

A critical evaluation of the concept of Sustainable Development as applied in the legislation governing environmental impact assessments in South Africa (Case studies: Housing developments)

by

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I, Bernadette Nadine Osborne, declare that the contents of this thesis represent my own unaided work and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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Abstract

The concept "Sustainable Development" (SD) is defined and interpreted differently worldwide with the result that it encompasses different meanings to different people. The environmental impact assessment (EIA) process has been identified as a key tool for the implementation of SD. This research focuses on the concept of SD and its interpretation, meaning and implementation in terms of the legislation governing EIAs in South Africa.

The research methodology employed in the thesis involves a literature study of the historical development and emergence of the concept of SD and the legal framework in which it is contextualised in South Africa. This is followed by a critical evaluation of the concept and its implementation using Jacob's six Fault Lines. These Fault Lines include (i) the degree of environmental protection that is envisaged to attain SD, (ii) the emphasis placed on equality as a prerequisite for SD, (iii) the measure of participation required to attain SD, (iv) the scope of the concept of SD, (v) the environmental monitoring and evaluation that is required for SD as well as (vi) environmental planning to achieve the goal of SD. The second half of the thesis employs a case study methodology to evaluate the implementation of SD in five separate housing EIA processes in the Stellenbosch Municipal Area. Personal interviews and site observations are used to inform the case studies.

The study identifies major conceptual flaws associated with the interpretation and implementation of the concept of SD as well as the challenges preventing EIAs from being an effective tool to enhance SD. The main findings are that EIAs do not sufficiently take into account the cumulative impacts of developments, they are unable to protect the environment from the increasing demand for additional housing in South Africa and that there is insufficient monitoring of EIA processes to ensure adequate long-term environmental protection.

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- All thanks be to Our Father, Almighty God. The creator of heaven and earth.

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Clarification of basic terms and concepts

AGENDA 21: The document that was adopted at the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, in June 1992.
APPLICANT: A person who has submitted or intends to submit an application.
BASIC ASSESSMENT REPORT: A written report contemplated in Regulation 22 of the National Environmental Management Act 107 of 1998 Environmental Impact Assessment regulations, 2010.
BIODIVERSITY: The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part. It also includes diversity within species, between species and of ecosystems.
CAPE FLORISTIC KINGDOM: The floristic region located at the southern tip of South Africa, a floral province defined on the basis of the number of plant species, genera and families which grow there and nowhere else, i.e. are endemic to the area. Also known as the Cape Floral Region or <i>Flora Capensis</i> .
ENDEMIC: Restricted to a given region; usually used to denote a species, genus or family that is confined to a specific area.
ENVIRONMENT: The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical, cultural and political aspects.
ENVIRONMENTAL CONSULTANT: An independent consultant who has expertise in the area of the environmental concerns being dealt with in a specific application and who must, on behalf of the applicant, comply with the requirements of the EIA regulations (GN No. R1183 of 5 September 1997, as amended). An environmental consultant can have no financial or other interest in the undertaking of the proposed activity, except with regard to the compliance with these regulations.
ENVIRONMENTAL IMPACT ASSESSMENT (EIA): A systematic process of identifying, assessing and reporting environmental impacts associated with an activity. This includes basic assessments and scoping and environmental impact reporting.
ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS: These regulate the procedures and criteria contemplated in Chapter 5 of the National Environmental Management Act 107 of 1998 relating to the submission, processing and consideration of,

<p>and decisions on, applications for environmental authorisations for the commencement of activities in order to avoid detrimental impacts to the environment, or where these cannot be avoided, to ensure the mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and matters pertaining thereto.</p>
<p>ENVIRONMENTAL IMPACT ASSESSMENT REPORT: A written report contemplated in Regulation 31 of the National Environmental Management Act 107 of 1998 Environmental Impact Assessment regulations, 2010.</p>
<p>HERITAGE RESOURCES: Historically important features such as graves, trees and fossil beds and culturally significant symbols, spaces and landscapes, archaeological, palaeontological and cultural materials.</p>
<p>HYDROGEOLOGY/GEOHYDROLOGY: The study of groundwater.</p>
<p>HYDROLOGY: The study of rivers, lakes and wetlands.</p>
<p>INTEGRATED DEVELOPMENT PLAN: A process by which municipalities prepare a five-year strategic plan that is reviewed annually in participation with communities and stakeholders. This strategic plan adopts an implementation approach and seeks to promote integration by balancing the economic, ecological and social pillars of sustainability without comprising the institutional capacity required in the implementation and by coordinating actions across the different sectors and spheres of government.</p>
<p>LISTED ACTIVITY: Any activity identified by the Minister of Environmental Affairs and Tourism in terms of Sections 24 and 24D of the National Environmental Management Act 107 of 1998, listed under GNR 386 and 387.</p>
<p>POLICY: A set of aims, guidelines and procedures that assist with decision-making and the management of an organisation's structure. Policies are based on people's values and goals.</p>
<p>PUBLIC PARTICIPATION PROCESS: A process in which potential interested and affected parties are given an opportunity to comment on specific matters and to influence, direct, control or own the process.</p>
<p>RECONSTRUCTION AND DEVELOPMENT PROGRAMME: An integrated socio-economic policy framework that seeks to mobilise all South Africa people and the country's resources towards the final eradication of apartheid and the building of a democratic, non-racial and non-sexist future.</p>

RED DATA SPECIES: Species of plants and animals that, because of their rarity and/or level of endemism, are listed in the Red Data Book, which provides an indication of the level of the threat of extinction and recommendations for their protection.

SCOPING REPORT: A written report contemplated in Regulation 28 of the National Environmental Management Act 107 of 1998 Environmental Impact Assessment regulations, 2010.

SCOPING: A procedure in which interested and affected parties participate to determine their issues and concerns and to ascertain the extent of, and approach to, an EIA. It is used to focus the EIA.

SPATIAL DEVELOPMENT FRAMEWORK: A guide to manage urban growth and to balance land use demands by putting in place a long-term logical development path that will shape the spatial form and structure of an area.

SPATIAL DEVELOPMENT TOOL: When used in Chapter 5 of the National Environmental Management Act 107 of 1998, it means a spatial description of environmental attributes, development activities and development patterns and their relations to each other.

STRATEGIC ENVIRONMENTAL ASSESSMENT: An environmental assessment that is carried out on one or more strategic actions, policies, plans or programmes. It is an environmental planning tool with which to provide information and analysis on the consequences of different actions and their environmental impacts in the short, medium and long term.

Chapter 1: A framework for Environmental Impact Assessment research

This chapter describes the purpose of the thesis and is divided into (1) introduction and background, (2) the research questions, (3) the objectives, (4) the research methodology used and (5) the delineation of the research.

1.1 Introduction and background

One of the key instruments for achieving Sustainable Development (SD) in South Africa is the environmental impact assessment (EIA) process, which is done in response to legal requirements as prescribed in the National Environmental Management Act 107 of 1998 (NEMA) that gives effect to Section 24 of the Constitution (1996). The process is specifically used by the State to address the imbalances of power and market failure in order to ensure democratic, well-informed and rational decision-making in the simultaneous pursuit of SD. However, it seems to fail in the pursuit of SD since poverty remains widespread and persists alongside affluence while inequalities are growing and South Africa's life-supporting ecosystems continue to deteriorate.

NEMA recognises the interrelationship between the environment and development. Indeed, it identifies the need for the protection of the environment while at the same time acknowledging the necessity for social and economic development. It contemplates the integration of environmental protection and socio-economic development and envisages that environmental considerations will be balanced with socio-economic factors through the ideal of SD.

The main purpose of the EIA process is to promote SD. Therefore, this study will critically evaluate the concept of SD as encapsulated within the NEMA legislation governing EIAs by analysing case studies on housing developments. It will identify the major conceptual flaws of SD and the challenges preventing EIAs from being an effective tool to enhance SD. Jacobs identified six faultlines to assist with the interpretation of EIAs (Jacobs, 1999 in Hatting, 2002). According to Hatting these faultlines include:

1. The degree of environmental protection that is envisaged to attain SD.
2. The emphasis placed on equality as a prerequisite for SD.
3. The measure and nature of participation required to attain SD.
4. The scope of the concept of SD.
5. Environmental evaluation and monitoring required to attain SD.
6. Environmental planning required to attain SD.

In this research the abovementioned six faultlines proposed by Jacobs, are used to analyse the EIA process in South Africa.

1.2 Research questions

- 1.2.1 What does the global perspective on SD entails?
- 1.2.2 Is the concept of SD being applied adequately within the EIA process?
- 1.2.3 Is the concept of SD, which is adopted by legislation governing EIAs, being implemented?
- 1.2.4 What recommendations can be made to promote SD through EIAs?

1.3 Objectives of the research

- 1.3.1 To investigate the emergence of the concept of SD globally and locally.
- 1.3.2 To critically evaluate the concept of SD within the legislation governing EIAs in NEMA.
- 1.3.3 To investigate the emergence of EIAs globally and locally and their relationship with SD.
- 1.3.4 To identify the constraints within the EIA process.
- 1.3.5 To review environmental impact studies (EIS) as a tool for SD as well as legislation, and changes in legislation pertaining to EIAs.
- 1.3.6 To critically review housing case studies in order to assess the effectiveness of EIAs in promoting SD.
- 1.3.7 To analyse the theoretical tensions within the interpretation of SD as applied in housing case studies.

The first five objectives provide a background as to how the concept of SD emerged, as well as its relationship with EIAs and the legislation governing EIAs. The last two objectives focus on case studies with regards to housing and provide insights into the applicable legislation.

1.4 Research design and methodology

A number of social science methodologies are used to critically evaluate the concept SD as applied in legislation in South Africa. These social science methodologies consist of (i) a literature research methodology, (ii) a case study methodology, (iii) an interview methodology and (iv) a participatory observation methodology. These methodologies include a conceptual analysis of SD as it is used in general literature, its legal interpretation in key environmental legislation in South Africa, a critical evaluation of case studies of EIAs in the Western Cape and personal onsite observation by the researcher as well as interviews with practitioners involved in the case studies.

Chapter 2 involves a conceptual analysis of the historical emergence of the concept of SD both globally and locally, its interpretation and practical implementation. It identifies the Fault Lines associated with the concept. It also provides an analysis of the definition of SD as it have been applied in NEMA and the constraints inhibiting effective EIAs are also identified. Chapter 3 investigates the emergence of EIAs globally and locally. An analysis of the EIA regulations by the past and present legislation that governs the process is completed. In chapter 4, five case studies were obtained from the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) in the Stellenbosch Municipal Area in South Africa, and were used to understand how the process has been implemented practically overtime, how it has been reviewed and how it has been used as a tool for SD. The Fault Lines are being used to evaluate the case studies. These case studies form the central component of the research and will enhance and support the discussion in the study about the implementation of the SD concept. Interviews and site visits are conducted at the different case studies.

Academic literature on the concept of SD and its implementation are sourced from papers presented at the 2010 conference of the International Association for Impact Assessment: South Africa (IAIASa) as well as a range of secondary sources which include books, documents, theses, academic journals, subject journals, the South African electronic media database (Sabinet online and Science Direct) and various internet sites.

1.5 Delineation of the research

Only cases pertaining to housing in the Stellenbosch Municipal Area, Western Cape, will be used for this study. The research will also only draw on the legislation that governs EIAs in South Africa and a review of the literature on SD.

Chapter 2: The concept of Sustainable Development

This chapter describes the historical development and philosophical context of the concept of SD as well as its theoretical implementation. The chapter is divided into five sections: (1) The global emergence of the concept of SD; (2) The emergence of the concept of SD in South Africa and the associated themes; (3) The Fault Lines within the concept of SD; (4) The different interpretation and approaches to the concept of SD in South Africa; (5) An analysis of the interpretation of the concept of SD in NEMA using the Fault Lines.

2.1 The global emergence of the concept of SD

The concept of SD globally emerged in the *Brundtland* Report in 1987 (WCED 1987: 8) after publications that aided environmental awareness from the 1960's. These publications and the *Limits to Growth* Report have formed the starting point of international proceedings, negotiations and debates which followed on the concept until date.

2.1.1 Publications that aided environmental awareness

Prior to the 1960s, the relationship between the environment and the economy received little attention. It was only with the 1962 publication of Rachel Carson's *Silent Spring* that the impact of man's indiscriminate use of chemicals in the form of pesticides and insecticides was examined (Cole, 1998:88) and the hazards of the pesticide DDT exposed (Aucamp, 2009:2) to the extent that the public became aware of environmental issues. Carson's book explained how dichlorodiphenyltrichloroethane (DDT) spraying was initiated during the mid-1950s to fight the spread of Dutch Elm disease, which was destroying the elm trees on the campus of Michigan State University, indirectly killed a large number of the robins that fed in the area. Although the spraying was aimed specifically at eradicating the bark beetle which was spreading the disease, all parts of the trees were sprayed with the poison. Therefore, because the leaves of the trees were also coated with the insecticide, the earthworms that fed on the leaves absorbed the poison and the robins, which later ate the contaminated earthworms, died of DDT poisoning. This illustrated the interrelationship of living organisms and the fact that human beings were not separate from nature, but connected to earth as part of the intricate web of life. Carson revealed that human actions could lead to serious environmental consequences when natural systems are interfered with. She criticised the thoughtless use of technological "quick fixes" to control insects by employing synthetic chemicals and warned that these chemicals are destroying our world in which springtime would no longer bring new life, only silence (Dresner, 2008: 23).

A seminal article by Kenneth Boulding, *The Economics of the Coming Spaceship Earth*, written in 1966 emphasised the danger of the ever increasing production levels which leads

to environmental pollution and the reduction of resources. Boulding described the economy of the time as reckless and exploitive (Cole, 1998: 88). He suggested that previous human history had taken place against a background in which the scale of human activities was negligent compared to the environment. Under those circumstances, there was always somewhere “out there” to expand to or in which to dispose of waste. Boulding called this a “cowboy” economy because the idea of an endless frontier was embodied by the American cowboys. However, as time progressed human activity grew to a size where there was no “out there” left. In this situation, it was no longer possible to try to displace problems as they would always return. According to Boulding, it would require a “spaceman” economy because frontiers had shrunk to zero; there was simply nowhere else to expand to (Dresner, 2008: 25).

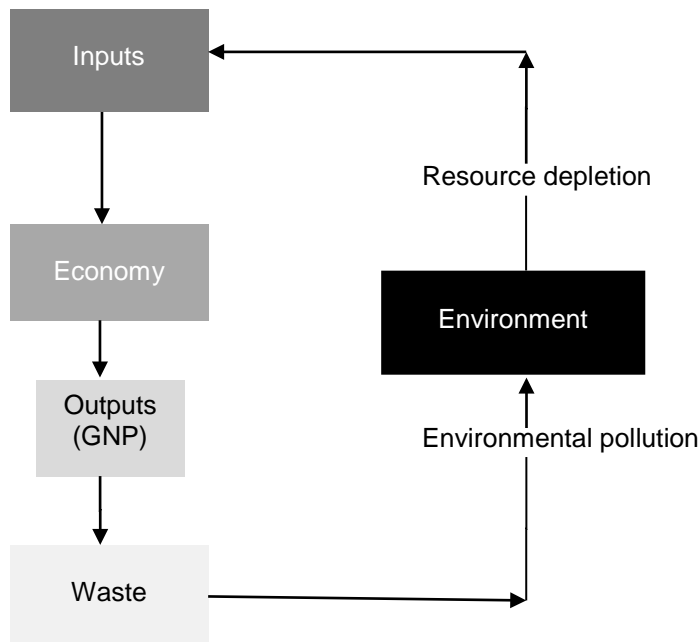


Figure 2.1. The economic development process in the environmental context (adapted from Boulding in Chadwick, Glasson and Therivel, 1994: 10)

In the model in Figure 2.1, it can be seen that environmental resources are used for input to produce goods and services. However, this contains the seeds for its own destruction. Increased output brings not only goods and services, but also more waste. The economic goal of an increased gross national product (GNP) demands increased inputs. But, using more inputs to produce more goods and services leads to the depletion of resources. Environmental pollution and the depletion of resources are invariably ancillaries to economic development (Chadwick et al., 1994: 10). During this time fear associated with the knowledge of global environmental limits began to emerge. This was highlighted in Paul Ehrlich’s *The*

Population Bomb, which raised concerns about exponential growth in the developing world (Dresner, 2008: 24).

A later article, *The Tragedy of the Commons* by Gareth Harding (Aucamp, 2009: 2), stated that “the population problem has no technical solution as it required a fundamental extension in morality”. He described a hypothetical example of a pasture shared by herders. It is in the interests of each herder to add animals to the pasture because then the herders will earn additional income. Of course, if each individual decided to do that, the pasture would become overgrazed and degraded. There is, however, no incentive for the herders not to keep adding animals because others will do so if they don't. *The Tragedy of the Commons* can only be solved if access can somehow be controlled. This is one of the problems created by population growth and, increasingly, the consumption of natural resources (Dresner, 2008: 24).

