government act on such legislation.

The change in attitude that is necessary is apparent in the environmental movement which, as part of what has been described as the New Social Movements, provides a multifaceted critique of Modernism. The growth of these movements and the environmental movement in particular, are tied to some of the values espoused by Naess and the Deep Ecologists. That these movements have become important actors in the political arena both globally and locally, is evident by the role played by Earthlife Africa (ELA), the EJNF and Greenpeace in bringing the events occurring

at Thor to the attention of the world. The importance of these movements in trying to disseminate these new values both to individuals and to government is apparent in the Thor case.

DEEP ECOLOGY VERSUS SUSTAINABLE DEVELOPMENT

The crucial difference between the two arguments is their vision of the future. Sustainable Development and Deep Ecology adherents maintain that if no action is taken to halt or slow down environmental degradation, the future for humankind is bleak. Those in favour of a 'no limits to economic growth' policy assert that environmental control is costly and needless. Shortages and any other problems can be overcome by freeing the market which will in turn act as a regulator (Porter, 1991:27).

In this respect Deep Ecology presents a very useful critique of Sustainable Development. Without the values inherent in environmental philosophies such as Deep Ecology, there will be little real change in people's attitude towards the environment. The Thor case study, as set out in Chapter Three, is just one example of where a lack of concern for the environment has seriously impinged on the lives of people in the area. The case study will show that despite the fact that the current South African government claims to favour the Sustainable Development paradigm there is little evidence to suggest that this will signal an end to large-scale environmental degradation in South Africa. There are many other such examples in South Africa today and until the core values that are perpetuating this on going tragedy are eradicated it is impossible to claim that any reforms are a guarantee that no such events will recur.

Thus whether or not one would argue that the environment is a value in itself or a value only in so far as it is useful to humans, there is a crisis. Deep Ecology stresses that this crisis cannot be overcome merely by instituting legal reforms focusing on stricter controls and taxation. What Deep Ecology does demonstrate, despite its weaknesses, is that along with changes in legislation there needs to an accompanying change in values. This is critical as it is only once there has been a change in values that there will be sufficient conviction to prevent environmental degradation.

CHAPTER THREE: EXPOSURE TO THOR

Since the Thor Chemicals case study forms the basis of this study, it is important to provide an overview of the events which occurred at Thor. This, beginning with a brief discussion of mercury waste, will contextualise the argument that is developed in the ensuing chapters. Thor makes a useful case study because much of what has occurred there is symptomatic of the previous government's attitude towards social justice. With the change of government in 1994, it was expected that problems such as those which occurred at Thor would not happen again. However, evidence makes it clear that many of the events that took place at the plant occurred at the time when South Africa was claiming to embrace Sustainable Development as a development strategy. The Thor case study demonstrates what transition there was between the National Party regime and the ANC led Government of National Unity that came to power. The present government's dealings with Thor give a good indication of the degree to which it is committed to environmental issues - particularly those that are unlikely to impact on tourism. What follows is an outline of events that occurred at Thor, culminating in the Davis Commission of Inquiry held in 1997 under the chairmanship of Professor Dennis Davis.

MERCURY WASTE

The impact of mercury waste on humans and the environment we are part of must be appreciated if there is to be an understanding of what occurred at the Thor Chemicals plant in Cato Ridge. Mercury is highly toxic to humans, capable of causing brain damage even at very low levels

(Thornton, 1993:15). It is a metal but at room temperature is usually found in the form of a liquid. When heated to high temperatures it becomes a gas, which can remain suspended in the atmosphere for months at a time (Collins, 1990:4). Suspended mercury particles often dissolve when they come into contact with water molecules and fall to the earth when it rains. If mercury is released into the air, usually during an incineration process, its fallout can be very widespread, contaminating areas a considerable distance away from the source of the pollution. Poor handling of mercurial substances can also cause contamination of the environment.

Humans and other animals can come into contact with mercury waste in a number of ways. If the concentrations of mercury in the air are high, it is possible to become infected by breathing in the mercury vapours (Collins, 1990:7). It can also be ingested with water and food; fish in particular are be able to store vast quantities of the metal in their bodies (Article: B1-F19-D:4). This phenomenon has led to a number of deaths in Japan in the 1950s when people died from eating fish heavily contaminated by a nearby paint factory that used mercury in its production process (World-in-Action Television Report: B1-F9-D2:2).

It takes very little mercury to affect the human body, and it is particularly destructive towards the central nervous system. It has been found that mercury levels need only be within the range of two-hundred parts per billion (ppb), a negligible amount, in order to trigger the first signs of mercury poisoning. Furthermore, mercury can be stored in the body for some time before its effects become visible (Collins, 1990:8). Exposure to mercury can result in the following conditions:

- skin rashes
- digestive problems
- damage to the central nervous system
- muscle tremors
- behaviour and personality changes
- kidney damage
- blindness
- deafness
- foetal deformities
- death (Collins, 1990:8)

Exposure to mercury can also cause insanity. The madhatter is not merely an invention of Louis Carroll's imagination. During the nineteenth century, the felt used in the construction of hats was produced with the aid of mercury salts (Kockott, 1994:20). Exposure to this mercury in the workplace often resulted in workers going insane, hence the expression "as mad as a hatter" (Kockott, 1994:20). This explanation regarding the effects of mercury is important in light of what is to follow. Thor Chemicals is accused by groups including Earthlife Africa (ELA), the Chemical Workers Industrial Union (CWIU) and the Environmental Justice Networking Forum (EJNF) of having released approximately four-thousand kilograms of mercury into the environment through its "recycling" of certain wastes that contain mercury (ELA Submission, 1996:12). This has had a negative effect on the company's workers and the surrounding environment. It also raises questions regarding the consequences of a worldwide trade in toxic

waste and, in particular, South Africa's involvement in this trade, as well as current attempts by the government of South Africa to define its involvement in this trade.

A GLIMPSE OF THOR

Thor Chemicals is a British-owned company. Founded in 1959, Thor produces products, both mercurial and non-mercurial, used in the production of paints, textiles and various chemicals (Davis Commission, 1997:3). Thor opened its South African division in 1963. The company is involved in the production of a number of mercurial compounds as well as textile resin, metallic soaps and biocides (Davis Commission, 1997:3). Initially these products served local markets, specifically AECI which used a Thor - manufactured mercury catalyst, mercuric chloride, in its production of plastic. In 1976 Thor entered into an agreement with AECI in which the company would supply AECI with the catalyst and would then recover mercury from the returned spent catalyst (Davis Commission, 1997:3).

Thor completed the building of its mercury plant in South Africa in 1977 and was able to start producing locally the mercury catalyst needed by AECI. Part of the agreement with AECI was that Thor would be responsible for the disposal of the spent catalyst. Mr Steven van de Vyver, the Managing Director of the Thor plant, testified at the Davis Commission[4] that:

---

[4] The Davis Commission was set up by the South African government to investigate the accumulation of waste at Thor. The commission was also given a mandate to decide on the fate of the stockpiled waste. The commission issued its first report in 1997.

> part of the contract was that Thor Chemicals would eventually research, develop and construct a system for the processing of the spent catalyst so that it be disposed of in an environmentally correct manner (Davis Commission, 1997).

It was with this agreement in mind that Thor developed its Mercury Recovery Plant in Cato Ridge, KwaZulu-Natal. This plant became operational in 1984. However this plant proved to be too small and was incapable of reprocessing the spent catalysts that were being generated by AECI. A substantial proportion of the waste generated by AECI operations in the early 1980s remains unprocessed and is in storage on the Cato Ridge premises (Davis Commission, 1997:4). It is thus clear that from the start Thor encountered problems with its "recycling" process and was in fact not even able to deal with the waste generated by AECI.

In 1983 Thor began to import toxic waste for recycling from customers abroad, including the United Kingdom, Italy, Spain, Brazil and Indonesia. This was despite the fact that it was incapable of dealing with the wastes that were being generated by its local customers (ELA Submission, 1996:7). Consequently, Thor has amassed a stockpile of over three thousand tons of toxic waste which remains stored at the Cato Ridge plant (ELA Submission, 1996:7). One of the major exporters of waste to Thor was the American company American Cyanamid[5].

---

[5] American Cyanamid is a multi-national corporation based in New Jersey, USA. It is the sixth largest chemical company in that country. Amongst other things it produces pharmaceuticals, pigments,and pesticides. Thor's products - mercury catalysts - were

Greenpeace has calculated that American Cyanamid shipped approximately thirty-thousand kilograms of mercury waste to South Africa over the three years between 1986-1989. However, under pressure, American Cyanamid halted its shipments of waste to South Africa when its period of approval from the South African government expired in October 1990. No effort was made to gain fresh approval (Article: B1-F19-D1:6). American Cyanamid's decision not to renew its ties with Thor came about as a result of wide-scale public pressure both in the USA and in South Africa. Environmental groups and anti-Apartheid activists demonstrated outside Cyanamid's headquarters in New Jersey, while South African environmental groups campaigned against Cyanamid operations at home (Kockott, 1994:10). Thor attempted to defuse the situation by claiming that their plant was environmentally safe and that all waste from Cyanamid was being recycled and not just stored - a statement that was later to be proved false. Thus, daunted by the prospect of further bad publicity, Cyanamid decided to sever its ties with Thor (Kockott, 1994:10).

Another major exporter of toxic waste to South Africa was Borden Chemicals and Plastics, another American company. During its association with Thor it was responsible for shipping over three-hundred-thousand kilograms of mercury waste to the Cato Ridge plant (Davis Commission, 1997:8). From the records available the Davis Commission estimates that Thor accepted over a million kilograms of waste from other countries, constituting approximately thirty-eight percent of the waste that is currently stockpiled at the plant (Davis Commission,

---

utilised in the company's production of synthetic rubber and the resultant waste was returned to the Thor plant in Cato Ridge (B1-F19-D:6).

1997:8). A significant percentage of this waste was imported from companies that did not make use of Thor products. Thor was thus under no obligation to take this waste (*Natal Mercury*, 17/2/1994). Thor's importation of waste from abroad was halted in 1994 when ELA, operating in conjunction with Greenpeace, discovered that a shipment of waste from Borden Chemicals and Plastics was *en route* to Durban (*Natal Mercury*, 17/2/1994). The two organisations put pressure on both Borden Chemicals and Plastics and the South African government. Borden, under pressure, recalled its shipment before it reached Durban (Kockott, 1994:11).

THOR UNDER PRESSURE

In England a decade earlier, Thor UK had experienced problems of a different nature. Thor operated a mercury plant, similar to the one at Cato Ridge, in Margate in the United Kingdom. Health officials, alerted by the deteriorating health of some of the plant's workers, investigated the site and found the levels of mercury in the air around the plant to be twenty times higher than the recommended limit (Kockott, 1994:13). The company was instructed to improve working conditions, but an inspection a year later revealed that levels were still unacceptably high (Kockott, 1994:13). It was only in 1987 however, that the British Health and Safety Executive issued Thor with an ultimatum: reduce mercury levels and create a safe working environment or face prosecution (Kockott, 1994:13). Thor responded by closing its Margate plant and moving its entire mercury production facility to the plant at Cato Ridge. This is a clear case of a company moving its "dirty" industry to a country in the South in order to take advantage of less stringent environmental legislation.

THOR COMES UNDER SPOTLIGHT

The result of the increase in mercury related-production and processing at the Cato Ridge plant was that during routine testing in 1988 the Umgeni Water Board discovered excessively high levels of mercury twenty-five kilometres downstream of the plant (Article: B1-F19-D1:2). After an investigation by the Department of Water Affairs, Thor was ordered to remove contaminated soil and water from the source of the Mngeweni River which is situated below the plant. Although the matter was reported in the local press the issue seemed to raise little concern. In 1989 an American journalist, Bill Lambrecht, was investigating the impact of hazardous wastes exported by American companies. Lambrecht's research led him to Cato Ridge, where he exposed serious problems at the plant (Article: B1-F19-D1:2). Lambrecht was interested in the shipment of toxic waste from America to countries in the South and he was drawn to the Thor plant as a result of its dealings with American companies such as Cynamid. His tests on soil and water samples from the Mngeweni River revealed mercury levels as high as one-thousand-five-hundred parts per billion, the highest levels ever recorded (Article: B1-F19-D1:2). Greenpeace conducted further tests and claimed that mercury levels in the Mngeweni were eight-thousand times higher than the stipulated levels set out in American law (Article: B1-F19-D1:3).

ELA organised a protest against Thor as result of these findings. Steven van de Vyver claimed that the results of the tests being quoted by ELA represented a "one off level" (*Daily News*, 05/04/1990). The Minister of Environmental Affairs at the time, Gert Kotze, told ELA the levels

of pollution in the Mngweni River were "no cause for concern at present" (*Daily News*, 05/04/1990). Shortly afterwards ELA accused Thor of poisoning the environment. Thor was quick to defend itself. The company claimed armed thieves had broken into the plant and stolen a number of barrels of waste and that the theft of these drums was the cause of the high levels of mercury in the Mngeweni River as they suspected that the thieves dumped the contents of the barrels into the river (*Natal Witness*, 06/04/1990).

Unconvinced, ELA brought Thor before the International Water Tribunal in Amsterdam. While the decisions of the tribunal are not binding, its findings and recommendations do carry a great deal of moral authority. It was a major opportunity for ELA to presents its case against Thor in an international arena. The hearings, which Thor declined to attend, evoked a great deal of interest, highlighting as they did the effects of transboundary trade in toxic waste. A written submission by Thor to the Tribunal stated that the Thor plant in Cato Ridge was capable of dealing with large quantities of waste. The company insisted that its waste recycling process was a great deal more effective than similar such plants in the USA (Thor Submission to International Water Tribunal: B1-F18-D2:1). Van de Vyver submitted that Thor dealt with all waste in an environmentally 'friendly' and, furthermore, legitimate manner (Thor Submission to International Water Tribunal: B1-F18-D2:2). Thor, he said, had accumulated considerable experience in dealing with mercury and neither the environment nor Thor personnel were in any danger from the waste. He stuck to the story that the theft of several drums of waste was the explanation for the high levels of mercury found in the Mngeweni River (Thor Submission to International Water Tribunal: B1-F18-D2:3). Van de Vyver went so far as to claim that as mercury can be recovered

from the waste and re-used, the process used by Thor was good for the environment as it meant that there was less mercury being introduced into the production cycle (Thor Submission to the International Water Tribunal: B1-F18-D2:4). This claim was later invalidated by the Davis Commission.

The tribunal found that ELA had failed to conclusively prove its case. Nonetheless, it accused Thor of being evasive and misleading and suggested that a commission of enquiry be set up to investigate the allegations put forward by ELA. Both sides claimed victory. Thor claimed it had been vindicated, while ELA pushed for a commission of enquiry.

THOR RETALIATES

In the wake of the Amsterdam tribunal, Thor claimed that ELA was waging a vendetta against the company without considering a number of matters. According to van de Vyver mercury production and recycling only accounted for twenty percent of Thor's business yet it was generally perceived that Thor was a company dealing solely in mercury products (*Natal Mercury*, 03/03/1992). Additionally, the National Occupational Safety Association had awarded Thor a four star safety rating and Thor was striving to boost this to a five star rating. An investigation by the Wildlife Association of South Africa found that Thor was to be congratulated on its high standards regarding both occupational health as well as environmental matters (*Natal Mercury*, 03/03/1992). Van de Vyver claimed that the Wildlife Association's investigation confirmed Thor's contention that the contamination of the Mngeweni River came about as a result of thieves

emptying the contents of stolen drums into the river (*Natal Mercury*, 03/03/1992).

However, in preparation for their 1994 television documentary on mercury poisoning for World-in-Action, Granada Television, the producers attempted to assess the claim that Thor's operations did not affect the local animal life. It was decided to test the mercury levels in rodents found in areas where they could have been exposed to pollution from Thor. In samples taken from this area it was shown that these animals had significantly higher levels of mercury in their bodies than rats not living in the affected areas (World-in-Action Television Report: B1-F9-D2:5-6). The specimen with the lowest recorded mercury levels from the vicinity of the plant still had levels that were twice as high as samples taken from elsewhere (World-in-Action Television Report: B1-F9-D2:5-6). This is significant as people and cattle in the area drink from the polluted Mngeweni River while young boys are known to hunt and eat the rats that abound near the river (World-in-Action Television Report: B1-F9-D2:3). As mercury slowly accumulates in the body it could be many years before the effects of this pollution on larger animals such as humans is felt.

MADHATTERS

It was the World-in-Action's verdict rather than Thor's that seemed to be borne out when, in early 1990 rumours began to surface regarding workers at the plant who were going "mad" and acting rather strangely (Article: B1-F19-D1:8). In response van de Vyver stated:

> I don't deny that workers get sick, but mad, that's absolute nonsense. We check the guys' urine every week and if levels exceed 200 micrograms of mercury per litre they are given orange juice to drink and taken away from the plant (Kockott, 1990:20).

Workers with high mercury levels in their urine were given orange juice to drink because it temporarily decreases the amount of mercury that passes through the bladder thereby reducing the levels of mercury in the urine samples. The mercury levels in the body remained unaffected. In February 1992 it became evident that there was substance to the rumours of madness. Mr Peter Cele, a former employee at Thor, was admitted to hospital with severe mercury poisoning after suffering from hallucinations, paranoia and a gradual loss of mobility. He died as a result. Subsequent screening of Thor employees found that twenty-eight percent of the workforce had mercury levels in the blood that far exceeded normal safety limits (*Natal Mercury*, 04/04/1992). By July of 1992 two more workers, Mr Albert Dlamini and Mr Engelbracht Ncobo, were also in hospital suffering from severe mercury poisoning (*Daily News*, 14/07/1992). Thor maintained that these three workers had become ill due to acute mercury poisoning that was a result of sabotage to the breathing apparatus used on the site (*Natal Witness*, 16/07/1992). Doctors who examined the men, however, found their symptoms to be consistent with long term mercury exposure - not the acute isolated exposure Thor claimed was the cause (*Daily News*, 16/07/1992).