Boulding and Harding's articles provided the impetus to make the public aware of environmental problems (Aucamp, 2009: 2). This growing awareness was also aided by ecological disasters such as the 1952 smog episodes in London (Aucamp, 2009: 2) and the 1967 Torrey Canyon disaster during which a supertanker spilled over 120 000 tons of oil in the western approach to the United Kingdom (Kidd, 2008: 12).

2.1.2 The Limits to Growth debate

In 1972 a report entitled *The Limits to Growth* was produced by Donella and Dennis Meadows and a team from the Massachusetts Institute of Technology. The report gained enormous media coverage, was translated into 28 languages and sold over nine million copies (Dresner, 2008: 24). It was seen as the starting point for most of the current discussions on the concept of SD and also constituted a major political turning point for the concept (Mebratu, 1998: 496).

In the report it was highlighted that the implications of continuing exponential growth were studied through five interconnected trends of “global concern”; industrialisation, population growth, widespread malnutrition, depletion of non-renewable resources and ecological damage (Reid, 1995: 45).

Box 2.1. *The Limits to Growth*— main conclusions

The main conclusions of the Club of Rome's *The Limits to Growth* report, which was based on the outcomes of a world-modeling exercise, were (quoted verbatim):

1. If the present trends in population growth, environmental pollution, production levels, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. Resulting in a sudden and uncontrollable decline in both population growth and industrial capacity.
2. It is possible to establish economic and ecological stability necessary to create SD. A state of global equilibrium could be designed so that the basic material needs of each individual in the world have an equal opportunity to realise his or her own human potential.
3. If everyone can decide to strive for the second outcome rather than the first one and start working on attaining it, the greater the success will be.

(Meadows et al., 1974: 23-24 in Audouin, 2009: 90)

The Limits of Growth proposed that in order to achieve the second outcome (as shown in Box 1) the world would have to move to a situation of constant non-growth in capital and population. The authors called this a state of “global equilibrium”. The report listed the following minimum requirements for the global equilibrium:

- The economic growth and the population growth are constant in size. The death rate equals the birth rate and the depreciation rate equals the capital investment rate.
- All output and input rates are kept to a minimum with regards to birth, death, investment and depreciation.
- The levels of population and capital and the ratio of the two are set in accordance with the values of society. They may be slowly adjusted and deliberately revised as the progress in technology might create new options.

(Meadows et al., 1974: 173-174 in Audouin, 2009: 90)

Although *The Limits of Growth* recognises that changes are required in the socio-economic environment as well as a decrease in economic growth to the point of zero-growth, these changes are not investigated in any depth and the reader is not left with any serious challenge to the current industrial paradigm (Audouin, 2009: 90).

According to Goldsmith (in Hatting, 2002: 6) the conclusion made by the *Limits to Growth* report was characterised as a turning point for humanity or a crisis and was articulated in *A Blueprint for Survival* (Hatting, 2002: 6). In order to overcome this crisis and to ensure the

survival of society, various structural adjustments to social life and the economy were proposed in order to attain a state of equilibrium in which economic growth was halted. Notwithstanding this, an increase in services to enable and ensure a higher quality of life in terms of cultural activities, experience of nature, education and enjoyment of leisure time was deemed to be in order.

As a result, *The Limits to Growth* fuelled a debate that continued throughout the 1970s. The contrasting viewpoints stemmed from differing opinions about three factors:

- The rate of technical progress;
- Future changes in the composition of output; and
- The possibilities of substitution (Cole, 1998: 89).

If these three effects add up to a shift away from the limiting resource or pollutant equal to or greater than the rate of growth, then the limits to growth are put back indefinitely. However, for Lecomber (in Cole, 1998: 89), this established the logical conceivability of growth continuing indefinitely and not the probability, possibility, or even the certainty in practice.

The report was also criticised for its “pessimism” and its apparent “simplicity”, although no details regarding possible solutions were provided (Reid, 1995: 31). This point was also stressed by Cole (1998: 89) who distinguished between the resource pessimists and the optimists: “The optimist believes in the power of human inventiveness to solve whatever problems are thrown in its way, as apparently it has been done in the past. The pessimist questions the success of the past technological solutions and fears that future problems may be more intractable” (Cole, 1998: 89). Critics were also not receptive to the conclusion, which emerged as the Meadows’ team explored its basic projection - that pollution rather than a shortage of energy or scarcity of resources would be the key factor in bringing about eventual environmental collapse (Reid, 1995: 33).

What was overlooked was the fact that, even if *The Limits to Growth* model was flawed on points of detail, the basic assumption was correct; namely, that growth that is dependent on the consumption of more and more resources cannot continue indefinitely in a finite world (Reid, 1995: 33). This was proven in their 20 year study on the original 1972 results which supported their conclusions but had one major new finding which was that humanity has exceeded the limits of the earth’s carrying capacity (Meadows et al, 1992: vii). Today, after more than 40 years, the world has failed to heed this warning and as a result adaptation will be much more difficult that would have been the case if growth has been actively curtailed decades ago (Heinberg, 2010: 3).

2.1.3 The *Brundtland Report*

Concern about SD also began to appear during the 1970s as the rise in global environmentalism coincided with the realisation that it could no longer be assumed that the environmental impacts of industrialisation would be confined to the country in which they originated (Reid, 1995: 35). This was most visible in the proceedings of a series of international conferences, such as the first conference about the matter in Stockholm in 1972, and the Earth Summit held in Rio Janeiro in 1992. Many reports are closely associated with these international conferences and have also been substantially informed by them.

The most important reports that emerged from a series of international conferences and associated reports were the *World Conservation Strategy* (International Union for Conservation of Nature [IUCN] et al., 1980) and *Our Common Future*, also known as the *Brundtland Report* (World Commission on Environmental Development [WCED], 1987). They brought the concept of SD to the top of the agenda of institutions such as the United Nations and the World Bank. SD was defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987: 8). The *Brundtland Report* further explained SD as “a process of change in which the exploitation of resources, the direction of investment, the orientation of technological development and institutional changes are made consistent with future as well as present needs” (WCED, 1987: 9).

Since the release of the *Brundtland Report*, the goal of the concept of SD has been adopted and implemented by an ever-increasing number of organisations and bodies worldwide (Cole, 1998: 90) and has received global support (Hattingh, 2002: 8). The conceptual definition of the *Brundtland Report* contains two key concepts:

- The concept of “needs,” in particular the essential needs of the world’s poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs (WCED, 1987: 43).

The *Brundtland Report* can be viewed as the moment in environmental history in which SD became a broad policy objective or at least an inspirational goal as its main conceptual definition was endorsed by governments, international organisations and non-governmental actors alike. Despite this general acceptance of the principle of SD, divergence continues to exist over its meaning and what has been termed the *report’s* “core normative content” (Feris, 2010: 80).

2.1.4 The *Rio Earth Summit*

The 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, known as the Rio Earth Summit, was significant in that it brought together the two contested terrains of “environment” and “development” and combined them in the concept of SD. This Summit registered a remarkable moral consensus among international political leaders who attended about the importance of SD and the commitment, if only in principle, to a demanding programme of policy formulation and action for the next century (Hattingh, 2002: 11). The UNCED concluded with the formation of the Convention on Biological Diversity, the formation of the United Nations Framework on Climate Change and it also led to the *Agenda 21* and the *Rio Declaration* documents (Scheurs, 2012: 14).

Agenda 21 is a complex blueprint and action plan for the international community linking environmental action and development for the fulfilment of basic needs, improved living standards, better protection and management of our precious ecosystems and a more prosperous and safer future. Its four sections address the social and economic dimensions, conservation and management of resources for development, the strengthening of the role of major groups and the means of implementation. Its contribution to international law is not certain although it has been suggested that it could do one of three things, (1) provide an agreed global framework for the development and application of international instruments; (2) parts could be considered to reflect instant rules of international law; or (3) it may reflect consensus on principles, practices and rules which might contribute to new customary law principles through the crystallisation process. It may also be seen as an example of soft law and in this regard, *Agenda 21* has had a very important influence on the increased importance of soft law in the international environment law sphere. On the other hand, *Agenda 21* has also been described as “so long as to defy practical implementation” and “so hedged with caution it can be quoted to support almost any position”. It is fair to say that international developments after 1992 have been substantially influenced by the UNCED instruments (Kidd, 2008: 52-53).

The *Rio Declaration* is a statement of 27 principles, some of which are restatements of the Stockholm principles (Kidd, 2008: 52; Fuggle and Rabie, 2009: 160). The *Rio Declaration* affirmed the concept of SD in Principle 4, which states that in order to achieve SD, environmental protection must constitute an integral part of the development process.

2.1.5 The Rio+10 Earth Summit

The World Summit on SD (WSSD) in 2002 in Johannesburg, South Africa, which followed the Rio Earth Summit after 10 years, was the first large international gathering which defined SD as development underpinned by social, economic and environmental factors (Haines, Alleyne, Kickbush and Dora, 2012: 2189). The summit also reaffirmed the importance of the issues addressed in Agenda 21 (Schreurs, 2012: 13). Tragically, the implementation of *Agenda 21* has not been materialised, after ten years, 2 billion people are struggling with immense poverty, lacking clean water, adequate sanitation and access to energy (La Vina, Hoff and De Rose, 2003: 1; Gupta and Yunus, 2004: 39). In relation to biodiversity, climate change, deforestation and the increase in greenhouse gas emissions, the summit failed to address climate change and to reform global environmental governance (Schreurs, 2012: 13; La Vina et al, 2003: 8-10).

The WSSD was not intended to develop new conventions or to renegotiate *Agenda 21*. Rather, the WSSD was given the mandate of implementing the existing *Agenda 21* and the commitments made at the Rio Earth Summit 10 years before. The negotiated outcome of the WSSD was the adoption of two main documents which affirmed *Agenda 21* and existing commitments, the *Johannesburg Plan of Implementation* and the *Johannesburg Declaration on SD* to guide governments and other stakeholders with future developments (Bacstrand, 2008: 481; La Vina et al, 2003: 3; DEAT, 2008: 3; Fuggle and Rabie, 2009: 160).

2.1.6 The Rio+20 Earth Summit

The United Nations Conference on SD in 2012 which was held in Rio De Janeiro, Brazil, followed the Rio Earth Summit of 1992 after 20 years and included 45 000 participants from governments, the private sector and nongovernmental organisations (Clemencon, 2012: 1). Substantial gaps in the implementation of *Agenda 21* still remained after 20 years since international cooperation to accelerate development has made little progress to provide development opportunities for the least developed countries. The goals of the summit were firstly to improve the living standards of the poor, secondly to improve the protection and management of our natural resources and thirdly to ensure a prosperous future for everyone (Haines et al, 2012: 219).

Similarly to the *Rio+10 Earth Summit*, this summit defined SD as composed of economic, social and environmental dimensions that must be pursued simultaneously. The definition was criticised by developed countries for not recognising the limits of the carrying capacity of the earth and accepted by developing countries for its strong emphasis on economic development to eradicate poverty. The outcome of the summit was a 53 page long document

titled “*The Future We Want*” which addressed global challenges in the framework of SD and was a victory for developing countries for its strong emphasis on economic development to eradicate poverty (Clemencon, 2012: 1-3).

2.2 The emergence of the concept of SD in South Africa and the associated themes

Prior to the 1990s, South Africa operated under a policy of apartheid – the separate development of its races which left a legacy of poverty and inequality (Fuggle and Rabie, 2009: 338; Berrisford, 2011: 249). South Africa made a decisive break from the past in 1994 (DEAT, 2006: 10). Democracy brought a political end to apartheid and the majority of policies introduced by the first democratic government reflected the consensus of the 1992 Rio Earth Summit on the interlinked nature of the environment and development (Fuggle and Rabie, 2009: 160). *Agenda 21*, which was adopted in South Africa have been used to inform national level policy and implementation such as South Africa’s Constitution (1996), The White Paper on Environmental Policy which was adopted by South Africa in July 1997 and preceded by the National Environmental Management Act, 1998 (Act 107 of 1998) (Paterson and Kotze, 2009: 1-2).

2.2.1 The concept SD in the Constitution of the Republic of South Africa (No. 108 of 1996)

In 1996, the concept of SD was included in the supreme law of the land, the Constitution (1996), as one of the objectives of the fundamental right to an environment that is not harmful to health and well-being (RSA 1996: Section 24(b)).The Constitution (1996) recognises the interrelationship between the environment and development, the need for protection of the environment and the need for social and economic development. It contemplates the integration of environmental protection and socio-economic development. It envisages that environmental considerations will be balanced with socio-economic considerations through the ideal of SD.

Acting on the duty imposed by Section 24(b) of the Constitution (1996), “Everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures”, the observation could be made that the phrase in Section 24(b)(ii), “promote conservation”, is incomplete since it does not refer to the object of the conservation (which is assumed, due to the context, to be the environment). The third point of Section 24(b), “secure ecologically SD and use of natural resources while promoting justifiable economic and social development is interesting because it, somewhat clumsily, provides for SD (Kidd, 2008: 23).

Before the enactment of the current Constitution (1996), conservation and environmental legislation in South Africa was characterised by a hands-off approach where, if access to resources was allowed, it was generally limited to the privileged (mainly white) sector of the population. The South African Environmental Conservation Act of 1989 was the first Act which dealt exclusively with the environment, but it addressed only selected aspects of environmental conservation. Because of this and the fact that it did not give effect to Section 24 of the Constitution (1996), it became apparent that a new framework environmental act was necessary (Kidd, 2008: 32). The Environmental Conservation Act of 1989 was followed by the National Environment Management Act of 1998 (NEMA).

2.2.2 The concept SD in the National Environmental Management Act 107 of 1998

NEMA grew out of an environmental policy development process known as the CONNEPP, which involved public participation. Public participation in the process of the enactment of NEMA was somewhat glossed over in the time leading to the passing of the Act. The CONNEPP process resulted in the publication of the *White Paper on Environmental Management Policy for South Africa* in May 1998, and this formed the basis from which NEMA was passed shortly thereafter. The Act came into effect on 29 January 1999 and is an overarching piece of legislation that applies generally to all environmental matters (Kidd, 2008: 32).

NEMA elaborates on the concept of SD in South Africa even though the concept's meaning in international law remains disputed and is the subject of much debate. The preamble of the Act opens by stating: "SD requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations". It further includes SD among the key principles of environmental management that must guide government policy and decision-making.

NEMA contains an extensive list of principles of which the first two principles provide that: "Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably". Furthermore, development must be socially, environmentally and economically sustainable." These are followed by 18 additional principles, some of which are further subdivided. These principles have many features in common with the internationally accepted principles of environmental management, which is evident if the principles are compared with the *Rio Principles* (Kidd, 2008: 33-34).

2.2.3 SD and EIAs in South Africa

Principle 17 of the *Rio Declaration* states: “EIAs, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision by a competent authority” (Kidd, 2008: 195). This can be seen that EIAs are a ready-made tool for the application of SD. This notion was recognised by Jacobs and Sadler in 1989 soon after the publication of the *Brundtland Report*. EIAs amplify many of the fundamental challenges associated with evaluating development and making informed choices. These include coping with uncertainty and risk, dealing with conflicts of interest and preferences, co-ordinating scientific analyses and public input, and weighing up facts and values in order to organise information for decision-making (Sadler, 1996: 17).

On a local scale, it could be argued that *Agenda 21* and the *Rio Declaration* are the cornerstones of South Africa’s environmental law. NEMA reflects the idea of three pillars which provides that development must be socially, environmentally and economically sustainable. This statement of principles is then expanded upon in the setting out of several “national environmental management principles”, which are binding to all organs of the State in the country (Kidd, 2008: 16-17). NEMA legally required that EIAs be done in the pursuit of SD (Gerber and Hardcastle, 2009: 1).

2.2.4 The questions associated with the concept of SD

After the emergence of the concept of SD in 1987, the following questions were raised:

- What does SD really mean for each and every community?
- How can we get beyond generalities and put it into practice?
- How do we know if we are moving towards a sustainable world (Mebratu, 1998: 504)?
- Is it used as a green mask by industries and governments to justify and continue the ruthless exploitation of natural resources (Achterhuis, 1994: 198)?
- Is it internally incoherent and therefore not a valuable policy principle (Jickling, 1999, in Hattingh, 2002: 1)?
- Does its interpretation rest on highly dubious assumptions that do not help people to curb their unrestrained exploitation of nature, but rather stimulate and accelerate it (Norton, 1998: 99)?

Most experts working on the promotion of the concept chose to shy away from these “down-to-earth” practical questions by saying that it is sufficient to accept it as a tool that guides people towards a better future and to focus on how to make the necessary changes. As pointed out by Daly (1996: 13), “although there is an emerging political consensus on the

desirability of something called SD, this term is still very vague to be used as a guide for making the desired changes”. Reflecting the same apprehension, Goldin and Winters (1995: 88) described the concept as “elusive”, while Tryzna (1995: 3) discussed the growing frustration around the concept and its own protagonists branded it “an oxymoron”. Holmberg and Sandbrook (1992: 31) ascertained that “SD as a concept has become devalued to the point where, to some, it is now just a “cliché” (Mebratu, 1998: 503). Furthermore, objections were also raised regarding the highly moralistic and therefore deterministic overtones that accompany much of the propaganda for SD (Jickling, 1999: 60-67 in Hattingh, 2002: 1). It has become the latest ideology in terms of which the whole of society has to be ordered anew, totally and comprehensively.

2.3 The Fault Lines within the concept of SD

Six Fault Lines have been identified by Jacobs (1999) to overcome the objections to the numerous interpretations and different definitions associated with the concept of SD (Hattingh, 2002: 1). If these Fault Lines go unnoticed, they can hinder and even paralyse discussions about the meaning and implementation of SD. The Fault Lines are as follows:

7. The degree of environmental protection that is envisaged to attain SD.
8. The emphasis placed on equality as a prerequisite for SD.
9. The measure and nature of participation required to attain SD.
10. The scope of the concept of SD.
11. Environmental evaluation and monitoring required to attain SD.
12. Environmental planning required to attain SD.

A distinguish can be made between weak and strong interpretations of SD (Jacobs, 1999: 31-32).

Table 2.1: Environmental Protection

Weak interpretation of SD	Strong interpretation of SD
Adheres to a less stringent notion of environmental protection.	Adopts a stringent notion of environmental protection.
Only committed to environmental protection where it is economically viable or affordable.	A strong commitment to living within the limits of the carrying capacity of the biosphere.
The environment is only important to humans as long as it has a use value for them.	The environment is protected and conserved.

Economic activity should not be confined to predetermined environmental limits.	Economic activity should be confined to the carrying capacity and maximum upper limits of resource use.
Methodology <ul style="list-style-type: none"> - Balancing or trading off of the benefits of economic growth against environmental protection - Cost-benefit analysis - Utilitarian calculus 	Methodology <ul style="list-style-type: none"> - Determining the maximum population of a species that an ecosystem can support. - The determination of the upper limits of resource use that can be maintained in future (maximum sustainable yield).
No aspect or level of the environment is regarded as inviolable	Amount and type of economic activity should “fit in” with natural ecosystems.
Typical institutional home: government, industry, business, resource economics	Typical institutional home: ecological sciences and environmental economics
Related concepts: <ul style="list-style-type: none"> - Weak sustainability - Maintaining total capital stock - Constant capital rule - Infinite intersubstitutability of natural human and financial capital 	Related concepts: <ul style="list-style-type: none"> - Strong sustainability - Maintaining natural capital stock - Constant natural capital rule - Non-intersubstitutability of different kinds of capital

In terms of the emphasis placed on equality as a requirement for SD, a distinction is made between an egalitarian and a non-egalitarian concept (Jacobs, 1999: 32-33).

Table 2.2: Equality

Egalitarian concept of SD (the equal distribution of resources)	Non-egalitarian concept of SD (the unequal distribution of resources)
<ul style="list-style-type: none"> - Proponents strive to raise the living standards of the poor. - Emphasis falls on development issues: improving the living conditions of the destitute 	<ul style="list-style-type: none"> - Proponents strive to maintain their own living standards - Emphasis falls on green issues: environmental protection
Committed to the equal distribution of resources.	No commitment in the equal distribution of resources.
Calls for a reduction of consumption of global resources.	Rejects the challenge to change consumption patterns.
The ecological footprint of countries in the North should not invade the limited ecological space of South countries.	The consumption patterns tend to impact on the ecological space of other countries. Tend to defend an “imperialist” regulation of resources

	in the South, e.g. forests.
Typical political home: - The South - Radical political parties and NGOs in the North	Typical political home: - The North - Conservative political parties and NGOs in the North (as well as the South)
Salient example: The <i>Brundtland Report's</i> emphasis on the eradication of poverty.	Salient example: Conserving and preserving rain forests in the South in order to counter the effects of CO ₂ emissions in the North.

In documents emanating from the Rio Earth Summit in particular, it was recognised that SD requires the participation of all groups or stakeholders in society. This constitutes the third Fault Line in terms of which interpretations of SD can diverge in Table 2.3. On the extreme poles of this Fault Line, a top-down and bottom-up interpretation of SD can be placed respectively (Jacobs 1999: 26-27, 34-35).

In documents emanating from the Rio Earth Summit in particular, it was recognised that SD requires the participation of all groups or stakeholders in society. This however, constitutes the third Fault Line in terms of which interpretations of SD can diverge in Table 2.3. On the extreme poles of this Fault Line, a top-down and bottom-up interpretation of SD can be placed respectively (Jacobs 1999: 26-27, 34-35).

Table 2.3: Participation

A bottom-up interpretation of SD	A top-down interpretation of SD
<ul style="list-style-type: none"> - Commitment to a full public participation process. - Public participation process has intrinsic value. - The process is good in its own right. 	<ul style="list-style-type: none"> - Public participation process has only instrumental value; where it is not required, it is not espoused. - Not committed to a full public participation process
All decision-making processes, setting objectives as well as implementation are subject to a public participation process.	Usually only required for the implementation of SD, not to decide about objectives.
Participation recognises all types of knowledge, including traditional and ordinary knowledge.	If participation is required to determine objectives, it only considers the participation of specialists and experts.
The process does not only involve the elite of academics and specialists but also ordinary	The process only involves the major stakeholders of society: local, provincial and

members of the public and involves community organisations.	national government, large NGOs and businesses.
Example: Guidelines for participation in <i>Agenda 21</i> .	Example: The determination of national policies or strategies does not involve the general public.

With regard to the tensions in this area, Jacobs (1999: 34-35) makes two salient observations. Firstly, he points out that the top-down model of participation often serves as a smokescreen for government inaction. It often happens that governments decide on objectives and leave the responsibility of implementation to everyone else, i.e. businesses, individuals and voluntary organisations, except the central government. Secondly, he points out that the ideal of full participation can create problems: it can become a goal in itself, elevating whatever emerges from participative, multi-stakeholder socio-political processes to the level of unquestionable interpretations of SD.

A fourth area of major contention between the different interpretations of SD has to do with the scope of the concept of SD in Table 2.4.

Table 2.4: The scope of the concept of SD

Scope of SD: environmental protection	Scope of SD: social development
Environment protection is the dominant motivation for SD.	Environmental protection is one goal amongst many others equal to it such as social development.
Education, health, satisfaction of development needs, participation of the poor or women, and commitment to indigenous practices and communities are derived from the central motivation of environmental protection.	SD also entails concerns in fields such as, biodiversity, pollution, meeting local needs, work health, freedom from fear of crime or persecution, access to information and education, public participation, equal resource use and opportunity for culture and leisure, and beauty/human scale/diversity. These are all central and essential to SD.
A narrow interpretation of SD, e.g. project phase EIA.	A wide interpretation of SD, e.g. strategic environmental assessment.
Legitimacy is drawn from notions of carrying capacity and ecological limits.	Legitimacy is drawn from the notion of quality of life.
SD is essentially an environmental concept.	SD is much wider than just an environmental

	concept, describing a new goal of economic, social and political life.
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A further two observations can be added to those outlined above. It is evident from Table 2.4 (The scope of the concept of SD) that a new, radically expanded interpretation of SD can be given that goes beyond ensuring that ecological processes continue indefinitely. In the right column, one can speak of social “sustainability”. This could include the notion of including communities and cultures as much as the environment (Jacobs 1999: 37). Environmental purists, however, may want to object to this expansion on the grounds that it takes the concept of SD into areas where it will “cease to be useful, merely becoming a new term for generalised ‘progress’, its objectives a mere wish list of desirable social goods” (Jacobs 1999: 37).

The fifth Fault Line is environmental evaluation and monitoring is necessary because without monitoring and evaluation, people cannot learn from their experiences. Feedback is needed to see which actions to promote SD have been implemented successfully; which failed, and why; whether targets and policies were realistic, overly ambitious or too modest; and in particular, whether or not they were approved and supported by those they were designed to assist (Yeld, 1997: 70).

Table 2.5: Environmental evaluation and monitoring

Short-term environmental monitoring	Long-term environmental monitoring
Monitoring of environmental impacts only at the beginning phase of the development (construction phase).	Monitoring of environmental impacts at the beginning phase and after the development has become operational.
Temporary commitment to environmental compliance only to receive approval to proceed with development.	Commitment to achieving SD by long-term management and a periodic review of impacts on the environment.
Weak enforcement or non-compliance with environmental conditions and the environmental management plan.	Ensure compliance with environmental conditions and the environmental management plan.
Only compliant with certain policies and environmental legislation.	Legally compliant with all environmental policies and legislation pertaining to the development.
The monitoring and evaluation of information are restricted to only major stakeholders of	Monitoring and evaluation information are accessible to the public and major stakeholders,

society: business, government and large NGOs.	showing progress and the pathway to sustainable living.
Exploitation and destruction of resources. Contributes to the threat of global warming.	Minimises the depletion of non-renewable resources.

The sixth Fault Line of environmental planning is one of the main challenges facing society today and is essentially about how to bring about more sustainable human communities. The broad and diverse field that has come to be known as environmental planning plays a central role in meeting this goal, in that it deals with the nuts-and-bolts of how communities, regions and nations are built and including how they relate to natural ecosystems (Wheeler, 2004: 1).

Table 2.6: Environmental planning

Sufficient environmental planning	Insufficient environmental planning
Consideration of planning tools at local, provincial and national level.	Planning tools at local, provincial or national level have been overlooked.
Effective land use and growth management to achieve SD. Integrated environmental management between all spheres of government.	Sprawl development, fragmentation, developments are discontinuous, homogeneous, poorly connected and ecologically destructive.
Compliance with all relevant planning frameworks, eg Spatial Development Frameworks.	Non-compliance with the relevant planning frameworks.
Social Environmental Assessment and Strategic Environmental Assessment of developments.	Developments tend to be project specific eg. Environmental Impact Assessments only.
Good participation of citizens in community groups and social institutions for the integration of walkable public spaces, parks, greenways, public squares and sidewalks	Poor participation of citizens in community. Developers seek to get maximum economic return from their property with little thought given to the streetscape and public environment.
Recycling, materials are recirculated extensively, waste is eliminated.	Resource use takes place in a linear fashion.

2.4 The different interpretations and approaches to the concept of SD

A critical evaluation of the concept of SD reveals many different definitions, meanings, approaches and interpretations. The concept is difficult to fully understand because it is interpreted differently by different people depending on their position on the political, economic or social spectrum (Hattingh, 2002: 5; Kidd, 2008: 16). It has become part of a small set of concepts like democracy, justice, fairness, equity and transparency that almost everyone seems to support. The concept of SD has become widespread in recent times but there is little indication that a clear global consensus has emerged about the content, the interpretation and the implementation of this moral imperative (Hattingh, 2002: 5). It is a term capable of numerous definitions (Kidd: 2008: 16); indeed, Holmberg and Sandbrook (1992: 82) found over 70 definitions for SD since the publication of the *Brundtland Report* in 1987 (Chadwick et al., 1994: 11). Pretty (1995: 3) indicated that it is impossible to define SD and quotes Campbell (1994: 11): “attempts to define SD miss the point that, like beauty, SD is in the eye of the beholder...” (Cole, 1998: 87).

Even before the *Brundtland Report*, an interpretation of SD was provided in *A Blueprint for Survival* (Goldsmith, 1972: 30 in Hattingh, 2002: 3) in which four main prerequisites for a sustainable society (conceptualised as a state of equilibrium) were articulated:

- The minimal disruption of ecosystems.
- The maximum conservation of energy and resources.
- A society in which only the losses are replaced.
- A social system in which the individual does not feel limited by the first three conditions but instead enjoys them.

This interpretation was however criticised for its utopian character since it serves as an agenda of maximum environmental protection and nature conservation without the consideration of economic and social factors. It has also been criticised for having untenable implications for those living in developing countries. A global policy of a zero-growth, steady-state economy would confine those living in developing countries to the trap of a skewed and unjust distribution of the world's resources with no hope of ever changing the material basis, or substantively improving the quality, of their lives. Using the Fault Line on equality this interpretation of SD would be non-egalitarian and the scope of the concept of SD would be dominated by environmental protection (Hattingh, 2002: 3).

There are also many different approaches to SD, for example, the conventional approach and the embedded approach shown in Figure 2.2.

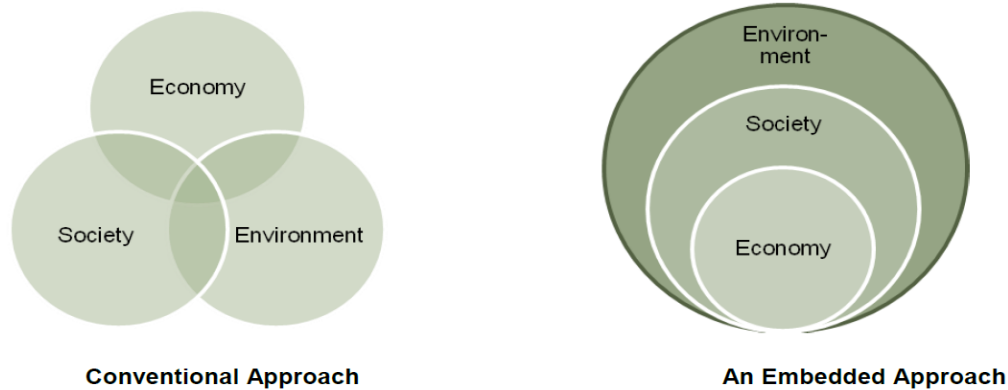


Figure 2.2: Different approaches to SD (adapted from Mebratu, 1998: 513; Department of Environmental Affairs and Tourism, 2006: 11 and Schulschenk, 2010: 18)

The conventional approach towards the concept of SD is based on separate systems, i.e. the natural, economic and social systems, which are independent systems and may be treated as such. The area where the three different systems interact, called the interactive zone, is the solution area whereas the area outside the interactive zone is assumed to be an area of contradiction (Mebratu, 1998: 513). On the other hand, the embedded approach concludes that economic and social systems are dependent on the natural system and are not independent. In this context, the poorer countries of the world will rebel against the Western preoccupations with the natural environment and the environmental policies in place to protect it. The notion of SD within the second context predominantly called for limits to physical growth, the call from this context is for development (in particular, for the poor) within the physical limits of the supporting ecological systems. It emphasises that responses to environmental concerns should never be at the cost of the legitimate aspirations of the poorer nations of the world to overcome poverty and to reach a standard of living that is comparable to that of the richer nations. This is an egalitarian interpretation of SD in which proponents strive to raise the living standards of the poor and the emphasis falls on development issues to improve the living conditions of the destitute. Accordingly, development in the sense of the satisfaction of human needs as well as intra-generational justice, i.e. equitable access to the natural resources of the world, were seen as preconditions for SD (Achterberg, 1994a). It is within this context that the *Brundtland Report* (WCED, 1987: 43) formulated the well-known definition of SD that has received global support (WCED, 1987: 43).

The interpretation of SD in the *Brundtland Report* however, seems to under-emphasise the imperatives of nature conservation and environmental protection, and fails to provide clear guidelines for environmental protection when the interests of humans and nature are in direct

conflict with one another. This stems from the substantive anthropocentrism of *Our Common Future* and the so-called “weak notion” of SD (Reid, 1995: iv; Mafunganyika, 2009: 48; Audouin, 2009: 103). This weak notion of SD keeps capital intact and calls for “more rapid economic growth in both industrial and developing countries” (Ortolano, 1997: 96). It is a policy geared at conserving the whole capital stock (man-made, human and natural) although it is not opposed to running down any part of it as long as there is substitutability between capital degradation in one area and investment in another (Pearce and Turner, 1990: 67).

In terms of anthropocentrism, nature is considered valuable only insofar as it can be utilised as a resource for humans. The intrinsic value of nature, i.e. the value that it has, independent of its value to humans, is ignored. Similarly, environmental problems are predominantly conceptualised as management problems: they can be overcome through better management and/or better technology. This is clearly borne out of the fact that the only concept of limitation explicitly acknowledged in *Our Common Future* is that of the state of technology and social organisation. As such, this concept of limitation also reinforces what has become known in environmental economics as a weak interpretation of SD (Chadwick et al., 1999: 22).

Goodland and Daly (1994: 300) and Ortolano (1997: 96) use strong sustainability to mean development that involves the reinvestment of returns from economic development in separate categories for natural capital and human-made capital where human-made capital refers to producing goods and services, and natural capital refers to, for example, forests and wetlands. Thus, if an industrial facility is developed on filled wetlands, some of the economic returns from the facility would go towards the rehabilitation of previously destroyed wetlands. As another example, part of the income from “depleting oil should be reinvested in sustainable energy production rather than in any asset”. The total capital in weak sustainability refers to both natural and human-made capital (Daly and Goodland, 1994: 305). Advocates of strong sustainability believe that the only way to achieve reductions in the scale of materials and energy throughput is to reduce the scale of economic output.