An enquiry was set up by the Department of Manpower to investigate how these men had been poisoned. At the enquiry evidence was submitted by the Chemical Workers Industrial Union (CWIU) to the effect that the blood of some of the workers contained levels of mercury as high

as eight-hundred-and-fifty-six parts of mercury per billion. This is over four times the maximum allowed level of mercury in the blood: two-hundred parts of mercury per billion (Thor Enquiry Transcripts, 1992:436). One group of casual workers, who worked for a period of twenty four weeks, and who were tested for mercury levels twenty times during that period, showed mercury levels higher than two hundred parts per billion in nineteen of their tests (Thor Enquiry Transcripts, 1992:435). Moreover, a further group of casual workers, hired in 1992, never had blood level readings below two hundred parts per billion during their entire time on the site.

The enquiry also revealed that Thor was neglecting to train its workers about the dangers of working with mercury waste. The company was also allowing for a work environment that was hazardous to the health of workers. A casual worker at Thor testified that within an hour of being hired he was working with mercury acetate[6]. This was despite assurances from van de Vyver that Thor employees received adequate training (Thor Enquiry Transcripts, 1992:437). The factory manager, Gavin Daniel, admitted that there was no formal training provided for employees. They received what he termed "on the job training" meaning that they were placed in hazardous situations and expected to work things out for themselves (Kockott, 1994:26). The use of safety equipment was not adequately explained to workers. According to one worker

> I was told nothing about how many times I should change the filters, but

[6] Mercury acetate is a toxic compound that can be ingested into the body either by inhalation or absorbtion through the skin. Long term exposure to this compound results in chronic long term health effects as discussed at the beginning of Chapter Three (New Jersey Department of Health, 1987:1-3).

> whenever I felt it was becoming difficult to breathe, I went to change them (Kockott, 1994:26).

Van de Vyver admitted that drums containing waste were often without covers and that there was spillage of waste in the work area. Evidence submitted by the CWIU included photographs of workers in contaminated areas without masks or breathing apparatus; photographs also depicted the contamination of "clean" areas with tainted overalls and equipment (Thor Enquiry Transcripts, 1992:444-445).

The findings of the enquiry were forwarded to the Natal Attorney-General but the results were withheld pending legal action (*Natal Mercury*, 17/07/1992). In late 1993, three senior officials from Thor, including the Managing Director, van de Vyver, were charged with culpable homicide. The company itself was charged with forty-two contraventions of the Machinery and Occupational Safety Act (*Natal Witness*, 20/11/1993). Amongst the charges related to the contravention of the Machinery and Occupational Safety Act was the accusation that Thor had falsified urine sample reports that were sent to the Department of Manpower (*Natal Witness*, 20/11/1993).

THE EJNF STEPS IN

The threat of legal action against the company was compounded by the continued involvement of environmentalist. The Environmental Justice Networking Forum (EJNF) put further pressure on Thor by submitting evidence to the Attorney-General of what they believed were further

contraventions of the law. The EJNF, headed by ELA's Chris Albertyn, put forward that Thor had incinerated waste for much of 1993 despite not being in possession of a licence permitting this (Albertyn to Attorney General: B1-F14-D1:1-4). All Thor had was a verbal agreement from the government allowing them to run some limited, small scale tests in order to ascertain the effectiveness of a newly-built incinerator. Thor had applied for an operating licence twice during 1993, the first in February and the second in July of that year (Albertyn to Attorney General, B1-F14-D1:1-4). The Chief Air Pollution Control Officer for South Africa, Mr S M Lloyd, confirmed in November 1993 that no permit had been issued to Thor for 1993. Furthermore, the EJNF asserted that the temperatures at which Thor was incinerating its waste were far below recommended levels; the result was an increase in mercury emissions. The situation was aggravated by the fact that despite the claims by Thor that it made use of sophisticated filters in its incinerator that dramatically cut mercury emissions, an inspection revealed that this equipment was in fact not being used, and furthermore the box said to contain the emergency filters was found to be empty (Albertyn to Attorney-General, B1-F14-D1:1-4).

In addition, the EJNF contended that Thor had attempted to mislead the government when it applied for permission to import CINNCARB, a waste product not generated by one of Thor's customers. Van de Vyver applied for permission in a letter to the Department of National Health and Population Development (DNHPD), but failed to mention that CINNCARB is a hazardous waste (Van de Vyver to DNHPD, B1-F4-D1:1). The importation of CINNCARB into the country was thus in contravention of a letter to Thor by former Environmental Minister, Mr Gert Kotze, stating that Thor could only import waste that originated from the company's customers (DNHPD

to van de Vyver, B1-F10-D6:2). Thor came under the spotlight again during the trial when it became known that the company was expecting a consignment of mercury waste from the Borden Chemicals and Plastics Company in the USA (*Natal Mercury*, 17/02/1992). A public outcry caused this shipment to be turned away from Durban harbour. Further attention was focused on Thor when Nelson Mandela paid a highly publicised visit to Engelbracht Ngcobo, lying comatose in hospital. This visit made front page headlines and ensured that the Thor issue remained in the news (*Natal Witness*, 20/11/1993).

THE TRIAL

The combination of the deaths and the evidence presented at the Commission of Enquiry held by the Department of Manpower to investigate the allegations against Thor ensured that Thor was brought to trial. However, most observers agreed that the trial was a farce. Thor continued to maintain that the three chronically poisoned workers had been contaminated by a massive dose of mercury inhaled through their breathing equipment as a result of sabotage. The company further claimed that other workers showing symptoms of poisoning were fabricating evidence in the hope of obtaining compensation (Meeran to Albertyn, B1-F14-D6-pt1:1)). Richard Meeran, a lawyer representing Thor workers in the United Kingdom, commissioned a report on the health of the workers at Thor, especially the cases of Peter Cele, Engelbracht Ngcobo and Albert Dlamini.

The doctor who conducted the investigation, Dr Laszlo Magos, is a Fellow of the Royal College

of Pathologists in London and was a mercury consultant to the World Health Organisation (Letter from Meeran to Albertyn, B1-F14-D6-pt1:2). In his report on the three workers Dr Magos stated that the symptoms of the three men differed from those exhibited by individuals who had been acutely intoxicated. In the event of acute intoxication patients tend to display symptoms within a few hours, specifically breathing problems and acute pneumonitia. These symptoms were not present in the three Thor workers. Dr Magos suggested that the most plausible explanation of the poisoning was prolonged exposure to mercury whilst in the work place (Meeran to Albertyn, B1-F14-D6-pt2:8). He also stated that the urine tests from 1991-1992 demonstrated exposure, especially on the part of casual workers, to consistently high levels of mercury at the plant (Letter from Meeran to Albertyn, B1-F14-D6-pt2:9). In court however, Thor stuck to their defence that the three men were poisoned in a single act of sabotage and that Thor was in no way liable for what had happened to them.

Despite the apparent weight of evidence on its side the prosecution seemed to be in disarray. Mr Cormac Cullinan, a Supreme Court Attorney who assisted the prosecution, compiled a report in which he stated :

> The prosecutor was demoralised and believed that there was a real likelihood that the prosecution would fail completely apart from some minor technical offenses (Meeran to Albertyn, B1-F15-D2-pt2:1).

The gathering of evidence against Thor by the Department of Labour was inadequate leaving the prosecution largely unprepared for the trial (Meeran to Albertyn B1-F15-D2-pt2:2). With

Cullinian's assistance, the prosecution argued for and was granted an adjournment in order to approach international experts with a view to testifying in the case. Just as it seemed that the defence's case was about to be seriously challenged, the prosecutor offered Thor a plea-bargain. In February 1995 Thor pleaded guilty to some minor acts of negligence in the work place and was fined R13,500. This despite the fact that the maximum penalty allowed in such a case was R140,000. The culpable homicide charges against the Thor management were dropped even though, in Cullinan's view, the prosecution had a very strong chance of winning the case by introducing foreign experts who would have argued against Thor's "sabotage" defence. Cullinan has stated that the prosecutor's actions were a "shameful way to end the matter" (Letter from Meeran to Albertyn, B1-F15-D2-pt2:5). Chris Albertyn of the EJNF said in a press statement that:

> ...the fundamental mystery was why, when the state had expert evidence on hand to prove their case of culpable homicide, they agreed to drop the charges (*Mail and Guardian*, 24/02/1995).

In terms of the plea-bargain Thor pleaded guilty to the following offenses:

1 Failure to lock the door of the air breathing system's compression room, thus possibly allowing for the contamination of the plant's breathing apparatus.

2 Failure to move workers whose urine samples denoted high levels of mercury to safer areas of the plant as instructed by the Department of Manpower.

3 Failing to conduct pre-employment medical examinations.

4 Failure to report mercury-related illnesses to the Department of Manpower (*Natal Witness*, 18/02/1995).

The results of the case were regarded as exceedingly unsatisfactory by many observers including the EJNF and the CWIU. In light of Cullinan's statements it was argued that there had been a "cover-up" as Thor had merely been convicted of a number of trivial offenses when the prosecution had sufficient evidence to prosecute Thor much more aggressively. These suspicions were to be raised again at a later stage at the Davis Commission. The findings of the Commission and their recommendations will be discussed in further detail at a later stage.

THE FIGHT FOR COMPENSATION

A civil case on behalf of twenty of the afflicted workers was lodged against Thor in the UK. This was a significant move: environmental law in the UK is a great deal stricter than in South Africa and so Thor was at a much greater risk of being found guilty and thus liable for compensation. When questioned previously on the matter of compensation for the families of workers who had died, Mr D Cowley, Chairman of Thor Chemicals, responded with the following:

> It depends on what you mean by compensation. We paid for his funeral (Kockott, 1994:34).

Thor remained determined not to be held liable for compensation and fought the workers'

application for the civil suite against the company to be tried in the UK. Thor argued that it made more sense to have the civil suite tried in the country were the problem occurred. The British House of Lords rejected Thor's appeal against the suite, giving the workers the opportunity to present their suite in a British court (*Mail & Guardian*, 1/3/1996). Thor decided on an out of court settlement of R9,4 million, to be divided amongst the claimants (*Environmental Justice Networker*, Autumn-1997:9). Further claims for compensation are a distinct possibility; groups such as EJNF are prompting present and previous employees displaying signs of mercury poisoning to seek compensation.

Thor encapsulates many of the tensions between industrial development and the need to earn foreign exchange on the one hand and long term environmental interests on the other. There was a clear lack of concern both by the company and the government for the workers that were affected by the plant as well as the fate of the surrounding communities and natural environment. Thor typifies the worst aspects of environmental policy during Apartheid. Sustainable Development and Deep Ecology both offer alternatives to the pattern that was followed at Thor and it is crucial that these alternatives be addressed if tragedies such as Thor are to be prevented. To an extent the realisation that there is a need for change has occurred. The following two chapters will trace what evolution there has been in government attitudes towards the environment.

CHAPTER FOUR: APARTHEID AND THOR

It would be impossible to discuss the Thor case without reference to the policies of the previous government. The attitude of the National Party government toward environmentalism and black poverty created a situation in which operations such as Thor were not merely tolerated but were actively promoted by the government. The National Party government, desperate for investment, was prepared to overlook problems at the Thor plant despite the fact that difficulties had been noted at the plant. Before any analysis of present government policy can be addressed it is important that there be a degree of historical continuity highlighting the differences between the two government's attitudes towards the environment.

Apartheid as a policy was a brutal system of oppression that impacted on people's lives in a number of ways. One of the legacies of Apartheid has been large scale environmental degradation particularly in the former "homelands". The forced relocation of black families to the homelands resulted in large scale overcrowding in areas that could not sustain sizable communities. Consequently, these areas were over-farmed and over-grazed, causing soil erosion and a dramatic reduction in the fertility of the land. In the former homeland of Ciskei, it is estimated that forty percent of the land has been eroded and approximately thirty-six percent has been overgrazed. There are similar statistics from the other former homelands: fifty years ago in the former homeland of KwaZulu, there were two-hundred-and-fifty woodland areas. By 1990, this number had been reduced to approximately fifty (Durning, 1990:1).

The National Party government had a notably poor official environmental record and many of their policies continue to impact on South African society today. The reliance on fossil fuels to generate electricity has resulted in areas of Gauteng and the Northern Province having very high levels of air pollution. Sulphur dioxide pollution in these areas is amongst the highest in the world, and contributes to the formation of acid rain (Cock, 1990:1). Even more disturbing, is the fact that the effects of this pollution are most strongly felt in underprivileged areas. Air pollution levels in Soweto are estimated to be more than double the levels of any other area in South Africa (Cock, 1990:4). This has resulted in high levels of asthma and respiratory problems.

The National Party government appeared to be quite prepared for industry to police itself. Industry was allowed to adopt a "best practical means" approach to dealing with its waste rather than being forced to make use of the best available waste elimination technology. Industry was thus allowed a great deal of latitude in dealing with its waste, usually to the detriment of the environment (Clarke, 1991:49). This has lead to widescale contamination of soil, rivers and ground water. In 1990, the Elands River was severely contaminated by effluent from a Sappi paper mill whose settling dam had over-flowed. The ensuing pollution resulted in the loss of over one hundred tons of fish. Sappi was fined R6,000 for what is an exceedingly serious offence (Koch, Cooper & Coetzee, 1990:127). A fine of this magnitude presents little deterrent to companies such as Sappi and provides little incentive for that company to ensure that no future pollution takes place. This despite the fact that water is very scarce in South Africa. It is estimated that Southern Africa uses approximately ninety percent of its water irrigating crops

(Conley, 1996:19). This means that any pollutants introduced into rivers or dams ultimately find there way onto crops that are consumed by both humans and other life forms. Thus the contamination of water supplies by companies such as Thor and Sappi could have an extremely widespread impact.

However, the National Party was completely impervious to people's concerns regarding the environment. This is evident even towards the final days of Apartheid. On being handed a petition containing two-hundred-thousand signatures by people that were concerned about development taking place in St Lucia, Gert Kotze, the then Minister of Environmental Affairs, stated that the signatories were uninformed about development issues and were responsible for delaying much needed development (Cock, 1990;5). Genuine concern for the environment was thus treated as ignorance and mischief making.

GOVERNMENT'S ROLE IN THOR TRAGEDY

The previous government had what could be described as an Apartheid environmental policy in that its environmental policies impacted negatively on black communities. Most of its emphasis was placed on game conservation such as the Kruger National Park. The enjoyment of these facilities was restricted to whites while black communities often suffered as a result of these parks. The creation of the Tembe Elephant Park near Kosi Bay resulted in the "relocation" of many local people and the disruption of their livelihood (Cock, 1990:2). These kinds of actions have resulted in many disadvantaged communities believing that environmentalism is about

caring for animals and not for people. Local communities received very little benefit from conservation. Black communities living near national parks often had to shoulder the negative side of conservation; watching while conserved animals destroyed their crops or killed their livestock. The attitude of the National Party to the environment was thus far from holistic.

The conservation ethic grew out of an elitist attitude towards the environment; reserves were initially established to ensure that there was sufficient game for sports hunters and to prevent black people from hunting. The skewed nature of the National Party's environmental agenda is evidenced by the fact that the former government was not particularly concerned with aspects such as pollution especially if it only impacted on black communities (*Environmental Justice Networker*, Autumn-1997). "Dirty" industries were situated near poor, disadvantaged areas where desperation for employment ensured little resistance to these conditions. The National Party government interfered minimally with such industry, generally allowing it to police itself. The Thor case is a classic example of government attitude towards industry, especially to that which generated foreign investment. Thor was able to operate for years despite regularly failing health and safety inspections and failing to adhere to government stipulations. Even when it was clear that Thor was creating serious problems, there were elements in government who were prepared to ignore the evidence.

From the outset there are indications that government control was exceedingly weak and at times a little incomprehensible as in the Thor case. Thor incinerated waste at its site at Cato Ridge since 1977 and yet prior to 1988 there is no evidence to suggest that it held a license to do so

(CWIU Submission, 1996:7). In July of 1988, documentation from the Department of Health (DOH) reveals that Thor had made an application for a licence that year. It is interesting to note that a Pinetown Health Inspector recommended that no licence be given to Thor on account of the company's poor storage of its waste (Davis Commission, 1997:11). This advice was ignored and in November 1988 the Senior Health Inspector in Pinetown indicated to his superior in Durban that a licence should be issued to Thor. In its licence application Thor indicated that all waste was properly stored and under lock and key (CWIU Submission, 1996:7). The licence was issued in December of 1988. Despite all indications that Thor was not operating within the bounds set out by the DOH the company was granted a licence to operate its kiln.

This was not an isolated incident. Government officials allowed Thor to continue its operations despite the fact that it was clear that the company was in continuous breach of government regulations. When Thor re-applied for a licence at the end of 1989, concerns regarding its storage procedures were once again raised. Thor was granted a licence for 1990, but a letter from the DOH to Thor on the 12th of April 1990 expressed concern that Thor was in contravention of section 4(3) of the Hazardous Substances Act governing the storage of hazardous waste (CWIU Submission, 1996:8). Despite these recurring breaches of the Act, a DOH inspection of the plant on the 8th of November 1989 indicated that all was in order (CWIU Submission, 1996:8). In May 1990, a health inspector wrote that:

> Certain requirements of the Hazardous Substances Act and regulations were overlooked when this licence was given. In particular, the disposal, storage, labelling of empty containers and the security of both the full and empty drums

(Davis Commission, 1997:15).

Further licences were granted in 1991-1993 despite the fact that there were clear violations of the Hazardous Substances Act by Thor during this period.