However, most governments seem to see no conflict between economic growth and resource depletion, and place great faith in future technological advances and man’s ability to find substitutes for scarce resources. Many believe there to be an inverted U-shaped relationship between pollution and production (Cole, 1998: 91). This is illustrated in the environmental Kuznets curve shown in Figure 2.3 (Blignaut and de Witt, 2004: 7).

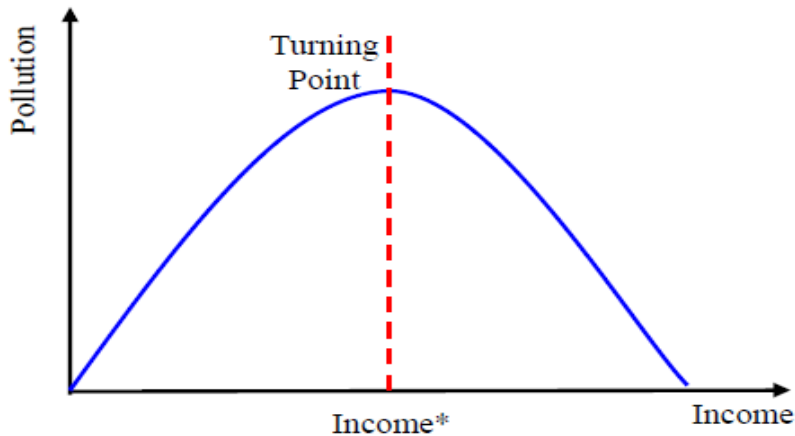


Figure 2.3: The environmental Kuznets curve (adapted from Blignaut and de Witt, 2004: 7 and Cole, 1999: 91)

The Kuznets curve depicts economic growth over time on the horizontal axis and environmental damage or degradation on the vertical axis. This curve indicates that in an early and advanced stage of economic development the impact on the environment is likely to be limited. This is so due to the minimum use of the environment during the early stages of economic development and the use of sophisticated and environmentally benign technology during the advanced stages, as well as the fact that developed countries base their economy on services rather than industrial production. The concern, however, is the potentially high impact on the environment during the intermediate phase of economic development. This is where South Africa currently finds itself, i.e. the country still has to develop its industrial sector and does not have the money to invest in clean capital (Blignaut and de Witt, 2004: 7). Furthermore, since economic development provides increased resources with which to tackle environmental problems, the result is often the development of environmental regulations (Cole, 1998: 91).

An analysis of the Kuznets curve using Jacobs Fault Line on environmental protection shows that environmental protection is not the dominant motivation for development but is often used and destroyed to increase income giving it a weak interpretation of SD. The Kuznets curve also shows that there is a turning point whereas there is still an increase in income but a decline in pollution. What the graph does not illustrate is the damage done to non-renewable resources where there is no turning point.

Subsequent to the *Brundtland Report*, a different approach to SD was advanced in *Caring for the Earth: A Strategy for Sustainable Living* (IUCN, UNEP and WWF, 1991: 6), the follow-up to the World Conservation Strategy. In this report, the ideals of SD are refined into a strategy for sustainable living. A strategy for a sustainable economy is also outlined. The publication

focuses on quality of life and not only survival issues. While retaining the notion that an activity is sustainable if it can be maintained indefinitely, SD is defined as an improvement in the quality of human life insofar as it is possible within the boundaries of the carrying capacity of the ecosystems on which it is dependant (IUCN et al., 1991: 7). This reflects a robust interpretation of SD where there is a strong commitment to living within the limits of the carrying capacity of the biosphere. Indeed, a sustainable economy could result from this interpretation of SD because such an economy could keep its natural resource base intact but could continue to develop by adapting to change and making improvements in knowledge, organisation, technical efficiency and environmental ethics (Achterberg, 1994a: 10).

Elaborating on the vision articulated for SD in the World Conservation Strategy, nine principles are proposed in *Caring for the Earth* that should be the ethical platform for sustainable living. These are:

- Respecting and caring for the community of life (an ethical principle that defines a duty of care for other people and for all forms of life both now and in the future).
- Striving to improve the quality of human life.
- The conservation of the earth's vitality and diversity.
- The depletion of non-renewable resources is minimised.
- Living within the earth's carrying capacity.
- Changing personal attitudes and practices in accordance with an ethic for sustainable living.
- Enabling communities to care for their own environments.
- Developing a national framework for the integration of development and conservation.
- Developing an alliance for the implementation of SD on a global scale.

(Yeld, 1997: 8-9)

Caring for the Earth (IUCN et al., 1991: 12) notes that these principles, values and duties are not new and that they have been articulated in many of the world's cultures and religions over many centuries. They also reflect many of the statements at United Nations conferences and in reports that have been used to proclaim the need for equity, the participation of all stakeholders in decisions impacting their wellbeing, the conservation of nature and economic efficiency which is required in order to achieve for SD. In short, these principles reflect an essential support for the principle of respect for life in general, emphasising the importance of nature and ecosystems that also include human life. The challenge for sustainable living from this perspective is therefore not to justify it, but rather to help individuals and nations apply it in concrete actions and practices (IUCN et al., 1991: 65 in Hattingh, 2002: 5).

The Fault Lines can be used to analyse different approaches and definitions of SD. In other words, they can assist in determining whether an approach or definition has a strong or weak interpretation of SD, an egalitarian or non-egalitarian interpretation of the concept of SD, or a bottom-up or top-down participation process. They can further ascertain if the scope includes environmental protection only or includes social and economic development, short-term or long-term environmental monitoring and sufficient environmental planning. These Fault Lines help to identify the challenges faced in order to secure strategies for SD. According to Jacobs (in Hattingh, 2002: 5), the Fault Lines do not have an internal logical connection and can function independently from one another; but together, they can form a distinct model of analysis for SD.

2.5 An analysis of the concept of SD in NEMA using the Fault Lines

An analysis of the concept of SD within NEMA which gives effect to the EIA regulations as contemplated in Chapter 5 of the Act relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it cannot be avoided, and to optimise positive environmental impacts, and for matters pertaining thereto (NEMA EIA regulations, 2010: 13). The EIA process will be described in more detail in Chapter 2.

The Specific Environmental Management Acts (SEMA), which comprise the National Environmental Management Air Quality Act, the National Environmental Integrated Coastal Management Act and the National Environmental Biodiversity Act are all statutes of the National Environmental Management Act (see Figure 2.4, below) and make use of the same concept of SD described in NEMA and the identical EIA process explained in Chapter 5 of NEMA, e.g. as delineated in the Waste Management Act. The listed waste management activities (Notice 718) provide that parties "...must conduct a basic EIA process, as stipulated in the EIA regulations made under section 24(5) of NEMA, 1998 (Act 107 of 1998) as part of a waste management license application". According to the Air Quality Act: Section 38(2), "Section 24 of the NEMA and section 22 of the ECA apply to all applications for atmospheric emission licenses, and both the developer and the decision-making authority must comply with those sections and only applicable notices issued or regulations made in relation to those sections". The concept of SD therefore not only has implications for NEMA but also for the SEMA and EIA process, which all flow from NEMA.

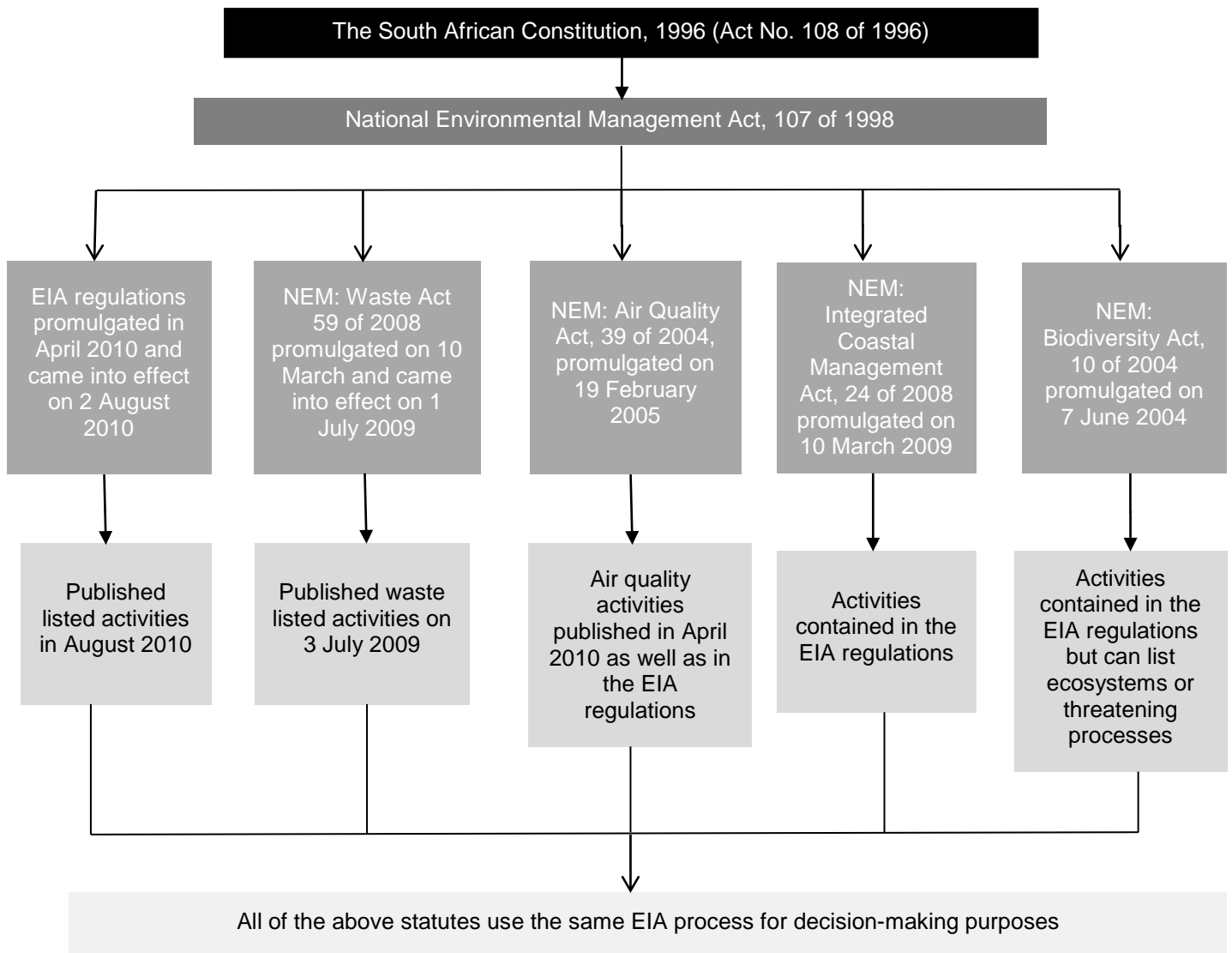


Figure 2.4: NEMA and the SEMAs allow for the same EIA process to be followed (adapted from Gerber, 2010)

2.5.1 The degree of environmental protection that is envisaged to attain SD

The concept of SD in NEMA is anthropocentric and represents a weak interpretation since it does not indicate to what degree the environment should be protected but rather that environmental factors should be taken into consideration when making decisions and that development should serve present and future generations. The concept is therefore unclear and not meaningful when the needs of future generations may not be ascertained with any level of certainty (Reid, 1995: iv; Mafunganyika, 2009: 48).

The concept of SD contained in NEMA is also based on the WCED (1987) definition and draws attention to the importance of meeting people's needs by stating in the preamble to the Act that "... the State must respect, protect, promote and fulfil the social, economic and environmental rights of everyone to strive to meet the basic needs of previously

disadvantaged communities” (Mafunganyika, 2009: 47). NEMA further states under Principle 2 in Chapter 1 that “Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably”. However, despite the reference to needs under Principle 2 in Chapter 2 of NEMA in which it is stated that this extends beyond the material to include psychological, social, developmental and cultural aspects, no further detail is provided on what is meant by the concept of “needs”. This omission leaves the implementation of NEMA, much like the WCED (1987) definition, open to different interpretations (Audouin, 2009: 103; Reid, 1995: iv).

The definition also does not specifically state what is to be sustained and what is to be developed (it seems that these answers are assumed). It is therefore arguable that NEMA, consistent with international approaches, is based on a conventional understanding of economic development with the additional requirements that its environmental limitations must be respected (Audouin, 2009: 103).

The concept of SD in NEMA is anthropocentric and reflects a weak interpretation of SD since a strong interpretation of SD will require that there is a strong commitment to living within the limits of the carrying capacity of the biosphere.

2.5.2 The emphasis on equality as a prerequisite for SD

NEMA provides that development not only serves present generations but also extends to the next generation, but the question must be asked: does it provide for the needs of the least disadvantaged in South Africa? South Africa, unlike the countries in the North, is still developing and categorised with widespread poverty. The GNP between the North and the South are manifestations of unequal access to resources and opportunities. This problem also manifests itself at the scale of the individual household or family, where in many societies gender determines access to income or material possessions (Reid, 1995: 15).

Many researchers have investigated whether or not racial minorities and lower-income classes accept a disproportionately high share of environmental risk. A systematic study of this issue began in the 1980s in the context of hazardous waste landfill siting decisions in the United States. Although their conclusions have been challenged, the early studies found that both race and income appeared to influence where hazardous waste facilities were located. Some studies even argued that racial discrimination played a central role in the siting of hazardous waste facilities (Wenz, 1998: 28). In 1992, the United States Environmental Protection Agency (EPA) presented only one definitive conclusion regarding

disproportionately adverse health effects: it was found that there was a disproportionate impact by race for lead poisoning. "A significantly higher percentage of black children compared to white children have unacceptable high blood [lead] levels." The EPA reached broader conclusions regarding exposure to pollutants: "Racial minorities and low-income populations experience higher than average exposure to selected air pollutants, hazardous waste facilities, contaminated fish and agricultural pesticides in the workplace." A further investigation by Richard Lazarus, a law professor, found that in US minority community's fines for violating laws are lower, pollution clean-ups are slower and violations of pollution control law are more frequent (Wenz, 1998: 29).

In South Africa, the situation was the same, forced removals based on environmentally racist planning led to the development of a core of heavy industry surrounded by low-income black residential areas since the early twentieth century (Berrisford, 2011: 248). Apartheid laws were used to both maintain apartheid within towns and cities and to prevent and restrict urbanisation by black South Africans (Berrisford, 2011: 249). In the past, people have not enjoyed equal access to natural resources predominantly because of the appalling heritage of former political policies, such as colonialism and apartheid, which has contributed to environmental destruction e.g. the extensive loss of vegetation in areas like the Ciskei through overcrowding and overstocking. Political policies were also responsible for other forms of environmental degradation demonstrated by significant air pollution in townships due to the burning of cheap coal for heating and cooking due to the absence of electricity (Yeld, 1997: 8).

The concept of equity in the definition of SD is well recognised in NEMA since it considers the obligations of those living in the present to future generations, i.e. intergenerational equity. Since 1994, access to services such as water, electricity and sanitation has improved but there is still a large number of people in South Africa who live in absolute poverty and are unable to satisfy even their most basic needs (DEAT, 2008: 7). The gap between the rich and poor has widened, unemployment has grown and social inequality and environmental degradation has increased (Cock, 2007: 53).

The emphasis of equality in the concept of SD is not on green issues or environmental protection, but on development issues to raise the living standards of the poor through the eradication of poverty. The concept of SD in NEMA is therefore egalitarian as described in Jacob's Fault Lines.

2.5.3 The measure and nature of participation required for SD

It is vital that people have the opportunity to be heard in a meaningful manner before decisions are taken that may lead to environmental injustice (Kidd, 2008: 242). This is recognised in the following NEMA principles from Chapter 1:

- Principle 4(b): “Environmental Management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and that it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.”
- Principle 4(f): “The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.”
- Principle 4(g): “Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge and experience and other appropriate means.”
- Principle 4(h): “Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.”
- Principle 4(i): “The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.”
- Principle 4(j): “Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.”

The EIA regulations of NEMA under Chapter 6 and the principles of the concept SD in NEMA makes extensive provision for public participation in the decision-making process and in principle, supports the bottom-up participation approach through the involvement of members of the public, community organisations, government and experts. The process provides consultation methods for community members and relevant government departments, as well as alternative methods for those instances where a person that desires to participate, but is unable to participate in the process due to illiteracy, disability or any other disadvantage. Access and opportunity are also provided to affected parties to comment on all written submissions. However, the EIA regulations and the principles of NEMA do not indicate what needs to be taken into account when deciding on the level of public participation and the process to be followed with regards to the scale of anticipated

impacts, sensitivity and the degree of controversy of the project and the characteristics of the potentially affected parties, since the circumstances of each case is potentially different.