There was also very little co-ordination between the various government departments. This allowed Thor to continue operating long after it was apparent that there were serious problems at the plant. The DOH must shoulder much of the blame for what occurred at Thor as it was responsible for playing the greatest supervisory role over the company. The DOH approached the Department of Water Affairs and Forestry (DWAF) in lieu of obtaining permission for Thor to import certain wastes. The DWAF indicated in a letter to the DOH, of the 12th of January 1989, that the importation of toxic waste into South Africa was not allowed. Documentation was reworded to define the imports as hazardous substances and not as hazardous waste (CWIU Submission, 1996:10). This demonstrates collusion between the various government departments in order to manipulate environmental legislation for the benefit of Thor. In January 1990, the Minister of Health was asked in parliament whether Thor had a licence to import mercury waste. Thor did not need a licence to import this waste said the Minister but as some mercuric compounds were listed as hazardous substances Thor would need a licence if they wished to sell such "compounds" (Davis Commission, 1997:12). By changing the description of Thor's imports from hazardous wastes to that of hazardous substances the government attempted to give the company's operations a cloak of respectability.

MORE GOVERNMENT BUNGLING

In 1990, Thor requested permission to build a larger "recycling" facility and further requested that should such a plant be approved, the company be allowed to import increased amounts of waste. Once again the government response was uncoordinated, with the various departments demanding different conditions of the company. In a letter from DWAF to DOH dated the 6th of June 1990, the DWAF informed the DOH that they would have no objection to the above so long as Thor fulfilled a certain number of conditions. Thor was to adhere to the conditions of the Basel Convention, and it was only to import waste generated by companies using Thor products. It was also expected that Thor would have effective control over the whole recycling process (DNHPD to van de Vyver, B1-F10-D6:2). In May 1991 the DOH, stated that, in addition to the above conditions, Thor had to dispose of the ash remaining after incineration at a class 1 site (CWIU Submission, 1996:11).

In spite of all these conditions and regulations, when van de Vyver requested permission for Thor to purchase CINNCARB[7], a waste not produced by a Thor customer, the DOH did not object (Van de Vyver to DNHPD, B1-F4-D1:1)(DNHPD to van de Vyver, B1-F4-D3:1). The Department of Labour (DOL) also granted its permission. The importation of CINNCARB was, however, in direct contravention of both the Basel Convention and the stipulation that Thor could only import waste generated from its products. When the Director of Hazardous Substances in the DOH, DR T Van de Venter was questioned as to the legality of this decision by journalist

[7]CINNCARB is another name for sulphide of mercury, a waste product.

F Kockott, he evasively suggested that it did not really concern his department and that it was a matter for the Department of Environmental Affairs. Dr Van de Venter did however admit that CINNCARB qualified as 'waste' (Interview with Director Hazardous Substances, B1-F4-D2:1-2). This lack of coordination between the different departments allowed for Thor to gain permission to import hazardous waste into this country in direct contravention of all the previously stipulated government conditions. Thus despite the fact that there was specific legislation in place to prevent the importation of waste as well as specific regulations pertaining to Thor's imports, the company was given permission to ignore all of these stipulations.

The Minister of Environmental Affairs stated in parliament that what Thor was importing was not waste but in fact raw materials. In defence of this statement he defined a "raw material" as follows:

> The phrase "raw material" is defined in acknowledged dictionaries as a substance from which something is, or will be manufactured (Questions in the House of Assembly, B1-F10-D10: quest 21:2).

Thor, then, was importing raw materials into South Africa and not toxic waste because the company was able to claim it could extract mercury from the waste and then re-use the recovered mercury in its products or for sale to other consumers. Thor was never able to extract any significant quantities of mercury from its incineration process, and none of the mercury extracted has ever been used in the production of new products (ELA Submission, 1996:9).

The most inexplicable occurrence in the Thor story included the Minister of Environmental Affairs, Mr Gert Kotze. In August 1990, Mr Kotze made the following announcement:

> I have therefore decided - and wish to announce today - that South Africa will under no circumstances allow that other countries to export their hazardous waste to South Africa. This decision implicates a total ban: no hazardous waste may thus be imported into South Africa - not for the purpose of treatment, nor for dumping or disposing in any other manner, or with any ulterior motives for instance the making of profit or to generate income (Davis Commission, 1997:13).

In September 1990 Stephen van de Vyver wrote to Kotze seeking clarification of Thor's position in light of the Minister's statement:

> In recent press reports we have read that your Ministry is imposing a total ban on the importation of toxic wastes "including wastes for recycling"... I am writing to obtain clarification on this issue i.e. has the importation of toxic wastes for disposal or dumping been banned and the importation of spent wastes for recycling been allowed to continue or is there a total ban on any waste substances entering this country? (Van de Vyver to Kotze, B1-F12-D9).

The reason for van de Vyver's confusion was that he had been informed by joint letter from the DNHPD, DWAF, DTI and Foreign Affairs on the 18th of July 1990 that they supported Thor's operations (Van de Vyver to Kotze, B1-F12-D9). In a letter to van de Vyver dated the 17th of October 1990, Kotze gave assurances that this ban did not apply to Thor, stating that the company was free to continue as before as long as the waste they were importing was derived as a result of other companies making use of Thor's products (Davis Commission, 1997:14).

QUESTIONS

In July 1991, the DOH gave Thor the green light to develop the new mercury recovery facility. Despite all the previous problems at Thor, the government departments involved paid scant attention to the development of this new incinerator. The building of the kiln was supervised by an individual who had no recognised training in engineering. Furthermore, Thor gave no guidelines regarding the design of the kiln (Davis Commission, 1997:6). The net result of these poor procedures was that after initial tests it became clear that the new plant was not capable of operating within the parameters established by the various government departments.

Thor's right to operate the plant also seemed to be in some doubt. As discussed earlier, Thor was given verbal permission to run some limited tests in order to discover the effectiveness of their new kiln, but the company continued to incinerate waste for the duration of 1993 despite not being in possession of the necessary documentation (Albertyn to Attorney-General, B1-F14-D1:4). Mr S M Lloyd, the chief Air Pollution Control Officer for South Africa, maintained that his department was inexperienced when it came to regulating incinerators and this was why Thor had managed to continue operating its new kiln in contravention of South African law (Albertyn to Attorney-General, B1-F14-D1:1). When Thor applied for an operating licence in April 1994, Lloyd vetoed the decision of certain members of the DOH who were prepared to grant Thor a permit (CWIU Submission, 1996:18).

The fact that government paid little interest to Thor's operation meant that despite the fact that initial studies showed the new recovery plant to be deficient, Thor continued to import waste from abroad. It was during this period that the CINNCARB was imported. This in turn led to an even greater stockpiling of waste at the plant with the result that Thor accumulated 3,299,600 kilograms of waste. This waste is still in storage at the Cato Ridge plant (Davis Commission, 1997:7). Thor should have been aware that it would never have been able to process this waste and yet it continued to import it. ELA estimates that Thor was paid in excess of R4 million just to accept and store the waste concerned (ELA Submission, 1996:6). Thor received approximately US$1,400 per ton of waste which they accepted from abroad. This was to the benefit of both sides as the disposal of waste in the USA and other industrialised countries is often in excess of US$3,000 per ton (Schissel, 1988:49).

Another instance of government departments issuing regulations and then ignoring them concerns the ash recovered from the kiln after incineration. One of the stipulations laid down by the DWAF was that Thor ship the ash from its incinerator to a Class 1 disposal site for final disposal. Thor however continued to store this ash on site claiming more mercury could be extracted from it. The DOH was aware that Thor was storing this ash on site even though it constituted a significant environmental risk and contravened government stipulations (CWIU Submission, 1996:28). DOH excused Thor on the basis that the ash was

> ...being stored on a temporary basis in the dam so that it can be further incinerated to remove most of the mercury ... Once the ash has been fully worked it will be permanently disposed of at a class 1 disposal site (CWIU Submission, 1996:28).

Considering the backlog of waste at Thor still needing incineration, it seems unlikely that Thor would ever get round to re-incinerating it. In 1994, one of the dams containing this ash sprang a leak, adding further to the contamination of ground water and soil on and around the site (Albertyn to Asmal, B1-F24-D2:2).

Moreover, a 1994 report by the DOL stated that there were problems with Thor's storage of waste both drummed and that stored in dams as there was ample evidence of leakage:

> ...a number of drums containing the sludge had either corroded or were mechanically damaged to such an extent that the sludge was leaking out of the containers and creating a new hazard (CWIU Submission, 1996:31).

The fact that Thor was so negligent in applying safety standards and actually had to be prosecuted in terms of the Machinery and Occupational Health and Safety Act demonstrates Thor's unwillingness to adhere to government policy, yet they continued to receive support from certain government departments. It is clear that Thor was given far too much latitude in policing itself and that government departments involved were very lax in enforcing regulations. The previous government, desperate to encourage foreign investment and to bolster an economy badly affected by sanctions, did not want to frighten investors away by imposing too strict environmental legislation. Ironically, the post-Apartheid government is in a similar economic quandary in terms of its need for investment. Unfortunately, this means that industry is likely to continue to be allowed to police itself.

AT BEST INCOMPETENT

The lack of co-ordination between government departments was made starkly obvious during submissions to the Davis Commission. The evidence suggests that between 1980-1995 there appears to have been a complete lack of accord between the various departments regarding the regulation of Thor. The commission also states that there were certain instances of "inexplicable inefficiency and unexplained omission" (Davis Commission, 1997:26). From the commission's findings, it is clear that if governmental departments had co-ordinated effectively, and actually monitored the situation on the ground, many of the problems created by Thor could have been avoided. The fact that evidence from as far back as 1988 indicates that there were problems at the plant re-enforces this conclusion.

The complicity of senior government officials in allowing the perpetuation of the conditions prevelent at Thor were also laid bare by the commission. The commission found that the Minister of Environmental Affairs, Mr Gert Kotze's decision to exempt Thor from the ban importing toxic waste into South Africa was not adequately explained. Kotze's exemption of Thor from this ban played a significant role in worsening an already problematic situation (Davis Commission, 1997:28). From the evidence presented before the commission, it becomes apparent that the body of legislation governing hazardous waste was, and still is, far too fragmented to be adequately enforced. Laws dealing with hazardous waste, including how to manage such waste, and pollution controls, are administrated by a number of different government departments including the Department of Health, the Department of Labour, the Department of Water Affairs

and Forestry and the Department of Environmental Affairs and Tourism. The legislation is made up of no less than thirty-seven statutes, sixteen provincial ordinances and many different local by-laws (CWIU Submission, 1996:3). This is completely unsatisfactory as this body of legislation does not form a coherent hazardous waste policy but rather serves to dilute government control over hazardous waste. This legislation will have to be addressed if problems such as those that occurred at Thor are to be avoided in the future.

The National Party's poor environmental stance was a direct contributor to the deaths that occurred at Thor. Unfortunately for those who believed that an ANC led government would usher in a green era there has been little real change instituted by the new government. Many of the Apartheid policies remain firmly entrenched; in particular conservation. How the ANC led government has dealt with the legacy left to it by the former regime with be discussed in the following chapter.

CHAPTER FIVE: A NEW ERA - POST 1994 ENVIRONMENTAL POLICY

> In our free enterprise economy, the benefits are privatised but the costs of pollution are socialised.
> Ricardo Navarro[8]

For the South African government, economic growth is a high priority. Apartheid, international sanctions and inequalities in trade between North and South have resulted in a skewed economy which has entrenched inequalities in income and relegated many people to poverty. Since 1994 the ANC-led government has been faced with the difficult task of attempting to right the wrongs of the past while simultaneously attempting to make in-roads into the global economy. This has presented the government with a number of problems, the most critical being the need for some form of redistribution of wealth. However, the macro-economic policy within which this redistribution has to take place is hostile to too much government interference in the economy. Since the 1994 elections, two economic programmes have been put forward. The Reconstruction and Development Programme (RDP) was introduced soon after the elections and was much vaunted as the vehicle to bring about redistribution in South Africa. With the introduction of the neo-liberal[9]Growth, Employment and Redistribution (GEAR) programme in 1996, however, the

---

[8]Ricardo Navarro, Salvadoran Environmentalist in an interview with Sarah van Gelder for *In Context*, Fall 1993.

[9]GEAR is a neo-liberal economic programme in that it is based on principles dedicated to opening up the South African economy to foreign investment and trade. Open markets, low tariffs and minimum government intrusion in the economy are stressed (*Mail & Guardian*, 13/12/1996).

ANC has shifted away from the Keynesian[10] economic approach embodied in the RDP. Implicit in the government's economic strategy is strong fiscal discipline and a low budget deficit - an attempt to reduce inflation, and the removal of tariffs so as ensure competitiveness and open markets.

It is clear that government's economic priorities will impact strongly on environmental concerns. This impact becomes apparent when one considers key government strategies. In government documents a great deal of emphasis is placed on the importance of the environment and yet in practice it would appear that the spirit of these documents is largely ignored. When the events at Thor are analyzed it can be argued that there has been some attempt at "green-washing" the issue.

ECONOMIC CONSTRAINTS

When the RDP was unveiled, the government declared that the programme was largely concerned with meeting basic needs (*A Basic Guide to the Reconstruction and Development Programme*:1). The RDP, the government claimed, would reduce the disparities of wealth between the affluent white minority and the impoverished black majority. It is estimated that seventeen million people in South Africa live below the poverty line: there is a desperate need for over one million new

---

[10]Built on the theories of John Keynes, Keynesian economics suggests that laissez faire capitalism is incapable of self adjustment and likely to cause high levels of unemployment. This is in contrast to neo-liberal theories that maintain the opposite (Greenfield, 1994:601).

houses, and education and health facilities, especially in the rural areas, are sorely lacking (*A Basic Guide to the Reconstruction and Development Guide*:5). It was hoped that the RDP would redress some of the inequalities between rich and poor by focusing on issues such as housing, violence, unemployment, land reform, education and health care as well as boosting the country's economic growth (*A Basic Guide to the Reconstruction and Development Guide*:2). The RDP was presented as an holistic programme that would improve all aspects of life. President Mandela described the RDP in the following way:

> My Government's commitment to create a people-centred society of liberty binds us to the pursuit of the goals of freedom from want, freedom from hunger, freedom from deprivation, freedom from ignorance, freedom from suppression and freedom from fear. These freedoms are fundamental to the guarantee of human dignity. They will therefore constitute part of the centrepiece of what this government will seek to achieve, the focal point on which our attention will be continuously focused. The things we have said constitute the true meaning, the justification and the purpose of the Reconstruction and Development Programme, without which it would lose all legitimacy (*RDP White Paper*, 1994:4).

The RDP aimed to redistribute or restore thirty percent of the land to its rightful owners within five years. In these five years the government also hoped to build one million houses and supply adequate access to safe, clean water and sanitation to disadvantaged communities. Other plans included the electrification of two and a half million homes as well as all schools and clinics. Furthermore, the RDP claimed that both the safety of home and work environments would be a priority. Amongst other things this would include the close monitoring of pollution and waste

(*A Basic Guide to the Reconstruction and Development Programme*:6-7).

With the release in 1994 of the RDP White Paper, however, most analysts noted a marked shift away from the original Keynesian economic principles underlying the RDP, towards a more neo-liberal approach. In its RDP White Paper discussion document the government stressed that it would not be prepared to consider an increased government budget deficit in order to finance RDP projects (1994:3). Government spending would not be allowed to increase in real terms; the RDP would be financed in terms of budget restructuring both on a national and provincial level (*RDP White Paper*, 1994:3). Fiscal discipline was stressed throughout much of the document, as was the stipulation to only reach toward "attainable goals". Environmental issues seem to be an insignificant feature of the RDP. In the government booklet, *A Basic Guide to the Reconstruction and Development Programme,* environmental issues are fleetingly dealt with but rapidly cast aside when economic policy is discussed. There is almost a reversion to the point were environmental and development issues are seen as wholly separate concerns.

RDP GEARS DOWN?

Despite its poor environmental stance many people believed that the post-Apartheid government would implement a more people orientated economic policy. The RDP appeared to represent a shift away from the previous government's uncaring attitude towards people. Analysts such as Hein Marais state that the RDP can be seen as providing some continuity between the Freedom Charter and Minister Trevor Manuel's neo-liberal Macro-Economic Policy (*Mail & Guardian*,

16/05/1997). In his view, the RDP presented the country with a blueprint for nation building and in this respect was a very useful tool for the government. However, Marais asserts that it is impossible to have an effective redistribution programme within an economy that is dominated by privatisation, fiscal austerity and trade liberalisation (*Mail & Guardian*, 16/05/1997). The RDP process was to be one of development through the means of redistribution and reconstruction. It was envisaged that the government would play a central guiding role in the RDP process and providing for basic needs (NIEP, 1996:1). However, almost as soon as the RDP White Paper was released, it seemed to move away from the "spirit" of the RDP. A neo-liberal economic framework was stressed and fiscal prudence actually became an objective of the RDP. The result of this was that redistribution lost its central role in the RDP and the government reduced its participation in the economy to the point when it merely envisaged itself leading the transformation process (NIEP, 1996:1).

The ANC government moved even closer to a neo-liberal economic programme at the start of 1996, with the release of the draft National Growth and Development Strategy (NGDS). The NGDS was a further blow to the spirit of the RDP, proposing as it did, a Reaganomic "trickle-down" approach to development. This appears to be in sharp contrast to earlier ANC views of development.

In June 1996, the government announced a new economic policy commonly referred to as GEAR (Growth, Employment and Redistribution). The main focus of GEAR is economic growth and job creation with the government envisualising a six percent economic growth rate by the year

2000, and the creation of four hundred thousand jobs per year once that growth rate has been attained (*Mail & Guardian*, 25/10/1996). The government hopes to achieve this growth through measures such as stringent fiscal austerity and by making South Africa appealing to international capital. This effectively means that the government now views job creation as the primary agent in distributing resources (*Financial Mail*, 14/03/1997).

What has worried commentators such as the National Institute for Economic Policy (NIEP) is that aspects of GEAR are remarkably similar to IMF structural adjustment programmes (NIEP, 1996:1). This is a worry as these structural adjustment programmes have had a dismal success rate, especially in Africa. Furthermore, GEAR does not adequately discuss the prospects for Sustainable Development. The strategy talks of growth but does not address the proposed nature of this growth (NIEP, 1996:4). GEAR also moves away from the people-centred focus of the RDP and, with its determination to open up South Africa's labour market, could be seen as a departure from the RDP focus on a basic living wage (*Financial Mail*, 14/03/1997). GEAR's primarily economic focus has won it few friends amongst the ANC's allies, the South African Communist Party (SACP) and the Congress of South Africa Trade Unions (COSATU). Environmental groups, including as ELA and EJNF, have expressed their concern, noting that the government's economic policy has changed little from the economic programme designed by the National Party in the early 1990s (*Environmental Justice Networker*, Autumn-1997).

BUT WHY GEAR?

The contradiction between South Africa's stated environmental objectives and the reality of its environmental budget and practices is not unusual. Political and economic leaders often talk in terms of Sustainable Development while simultaneously advocating policies suggesting no limits to growth. An important example of this new economic order is the General Agreement on Tariffs and Trade (GATT) to which South africa is a signatory. GATT, which has now evolved into the World Trade Organisation, will impact strongly on a country's ability to determine its own economic policies. Policies discussed at the Uruguay Round will have the effect of preventing countries from prohibiting the importation of goods that do not conform to that country's environmental standards. GATT will also ensure that local producers are given no preferences and at the same time ensure that the South remains dependent on the North for technology (Korten, 1993:1-2). These provisions are a threat to the environment in many countries, especially in the South, because they promote low wages, poor environmental regulations and inadequate health and safety standards (Korten, 1993:2). It is exactly these conditions that led to the events at the Thor Chemicals plant. If these conditions are to be perpetuated it is difficult to argue that such tragedies will be prevented in the future despite the environmentally "friendly" legislation put forward by the DEAT in its White Paper on bio-diversity.

GATT also penalises countries that wish to impose environmental legislation more stringent than the international norm. This affects countries in the North as well as those in the South. In

1988, the USA passed legislation prohibiting the importation of tuna that had been caught in such a way as to endanger the life of marine mammals, especially dolphins. This was done in order to protect USA fishermen who already abided by such locally enforced legislation and who were thus struggling to compete against cheaper imports. Mexico challenged this legislation in terms of the stipulations set out by the GATT treaty. It was found that the USA was in contravention of GATT and that the USA was not entitled to enact such legislation as it was protectionism (Ruiz, 1996:1). The GATT dispute resolution committee ruled that it was unacceptable to discriminate against a product in terms of how it was produced. In this way it would be considered to be a breach of GATT to discriminate against products that cause environmental degradation, are produced by countries with poor human rights records or are produced by poorly paid labour (Ruiz, 1996:1). The committee ruled that individual countries can have high levels of environmental protection but they are not permitted to allow this legislation to impact on the trading capabilities of other countries.

This places South Africa in a difficult position. Many countries in the South have complained about "green protectionism" in the North. They feel that attempts by countries in the North to enforce high environmental standards are an attempt to exclude Southern countries from meaningful participation in the global economy. The USA-Mexico tuna dispute is one such example. South Africa is thus in the unusual position of being a country in the South which aims to implement Northern style environmental policies. This places a great burden on South Africa; supposedly only countries with strong economies, such as those in the North, are capable of affording strong environmental legislation. It is therefore unlikely that South Africa stands to

make any economic gains by introducing strong environmental legislation.

GATT is also potentially in conflict with many global treaties that concern environmental issues. The Montreal Protocol, which deals with ozone depletion, and the Convention on Trade in Endangered Species (CITES) both envisage the implementation of sanctions against countries that are in violation of these treaties. Such sanctions would be in breach of GATT (Watkins, 1992:101). By recognising intellectual property rights, GATT has ensured that the South remains dependent on the North for technology transfers, making it difficult for countries in the South to move away from "dirty" industry due to the cost of updated and more efficient technology. This, together with the fact that environmentally "friendly" industries are not afforded any protection by GATT, means that there is no incentive for companies to clean up their operating procedures. A good example is ISCOR in South Africa which uses outdated and "dirty" technology in its steel production process because developing a new "clean" process would add significantly to production costs (*Mail & Guardian*, 09/06/1995).

In terms of the Basel Convention, and specifically, cases such as Thor, GATT does make certain provisions for allowing countries to prevent the trade in hazardous wastes but states that trade should only be halted if it presents a real threat to the health and safety of the population (McDorman, 1995:3). These stipulations could be open to interpretation resulting in an undermining of certain environmental legislation as it is difficult to stipulate exactly what constitutes a threat.

GEAR can be seen as a "GATT-friendly" economic programme in that IMF representatives played a major role in its drafting (Van Heusden, 1997:1). The investment occurring in the wake of GEAR has been exceptionally capital intensive and export orientated. This has meant that instead of creating jobs, jobs have actually been lost (Van Heusden, 1997:1). South Africa is also being forced to open its markets so that it can compete as an equal partner in the global economy. Due to historic circumstances and the sheer economic strength of the Northern economies it is unlikely that South Africa will be an equal partner with the countries in the North in the foreseeable future. It is unlikely that GEAR will have the desired effect on the South African economy, namely high economic growth and the resultant creation of jobs. If this is the case then South Africa will remain vulnerable to foreign companies such as Thor Chemicals.

THE YELLOW BRICK ROAD

The government's economic strategy would be understandable if it was seen to produce development and secure the goals of the RDP. However, there appears to be little evidence to suggest that neo-liberal economic policies will have the desired effect of producing rapid economic growth. The dramatic economic growth witnessed in certain South East Asian countries such as the Asian Tigers was driven by the state, which intervened substantially in the economies of the countries in question. Markets were not open and in fact South Korea and Japan, among others, retain relatively closed economies. Development in these countries has been described as "guided capitalism" due to the central position played by the state, which has encouraged certain sectors of the economy by offering subsidies and tax incentives. Furthermore,

South Korea has borrowed extensively in order to fund its development (Kong, 1989:28). The closed nature of these economies is evidenced by the fact that only 0.2 percent of motor vehicles in South Korea are of foreign origin (*Economist*, 14/10/1995).

Likewise, the strict budget deficit controls instituted by the South African government are no guarantee of development. By aiming to reduce the budget deficit to three percent of GDP, the South African government is further endangering RDP objectives by reducing state funding and state subsidies. Furthermore, the World Bank has stated that South Africa could afford a budget deficit of approximately twelve percent of GDP which would allow the government more scope in implementing a really effective RDP (NIEP, 1996:7). A bigger government deficit would allow for more government-sponsored programmes which would in turn stimulate job creation. The South African government is thus implementing an economic programme that calls for austerity measures that are in excess of the levels suggests by the neo-liberal IMF and World Bank thereby jeopardising the stated aims of GEAR. It can be argued then that South Africa is following a rather dubious path in search of development. This choice of development strategy has important consequences for the environment and more specifically, the degree to which environmental issues will be prioritised by the South African government.

HOW GREEN IS OUR FUTURE?

The ANC has always stressed that it would be a much "greener" government than the National Party. At the time that the Thor story became news, the ANC was very vocal in its

condemnation of what was occurring at Thor. When, in November 1993, Nelson Mandela visited Engelbracht Ngcobo in hospital, he criticised companies that did not look after the health and safety of their workers (*Natal Witness*, 20/11/1993). The ANC in KwaZulu-Natal was a strong critic of the DEAT for allowing Thor to continue importing waste (*Natal Mercury*, 17/2/1994). The ANC even led a fact finding inspection of the Thor premises in February 1994 and later called for the stockpiled waste from abroad be returned to sender (Kockott, 1994:8). There was thus a great deal of hope amongst members of the environmental movement that an ANC led government would put an end to any other "Thors".

The Green Paper put forward by the DEAT in 1996 states that the ANC government supports Sustainable Development and intends to provide for the people of South Africa in such a way as to avoid compromising the future of the next generation: development needs to correspond with *Agenda 21*, the United Nations programme for Sustainable Development (DEAT Green Paper, 1996:1).

According to *Agenda 21*, all governments should work together to strengthen international treaties regarding the shipment of toxic waste. It also encourages states to prevent illegal trafficking in waste (*Agenda 21*, Chapter 20: C-D). The DEAT Green Paper stresses the need for increased monitoring of pollution and waste, particularly since it is usually the poor that suffer from the effects of pollution (DEAT Green Paper, 1996:14). The environmental policy proposed in the DEAT Green Paper states as one of its major objectives the upholding of Section 24 of the constitution: every person has the right to:

(a) an environment that is not harmful to their health or well-being; and

(b) to have the environment protected for the benefit of present and future generations,

(i) must prevent pollution and ecological degradation,

(ii) promote conservationism

(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development

(DEAT Green Paper, 1996:9).

The Green Paper does admit that regulations governing waste in South Africa are poor, and that this situation needs to be rectified. It emphasises that there be no confusion regarding environmental jurisdiction between government departments as is demonstrated by the Thor Chemicals example (Interview with Director Hazardous Substances, B1-F4-D2:1-2). Regulations also need to be enforced. This aspect was sadly lacking when the various government departments were dealing with Thor. It was noted by the DOH as far back as 1988 that Thor was not complying with regulations and yet the other government departments that also had dealings with Thor were not made aware of this (CWIU Submission, 1996:7).

At approximately the same time as this Green Paper was being released, South Africa's Ambassador to the European Union, Jackie Selebi, argued in a submission to the Federation of Green Parties in the EU that South Africa did not want a total ban on waste imports to South Africa. South Africa, he said, was doing its neighbouring countries a great service in accepting

their waste (*Environmental Justice Networker*, Winter-1996). If South Africa was prevented from importing the waste, neighbouring states would be forced to send their waste to Europe for treatment and would then have to accept it back in order to permanently dispose of it. This, as a very costly exercise, would no doubt lead to clandestine trading (*Environmental Justice Networker*, Winter-1996). Selebi's position is in direct opposition to the spirit of *Agenda 21*, the Sustainable Development programme which the DEAT claims to support. This once again points to little co-ordination between the various government departments regarding environmental policy.

IT'S A DIRTY JOB

It would appear that the Department of Environmental Affairs appears to be a rather unwanted post. Little has been done to restructure the department, and its National Party agenda remains in place. Both the Minister of Environmental Affairs and Tourism, Pallo Jordan, and his Deputy, Peter Mokaba, have intimated that social justice would become an important consideration when formulating environmental policy (*Environmental Justice Networker*, Autumn-1997). Yet when one addresses the national environmental budget for 1997/1998 it is clear that the ANC government's priorities are very similar to those of the old government. The conservation budget has been significantly increased while funding for pollution control has been cut back (*Environmental Justice Networker*, Autumn-1997). The Department of Environmental Affairs has only three air pollution officers for the entire country, and the pollution control budget accounts for only two percent of the departmental budget - this in a country which has areas of

extreme pollution threatening the health of millions (Cock, 1990:1-2). What is more, the Department is being downsized, with staff reductions of twenty-five percent (*Environmental Justice Networker*, Autumn-1997).

The DEAT also appears to be a great deal more concerned with tourism than it is with environmentalism, hence the stress on conservation. On a recent tour to Germany, Minister Jordan touched only briefly on environmentalism. Most of his energy was spent promoting South Africa as a tourist venue. Of Minister Jordan's speeches, most of them deal directly with tourism and if the environment is mentioned it is usually in terms of its tourist potential. This commitment by the DEAT to focusing its attention on tourism can be largely attributed to GEAR's neo-liberal economic programme. Tourism is stressed because it generates income which in turn results in conservation being stressed above other environmental issues. Preventing pollution on the other hand results in costs, not income, and thus receives a rather low ranking in terms of GEAR priorities.

The DEAT released its *White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity* in May 1997. This document echoes much of what was laid out in the department's Green Paper but in some respect takes an even stronger environmental stance. It unwittingly adopts a distinctly Deep Ecology platform when it states that its primary guiding principle is that all life forms have intrinsic value and that its major goal is humankind's "harmonious coexistence" with the natural world (DEAT White Paper, 1997: Ch2-1). The White Paper also stressed the need for South Africa to adopt the 'precautionary principle' when dealing

with possible instances of environmental degradation (DEAT White Paper, 1997:Ch2-2).

The EJNF has applauded the White Paper, calling it a victory for "the cause of environmental justice" (*Environmental Justice Networker*, Winter 1997:1). The stress placed on truly Sustainable Development has been lauded as recognition that development cannot be registered in terms of GDP alone. Both Sustainable Development and Deep Ecology stress the fact that quality of life has to considered as a key aspect of economic growth. However, problems relating to the implementation of a Sustainable Development programme have already arisen. The Ministries responsible for portfolios such as agriculture, mining and water are refusing to give over control of environmental legislation to the DEAT (*Environmental Justice Networker*, Winter 1997:3). This means that there are a number of loopholes that business can take advantage of due to poor co-ordination between government bodies.

Despite promises both in the Constitution and the White Paper to control and regulate pollution, there seems to be little commitment by government to enforce these stipulations and it appears that industry will be left to police itself. This could change after the 1999 elections where it is rumoured that the ANC will expand the scope of the DEAT incorporating the water and energy ministries under one control body (*Environmental Justice Networker*, Winter-1997). However, it is difficult not to see that a clash between GEAR and the policies set out in the White Paper, is looming. The government has made it plain in the past that it will not be prepared to deviate from its policy of fiscal austerity and the fact that the Department of the Environment suffered funding cuts in the 1997 budget is a worrying sign to those who wish to see South africa

implementing the recommendations set out in the White Paper on bio-diversity.

Thus despite the fact that the South African government has produced a very impressive sounding White Paper on how to protect the environment, this is clearly under threat from Trevor Manuel's "non-negotiable" macro-economic policy and South Africa's position in the global economy. That GEAR is such a strong priority with the South African government is a cause for concern, not only for people concerned with the environment, but also for those who have pinned their hopes on redistributive programmes such as the RDP.

If poverty is to be viewed as a cause of environmental degradation then it is of critical importance that GEAR and the RDP are effective in bringing about some form of redistribution. The workers at Thor were forced to accept hazardous working conditions because of their desperation for paid work. However, with the government determined to keep the budget deficit at three percent of GDP, there is little money available for government sponsored programmes. This makes any improvements in state sponsored welfare unlikely, with the result that the poverty that enabled Thor to exploit its workers is unlikely to be significantly affected.

In an effort to maintain fiscal austerity, the government has to choose its priorities. From the 1997 budget it is clear that environmental matters do not rate highly amongst these. The fact that the DEAT is being downsized and has experienced budget cuts is a strong indication that the government has other priorities. Conservation does feature strongly but this is because conservation promotes tourism and the influx of foreign exchange into the country. In KwaZulu

Natal conservation has a budget of R155 million whereas environmental affairs has a budget of only R3 million. In terms of staff, conservation employs approximately four-thousand-eight-hundred people whereas the department dealing with environmental matters employs less than ten people. In Gauteng, the provincial governmental has allocated only point 0.34 percent of its budget to its Department of the Environment. This figure includes the budget for conservation. In the Northern Cape the Department of the Environment has a budget of only R1 million while in the Eastern Cape the environmental department has had its budget cut by twenty percent (*Environmental Justice Networker*, Autumn-1997).

It would appear that government is only prepared to spend money on certain environmental aspects such as conservation - closely connected as it is to boosting the tourist industry and its accompanying foreign exchange earnings which are so central to the budget goals of GEAR. Environmental affairs and tourism make for uncomfortable portfolio bed-fellows, as tourism has a vested interest in how the environmental affairs budget is spent. This, together with the government's determination to maintain a low budget deficit means that much of the funding that is going into environmental affairs is being diverted away from issues such as pollution. This is not to argue that conservation is not desirable but rather that there should be a more holistic approach towards the environment.

A WORRYING SIGN

Thus there seems to be little indication that the post-1994 government is attempting to "plug" the

loopholes that allowed Thor to operate in the manner that it did. Environmental legislation remains spread over a number of departments and there is little co-operation or co-ordination between these departments. The South African government's commitment to international conventions seems to be at best lukewarm and a radical shift in environmental policy seems unlikely.

Little is being done to change attitudes within the DEAT. At a Parliamentary Committee on Environmental Affairs meeting held in October 1997, the most senior pollution official employed by the government, Willem Scott, admitted he was unfamiliar with the regulations governing the storage of waste at the Thor Chemicals plant. He excused his lack of knowledge on the grounds that storage procedure was a matter for the Occupational Health and Safety Department (*Mail & Guardian*, 23/10/1997). It also emerged from this meeting that despite all that has occurred at the Thor plant the waste is still not being adequately stored. Ordinances governing the storage of such waste maintain that the barrels should not be stored more than two barrels high. The waste is currently being stored at a hight of three barrels (*Mail & Guardian*, 23/10/1997). It is clear that there has been little attempt to consolidate environmental policy under one department and thus the fragmentation of legislation that allowed Thor to continue operating for so long appears to be unaffected. That senior officials are not conversant with the laws pertaining to their field is extremely disturbing and yet another indication that there is a real need for a radical shift in the government's attitude towards the environment.

South Africa is the world's eighteenth largest producer of greenhouse gases and seems to have

little willingness to cut back on these emissions. The South African government reluctantly signed the third United Nations Framework Convention on Climate Change narrowly avoiding being confined to observer status. It has been stated by individuals in the DEAT that the DEAT is more concerned with immediate development issues rather than long term ecological problems (*Mail & Guardian*, 06/10/1997).

The fact is that environmental concerns have not yet had much of an impact on the way that South Africans vote. Once again, this can be traced back to the fact that there is no strongly developed environmental ethic in South Africa. Environmental concerns are not perceived of as being fundamentally important and are often given little consideration by voters. This attitude is what makes Deep Ecology such an important philosophy in that it emphasises the impact that people's everyday actions can have on the environment. Until people are aware of how strongly environmental degradation can impact on their lives it is unlikely that environmentalism will be a primary concern. Thus it is exceedingly important that there is a radical change in people's attitude towards the environment as without this it is unlikely that voting priorities will change.