In theory, it could be argued that the public participation process has the potential to play an important role in various phases of the EIA process and depending on the situation, may have a role to play in the design of studies, during data collection and the analysis of the data. This is most clearly seen in cases where social impact is one of the major concerns and local people can be involved in the detailed study of the possible social effects and its implications (Morgan, 1998: 153).

In practice, the EIA regulations are often inadequate, because they do not make sufficient provision for the great disparity in knowledge and power between communities and the developers proposing the project. Despite good intentions, many of the public participation processes are not meaningful discussions. Only in privileged communities where residents are well-resourced and educated, do they have the legal, environmental and social networks to engage meaningfully with the proposals. In less privileged communities, the situation often deteriorates into an information session where the community are educated about the benefits of the proposal or an adversarial exchange occurs where communities lodge objections that are tabled in a list of issues by consultants, but are not taken further (Seeliger and Hattingh, 2004: 25).

An industry may, for example, get away with unacceptable levels of air and water pollution, because the people who bear the brunt of it are poor and unable to objectively engage in the EIA process. For instance, a forest may be destroyed by excessive felling because the people living there have no alternative source of income, or the timber contractors have more influence than the forest dwellers to proceed with deforestation (WCED, 1987: 46). There are also instances where some disadvantaged communities see the environmental agenda as an obstruction to wealth creation and do not participate in EIA processes as a form of protest (Du Pisani and Sandham, 2006a). In practice, the measure and nature of participation required for SD in NEMA can either be top-down or bottom-up, depending on those involved.

2.5.4 The scope of the concept of SD

The concept of SD in NEMA defines environmental matters as only one consideration among many other economic and social issues in decision-making. In South Africa, the integration of social, economic and biophysical concerns is central to the philosophy and practice of integrated environmental management (IEM), in which the environment is defined in its

broadest sense to include "... biophysical, social and economic components and the connections within and between these components" (DEAT, 2004a: 9). An integrated approach is defined in the DEAT's document on IEM (2004a: 9) and as such acknowledges that all elements of the environment are linked and interrelated, and the effects of decisions on all components of the environment and all people in the environment must be taken into account.

The preamble to NEMA states that "... the integration of social, economic and environmental factors in the planning, implementation and evaluations of decisions..." is required in order to achieve SD, while the EIA regulations (DEAT, 2006) require a description of the way in which "... the physical, biological, social and economic and cultural aspects of the environment may be affected by the proposed activity" (Audouin, 2009: 32). Environmental protection is therefore not the dominant motivation for the scope of the concept of SD in NEMA, but one goal among others with an equal weighting. The result is a wide interpretation of the concept of SD.

2.5.5 Environmental evaluation and monitoring required to attain SD

The concept of SD in NEMA requires the "...implementation and evaluation of decisions to ensure that development serves present and future generations", but the principles of the concept do not include the monitoring of the impacts associated with development. NEMA also recognises that the enforcement of conditions is difficult. Specifically, in Section 24E it recognises that every environmental authorisation must as a minimum ensure that adequate provision is made for the on-going management and monitoring of the impacts of the relevant activity on the environment throughout the lifecycle of the activity. However, how this objective is to be met and who will be responsible for ensuring that these conditions are enforced is not clear, and there is therefore only a short-term environmental interpretation of the concept of SD.

Conducting environmental monitoring programmes, reporting the results and preparing scientific assessments are essential components in addressing environmental issues (Wiersma et al, 2004: 94) such as the conservation and protection of biodiversity, the monitoring of impacts on forestry, water, air, soils and issues arising from industrial and urban growth, the use of hazardous substances and the monitoring of their shortage and transportation, including transboundary movements, climate change, as well as the monitoring of the use of ozone depleting substances (Gupta and Yunus, 2004: 39). Lack of knowledge on environmental issues and poor environmental evaluation and monitoring by government authorities have resulted in ineffective EIA procedures and non-enforcement of

existing developmental and environmental laws in South Africa (Mafunganyika, 2009: 35).

Examples of non-compliance in South Africa include:

- Capital projects being executed without the necessary environmental authorisation.
- Facilities which do not have the necessary permits to operate.
- Contractors do not comply with relevant environmental laws or the operating permits issued.
- Inappropriate storage of wastes, chemicals and oils, failure to separate wastes prior to disposal and failure to ensure safe disposal of hazardous wastes.
- Contamination of soils and rivers due to leakage and effluent being illegally disposed to stormwater drains.
- Unauthorised water extraction.
- Non-compliance with operating permits.
- Non-compliance with EIA conditions of approval.

2.5.6 Environmental Planning required to attain SD

The EIA regulations have an insufficient environmental planning interpretation of the concept of SD. It does not include the environmental planning of activities before EIAs are being conducted, even the principles of SD in the NEMA Act makes no reference to the spatial planning of developments. The principles of SD and the EIA regulations tends to focus on the mitigation of impacts rather than the environmental planning with regards to the siting and jurisdiction of the activities (McDonald, 1995: 486). This inefficient interaction between EIAs and environmental planning has meant that EIAs have mostly failed to benefit from environmental planning. In practice they have largely existed and developed along parallel but different paths (Lawrence, 2000: 607).

Certain principles of environmental planning such as cumulative analysis and the assessment of policies and plans are not being adequately addressed by EIAs due to its project and site-specific application. It limits its range of activities which requires an EIA to only include certain developments but many other developments such as small scale forestry operations and housing developments which do not trigger the thresholds as required by the EIA regulations escape any form of assessment although their collective impact could be more than any individual large scale or hazardous activities (McDonald, 1995: 486).

CHAPTER 3: ENVIRONMENTAL IMPACT ASSESSMENTS AS A TOOL TO ENHANCE SUSTAINABLE DEVELOPMENT

This chapter investigates the emergence of EIAs globally and locally, changes to legislation pertaining to EIAs, the constraints within the EIA process and its relationship with SD. It consists of eight main headings: (1) The global policy and legal framework within which EIAs emerged, (2) The global ethical development of EIAs, (3) The local policy and legal framework within which EIAs emerged in South Africa, (4) An analysis of the EIA regulations, (5) A critique of the EIA regulations, (6) The purpose of EIAs, (7) The effectiveness of EIAs and (8) The constraints to the effectiveness of the EIAs.

3.1 The global policy and legal framework within which EIAs emerged

Environmental legislation developed slowly across the world and EIAs were first legislated in the United States in the National Environmental Policy Act (NEPA) 1969 (Gillespie, 2008:221; Chadwick et al., 1999: 28) and became effective in January 1, 1970 (IAIA, 2009: 2). NEPA pioneered the EIA procedure. It consisted of the following two titles:

- Title 1 established a national policy on the protection and restoration of environmental quality.
- Title 2 set up a three-member Council on Environmental Quality (CEQ) to review environmental programmes and progress, and to advise the president on these matters. It also requires the president to submit an annual environmental quality report to congress.

The main section dealing with EIAs is contained in Title 1 and has the following three pertinent parts (Chadwick et al., 1999: 28; Glazewski, 2000: 276):

- Part (a) specifies that all agencies of federal government must utilise a systematic, interdisciplinary EIA approach which ensures the integrated use of the natural and social sciences and environmental design arts in planning and in decision-making that may have an impact on the human environment (Glazewski, 2000: 276).
- Part (b) requires agencies to identify and develop methods or procedures that will ensure that presently unqualified environmental amenities and values be given appropriate consideration in decision-making along with economic and technical considerations (Glazewski, 2000: 276).
- Part (c) indicates the necessity for preparing environmental impact statements (Glazewski, 2000: 276). It also requires that an environmental impact statement has to accompany all other documents through any decision-making process so as to ensure that environmental consequences of projects, plans or programmes were considered in

conjunction with economic and technical considerations (Fuggle and Rabie, 1992: 762).

The environmental impact statement should cover five major areas:

- The environmental impact of the proposed action.
- Any adverse environmental effect that cannot be avoided should the proposal be implemented.
- Alternatives to the proposed action.
- The relationship between local short-term uses of the human environment and maintenance and enhancement of long-term productivity.
- Any irreversible and irretrievable commitment of resources that would be involved in the proposed action should it be implemented.

(Glazewski, 2000: 276)

Since the enactment of NEPA, EIA systems have been established in various forms throughout the world, beginning with developed countries such as Canada in 1973, West Germany in 1975, France in 1976 and later in less developed countries such as the Philippines, Columbia and Thailand (Chadwick et al., 1994: 37). Initially, EIAs introduced in some developed countries focused on identifying, predicting and mitigating biophysical effects and opportunities for public participation in major reviews (Blignaut and de Witt, 2004: 372). Today over 100 countries require EIAs (Gillespie, 2008: 221).

The main institution created by NEPA is the CEQ, an advisory body to co-ordinate the prevention of environmental degradation. The CEQ published important guidelines in both 1971 and 1973 and also produced regulations. Its essential regulations became effective in 1979 and were supplemented in 1986 by regulations to clarify how agencies should carry out their environmental assessments. The World Bank similarly recommends a “project cycle” approach which comprises of project identification, fact-finding preparation, pre-appraisal, appraisal, negotiations, implementation and supervision, completion and post evaluation.

After the enactment of NEPA in 1970, EIAs were recognised internationally at the 1972 Stockholm Conference in, *inter alia*, the Rio Principles (Kidd, 2008: 195). The main problems identified during the Stockholm Conference were poverty and the interaction between humans and the environment. The discussions focused on the interaction between humans and the biophysical environment, i.e. wildlife management, soil conservation, water pollution, degradation of land and desertification – with man as the culprit (Aucamp, 2009: 4). Principle 17 of the Rio Convention gives a general idea of the meaning of EIAs and states that an EIA, as a national instrument, shall be undertaken for the proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a

competent national authority (Kidd, 2008: 195; Glazewski, 2000: 269) The European Countries Directive in 1985 greatly influenced the EIA system and has accelerated its application (Chadwick et al., 1994: 42). The directive was concerned with the assessment of the environmental effects of certain public and private projects and after many years it has proved to be difficult to apply and was substantially amended in 1997. It entailed a subtle change to ensure that the assessment is carried out before development consent is granted and that the assessment is considered separately from the development consent.

In the literature two definitions of EIAs are apparent. The first is that “EIAs” is defined as a national procedure for evaluation of the likely impact of a proposed activity on the environment (Kidd, 2008: 195). In the second type of definition it is defined as a process which produces a written statement to be used to guide decision-makers with several related functions. EIAs should provide decision-makers with information concerning the environmental consequences of proposed activities and, in some cases, programmes and policies, and their alternatives. EIA requires decisions to be influenced by that information and provides a mechanism for ensuring the participation of potentially affected persons in the decision-making process (Sands, 2003: 799-800 in Kidd, 2008: 195). The second definition raises the idea that EIA does not focus only on projects, but can also be used to evaluate programmes and policies. This raises the idea of Strategic Environmental Assessment (SEA), which can be defined as “a process to ensure that significant environmental effects arising from policies, plans and programmes are identified, assessed, mitigated, communicated to decision-makers, monitored and that opportunities for public involvement are provided” (Kidd, 2008: 195).

SEAs can also be understood as an impact assessment process that aims to mainstream environmental, social and health issues and ensure the sustainability of strategic decisions. SEAs expand EIAs from projects to policies, plans and programmes. Development actions may be for a project (e.g. Nuclear Power Station), for a programme (e.g. a number of Pressurized Water Reactors, nuclear power stations), for a plan (e.g. in the town and country planning system in England and Wales, for local plans and structure plans), or for a policy (e.g. the development of renewable energy). EIA for programmes, plans and policies, otherwise known as SEA informs a higher, earlier, more strategic tier of decision-making. In theory, EIA should be carried out first for policies, then for plans, programmes, and finally projects (Chadwick et al., 1999: 7-8).

3.2 The global ethical development of EIAs

One way to measure how governments reacted to the growing need to manage the environment is to look at international agreements in the form of conventions and protocols on the environment. Today more than 500 international environmental agreements exist, of which more than 60 per cent have been finalised since 1972 (Aucamp, 2009: 4). In the last 20 years after the Stockholm conference, eight environmental conventions were negotiated. (Aucamp, 2009: 4). Since then EIAs started to include social dimensions in the process by incorporating Social Impact Assessment, risk analysis, public participation as an integral part of development planning and assessment as well as increased emphasis in issues of justification. The stress on extended cost-benefit analysis with inclusion of environmental impacts also began to emerge at this stage (Blignaut and de Witt, 2004: 372).

Prior to 1992 the following three important events occurred:

- The first climate-change conference was held in 1979.
- The Intergovernmental Panel on Climate Change or IPCC was created in 1989.
- The hole in the ozone layer was discovered.
- The growing concern about the loss of biodiversity developed.

The tragic incidents in Bhopal (industrial disaster), Chernobyl (nuclear accident) and grounding of the Exxon Valdez (oil spill) also happened in this period. Scientific and institutional frameworks for EIAs were rethought in response to sustainability ideas and imperatives. A search started for ways to address regional and global environmental changes and cumulative impacts and a growing international co-operation on EIA research and training developed (Blignaut and de Witt, 2004: 372).

3.3 The local policy and legal framework within which EIAs emerged in South Africa.

Environmental Impact Assessments have been practiced extensively in South Africa, particularly for large projects since the 1970's. It was legalised in 1982 with the Environmental Conservation Act (Act No. 100 of 1982). The publication of the IEM Guideline Series in 1992 promoted the application of the IEM procedure in a broad range of sectors and has played an important role in ensuring that environmental considerations are incorporated in planning processes and in development decisions. The guidelines is based on the identical premise as the guidelines created by the Council of Environmental Quality and brought South Africa into line with international best practice. In South Africa IEM is defined as "A philosophy ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process" (Glazewski, 2000: 280). The

Environmental Conservation Act was surpassed by the National Environmental Management Act in 1998 as can be seen in the development of EIAs in South Africa in Table 3.1 below.

Table 3.1: The development of EIAs in South Africa (Sadler, 1996; Kidd, 2008; Chadwick et al., 1999 and Audouin, 2009)

Date	The development of EIAs in South Africa
1982	The Environment Conservation Act (No. 100 of 1982) is promulgated. This Act contains provisions for the regulation of activities that have a negative impact on the environment. It is mainly concerned with governmental co-ordination of environmental concerns and the establishment of a Council to advise the Minister of Environmental Affairs.
1983	The Council for the Environment is established in terms of the Environment Conservation Act (No. 100 of 1982).
1984	The Council for the Environment establishes a committee to make recommendations for the consideration of environmental issues in the development approval processes. The approach recommend by this committee is described as Integrated Environmental Management (IEM).
1989	The Environment Conservation Act (No. 73 of 1989) is promulgated. This Act provides for the regulation of activities that may have a negative impact on the environment and for environmental impact reports to be required. No specific regulations in this regard were passed for a number of years. Also in 1989, the Council for the Environment recommends a procedure for IEM. This procedure is developed through an extensive process of research and consultation. It is adopted both formally and informally by businesses, authorities and professionals, but is not legislated.
1992	The practical experience in implementing IEM is used to refine the procedure. The revised procedure and a series of guideline documents are published.

1996	An SEA Primer, a book produced by the CSIR, highlighting the limitations of project-specific SEA and the need to integrate environmental issues into the strategic levels of decision-making (i.e. policies, plans and programmes). Although a specific SEA process is not presented in the Primer, some characteristics of SEA are explained. SEA is undertaken in the country on a voluntary basis.
1997	EIA regulations are promulgated in terms of the Environment Conservation Act (No. 73 of 1989) This Act introduces the process as a mandatory requirement for particular projects within certain listed environments.
1998	The National Environmental Management Act (No.107 of 1998) ("NEMA") is promulgated. This Act (Chapter 5, section 23(1)) provides for "... the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities". Although this statement refers to environmental management in general, the focus of the Act is on predicting the potential impacts of proposed activities. In so doing, NEMA places the emphasis on environmental assessment specifically, as this is the main environmental management tool used to make such predictions.
2000	DEAT publishes the Guidelines on SEA in South Africa. In addition, the Municipal Planning and Performance regulations (Department of Provincial and Local Government 2001) are published in terms of the Municipal Systems Act No. 32 of 2000. These regulations (Chapter 2, section 2(4)(f) require strategic assessment of environmental impacts of Integrated Development Plans (IDP's). The regulations do not stipulate a specific procedure to be followed in these assessments.
2006	EIA regulations are passed in terms of Chapter 5 of NEMA. These regulations replace those passed in 1997 in terms of the Environment Conservation Act (No. 73 of 1989).
2007	Revised guidelines on SEA in South Africa are published based on experience gained in the application of this process in practice.