The reason that Thor was able to operate for as long as it did was not only due to poor environmental legislation but also because of poor enforcement of regulations. If environmental budgets are cut and departments are downsized, then cases like Thor will not be a thing of the past, even if more environmental legislation is enacted. The following chapter will highlight the role played by the government in the larger arena of environmental politics including specific references to how the governments implementation of international law impacted not only on

Thor but also on the rest of the country.

CHAPTER SIX: THE BIG PICTURE - INTERNATIONAL TREATIES

International treaties impacted on the Thor case, particularly the Basel Convention which attempts to control the transboundary trade in hazardous waste. The manner in which these treaties played a role at Thor is important, demonstrating as it does the government's commitment to combatting this trade. The previous government's racial policies ensured that South Africa was a pariah state within the international community. After 1994, it was hoped that South Africa would reclaim its position within the international arena and become an active member of the global community. To an extent this has occurred and South Africa appears to be a strong contender for a seat on a revamped United Nations Security Council. However, in terms of international environmental policy the post-1994 government has been less than enthusiastic in setting an example for the rest of the world to follow. The government's lack of enthusiasm regarding international environmental protection measures is yet another example of its lack of will regarding the prevention of environmental degradation.

INTERNATIONAL LAW: THE GATEWAY TO AFRICA

The Thor case study contextualises South Africa's position in the international community regarding its readiness to implement "green" legislation. South Africa was very reluctant to become involved in measures that would put a halt to the international trade in hazardous waste. The rest of Africa is bound by treaties which aim to bring the African waste trade to a halt. The LoméIV Convention was signed in December 1989 between the African-Carribean-Pacific (ACP)

countries and the then European Community. This agreement originally banned the whole of Sub-Saharan Africa bar South Africa from importing hazardous waste (Kockott, 1994:28). The Organisation of African Unity took this process one step further in January 1991 when the Bamako Convention was signed, banning all imports of hazardous waste to Africa. South Africa and Morocco were the only countries not to ratify the Convention. Morocco has subsequently signed the Barcelona Convention, part of which stipulates a ban on the shipment of hazardous waste to developing countries (Kockott, 1994:28).

The South African government has only recently agreed to sign the LoméIV Convention, Article 39 of which bans the importation of waste. South Africa agreed to sign the Convention as part of its trade and development agreement with the EU. However the South African government stated that its customs union partners, Botswana, Lesotho, Swaziland and Namibia were not included in this agreement; South Africa supposedly cannot enforce the stipulations of this ban on its partners (*Environmental Justice Networker*, Summer-1996/1997). This allows South Africa to import waste via these neighbours while not being in contravention of the agreement. This means that a considerable loophole exists for South Africa to continue trading in hazardous waste. South Africa was also a reluctant signatory to the Basel Convention.

One of the conditions for Thor being allowed to continue operating was that the company adhere to the stipulations of the Basel Convention. The history, the function and the conditions set out by the Basel Convention are important as the agreement pertains strongly to the Thor case and will have an even more profound impact on general waste policy now that South Africa has

become a signatory to the Basel convention (Davis Commission, 1997:31).

THE BASEL CONVENTION

The Basel Convention developed out of a conference held in 1989 in Basel, Switzerland. It was attended by representatives of one-hundred-and-sixteen countries. There was a great deal of negotiation and mediation before the convention was unanimously passed. The conference rapidly polarised along North/South lines: countries in the South complained they were being targeted as 'dump sites' by wealthy companies and countries in the North who had adopted a 'not in my back yard' approach to dealing with hazardous waste (Schissel, 1988:48). Northern countries were mainly concerned with controlling the flow of any transboundary trade in hazardous waste and were not actively trying to force a ban. The Convention was eventually ratified on the 22nd of March 1989.

The stated goal of the Basel Convention was to try and reduce the production of waste, to reduce the movement of this waste from one country to another and to establish structures capable of effective regulation of the movement of waste (CWIU Submission, 1996:33). The convention stipulates that waste be disposed of as close to its source of origin as possible (*Basel Convention*, Article 4:2a). The convention has however been accused of condoning the trade in waste and according it a degree of legitimacy so long as it is undertaken in accordance with the convention (CWIU Submission, 1996:34). Since no ban on trading in waste was included in the convention, the Organisation of African Unity (OAU) decided to take the convention one step further by

creating the Bamako Convention, which places a ban on any imports of toxic waste to Africa (Jaffe, 1997, 4-5). South Africa is not a signatory to this convention.

SWISS-CHEESE CONVENTIONS

The reason for the OAU decision is that Africa is seen as "under-polluted" by many in the waste trade. As many African countries are poorly developed it is argued that they have a tremendous ability to absorb wastes from other countries as they themselves are not producing any waste. This, combined with numerous African countries' desperation for foreign exchange, has meant that many companies have been able to make very lucrative deals with African countries. Benin was offered US$2,50 per ton to accept waste from Sesco Ltd, a Gibraltar based company involved in the transboundry trade in toxic waste (Schissel, 1988:48). The cost of disposing of this waste can be as much as US$3,000 per ton in some Northern countries, hence the desire to ship it elsewhere. Africa has further advantages for waste traders. Its population is largely uneducated as to the risks posed by toxic waste to communities and people tend to be less concerned about the dumping of this waste. Furthermore, African laws on pollution tend to be a great deal less stringent than pollution laws in the North (Schissel, 1988:48).

African countries have made an attempt to prevent exposing themselves to such exploitation with the creation of the Bamako Convention. The Bamako Convention describes the dumping of waste on the African continent as a crime against the African people (Jaffe, 1997:4). The convention also places restrictions on the disposal of waste. No waste may be burned if there

are indications that this will lead to the release of toxic substances into the air (Jaffe, 1997:5). Despite the threat of sanctions against offending parties, however, there have been numerous examples of African countries defying the ban in order to make quick profits. Benin, Guinea-Bissau, Nigeria, Somalia and Zimbabwe have all violated the ban, Benin in exchange for French economic aid (Montague, 1989:1-2).

The need for the Bamako Convention demonstrates that countries in the South are wary about the intentions of the Northern countries who voted against a total ban. This fear can be justified if one considers that the movement of waste is often sponsored not only by companies but Northern governments. France has used its historic and economic ties to West Africa in order to pressure countries such as Benin to accept waste (Schissel, 1988:48). In 1995 an Australian delegation travelled to South Africa to discuss the waste trade with representatives of the Department of Foreign Affairs as well as the Department Environmental Affairs. The Australians asked South Africa to use its influence to weaken African resolve for a ban to halt the trade in waste between industrialised and non-industrialised countries by 1998. Australia derives R525 million each year from its involvement in the toxic waste trade, which goes some way towards explaining its attitude (*Mail & Guardian*, 01/09/1995). The USA, as the greatest producer of waste in the world, both toxic and non-toxic, has refused to sign the Basel Convention and is thus not bound by its regulations. Long term environmental protection is being cast aside by countries in search of short term economic gains and it is for this reason that a paradigm shift is so necessary. All the conventions in the world will not be able to prevent environmental degradation if people do not believe that there is really a problem.

THOR AND THE BASEL CONVENTION

One of the conditions under which Thor was allowed to import waste from abroad was that it had to adhere to the guidelines set out by the Basel Convention (DNHPD to van de Vyver, B1-F10-D6:2). Both government and Thor stated, however, that the substances being imported were not waste but in fact raw materials on the grounds that they were recycled:

> Raw materials are not waste materials. The definition of a raw material does not depend on the origin or the physical or chemical state thereof. Whether it is imported or manufactured locally is also irrelevant ....Mercury is extracted from the substances concerned for the manufacture of a product and thus per definition, those substances are raw materials (Questions in the House of Assembly, B1-F10-D10: Quest 21:2).

The Basel Convention defines wastes containing mercury as hazardous wastes regardless of whether this waste is to be recycled or not (*Basel Convention*, Article 1:1a). This holds true also for definitions of hazardous waste as laid down by the Bamako Convention, the LoméIV Convention and the European Court of Justice (Greenpeace Article, B1-F5-D9:2). Certain government departments were either not fully aware of the nature of the waste that Thor was importating or these departments deliberately created loopholes for Thor. Gert Kotze's decision to allow Thor to continue importing waste completely contradicted his own announcement on the 24th of August 1990 banning the importation of hazardous waste into South Africa.

By qualifying waste as a "raw material" dangerous precedents were set and numerous loopholes

were created. It is misleading to claim that hazardous wastes can be recycled. Even if all the mercury in mercury waste could be safely and effective removed, there remains a toxic residue from which nothing can be recycled (Greenpeace Article, B1-F5-D9:2). Thor Chemicals has generated two-thousand-five-hundred tons of such residue which now has to be disposed of at the South African taxpayers' expense (Albertyn to DEAT,B1-F10-D39:1).

Waste traders can take advantage of the loopholes in the legislation in order to misrepresent the nature of what they are trading in. It is up to countries concerned to prove that a substance is hazardous and cannot be recycled or re-used. During 1990, waste traders taking advantage of loopholes in EU legislation shipped a large quantity of contaminated waste to Brazil for the purpose of recycling. It was later revealed that the Brazilian company contracted to do the recycling had a very poor environmental record: a number of workers had died as a result of its negligible safety standards (Greenpeace Article, B1-F5-D9:4). The waste was subsequently returned to its country of origin once the details of the shipment became public. Part of the mandate for the Davis Commission was to decide on the fate of the waste stored at Thor. One of the possibilities put forward was to return the imported wastes to the sender, this option will be addressed later in the final section.

From all the evidence it appears that the South African government does not have the commitment to its stated environmental ideals or the rights of its citizens to a clean and healthy environment. The deficiencies in government attitude towards the environment highlight the need for another more radical actor in the struggle to bring about more significant change in the

perception and protection of the environment. The role of the environmental movement in South Africa is an important one and this role will be stressed in the following chapter which takes cognisance of the role played by this movement particularly with regards to the Thor case.

CHAPTER SEVEN: SIDELINING BIG BROTHER - THE ROLE OF THE GREENS

> ...the significant problems we face today cannot be solved at the same level of thinking we were at when we created them (A Einstein in Anon (a), 1996:1).

The ethos of the modern environmental movement can be seen as being embodied in Rachel Carson's *The Silent Spring* which emphasised the dangers of the pesticide DDT. This indicated a shift away from the established conservationist or preservationist concerns of Thoreau, Leopold and Muir and instead tried to present a more holistic attitude toward the environment. This challenge to the twentieth century technological "miracle" awakened many people's desire to protect their environment and lead to the founding of groups such as Greenpeace and Friends of the Earth. It has been these groups, operating outside the parameters of government that have been most effective in conscientising people's attitudes toward their environment. In South Africa the environmental movement has played an important role in emphasising the importance of a healthy environment. The importance of groups within this movement is evident when one addresses the Thor case study. Without the involvement of the EJNF, it is unlikely that the events at Thor would have received the attention that they merited. Without the input of the environmental movement in South Africa there can be no hope of a safe environment for all.

COMMON GROUND

Deep Ecology argues that attempts to reform the current value system are futile because without attempting to deal with the core issue, namely the present economic system driven by the need

for profits, any reforms enacted will have little real impact. For the Deep Ecologist, Sustainable Development is not a solution to environmental problems, as it is not sufficiently far removed from the principles that created the problems. Sustainable Development is an economic strategy and not an environmental policy. By promoting Sustainable Development, governments are agreeing to take better care of their resources and agreeing to adopt a more long term economic strategy; they are not pledging to prevent environmental degradation.

The thrust of the Deep Ecology argument is that even if Sustainable Development is implemented with the best will possible, it is unlikely to have the environmental impact that is so necessary to halt environmental degradation. Deep Ecology argues that reformist programmes are insufficient. A strong desire for a change in attitude towards the environment is needed. This change in attitude cannot be enforced from above, and must be developed from the grassroots to permeate all of society. The state is incapable of disseminating these values even if it had the desire to do so. It is the task of the environmental movement to ensure that a dynamic environmental ethic is introduced into South Africa that will transform the way in which environmental issues are regarded. Hence the importance of Non Governmental Organisations in the struggle to ensure a healthy environment. NGOs do not take the same approach as governments, which act because of many factors including pressure from abroad, internal pressures and the desire to maintain power. The major strength of the NGO sector is that it acts out of principle. Without a real belief that serious consequences will result from inattention to environmental problems, any environmental reforms will merely result in papering over the dilemma.

ENVIRONMENTAL GROUPS

The environmental movement in South Africa, as in other countries, encompasses a very broad spectrum of people from conservationists to eco-anarchists (Vincent, 1992:217). The movement is thus not a cohesive body. The most influential groups in South Africa have tended to be groups concerned with conservation. However the growth of groups such as Earthlife Africa and more recently the Environmental Justice Networking Forum have introduced a more holistic agenda to the environmental movement in South Africa. It is the latter two groups who have been most involved in trying to develop new environmental norms in South Africa.

In this they are part of a world wide attempt by environmental groups to change people's perceptions of their natural environment. Some of these groups can, in this respect, claim some degree of success. There are indications that people are beginning to adopt a more responsible attitude towards the environment. Forty years ago issues such as nuclear weapons, nuclear power, whaling and pollution were not considered particularly controversial. Governments are now under considerable pressure to put a halt to these industries. This pressure comes not only from environmental groups but also the general population to whose attention these issues have been brought by the various environmental groups. Greenpeace has run a number of highly effective awareness campaigns, the most notable recent example being the protests against the 1995 French atomic testing in the South Pacific. Likewise Friends of the Earth succeeded in pressurising British industry to abandon the use of chloroflourocarbons in aerosols in a campaign that lasted just three days (Bramble, 1992:337).

These environmental groups have also been successful in forcing governments to toe the line. The CFC campaigns led to the signing of the Montreal Convention in which countries pledged themselves to eradicating the use of CFCs by the year 2000. The testing of nuclear weapons has now been halted by all countries barring China, and pressure from groups like Greenpeace has led to a near cessation of whaling. In this way, the environmental groups can be seen as the agents promoting a new environmental ethic that is considerably more radical than the Sustainable Development that is currently being offered on the international agenda.

Environmental groups have had a measure of success with this radical agenda because they have attained a strong sense of legitimacy. These groups have refused to compromise their principles, and much of their work has been done by individuals that have not been paid for their services. This is evidence of a commitment to ideals that goes a great deal further than merely a programme for sustained economic growth, it shows concern for the planet as a whole.

A QUESTION OF LEGITIMACY AND SOCIAL NORMS

The basis for the sense of legitimacy acquired by NGOs is the fact that they are issue specific, and do not need to compromise on their principles as governments often do (Clark, 1995:512). Furthermore, they tend to be committed to causes that governments would generally perceive to be of secondary importance, such as environmentalism (Clark, 1995:512). Governments have to focus their attention on a wide range of issues and, especially in democratic states, need to appeal to as wide a spectrum of people as possible. This necessitates compromise and short term

policies.

The many examples of corruption and mismanagement in government have further served to bolster the legitimacy of the NGO sector as many have come to believe that government is incompetent and dishonest. This, together with the realisation that government will be incapable of bringing about effective social change, has ensured that NGOs are being perceived as the sector that cares for the poor and the disadvantaged (Maharaj & Jaggernath, 1996:255). That the private sector has done little to advance development and shows little interest in empowering communities has only served to re-enforce the perception that NGOs are the best way forward.

Their legitimacy is bolstered by the way they are organised. In contrast to the way that governments operate, civil society adopts a more horizontal approach to its affairs. NGOs are inclusive rather than exclusive and operate not on a centre/periphery model but tend towards many centres and few peripheries (de Oliveira & Tandon, 1996:19). For example, the EJNF was only established after a great deal of consultation, and all bodies represented by the EJNF have a strong voice within the organisation ensuring that its decisions are based on consensus. The most legitimising factor regarding NGOs however, is that their chief aims are their goals and not the preservation of office.

These groups not only attempt to influence government policies but also attempt to create new values and norms. The EJNF has been represented at the drafting of the government Green Paper on bio-diversity and will be participating in the various discussion groups that have arisen as a

result of the white paper (DEAT Green Paper, 1997:77). The body has also participated in the commissions of inquiry dealing with Thor chemicals. However it is accepted that the chief goal is the creation of new norms and values. In this, the EJNF has had a measure of success; demonstrated by its rapid growth over the last five years to the point where its second conference in November 1996 was attended by delegates from all the Southern African Development Community countries as well as delegates from Kenya (*Environmental Justice Networker*, Winter-1997).

A NEW SENSE OF DEMOCRACY

Democracy in the late twentieth century is essentially about guarded institutions; institutions constructed to prevent totalitarianism or other types of rule by the strong. This contrasts with nineteenth century democracy, which was more concerned with power sharing and the fight against a dominant elite (Touraine, 1992:131). The focus has shifted from how to share power to how to prevent power from becoming absolute. However, this shift in attitude has caused many to view the state as impotent as a vehicle for social change. State intervention is viewed with suspicion even when it concerns the redressal of problems such as income distribution (Touraine, 1992:132). In addition, during the post World War Two era, states operated on the assumption that so long as there was economic growth and a sense of security people would be able to attain the 'good life' through concentrating their energies on consumerism and leisure time (Camilleri & Falk, 1992:208). It has become increasingly clear that this is an inadequate expression of peoples' needs, with the result that individuals have found it necessary to mobilise

themselves around the issues that really matter to them (Barber, undated:4).

The state has also lost control of the flow of information. During the Apartheid years, the South African government kept a strong degree of control over the availability of information by censoring the press and all material coming into South Africa. The Apartheid state was able to do this fairly effectively however certain modern developments have rendered such control impossible. The facsimile machine, satellite television, the internet and electronic mail have all served to greatly increase the distribution of information around the world. The information available to people can no longer be controlled by the state, making the actions of the state increasingly transparent. NGOs are now able to clamour for government accountability.