2010	EIA regulations are passed in terms of Chapter 5 of NEMA. These regulations replace those passed in 2006 in terms of NEMA.
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3.3.1 The Environmental Conservation Act, 1989 (Act 36 of 1989) EIA regulations.

This act was the first modern South African Act dealing exclusively with the environment and it provided for the Minister of Environmental Affairs and Tourism to identify those activities which in their opinion may have a substantial detrimental effect on the environment, whether in general or in respect of certain areas (Kidd, 2008: 196). An identified activity may not be undertaken without authorisation from the relevant competent authority (Kidd, 2008: 196). In granting such authorisation, the authority may request reports concerning the impact of the proposed activity and or alternative proposed activities on the environment (Glazewski, 2000: 286). In 1997, the Minister promulgated a list of identified activities and general EIA regulations setting out the procedure to be followed by developers seeking authorisation for their activities. The listed activities which required authorisation from the competent authority have been amended several times. They included the “construction, erection or upgrading” of a variety of items, including nuclear reactors, roads and railways, dams and “public private resorts and associated infrastructure”; changes of land uses; the construction of livestock, aquatic organisms, poultry and game in a confined structure for the purpose of commercial production; the intensive husbandry of, or importation of, any plant or animal that has been declared a weed or invasive alien species; the release of any organism outside its natural area of distribution that is to be used for biological pest control; the genetic modification of any organism with the purpose of fundamentally changing the inherent characteristics of that organism; the reclamation of land from the sea and inland waters; waste disposal sites (requiring authorisation under Section 20 of the act as well); scheduled processes in terms of the Atmospheric Pollution Prevention Act; and the cultivation or any other use of virgin ground (land that has not been cultivated during the previous ten years) (Kidd, 2008: 196). The Minister also identified certain geographical areas where identified activities may not take place without authorisation (Kidd, 2008: 196; Glazewski, 2000: 281).

The EIA regulations, which accompanies the list of identified activities, sets out the process to be followed by the applicant or developer. In short, this requires the applicant to hire an independent consultant to carry out the procedure, which entailed the submission of a plan of study for scoping, including a description of the activity to be undertaken; the tasks to be performed during scoping and the method by which environmental issues and alternatives will be identified, followed by a scoping report. The scoping report must contain: a brief

project description, a brief description of environmental issues identified, a description of all alternatives identified; and an appendix containing a description of the public participation process followed, including a list of interested and affected parties and their comments (Kidd, 2008: 196).

On the receipt of the scoping report, the authority may decide the matter on the basis of the information supplied in the scoping report, or decide that such information must be supplemented by an EIA focusing on the identified alternatives and environmental issues. A plan of study for the EIA must be carried out, followed by the environmental impact report, which must contain: a description of each alternative, including the particulars on the extent and significance of each identified environmental impact and the possibility for mitigation of each identified impact; a comparative assessment of all the alternatives; and appendices containing descriptions of the environment concerned; the activity to be undertaken; the public participation process followed, including a list of interested parties and their comments; any media coverage given to the proposed activity; and any other information included in the accepted plan of study (Kidd, 2008: 196).

The relevant authority may then decide to authorise the activity with or without conditions, or to reject the application, and this decision, together with certain other prescribed information, must be provided in a Record of Decision (RoD). The decision may be taken on appeal to the Minister or provincial authority within 30 days from the date of issue of the RoD. This was the only time limit provided for in the regulations (Kidd, 2008: 196).

3.3.2 The National Environmental Management Act, 1998 (Act 107 of 1998) EIA regulations.

Prior to the enactment of the NEMA, the Act which most closely resembled framework legislation was the Environment Conservation Act (ECA). Although the title of the Act suggests it provided aspects of environmental conservation it did not give effect to Section 24 of the Constitution (1996), it became apparent that a new framework environmental Act was necessary.

The regulations of the ECA had been in effect for little more than a year when the NEMA was enacted. Chapter 5 of the NEMA is headed "Integrated Environmental Management" and sets out the general objectives of IEM and provides for implementation. NEMA repealed most of the ECA, repeals Sections 21, 22 and 26 of that Act and regulations there under regulating environmental authorisation and EIAs, but this repeal was to take effect only upon a date to be published by the Minister after regulations under Section 24 of NEMA had been

promulgated and the Minister was satisfied that the legislation to be repealed had become redundant. Although NEMA came into effect in 1999, it was only in 2006 that the EIA regulations under NEMA were promulgated and the repeal of the relevant sections and regulations of the ECA took effect. During the period 1999 to 2006, the ECA regime operated parallel (at least to a degree) with the NEMA provisions in Chapter 5. Although NEMA had not been fleshed out by regulations, the general principles were still applicable. It appeared that the authorities were using the ECA for identified activities (as they were required to do) and were applying section 24 of NEMA to those activities which may significantly affect the environment but were not identified activities in terms of ECA (Kidd, 2008: 197-198). The impact of this was that all applications which submitted under ECA were processed in terms of ECA and all the new applications from 1999, the provisions of Chapter 5 of NEMA were applicable (DEADP, 2007).

Table 3.2: The NEMA consists of 10 Chapters (Adapted from Kidd, 2008: 32-39)

Chapter 1	The principles of the Act have many features in common with internationally accepted principles of environmental management, which can be seen when one compares these principles with the Rio Principles.
Chapter 2	Makes provision for the establishment of institutions for environmental management.
Chapter 3	Provides procedures for co-operative governance.
Chapter 4	Deals with fair decision-making and conflict management. It provides for conciliation, mediation and arbitration as forms of dispute resolution in environmental issues.
Chapter 5	Deals with Integrated Environmental Management and addresses the authorisation of activities likely to be detrimental to the environment, such authorisation being considered on the basis of EIA procedures.
Chapter 6	Seeks to align South African standards with international standards of environmental management. Section 25 deals with issues relating to South Africa's joining of international conventions, as well as their domestic implementation. Section 26

	requires that annual reports must be submitted by the Minister of Parliament on, inter alia, environmental instruments for which they are responsible and the progress of the government's commitment in terms of <i>Agenda 21</i> , the procedures of review for the co-ordination of policies and budgets to meet the objectives of <i>Agenda 21</i> , and the review progress on public education programmes supporting the objectives of <i>Agenda 21</i> .
Chapter 7	<p>This chapter is divided into three parts:</p> <p>Part 1 - environmental hazards, access to information and protection of whistle-blowers.</p> <ul style="list-style-type: none"> - Duty of care and remediation of environmental damage. - Protection of workers refusing to do environmental hazardous work. - Control of emergency incidents. - Access to environmental information and protection of whistle-blowers. <p>Part 2 – Application of the Act and specific environmental management Acts, which deals with the appointment of environmental management inspectors and their powers and responsibilities, including the power to issue compliance notices. The specific environmental Acts are the National Biodiversity Act and the National Environmental Management: Protected Areas Act. These Acts are those for which many of the compliance and enforcement provisions in NEMA apply.</p> <p>Part 3 – Judicial Matters</p> <ul style="list-style-type: none"> - Legal standing to enforce environmental laws. - Private prosecution. - Criminal proceedings (including issues such as directors' liability and other aspects relating to prosecution of environmental offences).
Chapter 8	Provides the environmental management co-operative agreements, reflecting an important international trend. This chapter authorises the Minister, provincial governments and local authorities to enter into co-operation agreements with any person or community for the purpose of promoting compliance with the principles of environmental management.
Chapter 9	Deals with matters related to the administration of the provisions of the Act and the specific environmental management Acts; it also deals with matters such as appeal; delegation of powers; and the procedure for enacting regulations.
Chapter 10	Provides for general and transitional provisions.

3.4 An analysis of the EIA regulations.

The ECA made provisions for any person to apply with reasons for exemption from the application of any provision or regulation issued in terms of ECA. It also made provision to apply for exemption from having to obtain written authorisation in terms of the ECA EIA regulations. In terms of the NEMA EIA regulations a person cannot apply exemption from obtaining environmental authorisation and must at least ensure that the minimum requirements are met in terms of Section 24(4) of the NEMA.

The NEMA EIA regulations preceded the ECA regulations in April 2006. There were three government notices. The first notice relates to the process to be followed (R. 385), the second notice is the list of activities for which a Basic Assessment process is required (R. 386) and the third notice is the list of activities which requires a scoping and EIA process (R. 387). One of the main objectives behind the regulations is the expedition of the authorisation process by reducing the time taken (by the introduction of compulsory time frames) and excluding certain types of activities (those falling within certain thresholds) from the authorisation process. While the process may be simplified, the regulations are considerably bulkier than the previous ECA ones, with the result that the process became more complex (following participatory observation methodology).

The ECA EIA regulations deal with the powers and responsibilities of competent authorities, and the requirements of environmental assessment practitioners (who are still required to be independent). The basic assessment involves an assessment of the potential impacts of the activity on the environment; the extent to which those impacts can be mitigated; and whether there are any significant issues and impacts that require further investigation. Acknowledgement of receipt of an application must be made within thirty days and the decision on the basis assessment is required are, for the most part, identified on the basis of whether they fall within certain specified parameters, or below certain thresholds. For example, one listed activity is the construction of facilities and infrastructure, including associated structures or infrastructures, for the storage of 250 tons or more but less than 100 000 tons of coal (Kidd, 2008: 201). Those activities falling in the other category require scoping and EIA. A decision on an EIA must be made within 105 days of inception. Activities for which this process is required are significantly fewer than in the basic assessment list (Kidd, 2008: 201-202).

The NEMA EIA regulations no longer refer to the approval as the “record of decision” as with the Environmental Conservation Act, but rather to the environmental authorisations, and

there is comprehensive treatment of issues such as amendment, withdrawal and suspension of such authorisations, as well as provision for exemptions. The public participation process, an inherent aspect of the environmental authorisation process, is also regulated in far more detail than before. As far as the issue of appeals is concerned, the regulations persist in providing that the Minister or MEC have the decision-making authority. There is provision for an appeal panel but its powers appear to be confined to making recommendations to the Minister or MEC. Another noteworthy aspect of the regulations is provision for compliance monitoring.

3.4.1 The key differences between the EIA regulations of 2006 and 2010

The 2010 EIA regulations preceded the EIA regulations of April 2006 on 18 June 2010. On 18 June 2010 the Minister of Water and Environmental Affairs promulgated regulations on terms of Chapter 5 of the NEMA namely the EIA regulations 2010 (GN No. R.543, R544 (Listing Notice 1), R.545 (Listing Notice 2), R.546 (Listing Notice 3) and R.547 in Government Gazette No. 33306 of 18 June 2010). These regulations came into effect on the 2 August 2010. Listing Notice 1 and 3 are for a Basic Assessment and Listing Notice 2 for a full EIA process.

The Notice of Intent was excluded from the 2010 regulations. During the 2006 regulations the Notice of Intent had to be submitted to the Department of Environmental Affairs and Development Planning (DEADP) before an Application Form for Basic Assessment or Scoping and EIA could be submitted. It would then be given a unique reference number to conduct the PPP which had to be acknowledged by the DEADP within 14 days. The applicant and EAP would then have 6 months to complete the BAR or scoping report. If it was a scoping and EIA process the applicant will have another 6 months after acceptance of the scoping report of the competent authority to submit the EIA report. The 2010 regulations does not require a Notice of Intent but instead an Application Form for BA or S/EIA must be submitted to the competent authority which will be given a unique reference number which must be acknowledged and accepted or rejected within 14 days. The Application Form under the 2010 regulations also requires the EAP to sign a declaration of independence for undertaking the application for environmental authorisation.

A 40 day timeframe was included in the 2010 regulations for consultation between the competent authority and the relevant State departments administering a law relating to a matter affecting the environment. The 2006 regulations required that other relevant authorities which administer a law relating to a matter affecting the environment relevant to that application for environmental authorisation must provide written comment to the

competent authority but did not included a timeframe for such a competent authority to give comment. The 2010 regulations makes provision for a timeframe of 40 days for a commenting authority to provide comment from the date on which the competent authority requests such State department, in writing to, submit comments. If no comments have been received within the 40 day commenting period, and a time extension has not be requested by the State department, it will be accepted by the competent authority that there is no comment.

The timeframes for the competent authority was changed in the 2010 regulations. The 2006 regulations required that the competent authority must meet any applicable timeframe as contemplated in the regulations and if unable must notify the Minister or MEC. The 2010 regulations however extends the timeframe automatically if the competent authority was unable to meet the applicable timeframe, the timeframe will automatically extended with 60 days, but if the extended 60 day timeframe lapses then the authority must base his or her decision on the available information. The time period for the reviewing of a BAR has been extended. During the 2006 regulations only 30 days has been granted for the review of a BAR, to accept or reject and to make a decision by the relevant authority, whereas the 2010 regulations extended this timeframe by granting 30 days to accept/reject the BAR and another 30 days to make a decision.

A report can only be accepted or rejected in terms of the 2010 regulations and if rejected the amended report must go out for a 21 day commenting period to registered I&APs. In terms of the 2006 regulations additional information could be requested without the need for the amended report to go out for a 21 day commenting period to registered I&APs.

The PPP under the 2010 regulations makes provision that deviations from certain provisions regulating the public participation process can be applied for; this was not possible during the 2006 regulations. The 2010 regulations also require that alternative methods must be used for persons that are unable to participate in the EIA process due to illiteracy, disability or any other disadvantage; this was also not part of the 2006 regulations.

The requirement for the submission of the written consent from the landowner on which the development will take place if the owner is not the applicant was excluded from the 2010 regulations. The 2010 regulations requires that a written notice must be served to the landowner or person in control of the land and to inform such person that he/she may

participate in the public participation process. It further states that if the person is unable to understand the content due to-

- (i) Illiteracy;
- (ii) Disability; or
- (iii) Any other disadvantage,

Alternative means of notifying the owner or person in control of the land must be agreed to with the competent authority.

The name has changed from Environmental Management Plan in the 2006 regulations to Environmental Management Programme in the 2010 regulations. The 2010 regulations contains more requirements for an Environmental Management Programme such as an environmental awareness plan in which the applicant intends to inform the employees of any environmental risk which may result from their work and risks that must be dealt with in order to avoid pollution or the degradation of the environment. The Environmental Management Programme is also a requirement in the 2010 regulations for the BAR whereas it was not required under the 2006 regulations.

The time period for the appeal process has changed, in the 2006 regulations it was required that a notice of intention of appeal must be submitted within 10 days after the date that person has been notified about the decision, while in terms of the 2010 regulations, a person has 20 days to submit a notice of intention of appeal to the Minister.

The 2006 regulations requires that alternatives must be considered for an EIA but with the 2010 regulations the Environmental Assessment Practitioner must provide the competent authority with detailed, written proof of an investigation if no reasonable or feasible alternatives exist.

The content of the BAR contains more requirements in the 2010 regulations, for example, it must contain an environmental management programme as well as the description and assessment of the significance of any environmental impact.

Amendment applications in the 2010 regulations requires that a decision must be made as to whether it is a substantive or a non-substantive amendment, and another 30 days to issue an amended Environmental Authorisation from date of receipt of additional information of the substantive amendment. The 2006 Regulation did not have a timeframe in the regulations for the decision on the amendment application. The 2010 Regulation also includes that an applicant can apply for the amendment of the Environmental Authorisation

if there are any changes being made to the Environmental Management Programme or if there are any changes to the details of the environmental authorisation.

The listed activities were more during the 2010 regulations than during the 2010 EIA regulations listed activities. The 2010 listed activities are divided in 3 listings: Listing 1 comprise of 56 activities listed for a Basic Assessment process. (The Construction activities also now includes expansion activities), Listing 2 comprise of 26 activities listed for a Scoping and EIA Process and Listing 3 comprise of 26 activities listed for a Basic Assessment Process (These activities includes the different geographical and sensitive areas for all regions in South Africa), making it 33 activities more than the previous listed activities, this is basically due to the fact that the 2006 regulations did not have activities listed for the expansion of developments.

5. The Purpose of EIAs

The substantive purpose of the EIAs is to facilitate sound, integrated decision-making in which environmental considerations are explicitly included to promote SD. The EIA process does so by providing clear, well-organized information regarding the environmental effects, risks, and consequences of development options and proposals (Sadler, 1996: 13) on biophysical systems (water, soil, air, biological systems), created physical systems (such as settlements and infrastructure), socio-economic systems (including work, education, recreation and health services) and cultural systems (beliefs, art, literature) (Morgan, 1998: 22). These reference or end goals are variously phrased and framed in EIA laws and policies, as are the specific objectives to be met by the process (Sadler, 1996: 13) and also influence the character and direction of the EIA process (Morgan, 1998: 22).

3.5.1 An aid to decision-making

EIAs are an aid to decision-making. For the decision-maker, for example a local authority, it provides a systematic examination of the environmental implications of a proposed action, and sometimes alternatives, before a decision is taken. The environmental impact statement can be considered by the decision-maker along with other documentation related to the planned activity. EIAs are normally wider in scope and less quantitative than other techniques, such as cost-benefit analysis. It is not a substitute for decision-making but it does help to clarify some of the trade-offs associated with a proposed development action, which could lead to more rational and structured decision-making. The EIA process has the potential, although not always fully realised, to be a basis for negotiation between the developer, public interest groups and planning regulator. This can lead to an outcome that

balances the interests of the development action and the environment (Chadwick et al., 1994: 9).

3.5.2 An aid to the formulation of development actions

Many developers no doubt see EIAs as another set of hurdles to clear before they can proceed with their various activities; the process can be seen as yet another costly and time-consuming activity in the permission process. However, EIAs can be of great benefit to them, since it can provide a framework for considering location and design issues and environmental issues parallel. It can be an aid to the formulation of development actions, indicate areas where a project can be modified to minimize or accumulate its adverse impacts on the environment. The consideration of environmental impacts early in the planning life of a development can lead to environmentally sensitive development; to improved relations between the developer, the planning authority and the local communities; to a smoother planning permission process; and sometimes, as argued by developers, a worthwhile financial return on the extra expenditure incurred (Breakell & Glasson 1981). O'Riordan (1990) links such concepts of negotiation and redesign to the current dominant environmental themes of "green consumerism" and "green capitalism". The emergence of a growing demand by consumers for goods that do no environmental damage, plus a growing market to clean technologies, is generating a response from developers. EIAs can be the signal to the developer of potential conflict; wise developers may use the process to negotiate "green gain" solutions, which may eliminate or offset negative environmental impacts, reduce local opposition and avoid costly public inquiries (Chadwick et al., 1994: 10).

3.6 A Critique of the EIA regulations

The purpose of the regulations as described in Government Notice No. R. 543 of 18 June 2010 is to regulate the procedure and criteria as contemplated in Chapter 5 of the NEMA to the submission, processing and consideration of, and decision on, application for environmental authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it cannot be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and for matters pertaining thereto. Much like the concept of SD in the NEMA it does not state what will be acceptable levels if the activity is unavoidable and needs to be mitigated and managed, leaving this open to different interpretations and assumptions. It is also does not state whether a development should be refused or not and therefore also reflects a weak interpretation of SD.

During more than 25 years since NEPA's enactment the law has been critiqued frequently for establishing "little more than a bureaucratic exercise that requires federal agencies to complete paperwork they subsequently file and ignore" (Fogleman, 1993: 79). According to Ortolano (1997: 236) many project proponents view the NEPA process primarily as an administrative hurdle to be cleared along the way to protect implementation. This hurdle imposes risks because project proponents must make a public disclosure of impacts, and the information on impacts can strengthen the hand of projects' critics. When opposition to a project is likely, agencies often view the NEPA process in terms of staying out of court. If litigation appears unavoidable, the process often centers on the production of huge stacks of paper as evidence that environmental issues have been given appropriate consideration e.g., the NEMA EIA regulations, 2010, request under Regulation 23(1) that 5 copies of the report, representations and comments received, minutes of meetings and responses from the Environmental Assessment Practitioner be submitted to the Department for a decision, creating an unnecessary administrative burden on the reviewer (following participatory observation methodology).

The regulations have insufficient environmental planning to attain SD since there is no relation to strategic planning in the process. The anticipated regime is intended for EIA at project level only thus signalling that SEA, is not important; nor is the requirement to look at cumulative impacts (Glazewski, 2000: 271). SEA is useful for site selection, and by conducting such a "higher order" assessment, there may be less need for, and less depth required from, component project EIAs. SEAs may cope better with cumulative impacts, assessments of alternatives and mitigation measures than standard EIA. It is claimed that SEA can ensure that EIA is initiated at the correct point in the planning cycle and therefore makes it easier to pursue SD by helping prevent problems that are difficult to reverse (Barrow, 1999: 230). Impact assessment should be better integrated into policy making planning and administration. It is difficult to predict the impacts of something if no account is taken of other current and planned developments (Barrow, 1999: 228). There is no link to planning law, which in fact does ask for, or seems to be moving towards the SEA philosophy in requiring the inclusion of environmental considerations into various plans required by planning legislation (Glazewski, 2005: 296).

The regulations restrict EIAs to listed activities only. Those potentially significant impacts of activities that are not listed, or whose listing could be interpreted to exclude a specific one, would fall outside the EIA net (Glazewski, 2005: 296). Cumulative impacts are also of concern because a series of small projects that are decided case-by-case as within the EIA process, can have collective impacts of great significance, even if each individual project has

minor effects e.g., decisions to permit filling in the edges of a bay for real estate development. For any one project, the impact on the bay may be trivial. However, hundreds of similar, small projects, if allowed to go forward, could “nibble” away a notable fraction of the bay (Ortolano, 1997: 327).

There is a lack of follow-up on whether mitigation measures have been implemented as specified in the environmental authorisation. One argument in support of monitoring argues that mitigation measures can be undertaken for unacceptable impacts. Continued monitoring can also indicate whether the mitigation was effective (Ortolano, 1997: 328). Since the early years of the implementation of IEM in South Africa, post EIA follow-up and project monitoring has been weak (Rossouw and Wiseman 2004: 5). Regulation 69(8) states that “Every holder of an environmental authorisation must conduct such monitoring and such performance assessment of the approved environmental authorisation and environmental management programme as may be prescribed through conditions of the environmental authorisation”. This implies that it is only the conditions in the environmental authorisation that must be complied with. It also does not ask for compliance monitoring by the authority or the reporting back of the holder of the environmental authorisation to the authority at a regular basis. It therefore seems that regulations do not ensure effective compliance and environmental monitoring to attain SD (Ortolano, 1997).

The regulations do ask for a description of the advantages and disadvantages that the proposed activity will have on the environment and on the community that may be affected by the activity but it does not ask how it will improve the living standards of the poor or improve the living conditions of the destitute. Without access to resources there cannot be rural development, and without infrastructural support the productive potential of resources cannot be realised and the regulations do not call for this. The administrative problems facing provincial governments in South Africa cannot be underestimated. It is an inefficient, bloated and fragmented array of institutions, with little experience of accountable service delivery or bottom up development initiatives (Marcus, Eales and Wildschut, 1996: 125).

The regulations point out the process for conducting a PPP but it does not point out what should be done if there are disputes over environmental resources. It also does not indicate to what extent the public’s comment needs to be considered and to what extent the expert’s opinion needs to be considered.

3.7 The effectiveness of the EIA Process

The International Association for Impact Assessment (“IAIA”), together with a number of governments, in 1994 instigated an international programme for reviewing the effectiveness of EIAs. A major part of that programme was a two-year project, the International Study of the Effectiveness of Environmental Assessment. Its aim was to collate the experience with EIA in various countries and to identify some of the common issues facing practitioners in those countries. Another component of this programme was an international summit convened in 1994 by the Canadian Government and the IAIA, to mark 25 years of EIA practice. It examined three main themes:

- The effectiveness and efficiency of existing EIA systems and processes.
- The potential of EIA in policy appraisal.
- The opportunities for international co-operation in the exchange of information, in the development of EIA systems and processes, and in capacity-building.

(Morgan, 1998: 5)

The results of this study has been written up by Sadler (1996) who suggested that the effectiveness of EIAs can be tested at the following different stages in the cycle of EIA systems:

- Whether a given EIA policy is effectively translated into practice through the application of relevant processes and procedures.
- Whether the practice results in effective EIA performance through contributions to decision-making.
- Whether this performance then effectively feeds back into changes in the EIA policy by examining whether EIA realises its purpose.

(Chadwick, et al. 1999: 22)

One major impetus was to seek ways of improving EIA practices. A constant threat however runs through much of this report: the need for EIA education. For example, the definition of capacity-building generated by the participants is as follows:

...the development of an appropriate organisational structure, with adequate resources to design and manage an EA system. Capacity-building includes the development of:

- Informed decision-makers.
- A cadre of technical experts able to assess the environmental and social effects of proposals.
- A public that is aware of supporting the goals of environmental sustainability.

(Morgan, 1998: 5-6)

Sadler also notes that these questions and the attendant techniques for investigating them must be seen in the context of the decision-making framework in which the relevant EIA system operates (Chadwick, et al. 1999: 22).

3.8 The constraints to the effectiveness of the EIA Process

In South Africa, as discussed earlier in this chapter, the EIA process is being enforced by the National Environmental Management Act. A dendogram (attached as Appendix A) has been compiled, which outlines that the effectiveness of the EIA process can be reflected in the following components:

- The quality of the assessment.
- The relative role players.
- The scope of the assessment.
- Decision-making process.
- The post-decision process.

Based on the above points of analysis, there are also constraints which hinder the effectiveness of the EIA process with regard to different components in the dendogram.

3.8.1 The Quality of the Assessment

An EIA report needs to be compliant with the relevant EIA legislation which is the NEMA and which gives effect to the EIA regulations but many EIA Reports are often poorly carried out and presented. The resulting predictions are often incorrect, and it is unclear to what extent they can be used for decision-making (Morris and Therival 1995: 1). Many EIA reports even fail to meet the minimum standards of the NEMA EIA regulations (Chadwick, et al. 1999: 23).

In a survey by Jones et al. (1991) of the Environmental Impact Statements (EIS) published under the United Kingdom's EIA regulations many shortcomings were highlighted. They found that "one third of the EIS's did not appear to contain the required non-technical summary, that, in a quarter of the cases, they were judged not to contain the data needed to assess the likely environmental effects of the development, and that the great majority of cases, the more complex, interactive impacts were neglected" (Chadwick, et al. 1994: 21; Chadwick, et al. 1999: 23).

In a meeting with employees of the Department of Environmental Affairs and Development Planning, discussing the challenges reviewers are facing, the researcher found that many EIA reports do not meet the minimum requirements of the EIA process, causing the rejection of such reports and resulting in unnecessary time delays in the process, especially with

regard to developments such as low-cost housing where there is an urgent need for the speedy delivery of houses.

3.8.2 The Relative Role Players

The various role players in the EIA process – the developer, the affected parties, the general public and the regulators at various levels of government – have different access to the process, and their influence on the outcome of the application varies. The developer or the developer's consultant, the environmental assessment practitioner who prepares the EIA, are unlikely to predict that the project will be an environmental disaster. The developers are concerned with potential delays of the process and the cost of the application. The procedures and practice of public participation as well as the timing of the release of the EIA report to the public are other important issues to developers. Government roles in the EIA process are conditioned by caution at extending systems, by limited experience and expertise and by resource considerations. A central government may offer limited guidance on best practice, and make inconsistent decisions. A local government may find it difficult to handle the scope and complexity of the content of the EIA (Chadwick, et al. 1994: 22; Chadwick, et al. 1999: 23).

3.8.2.1. Limitations imposed by the EAP

- Bias in favour of the project proposal and acting in the proponents interest.
- Alternatives and wider community and environmental benefits are not covered adequately.
- Changes to the original proposal, including mitigation, are seen as hindrance.
- Application of the minimum effort in completion of the EIA to keep costs down. EAP's sometimes "overreach", that is, to save money on specialist studies they make a professional judgement that is outside of their field of expertise. This may later be questioned and the authority may require a specialist study anyway.
- Poor scientific quality of data, analysis and presentation.
- Unrealistic scheduling for completion and co-ordination of complex studies because of unwise time and budget constraints.

(University of Pretoria, 2008: 15; DEADP, 2013: 36)

As an example, the development of the Pan African Parliament which is on the N1, near Johannesburg, South Africa, was approved in the middle of a wetland that is home to the highly endangered African bullfrog. The developer maintained ignorance and claimed, that they trusted the consultant who did the EIA to report accurate findings. No mention of a wetland was made in the EIA. The consultant was blamed and was convicted in court for

negligence. A case of “desktop publishing”, the judge believed. The consultant wrote the report without visiting the site (Groenewald, 2012: 1).

The problem with the above arrangement is that the developer appoints and pays the consultant to write the EIA. Environmental Consulting Firms are often angry at the suggestion that they might be “bought” because the developer is paying their salaries. But the reality is that a big mining house or property developer will not rehire a consulting firm that keeps on compiling damaging EIAs that block their developments. At the same time, consultants have to be true to their profession – and its ethics. This is why consultants make frequent use of the word “mitigation”. There will be environmental damage, but it can be minimised if the developer follows the listed (expensive) recommendations. The developer will implement these expensive measures, because they are willing to pay to make the concerns go away.

3.8.2.2 Limitations imposed by the Decision-making authority

The following constraints from the authority:

- Minimal rejection and insignificant changes made to proposals, resulting in the public perception that the EIA is simply a “rubber stamping” exercise.
- Lack of monitoring and enforcement of the proposal and the authorisation conditions.
- Lack of easily enforceable authorisation conditions.
- Limited prosecution of projects that commence without approval.
- Lack of staff and skills.
- Expected to know everything about everything. New information that becomes available or results of law reform may take some time to integrate in the decision-making process.
- Limited timeframes to review applications within a hierarchy of decision making and prioritization of work.
- Environmental authorisations that is poorly drafted and difficult to implement and later enforced.
- During the processing of an application the statutory timeframes applicable to the authority may be missed. When the initial review timeframes as contemplated in regulations 24(1)(a), 25(1), 30(2) or 35, as the case may be, are not met, those applicable timeframes are automatically extended by 60 days.
- Decisions on applications which are appealed, may significantly contribute to delays in the implementation of a proposal, even if the appeal decision grants environmental authorisation for a development proposal.

(University of Pretoria, 2008: 15; DEADP, 2013: 37)

To further illustrate this point, the following unverified information was reported in the City Press (13 November 2012) that “the former Western Cape environment MEC David Melatsi who was sentenced to five years in prison for corruption told developers he was prepared to approve their projects without seeing the EIAs required by the law, as testified by the Democratic Alliance councillor Johan Brummer from Plettenberg Bay in the regional court of George. He further testified that David Melatsi and the premier Peter Marais took hundreds of thousands of rands in bribes to smooth the way of provincial approval of the R500 000 000 Roodefontein golf estate development at Plettenberg Bay. Brummer said he was struck that the MEC, the most senior person in the province tasked with protecting the environment, could say this about legislation that was supposed to perform that function, and that he was supposed to enforce”.

3.8.2.3 Limitations imposed by the commenting authorities

Co-operative governance is a critical part of South Africa’s system of government, which, according to the Constitution (Act No. 108 of 1996), comprises national, provincial and local spheres that are distinctive, inter-dependant and interrelated (E.g. the Department of Agriculture, the Department of Water Affairs, Department of Environmental Affairs). This is also stated in the title of the NEMA Act that it will provide for co-operative governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state (Audouin, 2009: 41). Although the theme of co-operative governance is embedded in South African environmental legislation, it is rarely effectively translated into practice. Often the reality is a fragmented system of environmental management, with unaligned processes, fragmentation between local, provincial and national spheres of government and between various line functions (Kotze, 2003: 2).

3.8.2.4 Limitations imposed by the general public

The following constraints from the general public:

- The participation of the poor, vulnerable and disadvantaged in environmental assessment processes may be limited by more practical aspects, such as lack of financial resources to afford the travel costs of attending public meetings or a lack of access to newspapers on which notices are published.
- Their participation can also be constrained by a limited understanding of the language in which the process is being presented or by the academic and scientific jargon that may be used.
- They sometimes do not engage according to the agreed procedures and time frames.

- Vital issues may be misrepresented or not adequately addressed when representations of civil society organisations express their own views rather than those of their constituency.
- If an interested and affected party makes unrealistic demands, it can delay the EIA process.

(Naidu and Will, 2003; Freeman, 2001; DEADP, 2013: 36-37)

3.8.2.5 Limitations imposed by the Specialists

The following constraints from specialists:

- Specialists sometimes recommend mitigation measures that are impractical or inappropriate.
- Some specialists are strong on description but weak on assessment and answering the “so what” question.
- Terms of reference for specialist studies do not adequately address key issues raised during the scoping process.
- Poor integration between different specialists and the findings of their reports.
- Lack of clarity and poor presentation.
- Poor interpretation of results.
- Unreferenced sources of information.

(University of Pretoria, 2008: 15 and DEADP, 2013: 36)

3.8.2.6 Limitations imposed by the Developer

The following constraints from the developer:

- Is the development needed and desirable?
- Does the developer comply with requirements in regulations e.g. are the original documents signed, was the declaration completed and is the proposal lawful?

(DEADP, 2013: 36)

3.8.3 The Scope of the Assessment

Whereas legislation may seek to limit the scope of an assessment, best practice may lead to its widening, e.g. EIAs may be mandatory to only a limited set of major projects (Chadwick, et al. 1994: 22). But which projects should have assessments?

In the past the ECA empowered the Minister to legislate regulations relating to EIAs, which may include “the identification of the economic and social interests which may be affected by the activity in question and by the alternative activities” and “the estimation of the nature and extent of the effect of the activity in question and the alternative activities on the social and

economic interests". There was, however, no explicit reference to social or economic impacts in the regulations, although the guidelines on EIA issued by the Department of Environmental Affairs and Tourism (DEAT) did provide that "the effects of human health, socio-economic conditions, physical and cultural resources should be included" (Kidd, 2008: 202).