THE POLITICALLY GREY VOID

With the implementation of a neo-liberal economic programme in the form of GEAR, the South African government has effectively assigned to itself a role that is removed from civil society. Fiscal austerity measures have meant that the government has had to extract itself from many social programmes. The adherence to GEAR has created a political vacuum, distancing the government as it has from its grassroots support. The inability of government to perform a social role has resulted in the development of groups from within civil society in an effort to fill this void (Martell, 1994:115). These groups are attempting to address issues that fall outside the government's sphere of interest. They are not concerned with political power and in this lies their strength (Touraine, 1992:143).

The retreat of the state has created a grey area within the political arena, in between the individual and the government. It is into this grey area that groups from within civil society have attempted to establish themselves. In so doing, they have succeeded in breaking down the previously insurmountable barriers between political and social spheres (Yearley, 1994:160). These grey areas are filled by programmes promoting issues such as social justice which focus on assisting people to attain a better quality of life. The activities of these groups can be described as a "continuation of politics by other means" (Zirakzadeh, 1997:11). By being active in both engagement and negotiation, groups from within civil society have played a positive role in fostering the need for transparency and accountability in government (Munslow & Fitzgerald, 1994:239).

The South African government has responded by attempting to incorporate civil groups within the democratic process. The government White Paper concerning bio-diversity was the product of much consultation with civil groups such as the EJNF. However, for there to be a strong non-governmental sector in South Africa, it is imperative that the communities fostering civil groups be empowered. Without this empowerment there is likely to be little effective mobilisation of civil society as people will only be concerned about basic means (Munslow & Fitzgerald, 1994:230).

The government's retreat has also opened the way for the emergence of a powerful business sector which poses a serious threat to the influence of groups operating from within civil society; particularly in South Africa where so much emphasis has been placed on growth through

economic development. The threat that civil groups might be cast aside in this David and Goliath type of struggle is a serious one. Underlying the need for such groups to operate in South africa is the Thor case study, demonstrating as it does the crucial role of the non-governmental sector in bringing such events to the attention of the general public.

If civic groups are to continue to play a role in South Africa, it is imperative that they have sufficient resources to do so. The likes of GEAR are a threat to the non-governmental sector as the resultant government cutbacks on social programmes reduce the resources available to these groups, thereby extending the power of the business sector.

EJNF AND THOR: THE IMPORTANCE OF THE ENVIRONMENTAL MOVEMENT

The non-governmental sector played a significant role in focusing public awareness as to what was occurring at Thor; stimulating a demand for action. This is a strong indication of the "will" involved in this sector and it highlights the possible lack of will existing in government circles. The EJNF has managed to bring about change where the government and legislation have failed. The EJNF played such an important role in this case and has succeeded in demonstrating that until individuals in government are convinced that environmental degradation is truly a threat to South Africa then any attempts to prevent such degradation will inevitably fail.

Thor has highlighted the need for a strong environmental movement that is independent of government control. The EJNF was successful in its fight against Thor because it was able to

act in ways unaccessible to the government. As an NGO, it has certain advantages over the government. NGOs are able to take risks that governments would not be able to even consider. The actions of the EJNF and the case for compensation against Thor could possibly scare away potential investors. The government does not believe that it can be so uncompromising in its approach to economic matters as it has to try and balance short and long term goals. NGOs are freer than governments to act in a more radical and experimental manner (Maharaj & Jaggernath, 1996:255). They are aided by their flexibility, both in their style of operation and in their organisational structure, which allows for adaptation to new circumstances in ways that a rigidly hierarchical, bureaucratic government would be incapable of. They have the added advantage of being in direct contact with the "grassroots" and are thus afforded an air of legitimacy for their operations. This legitimacy is strengthened by their tendency to remain small and highly democratic. As a result of their structure they are capable of dealing with a wide spectrum of stake-holders, from governments to individuals. They have a further advantage over government in that they do not have political appointees who might know little or nothing about their portfolio. An NGO tends to be staffed by individuals personally dedicated to the cause championed by that NGO. This leads to greater urgency and dedication to the issue at hand than that which would be prevalent at a government level (Maharaj & Jaggernath, 1996:255). This is indicative of the EJNF where volunteers contribute thousands of unpaid work hours to advance the position of the EJNF (*Environmental Justice Networker*, Winter-1997).

The EJNF has also been successful in that it is highly inclusive and tries to represent as broad a spectrum of people as possible while simultaneously taking advantage of its network to

mobilise public opinion. The EJNF consists of labour unions, traditional healers, conservation groups, churches and farmers' unions situated throughout the country (EJNF Application Form, 1997:1-3). This allows the forum to be in contact with many diverse communities in different parts of the country.

In this way NGOs are a vital component of the South African political landscape as it can be strongly argued that they augment generally accepted notions about rights. They have a focus stretching beyond economic circumstances, attempting to help individuals develop to the best of their ability. This includes issues such as human rights, women's rights and environmentalism. Thus NGOs cover a broad spectrum of issues and the EJNF as an umbrella NGO covers many of these concerns simultaneously. Representing four hundred and fifty civil groups the EJNF unites environmentalists, unionists, religious groups and community organisations in addressing the quality of growth needed in South Africa (*Environmental Justice Networker*, Winter-1997).

NGOs tend to be progressive, stressing that growth is not restricted to GDP and that material gain alone will not be a sufficient condition for a healthy society. Such movements can be seen as the successors of the old labour movement in their quest to improve people's quality of life (Yearley, 1994:152). Yet unlike the Labour Movement, these groups are not class driven, appealing rather to all sectors of the population. Again the EJNF is a case in point representing the interests of white liberal environmentalists from groups such Earthlife Africa alongside that of the labour unions and disadvantaged rural communities (*Environmental Justice Networker*, Winter-1997).

The labour movement, as well as being class driven, was primarily concerned with extracting concessions from government and capital regarding the minimum wage and the length of the working day. The non-governmental sector tends to be more concerned with collective goods such as human rights and the environment and, unlike governments these movements are neither bureaucratic nor hierarchical, attempting to operate by means of consensus, favouring individual autonomy above conformity (Aneira, Ernst & Kier, 1990:447).

A DIFFICULT ROAD

The South African government has in the past been notorious for its poor attitude towards environmental concerns. A recent example is the shipment of toxic waste imported from Finland in 1994. Consultants working for the then Director-General of Environmental Affairs, Dr Colin Cameron, authorised the shipment even though it was in contravention of international treaties concerning the movement of toxic waste (*Environmental Justice Networker*, Winter-1995). Government only appears to be concerned about environmental issues when discussing game reserves as they are income generating concerns. This, it must be stressed, is not an attack on conservation but a criticism that government is only interested in environmental concerns that pay their own way. In 1994, the government spent less than R3 million combating pollution in a country that has one of the highest rates of air pollution in the world (*Environmental Justice Networker*, Winter-1995). Moreover, in 1996, an ANC senator, Cheryl Gillward, blocked a proposal in a joint sitting of the European Union Parliament and representatives of the African-Caribbean-Pacific countries, to put pressure on companies such as Thor Chemicals to remove the

toxic waste they shipped to South Africa and to dispose of this waste in Europe (*Mail & Guardian*, 04/10/1996). Additionally, despite the promises made by Environmental Minister, Pallo Jordan and Deputy-Minister, Peter Mokaba, the 1997/1998 budget shows little concern for the people most affected by environmental degradation (*Environmental Justice Networker*, Autumn-1997). In fact, the already underfunded pollution control budget is to be cut (*Environmental Justice Networker*, Autumn-1997).

Environmentalism is often dismissed as a white, middle-class obsession that aims to preserve white privilege whilst hindering the development of disadvantaged sectors of the community. One of the accusations levelled against environmental groups is that they are a threat to economic development and therefore employment. There are many such examples, actively fuelled by business and other vested interests in order to weaken environmental claims. A good case in point is the proposed steel project at Saldanha Bay. Heavily opposed by environmental groups the company involved, Iscor, claimed that by preventing the project the environmentalists would be responsible for the potential loss of thousands of jobs (ELA, 1995:2). An ANC MP, Jenny Schreiner, accused environmentalists in the area of being arrogant and putting nature before people, maintaining that the possibility of 4,500 new jobs was more important than concerns for scenic beauty (*Mail and Guardian*, 02/06/1995). What Schreiner has failed to take into account is the exceedingly dirty nature of the industry, especially given the technology Iscor plans to make use of. The only other country using such technology is North Korea. It is doubtful that the proposed steel plant would conform to environmental specifications in Northern States (*Mail and Guardian*, 09/06/1995). Nevertheless there is a great deal of unemployment in this region

and the ANC is desperate to show that it is capable of generating jobs in the area; regardless of the future cost.

However, it is also clear that people in the area will be unlikely to obtain jobs at the plant as most posts require a minimum of a matric certificate and the average level of education in the area is approximately standard five to standard six (*Mail and Guardian*, 09/06/1995). Furthermore, this new plant will be replacing an old Iscor plant in Vanderbylpark and much of the labour for the new plant will originate from the Vandebylpark work force (*Mail and Guardian*, 09/06/1995). Yet the knee-jerk reaction from many in the ANC was that environmental groups did not care about the plight of the poor.

TIMEBOMB

The environmental degradation presently taking place in South Africa will have serious consequences in the long term. For example, it is only now that South Africa is counting the cost of asbestos mining. The health hazards created by this industry are only now presenting themselves, decades after the asbestos was originally mined. By 1931 it was clear that asbestos presented serious health risks and as early as 1954 South Africa had legislation in place to regulate the industry (*Mail and Guardian*, 18/04/1997). These laws were largely ignored, with the result that mines that closed down during the 1960s and 1970s are only now producing their victims. Certain asbestos related illnesses take up to forty years to develop (*Mail and Guardian*, 18/04/1997). The problem is particularly bad in the Northern Province, where many asbestos

dumps are still exposed to the atmosphere. Professor Tony Davis estimates that the number of victims poisoned by asbestos will eventually number in the hundreds of thousands (*Mail and Guardian*, 18/04/1997). Whole towns have had their health threatened by this industry: in Mafefe near Pietersburg, forty-one percent of the population have tested positive for asbestos related lung damage (*Mail and Guardian*, 18/04/1997). The cost in terms of human life, human suffering and state funded health treatments will only be added up in many years time. In the same way, future generations will face the consequences of air, soil and water polluted by the present generation. It is thus important for the environmental movement to minimise the damage already done and to take steps to prevent further damage.

PROBLEMS IN PARADISE

NGOs are effective in disseminating new environmental norms and furthermore these groups are vital in the South African context especially in light of the examples that have been discussed. However, it does not suffice to say that NGOs alone will be capable of ushering in a new era of environmental consciousness. It is true that NGOs have a number of strengths, but these can often be offset by weaknesses which can render these organisations impotent. The fight between government and big business and the environmental movement is uneven. In terms of resources and manpower, the environmental movement is at a decided disadvantage and is forced to select its battles thus not being able to adopt a fully comprehensive approach to all its concerns. Undoubtedly then, the environmental movement alone cannot provide all of the solutions. There must be an adjustment in people's values if true change is to occur. This is crucial: NGOs do

not have the funding to be the guard dogs of the environment. They tend to be small organisations and obviously do not have the power to raise funds through taxation in the way that governments can. Some NGOs are able to rely on fund raising in order to generate their income. This can give an NGO a great deal of latitude in its actions as it is not beholden to any particular source for its income. Other NGOs are reliant on donors such as big business or governments thereby weakening their ability to act independently.

The EJNF was effective in its efforts against Thor because it was financially independent. However, funding problems have proved to be problematic. The group has had to depend on legal aid in order to finance legal counsel for the various inquiries held into the activities of Thor. The group was also restricted by lack of manpower. Thus while the NGO sector is crucial in policing the environment, its most important goal is the dissemination of values; especially to those in government.

The National Party attempted to reform Apartheid during the 1980s with the result that many of the laws governing petty apartheid were scrapped. However, the core principles of apartheid remained entrenched. Government instituted Sustainable Development can be seen in much the same way. It is a step in the right direction but in its current form is unlikely to bring about truly fundamental change. Unless there can be a real commitment to addressing environmental degradation in South Africa there is little prospect for social justice due to the fact that those who suffer most as a result of environmental degradation are the poor.

Thus the environmental movement can be seen to embody a synthesis between Sustainable Development and Deep Ecology. In adopting a strong value system regarding the environment these groups make Sustainable Development a much more realistic solution to putting a halt to environmental degradation. However, if there is to be a halt to environmental degradation then it is crucial that these values be disseminated to broader society. Only once this dissemination has occurred will government policy follow suite.

CHAPTER EIGHT: CONCLUSION

Government plays an important role in environmental issues by virtue of the fact that it dictates and enforces environmental legislation. What is important to this study is whether the present government will accept the lessons learned through the tragic events that took place at Thor. Indications, such as the proposed solution for dealing with the waste stockpiled at Thor, suggest that the ANC-led government has not learned from the mistakes of the former government, making it a strong possibility that similar situations might occur in the future.

THE FUTURE OF THOR'S WASTE

The decision regarding the disposal of Thor's waste is an important one. A broad spectrum of stake holders including Thor Chemicals itself as well as the EJNF, presented proposals to the Davis Commission regarding the future of Thor's waste. The decision made by the commission is important as it sets a precedent for other such cases should they arise. The different proposals presented to the commission will be discussed below as will the findings of the commission. The presentations to the commission and its recommendations serve to point the direction in which South African environmental policy is moving.

INCINERATION

The most obvious solution to the problem of Thor's stockpile of waste is to incinerate it under

carefully monitored circumstances and then dispose of any resultant ash in an environmentally safe manner. Both ELA and the CWIU opposed this alternative on the grounds that it is not possibly to carry out such an incineration in an environmentally safe manner and furthermore it might endanger the health of the workers involved in the process (CWIU Submission, 1996:44) (ELA Submission, 1996:18-20).

There are manifold environmental risks associated with the incineration of waste. Many of the chemicals released into the atmosphere do not bio-degrade or revert to harmless compounds (Thornton, 1993:3, B1-F26-D1). One of the greatest fears associated with the incineration of waste is the production of dioxins. Dioxins are extremely toxic to humans, and even at low doses cause side effects such as cancer, infertility, birth defects and impaired development in children (ELA Submission, 1996:18). Dioxins are accumulated in the bodies of living organisms in a process known as bioaccumulation, in which high concentrations of dioxins build up in the fatty tissues of the animal. These dioxins cannot be not expelled. Meat and fish eating animals are thus exceedingly vulnerable to dioxin poisoning if their diet consists of contaminated flesh (Thorton, 1993:5, B1-F26-D1).

In a study conducted for a proposed incinerator plant in East Liverpool, Ohio, it was estimated that as a result of people eating dioxin-contaminated beef there would be a marked increase in cancer rates. Vegetables grown in the area would also have high levels of dioxins (Thorton, 1993:7, B1-F26-D1). In Holland, the milk and meat generated from dairy farms situated near incinerators has been found to be so toxic that the government has forbidden its sale. The

government buys all products from these farms and disposes of them. The fat from the milk is considered so toxic that the government burns it in a waste incinerator (Thorton, 1993:7, B1-F26-D1).

Dioxins can also enter the human system through crops and vegetables. The plants absorb the dioxins either from the air, the soil or contact with other contaminated plants. Added to the immediate risk of dioxin poisoning is the fact that dioxins in soil have a half life of approximately twenty-nine years. Dioxins are not only an immediate threat to people's health but also threaten the health of future generations (Thorton, 1993:5, B1-F26-D1). Thus any decision to incinerate Thor's waste could have serious implications for the health of many South Africans living in KwaZulu-Natal, both now and in the future.

Mercury is not destroyed during the incineration process. Instead of being destroyed metals often escape into the atmosphere in the form of emissions. These metals, such as mercury, cannot be broken down into harmless substances, but remain airborne until washed out by rain where they accumulate in the soil.

> Problems due to soil contamination with trace metals are essentially long term, since additions are cumulative and may only reach damaging proportions after many years. However once soils have become contaminated they may remain in this state permanently, since removal of trace metals either through leaching or rainwater or by removal by crops is an extremely slow process (Webber in Thorton, 1993:9, B1-F26-D1).

It is estimated that between 1987-1992 Thor was responsible for allowing nearly four thousand kilograms of mercury to escape into the atmosphere. It has been estimated that one-hundred-and-sixty-nine square kilometres of KwaZulu Natal have been contaminated by this mercury (ELA Submission, 1996:23). The ELA states that it would constitute an environmental hazard to burn the remaining waste at Thor.

Furthermore, burning the waste does not actually put an end to the problem as the ash that remains is still highly toxic and requires disposal at a selected landfill site especially designed to deal with these kinds of waste. The incineration process reduces the quantity of the waste, it is by no means a final solution to the problem (Coster, 1996:2-2).

PROBLEMS WITH THE THOR PLANT

The Thor plant is incapable of reaching the one-thousand-three-hundred degrees celsius recommended by the Basel Convention as being the ideal temperature for the incineration of hazardous waste (*Basel Convention*, Document 10, paragraph 8). During trial runs the Thor kiln was only capable of attaining temperatures of approximately six-hundred degrees celsius (DNHPD to Thor Chemicals, B1-F10-D35:1). In addition, the kiln was shown to be incapable of cooling rapidly enough, the temperature remaining in the two-hundred-and-fifty to four-hundred degrees celsius range for far too long after firing. This range is the optimum temperature for the production of dioxins (ELA Submission, 1996:24). The incineration of all stockpiled waste at the Thor plant will result in the emission of over three-thousand kilograms

of mercury into the atmosphere. This is due to the fact that during the trial runs on the new plant mercury emissions of twenty milligrammes per cubic metre were recorded. These levels are four times the South African limit of five milligrammes per cubic metre (ELA Submission, 1996:24). It will also release into the atmosphere dioxins as well as other gases. Furthermore it will result in the creation of a further one-thousand tonnes of ash containing eight to twenty tonnes of mercury (ELA Submission, 1996:24).

The Basel Convention stipulates that countries wishing to incinerate toxic waste must use the most sophisticated technology and conduct numerous tests to ensure the incineration plant is functioning adequately (*Basel Convention* Document10: Paragraph 62). The costs involved in making the Thor plant sufficiently environmentally safe would be exorbitant, while calculated costs for appropriately testing the plant would be in the region of US$1 million (ELA Submission, 1996:24). ELA argues strongly that incineration at the Thor facility is a poor option. The CWIU also expressed strong reservations concerning the waste being incinerated at the Thor plant citing the company's poor record of health and safety (CWIU Submission, 1996:44).

The DWAF testified at the Davis Commission that, with a number of modifications, the Thor plant would be capable of safely incinerating the waste and recovering mercury from it (Davis Commission, 1997:39). The CSIR also maintained that with modifications, careful monitoring and maintenance by a specialised workforce, the Thor plant would be capable of incinerating the waste in a manner that would not endanger the general public or the environment. The CSIR called for a number of test runs to be done at the plant in order to facilitate the most effective

modifications to the plant (Davis Commission, 1997:39).

LANDFILL

Burying the waste at a landfill site was another option available to the Davis Commission. South African landfill sites of this kind have very poor operating records. They have a history of poor planning and poor management and pose a significant risk to the surrounding environment (Coster, 1996:2-1). Many of these sites operate without permits and do not pay adequate attention to the laws that govern their operations:

> Conditions that could lead to contamination exist at more than half the landfill sites on which information was collected. Very few have applied for permits. Many have been poorly sited, planned, designed and managed or accept waste for which they were not designed. Inadequate facilities and poor control add up to a recipe for contamination and community health problems (CSIR report in ELA Submission, 1996:27-28).

Burying mercury waste does little to prevent its impact on the environment. In landfill sites mercury compounds often break down leaving elemental mercury behind. This can vaporise and contaminate the surrounding area with airborne mercury which falls to the ground when it rains (Coster, 1996:2-2).

The CWIU was not in favour of disposing of Thor's waste at any existing site. It suggested that it would be amenable to a site created especially to deal with Thor's waste and even then only

if the waste could be rendered immobile; thereby preventing the mercury from contaminating the environment (CWIU Submission, 1996:45-46). Even this option is fraught with problems, however, as there are no guarantees as to how long the mercury will remain immobile. It is merely containment of the waste and by no means a final solution.

RETURN TO SENDER

Both ELA and the CWIU were in favour, where applicable, of returning the waste that originated overseas to the senders. One of the arguments in favour of this option is that companies such as Borden Chemicals must, at some point, have become aware that Thor was not capable of recycling the waste it was receiving. In 1994 when questioned by Greenpeace, Borden claimed that it was unaware of any problems existing at the Thor plant. This was shown to be false when Borden later admitted knowing that Thor had over two-thousand-five-hundred barrels of Borden waste stockpiled on its premises (ELA Submission, 1996:33). It is clear from the above that companies such as Borden shipped waste to South Africa knowing that it would not be recycled. A measure of responsibility must lie with companies such as Borden.

It would also appear that Borden's shipments of waste to South Africa were illegal in terms of American law. According to the United States Resource Conservation and Recovery Act, notification must be given to the Environmental Protection Agency if one is intending to ship hazardous waste abroad (ELA Submission, 1996:32). Borden claimed this was unnecessary as they were not exporting waste to South Africa but rather partially depleted mercury catalysts that

were in sufficiently good condition that they could be re-used (ELA Submission, 1996:32). This has been shown to be incorrect. If Borden did ship waste to Thor under false pretences then it can be strongly argued that Borden are morally obliged to remove their waste from South Africa.

The Basel Convention states that it is illegal to export waste to countries unable to deal with this waste (*Basel Convention*, Article 4:2g). This does not affect companies in the USA as America is not a signatory to the Basel Convention but it could conceivably be applied to waste from Thor UK. The Convention clearly states that if transboundary movements of waste occur in breach of the Convention then that waste can be returned to sender (*Basel Convention*, Article 9:2a).

During a joint sitting of the European Union parliament and representatives from the ACP Countries, the Green Party attempted to pass a resolution demanding that Thor UK remove all wastes that they had exported to South Africa and return them to the UK (*Mail & Guardian*, 04/10/1996). The resolution was withdrawn after an ANC Senator, Cheryl Gillward, convinced the ACP countries not to support the resolution (*Mail & Guardian*, 04/10/1996). Had this resolution been passed it would have set a strong precedent for demanding that USA companies do the same. The ANC effectively scuttled a resolution that would not only have put a great deal of pressure on Thor UK to take responsibility for its operations, but also denied South Africa, and other countries in the South, a measure of protection from companies such as Thor.

WHAT ELSE IS THERE?

A number of alternative methods were put before the Commission, but most of these technologies still resulted in a toxic residue that would need to be accommodated in a landfill site with its associated risks. Only one of the methods put forward can really be described as a "destruction technology"[11] namely that of the catalytic extraction process. This method makes use of a bath of molten metal which dissolves wastes into their basic elements which can then be extracted. The process takes place in a sealed unit ensuring that there are no emissions. Most importantly, the process generates no waste (Davis Commission, 1996:41-42).

DAVIS COMMISSION DECIDES

The Davis Commission was given a mandate to decide the fate of the stockpile of waste that Thor has accumulated on its premises at Cato Ridge. After weighing up considerable testimony the Commission decided that the waste should be incinerated at the Thor plant. In defence of their decision, the Commission stated that none of the alternative solutions to the problem had ever been tested on such a large scale added to which the new technology would prove exorbitantly expensive (Davis Commission, 1997:44).

---

[11]A "destruction technology" is one in which all the waste is eliminated. Such a process would ensure that there were no toxic emissions or hazardous residues resulting from the elimination of the waste (Davis Commission, 1996:41-42).

The Commission stipulated that the mercury in the waste had to be recovered and the process made as environmentally safe as possible. Workers on the plant would need extensive training regarding the hazards of working with mercury compounds and regular health and safety inspections by outside teams (Davis Commission, 1997:36). Emissions are also to be heavily restricted and carefully monitored which necessitates modifications to the plant to ensure that the kiln operates at optimum temperatures guaranteeing that the production of dioxins is prevented and that the waste is effectively incinerated (Davis Commission, 1997:37). The Commission stated that mercury emissions from the kiln are not allowed to exceed five milligrammes per cubic metre. The European limit for such emissions is one-hundred times stricter than this (*Environmental Justice Networker*, Autumn 1997:8). The Commission's decision will result in the people of KwaZulu-Natal being exposed to further mercury emissions. Furthermore, this decision, if implemented, would constitute a breach of the Bamako Convention should South Africa become a signatory (Jaffe, 1997:5).

Regarding returning the waste to its origins, the Commission stated that as the waste from abroad constitutes only a small percentage of the stockpile, this was not a realistic solution. This seems to be a poor reason because the waste from abroad constitutes thirty-eight percent of the stockpile - a sizable percentage (Davis Commission, 1997:43). The Commission did however also express doubt as to the legality of such a move in terms of international law.

The fact is that the Thor plant might never be suitably modified to safely deal with the waste; if this turns out to be the case, a further investigation into the matter will be required. Even if

the kiln can operate within the parameters set by the Commission, the safety levels specified by the Commission are one-hundred times less stringent that comparable safety levels in developed countries. If Thor's waste is incinerated at the temperature levels specified by the commission, the people living in Cato Ridge will be exposed to further mercury contamination - the results of which will only be determinable in the future.

The Davis Commission has been a disappointment in that its findings fall barely within a Sustainable Development paradigm let alone anything more radical. The commission had the opportunity to ensure that South Africa became an example of how countries in the South could challenge environmental degradation. Instead the Commission will allow Thor's waste to be incinerated at the company's plant: the same plant that has proven inadequate in preventing environmental degradation in the past.

South Africa is facing serious environmental degradation. Many of the problems go beyond merely affecting picturesque scenery and certain popular wildlife species. These problems pose a very real threat to the human population of South Africa, especially given the fact that the full consequences of environmental degradation are often only felt decades later. It is usually the poor that suffer most from environmental degradation as has been witnessed in the Thor case study, and thus if this country is to have any form of social justice, the environment needs to be given a high priority.

The Deep Ecology approach to matters of development provides a very useful critique not only

of Modernism but also of Sustainable Development as a strategy for preventing environmental degradation. With its holistic focus, Deep Ecology contrasts strongly with the former approaches which tend to compartmentalise environmental and developmental problems and deal with each separately. Deep Ecology perceives no distinction between, for instance, environmental, developmental and economic concerns. For the Deep Ecologist, every action needs to be considered in light of its impact on the environment before it can be implemented. On the other hand, Sustainable Development is essentially a development strategy, prioritising the creation of material wealth above all else. It can be convincingly argued that for South Africans to be assured of a healthy "green" future, the reformist approach offered by the Sustainable Development paradigm is largely inadequate. This inadequacy is exacerbated by serious doubts as to the commitment of the South African government to environmental issues. If there is to be any real commitment, it is likely to come from non-governmental sources.

There is evidence to suggest that South Africa is becoming more "green". The right to a clean and healthy environment is enshrined in the constitution. The government's White Paper on bio-diversity is a very 'environmentally friendly' document encapsulating a number of tenets espoused by environmentalists and including some aspects that could be viewed as having a Deep Ecology perspective. In terms of global action, South Africa is party to *Agenda 21,* the blueprint for global sustainable development as well as being a signatory to the Basel Convention which controls the transboundary movement of hazardous wastes.

There is cause for concern, however. The events occurring at Thor and their aftermath indicated

that government is not fully committed to the spirit of the bio-diversity White Paper. South Africa has been very reluctant to move out of the waste trade. The DTI was extremely averse to the ratification of article 39 of the LoméIV Convention which forbids the trade in hazardous substances, and has ensured that loopholes remain in the treaty. Furthermore South Africa has refrained from signing the Bamako Convention prohibiting African countries from accepting hazardous wastes from abroad. This, together with the current international economic system which places a great deal of pressure on Southern economies to conform to Northern economic values, has ensured that there is still a great deal of potential for South Africa to continue to be party to the international trade in hazardous wastes.

It is also unfortunate that the environment is not deemed sufficiently important to warrant its own government department. This situation is aggravated by the fact that the environment has been merged with tourism to form a single department. The development of tourism in South Africa has a very different agenda to that advocated by environmentalists. Tourism is concerned with picturesque scenery and wildlife conservation which, while admirable from an environmental point of view, does not address the equally pressing issues of pollution and the degradation of the environment by companies such as Thor.

South African environmental legislation is by no means a coherent body of law. It is spread between a number of departments with the result that certain instances of environmental degradation can, and have been, overlooked. This was highlighted by the Davis Commission where evidence showed that Thor was able to operate in contravention of government policy with

impunity for many years. The fact that the laws governing Thor's operations were spread over so many departments meant that nobody in government was fully aware as to what was occurring at the Thor plant. That serious problems with Thor's operating procedures were apparent as early as 1988 is cause for concern. As yet there seems to be little real evidence of this situation changing.

The South African government has the admittedly unenviable task of trying to provide social justice as well as become a successful member of the international economic community. It is clear that government has decided that rapid economic growth is the best way of providing social justice and this causes a measure of disquiet. White Papers, new environmental legislation and environmentally sound international treaties are all meaningless if there is no will to enforce them. More crucial is the creation of new environmental norms as espoused by environmental groups such as the EJNF. This will have a two fold effect: alerting people to environmental issues and ensuring those government departments responsible for the environment will have sufficient will to implement policies that will have a meaningful impact on the lives of South Africans. Until this will exists the success of environmental policy remains open to doubt.

Thus, while talk of Sustainable Development is all very well, there is evidence of underlying problems concerning government's commitment to the environment. Recently the Minister of Environmental Affairs and Tourism, Pallo Jordan, set an unhealthy precedent when he overturned his own moratorium on the trade of primates for experimentation to overseas companies by selling a number of monkeys and baboons to a French company that is known to treat animals

poorly. This has incensed animal rights activists and shed doubt on Minister Pallo Jordan's commitment to his stated principles.

The Government needs to ensure that the environment becomes a real priority. This is only likely to occur when the people who constitute the support base of elected officials come to believe that the environment is a central issue in their lives and that it profoundly impacts on their ability as individuals to attain the 'good life'. Thus the role of the environmental movement in South Africa is a crucial one as the development of a new environmentally friendly ethic lies chiefly in its hands.

The tragedy that occurred at Thor was entirely preventable and should never have taken place. Unfortunately the short sighted economic policies that enabled the events at Thor to occur remain in place. Lip service to reformist ideals and meaningless legislation will not prevent another case such as Thor. Until society begins to think holistically and becomes aware of how its actions impact on the environment, on people and on our future, there is little reason to be optimistic about the future for the world in general and South Africa in particular.

REFERENCES

(1) Archival Material: EJNF Office - Pietermaritzburg

(a) Box Files

Box 1 - File 2 - Document 5 (B1-F2-D5)
Telegram from the USA Department of State requesting that USA Ambassador in South Africa seek permission for American Cyanamid to export waste to Thor - July 1989.

Box 1 - File 2 - Document 5 (B1-F2-D6)
Telegram from USA Ambassador in South Africa stating that permission had been granted - October 1989.

Box 1 - File 4 - Document 1 (B1-F4-D1)
Fax from Mr Van de Vyver to the Department of National Health and Population Development requesting permission for Thor to purchase Cinncarb - 11 November 1992.

Box 1 - File 4 - Document 2 (B1-F4-D2)
Telephonic interview between Mr F Kockett and Dr T Van de Venter, the Director Hazardous Substances. Concerns Thor's importation of Cinncarb - 25 November 1992.

Box 1 - File 4 - Document 3 (B1-F4-D3)
Letter from the Department of National Health and Population Development granting Thor permission to import Cinncarb - 9 December 1992.

Box 1 - File 4 - Document 4 (B1-F4-D4)
Letter from Calgon Carbon Corporation to Ms C Murtagh of Greenpeace stating that they were not responsible for any environmental degradation in South Africa.

Box 1 - File 5 - Document 1 (B1-F5-D1)

Article entitled "The Loop" undated and Author unkown

Box 1 - File 5 - Document 3 (B1-F5-D3)

A report by Mr C Albertyn regarding an inspection tour of the Thor Chemicals plant - 21 February 1994.

Box 1 - File 5 - Document 9 (B1-F5-D9)

Greenpeace, 1990, *Sorry Thor - No Loophole*, November.

Box 1 - File 7 - Document 7 (B1-F7-D7)

Collins, C, 1990, *Mercury Rising: From Incinerators to the Foodchain - The Growing Threat of Mercury*, Report by the Clean Water Fund: Washington DC.

Box 1 - File 9 - Document 2 (B1-F9-D2)

Gaynor, D, 1994, *Mercury Levels of Rodents in the Vicinity of Mercury Recovery Plant*, Report prepared for the World-in-Action, Granada Television, Manchester, UK.

Box 1 - File 10 - Document 6 (B1-F10-D6)

Letter from the Department of National Health and Population Development to Mr Van de Vyver regarding the building of a new recovery facility and permission to increase imports of waste - 8 July 1990.

Box 1 - File 10 -Document 10 (B1-F10-D10)

Questions to the Minister of Environment Affairs in the House of Assembly - 3 Febuary 1992.
Questions to the Minister of Water Affairs and Forestry in the House of assembly - 11 Febuary 1992.

Box 1 - File 10 - Document 31 (B1-F10-D31)

Letter from the Department of Water affairs and Forestry to Mr C Albertyn concerning the

disposal of ash at Thor - 14 February 1994.

Box 1 - File 10 -Document 35 (B1-F10-D35)
Letter from Department of National Health and Population
Development to Thor Chemicals regarding their application for a licence to operate their new facility - 22 April 1994.

Box 1 - File 10 - Document 38 (B1-F10-D38)
Letter from the Department of Environment Affairs to Mr C Albertyn regarding Thor Chemicals - letter received 16 August 1994.

Box 1 - File 10 - Document 39 (B1-F10-D39)
Letter from Mr C Albertyn to Mr K Stander of the Department of Environment Affairs regarding Thor Chemicals - 16 Augusty 1994.

Box 1 - File 12 - Document 9 (B1-F12-D9)
Letter from Mr van de Vyver to Minister G Kotze inquiry about the ban on the importation of wastes - 3 September 1990.

Box 1 - File 14 - Document 1 (B1-F14-D1)
Letter from Mr C Albertyn to the Attorney-General of KwaZulu-Natal requesting that additional charges be brought against Thor - 16 November 1993.

Box 1 - File 14 - Document 2 (B1-F14-D2)
Letter from the Attorney-General of KwaZulu Natal Acknowledging above complaint and refering issues to the Department of Manpower -3 December 1993.

Box 1 - File 14 - Document 4 (B1-F14-D4)
Letter from Mr C Albertyn to Mr R Meeran regarding the court case against Thor - 18 May 1994.

Box 1 - File 14 - Document 6 (B1-F14-D6)

Letter and attachments from Mr R Meeran to Mr C Albertyn regarding the court case against Thor - 14 June 1994.

Box 1 - File 15 - Document 2 (B1-F15-D2)

Letter from Mr R Meeran to Mr C Albertyn, includes Mr C Cullinan's Report on the court action against Thor - 16 March 1995.

Box 1 - File 17 - Document 1 (B1-F17-D1)

Letter from Thor to Ms W Grieder of the USA Environmental Protection Agency regarding the environmental impact of Thor's operations - 11 February 1986.

Box 1 - File 17 - Document 2 (B1-F17-D2)

Letter from the Department of Manpower to the Attorney-General of KwaZulu Natal regarding Thor Chemicals - 1 January 1994.

Box 1 - File 17 - Document 3 (B1-F17-D3)

Letter from the Attorney General of KwaZulu Natal to Mr C Albertyn regarding alleged contraventions of the law by Thor Chemicals. Includes a minute sent by the Attorney-General to the Department of National Health and Population Development - 12 January 1994.

Box 1 - File 18 - Document 2 (B1-F18-D2)

Thor Chemicals' submission to the International Water Tribunal -
21 January 1992.

Box 1 - File 18 - Document 6 (B1-F18-D6)

Report by the International Water Tribunal - February 1992.

Box 1 - File 18 - Document 7 (B1-F18-D7)

Press release by Earthlife Africa regarding the report by the International Water Tribunal -

undated.

Box 1 - File 19 - Document 1 (B1-F19-D1)

Article entitled "Mercury Waste Dumped in South Africa", undated and author unknown.

Box 1 - File 24 - Document 1 (B1-F24-D1)

Cabinet Memorandum from the Department of Environmental Affairs and Tourism regarding the formation of a commission of inquiry to investigates a solution to Thor's stockpiled waste 26 October 1994.

Box 1 - File 24 - Document 2 (B1-F24-D2)

Letter from Mr C Albertyn to Minister K Asmal regarding the commission of inquiry into Thor Chemicals - 6 February 1995.

Box 1 - File 24 - Document 4 (B1-F24-D4)

Letter from Mr C Albertyn to Minister D de Villiers regarding the commission of inquiry into Thor Chemicals - 8 February 1995.

Box 1 - File 24 - Document 7 (B1-F24-F7)

Letter from Minister K Asmal to Mr C Albertyn regarding the commmission of inquiry into Thor Chemicals - 14 February 1995.

Box 1 - File 24 - Document 23 (B1-F24-D23)

Letter from Mr C Albertyn to Messrs C Nicholson and R Purshotam of the Legal Resources Centre in Durban regarding the commission of enquiry into Thor Chemicals - 10 May 1995.

Box 1 - File 24 - Document 28 (B1-F24-D28)

Letter from Mr C Albertyn to Mr H Ndaba of the South African Chemical Workers Union regarding the commission of enquiry into Thor Chemicals - 30 June 1995.

Box 1 - File 26 - Document 1 (B1-F26-D1)

Thornton, J, 1993, *Hazardous Waste Incineration: Impacts on Agriculture.*

Box 1 - File Titled "The English Case"

Affadavit by Mr S Reddy of 87 Syringa Avenue, Kharwastan, Durban, regarding incidents at the Thor Chemicals plant at Cato ridge.

(b) The Davis Commission

Chemical Workers Industrial Union, 1996, *Submission by the Chemical Workers Industrial Union to the Commission of Inquiry into Thor Chemicals.*

Davis Commission, 1997, *Report of the First Phase:1997.*

Earth Life Africa Submission, 1996, *Thor Chemicals Commission of Inquiry*

(c) Transcripts

Manpower Inquiry into Thor Chemicals - testimony of Mr S van de Vyver (Inquiry 13-15 July 1992).

(2) Government Publications

The Department of Environmental Affairs and Tourism, 1996, *Green Paper for Public Discussion: An Environmental Policy for South Africa.*

Department of Environmental Affairs and Tourism, 1997, *White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity.*

A Basic Guide to the Reconstruction and Development Programme.

White Paper on The Reconstruction and Development Programme, 1994.

(3) International Conventions

Agenda 21

Basel Convention on the Control of Transboundary Movents of Hazardous Wastes and their Disposal.

(4) Policy Statements

The Commission on Global Governance, undated, *The Basic Vision.*
http://www.cgg.ch/bve.html

(5) Secondary Sources

Adams, W M, 1990, *Green Development: Environment and Sustainability in the Third World,* Routledge: London/New York.

Amin, S, 1993, "Social Movements at the Periphery" in Wignaraja, P (ed) *New Social Movements in the South - Empowering People.* Zed Books: London and New Jersey.

Aniera, P D, Ernst, C & Kier, E, 1990, "New Social Movements in Historical Perspective" in *Comparative Politics*, vol 22 no 4, July.

Bagguley, P, 1992, "Social Change, the Middle Class and the Emergence of 'New Social Movements': A Critical Analysis", in *The Sociological Review*, vol 40, February.

Bodian, S, 1992, "Simple in Means, Rich in Ends: A Conversation with Arne Naess" in *Ten Directions*, Summer/Fall.

Brett, R, 1995, "Role and Limits of Human Rights NGOs at the United Nations", in *Political Studies*, vol 43, Special Edition.

Bramble, B J, 1992, "Non-Governmental Organisations and the making of US International Environmental Policy" in Hurrell, A and Kingsbury, B (eds) *The International Politics of the Environment*, Oxford University Press: Oxford.

Camilleri, J A & Falk, J, 1992, *The End of Sovereignty*, Edward Elgar Publishing Company: Aldershot/Vermount.

Clark, A M, 1995,"NGOs and their influence on International Society", in *Journal of International Affairs*, Winter, vol 48,
no 2.

Clark, J, 1996,"How Wide is Deep Ecology?", in *Inquiry*, Vol 39, no 2, June.

Clarke, J, 1991, *Back to Earth: South Africa's Environmental Challenges*, Southern Book Publishers: Halfway House.

Cock, J, 1990, *Green Politics in the South African Context*, ASSA Conference Paper: University of Stellenbosch.

Conley, A H, 1996, "A synoptic view of water recources in Southern Africa" in Solomon, H (ed) *Sink or Swim?: Water, Recource Security and State Co-operation*, Institute for Defence Policy: South Africa.

Cooper, D E, 1995, "The Idea of Environment" in Cooper, D E & Palmer, J A (eds) *The Environment in Question*, Routledge: London/New York.

D'Aniera, P, Ernst, C & Kier E, 1990 "New Social Movements in Historical Perspective", in *Comparative Politics*, Vol 22, No 4, July.

de Oliveira, M D & Tandon, R, 1996, "The Emergence of Global Civil Society" *Issues of Democracy*, vol 1, no 8, July.

de-Shalit, A, 1995, "Is Liberalism Environment Friendly?", in *Social Theory and Practice*, vol 21, no 2, Summer.

Deval, B & Sessions, G, 1985, *Deep Ecology: Living as if Nature Mattered*, Peregrine Smith Books: Salt Lake City.

diZerega, G, 1995, "Empathy, Society, Nature and the Realisation of Self: Deep Ecology and Liberal Modernity", in *Social Theory and Practice*, vol 21, no 2, Summer.

Duchin, F & Lange, G-M, 1994, *The Future of the Environment*, Oxford University Press, Oxford/New York.

Eder, K, 1993, *The New Politics of Class: Social Movements and Cultural Dynamics in Advanced Societies*, SAGE Publications: London/Newbury Park/New Dehli.

Ekins, P, 1995,"Economic Policy for Environmental Sustainability" in Crouch, C & Marquand, D (eds) *Reinventing Collective Action*, Blackwell Publishers: Oxford.

Eyerman, R & Jamison, A, 1991, *Social Movements: A Cognative Approach*, Polity Press: Cambridge.

Glasser, H, 1996, "Naess' Deep Ecology and Environmental Policy" in *Inquiry*, vol 39, no 2, June.

Greenwald, D (ed), 1994, *The McGraw-Hill Encyclopedia of Economics: Second Edition*, Donnelley and Sons Company.

Grossman, G M & Krueger, A B, 1995, "Economic Growth and the Environment" in the *Quarterly Journal of Economics*, May.

Harper, C L, 1993, *Exploring Social Change*, Prentice Hall: New Jersey.

Hinrichsen, D, 1987, *Our Common Future - A Reader's Guide*, Earthscan Books Ltd: London.

Hutchings, V, 1994, "Green Gauge" in *New Statesman and Society*, vol 7, March 11.

Jackson, E, 1995,"Climate Change and Global Infectious Disease Theats" in *Medical Journal Of Australia*, vol 163.

Johnson, J B & Joslyn, R A, 1991, *Political Science Research Methods*, CQ Press: Washington.

Koch, E, Cooper, D & Coetzer, H, 1990, *Water, Waste and Wildlife*, Penguin Books: United Kingdom.

Kockott, F, 1994, *Wasted Lives: Ban the Waste Trade*, A Joint Earthlife Africa and Greenpeace International Publication.

Kong, T W, 1989, *Is Korea the Next Japan?* Free Press: London.

Korten, D C, 1990, *Getting to the 21st Century*, Kumarian Press: Place of Publication

Legum, M, 1997, "Conventional Economics Fail to Deliver on Promises" in the *Newsletter of the South African New Economics (SANE) Network*, Winter, Vol 1: No 3.

List, M & Rittberger, V, 1992, "Regime Theory and the International Environmental Movement" in Hurrel, A & Kingsbury B (eds) *The International Politics of the Environment*, Claredon Press: Oxford.

Lovejoy, D, 1996, "Limits to Growth" in *Science and Society*, vol 60, Fall.

Maharaja, B & Jaggernath, S, 1996, "NGOs, Civil Society and Development - The South African Experience" in Reddy, P S (ed) *Readings in Local Government Management and Development*, Juta: Kenwyn.

Martell, L, 1994, *Ecology and Society - An Introduction*, Polity Press: Cambridge.

Matthews, J T, 1997,"Power Shift" in *Foreign Affairs*, January/February.

Mawlawi, F, 1993, "New Conflicts, New Challenges: The Evolving Role for Non-Governmental Actors", in *Journal of International Affairs*, Vol 46, Winter.

Melucci, A, 1995, "New Social Movements Revisited: Reflections on a Sociological Misunderstanding", in Maheu, L (ed), *Social Movements and Social Classes: The Future of Collective Action*, Sage Publications: London.

Merchant, C, 1992, *Radical Ecology - The Search for a livable World*, Routledge: London/New York.

Munslow, B & Fitzgerald, P, 1994, "South Africa: The Sustainable Development Challenge", in *Third World Quarterly*, vol 15, no 2.

Naess, A, 1992, *Ecology, Community and Lifestyle*, translated by Rothenberg, D, Cambridge University Press: Cambridge.

National Institute for Economic Policy (NIEP), 1996, *From the RDP to GEAR: The Gradual Embracing of Neo-Liberalism in Economic Policy.*

Oberschall, A, 1993, *Social Movements: Ideologies, Interests and Identities*, Transaction Publishers: London.

Oelschlaeger, M, 1991, *The Idea of Wilderness*, Vail-Ballou Press: New York.

Passmore, J, 1995, "Attitude to Nature" in Elliot, R (ed), *Environmental Ethics*, Oxford University Press: Oxford/New York.

Sagoff, M, 1995, "Can Environmentalists be Liberals?" in Elliot, R (ed) *Environmental Ethics*, Oxford University Press: Oxford/New York.

Sandbach, F, 1980, *Environment, Ideology and Policy*, Basil Blackwell: Oxford.

Schissel, H, 1988, "The Deadly Trade: Toxic Waste Dumping in Africa" in *Africa Report*, vol 33, September/October.

Shiva, V, 1991, *Ecology and the Politics of Survival - Conflicts Over Natural Recources in India*, United Nations University Press and Sage Publications: New Dehli/Newbury Park/London.

Sober, E, 1995, "Philosophical Problems for Environmentalism" in Elliot, R (ed) *Environmental Ethics*, Oxford University Press, Oxford/New York.

Stairs, K & Taylor, P, 1992, "Non-Governmental Organisations and the Legal Protection of the Oceans", in Hurrel, A & Kingsbury, B (eds) *The International Politics of the Environment*, Claredon Press: Oxford.

Stern, D I, Common, M S & Barbier, E B, 1996, "Economic Growth and Environmental Degradation: The Environmental Kuznets Curve and Sustainable Development", in *World Development*, Vol 24 July.

Stevenson, R, 1995, "Thinking, Believing and Persuading: Some Issues for Environmental Activists" in Cooper, D E & Palmer, J A (eds) *The Environment in Question*, Routledge: London.

Susskind, L & Ozawa, C, 1992, "Negosiating More Effective International Agreements", in Hurrell, A & Kingsbury, B (eds) *The International Politics of the Environment*, Claredon Press: Oxford.

Thomas, K, 1983, *Man and the Natural World: Changing Attitudes in England 1500-1800*, Penguin Books: London.

Touraine, A, 1992, "Beyond Social Movements" in *Theory Culture and Society*, vol 9.

Van Gelder, S, 1993, "Finding a Balance: An Interview with Ricardo Navarro" *In Context*, Fall 1993.

Van Heusden, P, 1997, "How Globalisation Affects SA" in the *Newsletter of the South African New Economics (SANE) Network*, Winter, Vol 1: No3.

Verheggen, T, 1996, *Early Culture Theory: A Critique of the Enlightenment Project* - Presentation to 15th Cheiron Europe Conference 1996.

Vincent, A, 1992, *Modern Political Ideologies*, Blackwell Publishers: Oxford.

Wapner, P, 1995, "Politics Beyond the State: Environmental Activism and World Civic Politics", in *World Politics*, vol 47, April, no 3.

Watkins, K, 1992, *Fixing the Rules: North - South Issues in International Trade and the Uruguay Round*, Catholic Institute for International Relations: London

Wynberg, R, 1993, *Exploring the Earth Summit: Implications for South Africa*, Penrose Press: Johannesburg.

Yearley, S, 1994, "Social Movements and Environmental Change" in
Redclift, M & Benton, T (eds), *Social Theory and the Global Environment*, Routledge: London.

Zirakzadeh, C, 1997, *Social Movements in Politics: A Comparative Study*, Longman: London/New York.

(6) Internet

Anon (a), 1996, *New Paradygms.*
http://ourworld.compuserve.com/homepages/doe/gaia.htm

Bridges, T, 1997, *The Collapse of Enlightenment Culture.*
http://www.civsoc.com/cltphil1.html

Barber, B, undated, *The Search for Civil Society.*
http://www.cpn.org...ebuild_search.html

Coster, P, 1996, *Appropriate Technologies for the Destruction of Stockpiles of Persistent Organic*

Pollutants and Related Materials.
http://www.rec.hu/poland/wpa/hzwttech.html

Dunbar, B, 1994, *NASA's UARs Confirms CFCs Caused Antartic Ozone Hole.*
http://www.physics.iastate.edu//gcp/chem/ozone/nasarelease.html

Durning, B D, 1990, "Apartheid" in *World Watch*, May/June.
http://www.personal.umich.edu/~jrajzer/ure/apartheid.html

Earthlife Africa (ELA), 1995, *Saldanha: People or Profit?*
http://www.gem.co.za/ELA/saldanha.html

Easterbrook, G, undated, *The Spotted Owl Scam.*
http://www.olypen.com/solidarity/spotted.html

Greenpeace, 1997, *Protecting Biodiversity.*
http//greenpeace.org/~comms/cbio/bdfact.html

Kendall, H, 1992, *Global Warning To Humanity.*
http://www.ucsusa.org/warning.html

Jaffe, D, 1997, *The International Effort to Control the Transboundary Movement of Hazardous Waste: The Basel and Bamako Conventions.*
http://wwwlaw.nova.edu/nova/pub/olsa/jafftext.htm#4

Knauer, J, undated, *Environmental Ethical Theory Applied in the Modern Environmental Movement.*
http://envirolink....oethics/essay.html

Korten, D C, 1990, *NGO Strategic Networks: From Community Projects to Global Transformation.*
http://titsoc.soc.titech.ac.jp/titsoc/higuchilab/icm/ngo/stratnet.html

Lindzen, R S, undated, *Global Warming: The Origin and Nature of the Alleged Scientific Consensus.*
http://www.cato.org/pubs/regulation/reg15n2g.html

McDorman, T L, 1995, *Protecting International Marine Living Recources with trade Embargoes: GATT and international reaction to US practices.*
http://www.highnorth.no/pr-in-ma.html

Mims 111, F M, 1995, *The Ozone Hole: Sorting Out The Facts.*
http://www.mrccos.com/arn/currpage/ozfacts.html

Mosher, R F, 1996, *The Political Theory of Radical Ecology.*
http://www.epe.be:...cology/radeco.html

New Jersey Department of Health, 1987, *Mercuric Acetate.*
http://mail.odsnet.com/TRIFacts/120.html

Reuters, 1995, *UN Body Says Ozone Hole Speeding Up.*
http://www.nando.net/newsroom/ntn/world/112895/world549_2html

Ruiz, C, 1996, *Green Protectionism.*
http://www.elves.ens.fr:8080/home/boyd/ruiz.html

Sanera, M & Shaw, J, undated, *Facts, Not Fear: A Parent's Guide to Teaching Children About the Environment.*

http://www.perc.org/factsch2html

Simon, J L, undated, *The State of Humanity: Steadily Improving.*
http://www.helsinki.fi/~ppaunio/heidtxt.html#Happeal

Taylor, R E, 1994, *The Birth of Environmentalism.*
http://www.edf.org/whatis/f-birthof.html

Tyler, D J, 1995, *The Twilight of the Age of Enlightenment.*
http://www.pages.o...org/bcs/Bcso55.htm

Verheggen, T, 1996, *Early Culture Theory: A Critique of the Enlightenment Project.*
http://www.socsci....ultuur/cheiron.htm

Williams, D & Cadman, A, 1996, *Enviro Werks - South Africa & the Basel Convention: Waste Importers Beware!*
http://mbendi.co.za/werksmns/wkenv.htm

(7) Newspapers, Newsletters and Publications

Daily News

05/04/1990
06/04/1990
21/03/1992
16/07/1992

Economist

14/10/1995

Environmental Justice Networking Forum Application Form

01/02/1997

Environmental Justice Networker

No 06, Winter, 1995

No 10, Winter, 1996

No 12, Summer, 1996/1997

No 13, Autumn, 1997

No 14, Winter, 1997

Financial Mail

14/03/1997

Mail and Guardian

15/10/1994

24/02/1995

10/03/1995

02/06/1995

09/06/1995

01/09/1995

31/10/1995

05/07/1996

26/07/1996

04/10/1996

25/10/1996

13/12/1996

18/04/1997

14/03/1997

16/05/1997

06/10/1997

23/10/1997

Natal Witness

06/04/1990

14/07/1992

14/07/1992

16/07/1992

29/03/1992

Natal Mercury

06/04/1990

22/02/1992

03/03/1992

04/04/1992

29/04/1992

15/07/1992

16/07/1992

Sunday Times

29/03/1992

26/09/1993