NEMA, as originally promulgated, was more explicit. It stated clearly that EIA is concerned with the "potential impact on the environment, socio-economic conditions and the cultural heritage". However, the Amendment Act removed the reference to socio-economic conditions and the cultural heritage. The significance of this removal is, in part, tempered by close consideration of the definition of "environment" in the Act:

"The surroundings within which humans exist and are made up of-

- (i) The land, water and atmosphere of the earth.
- (ii) Micro-organisms, plant and animal life.
- (iii) Any part or combination of (i) and (ii) and the interrelationship among and between them.
- (iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being".

It seems clear from this definition that "environment" includes the cultural properties of the surroundings within which humans exist, which suggests that the cultural heritage should be considered in the EIA process as it is part of the environment (Kidd, 2008: 202-203).

Some EIAs leave out some of the mandatory processes. There may also be problems with the steps that are included. The prediction of impacts raises various conceptual and technical problems like the problem of establishing the environmental baseline position. It may also be difficult to establish the dimensions and development stages of a project clearly. Further conceptual problems include establishing what would have happened in the relevant environment without a project, clarifying the complexity of interactions of phenomena, and assessing the trade-offs in an integrated way. Other technical problems are the general lack of data and the tendency to focus on the quantitative, and often single, indicators in some areas. There may also be delays and discontinuities between cause and effect, and projects and policies may discontinue. The lack of auditing of predictive techniques limits the feedback on the effectiveness of methods. Nevertheless, innovative methods are being developed to predict impacts, ranging from single checklists and matrices to complex mathematical models. These methods are not neutral, in the sense that the more complex they are, the more difficult it becomes for the general public to participate in the EIA process (Chadwick, et al., 1994: 22).

SEA of policies and programmes and plans represents a logical extension of project assessment. SEA can cope better with cumulative impacts, alternatives and mitigation measures than project assessment. SEA systems already exist in California and Netherlands, and to a lesser extent in Canada, Germany and New Zealand. Discussions are in hand to introduce an EU-wide system (Chadwick, et al., 1994: 24).

SEA has the potential to address cumulative effects more effectively than site-specific EIA, because it relates to a larger scale (e.g. region or country) and deals with broader, more strategic issues that have implications beyond the short-term (e.g. transboundary pollution and the use of renewable energy with the energy sector as a whole). The importance of rising to the challenge of understanding and addressing the cumulative effects of development in South Africa is accentuated by the legal requirement in the EIA regulations to do so, Chapter 3, section 2(k)(i). However, Binedell and Hounsome (1998) points out that one of the reasons why cumulative effects are not properly addressed in South Africa EIAs, is that there are difficulties in conceptualising what is understood as being cumulative. The authors point out that the understanding of cumulative effects requires the development of “non-linear thought patterns”. They list other problems to methodologies, regulations, and deficiencies in data, inappropriate spatial and temporal boundaries and inadequate specialist terms of reference (Audouin, 2009: 25).

3.8.4 Decision-Making Process

The lengthy delay in decision-making in the ECA regulations is because there are no set time limits. This has been a major impetus behind the 2006 regulations (and the ways in which they differ from the previous regime). Noteworthy is the fact that the 2006 regulations contain time limits for the entire decision-making process. According to the Department of Environmental Affairs and Tourism in Kidd (2008: 204), a survey aimed at establishing capacity in the provinces carried out in 2006 showed that about 44 000 applications had been processed since 1997 (when the first EIA regulations came into force), of which half were concluded within six months of application. A further third were concluded within a year. Up to six percent (6%), however, took more than two years to be concluded.

In 2006, more than five thousand (5000) countrywide development projects expected to alleviate poverty and unemployment had been stalled because of the inability to process applications for EIAs. Information reported in the City Press stated that the deputy director-general for environmental quality and protection in environmental affairs and tourism development Yawitch (31 July 2006), attributed delays in the process due to the following:

- Provision of inadequate information by environmental assessment practitioners. This meant that applications were sent back for correction or further information which caused delays.
- Applications that were submitted by developers but inactivity on the applicant's part and non-submission of more information made "dead" applications.
- Capacity constraints in some provinces. This resulted in applications taking longer than normal to be processed.
- The old regulations listed many small activities with a relatively small impact on the environment, but it took time to process these.
- Controversial applications, often with substantial public concerns, took a long time to finalise and submit to authorities for authorisation.

The compulsory time limits of the regulations to make a decision may well lead to ill-considered decisions, where the deadline rather than the substantive merits of the decision is paramount. Another delay is the appeal process. The ECA provided for an appeal against decisions relating to environmental authorisations. Such appeals must be made within thirty days of the initial decision, but there is no time limit within which the decisions must be made and the researcher knows of several appeals which have been undecided for longer than a year. As long as the appeal process involves appeal to the Minister or MEC (which is still the case under NEMA), there is likely to be a problem. A better system would be an independent tribunal, such as that in the National Water Act, 1998 (Act 36 of 1998). The new 2010 regulations do provide time limits for the decision-making process, but if the time limit has been missed an automatic extension of 60 days will be added to the time limit. A decision should then be made with the information available at hand and no additional information should be requested from the applicant / EAP to make a decision (Kidd, 2008: 204).

The fact that South Africa has many new environmental Acts, many of them innovative, aimed at environmental conservation and SD could be seen as indicative of a political commitment to these objectives. However, there have recently been some suggestions that this could be just paper commitment. It was reported in the City Press (31 July 2006) that former President Mbeki said in Pretoria that the unapproved EIA backlog had resulted in development delays which had contributed to "a quite considerable slowing down of economic activity".

On the other hand, the government has a five-point action plan for addressing backlogs in the EIA application process. The first point of the action plan is to expedite the processing of applications still pending. To this end, DEAT has allocated a budget of R10 million to hire

consultants to assist by making recommendations, the decisions still have to be made (as they must be in terms of the law) by the relevant departments. The second point is the development and implementation of “strategic spatial systems” – environmental management frameworks (dealt with the new regulations) and sensitive areas. The third point is the building and maintenance of human resource capacity in the responsible authorities, whilst the fourth is the development and implementation of decision-support systems and tools (e.g. guidelines). Finally, the aim is to develop and implement province specific generic capacity and support strategies.

While these developments are to be welcomed, one is still left with the uneasy feeling that the problems with the EIA process are being dealt with on a rather piecemeal basis. Given South Africa’s development, the EIA process is one which will continue to evolve and it is hoped that the real problems are addressed, rather than tinkering with the legislation, which is not perfect but this is not where the real shortcomings lie (Kidd. 2008: 206).

A decision authorising (or not) an activity is an administrative decision and, accordingly, has to comply with the requirements of administrative law. EIA decisions, perhaps more frequently than ought to be the case, have frequently been held to be invalid because of failure to comply with some other requirement of administrative justice (Kidd. 2008: 204).

3.8.5 Post-Decision Process

Most applications under the EIA regulatory regime are approved, but developers are seldom given a carte blanche to proceed as they like. Typically, the environmental authorisation would contain conditions aimed at mitigating environmental damage identified in the EIA report. The enforcement of these conditions once set, however, is frequently not carried out effectively. As Wood (1991) says, “The problem of crippling under-funding and under-staffing of provincial and local authorities means that they must rely on the complaints of neighbours and the integrity of developers and their consultants for information about non-compliance. This still holds true today, and experience suggests that, even where there are complaints, authorities are sometimes reluctant to take steps to address such problems due to lack of capacity or other reasons that are less clear”.

The setting of conditions presupposes the enforcement of such conditions and the absence of monitoring seriously undermines the entire system. The NEMA however addresses this, at least on paper, by providing that adequate provision be made for the ongoing management and monitoring of the impacts of the activity on the environment throughout the

life cycle of the activity. The effectiveness of the measure is however dependant on availability of adequate human resources, which relies on political will (Kidd, 2008: 205).

EIA's until the decision on a project is a very partial linear process, with little opportunity for cyclical learning (Chadwick, et al. 1994: 23). After issuing an environmental authorisation at the department, the project's status will be completed. It is seldom that compliance is being received from the developer with regard to the environmental authorisation conditions. However, officials are required to do compliance monitoring once in every three months and the researcher has been on many sites where the development has not proceeded within the 2 year validity period of the authorisation, even on important projects such as low-cost housing. If an environmental authorisation laps after the 2 year validity period a new EIA application needs to be submitted to the Department, meaning that the process has to start all over again (following participatory observation methodology).

Chapter 4: Environmental Impact Assessment Case Studies (Housing)

This Chapter reports on the major findings identified through the review of five case studies in terms of how the legislation governing EIA's as discussed in Chapter 2 and 3 is being implemented in practice. The first two case studies were conducted before the enactment of the EIA regulations, one is a BAR and two are full assessments (Scoping EIA). In order to determine the interpretation of the concept of SD, the review specifically looks at the EIA process conducted with regard to the geographical location, the approval process, the public participation process, how issues were addressed and an analysis of the interpretation of the concept of SD using the 6 Fault Lines as discussed in Chapter 2.

4.1 The 5 case studies

The research reviewed five case studies on housing developments obtained from the Department of Environmental Affairs and Development Planning. Four of the case studies are situated in the Stellenbosch and one in Klapmuts, but they all are within the boundary of Stellenbosch Municipality. Housing developments were chosen for the research since it is developments such as housing, electrification and access to clean water that is essential to improve South Africans' quality of life (Yeld, 1997: 7). The case studies were as follows:

- A high-cost housing development, the De Zalze Golf Estate development.
- A low-cost housing development, the Kayamandi residential development.
- A medium-cost housing development, the Nuutgevonden development.
- A mixed-use development, the Klapmuts development.
- A high and low-cost development, the Longlands development

See figure 4.1 for the geographical location of the abovementioned five case studies.



Figure 4.1: Geographical location of the 5 case studies in Stellenbosch Municipal Area.

4.2 The De Zalze Golf Estate

The De Zalze Golf Estate consists of an 18-hole championship golf course and approximately 200 high income residential units and was approved in 1996.

4.2.1 Geographical Location

The 300ha De Zalze Golf Estate is located on the eastern fringe of Stellenbosch, approximately 3 km outside Stellenbosch along the Stellenbosch/Somerset-West road, 20 km from False Bay and approximately a half hour drive from Cape Town. The area is characterized by vineyards, mountains and unique fynbos vegetation.

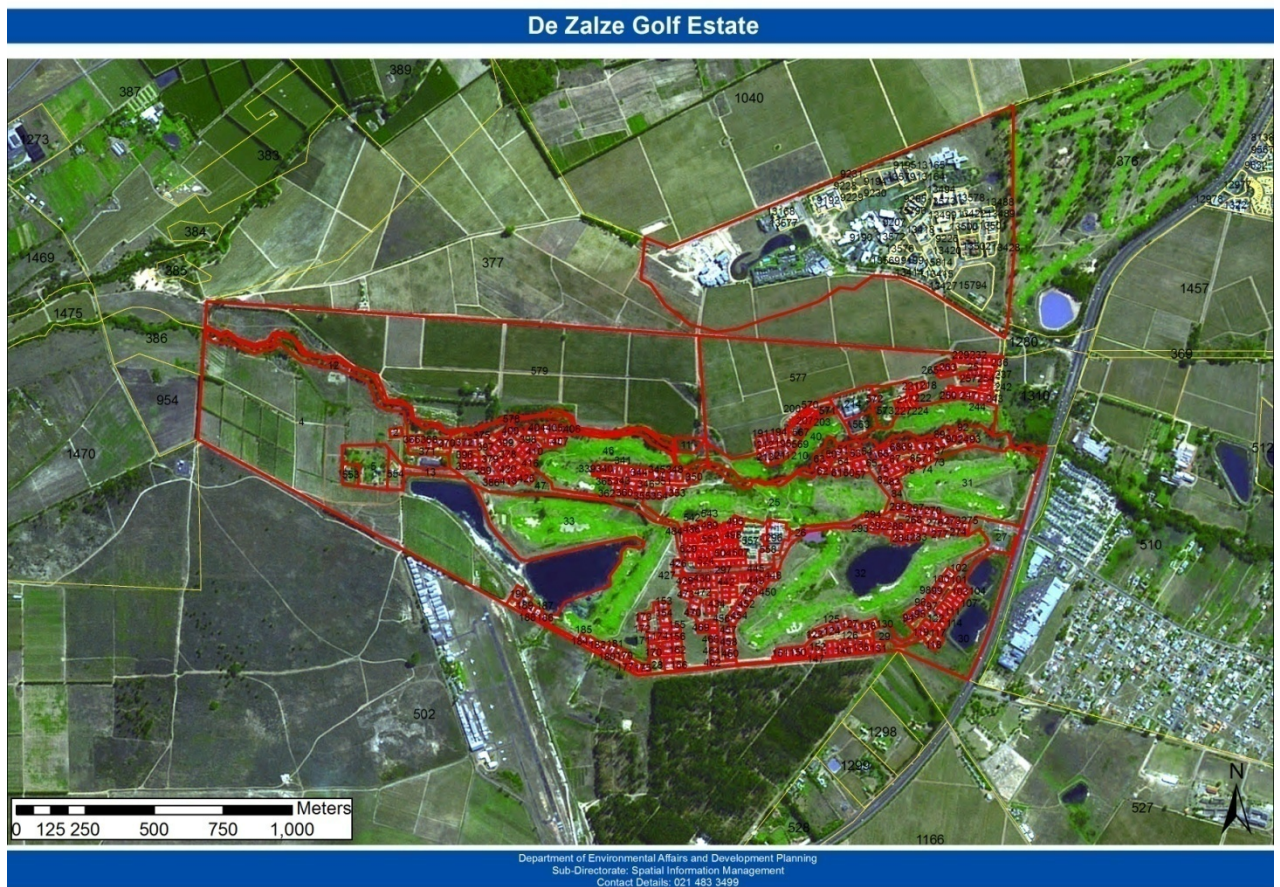


Figure 4.2. The De Zalze Golf Estate, high-cost housing development

4.2.2 The approval process

The application submitted for approval to the Provincial Administration Western Cape was in terms of the Environmental Conservation Act, 1989 (Act 73 of 1989) ("ECA") and entailed the rezoning of Agricultural zone I to resort zone V and open space zone II for the development of a hotel, holiday accommodation and a golf course. This project was approved in 1996 before the Minister promulgated a list of identified activities and general EIA regulations in 1997. During this time the consideration of environmental consequences of projects were limited. The technical and economic aspects were mostly considered.

According to the file summary of application “HS 100 095/JHH/ab” of 26 January 1996 in AN 105/25/4 De Zalze Golf Estate, the application was not in the form of an impact assessment and no information of any worth was provided on the wetlands and avifauna present on the site. An EIA was not mandatory at that time and the approval was based on an Environmental Management Plan Referenced “U2878” and some recommendations available as baseline information (Cape Nature, 5 December 1997). The rezoning of the three properties De Kleine Zalze No. 508, De Groote Zale No. 998 and De Velia No’s 507 and 510/3, for the purposes of developing a golf resort and agricultural estate was approved by the Premier on 17 December 1996. A number of conditions of approval were stipulated, two being:

- The wetlands and river system were not to be negatively impacted upon by the construction phase of the development.
- That a management plan be applied for implementing the conditions of approval.

(Dennis Moss Partnership, 1998: 1 in AN 105/25/4 De Zalze Golf Estate).

4.2.3 The public participation process

Since the development did not require an EIA, no comments were provided from the general public. The Environmental Management Plan and baseline information was the only document available for the project and this was submitted to Cape Nature for their comment and input. They provided the following comments:

- Their letter dated 24 March 1996 referenced “JN 25/4–105(J2855)” in AN 105/25/4 De Zalze Golf Estate, Cape Nature recommended that the wetlands should be maintained and be incorporated into the development with sufficient mitigation measures to limit any negative impacts. It was further recommended that a 30 m buffer area be kept between the river and the development.
- Their letter dated 5 December 1997 referenced “JN 25/4-105(J2855c)” in AN 105/25/4 De Zalze Golf Estate, Cape Nature commented that the *African Rail* and *Red chested Fluff tail* seems to be two important species found in the area and that the Environmental Management Plan submitted indicated no suggested actions for protecting these birds or their specific habitats.

4.2.4 How environmental issues were addressed

A number of specialist scientists were appointed by the developers, under the guidance of architects and planners from the Dennis Moss Partnership to undertake the necessary environmental surveys to be able to draft an environmental management plan to address the abovementioned comments. One such specialist study was undertaken by Mr Dave Pepler of the University of Stellenbosch, which involved an environmental evaluation and wildlife

management proposal for the De Zalze Golf Estate. One of the findings was that “the few remaining natural habitats at De Zalze should be given a high level of protection and conservation status.” He specifically mentioned the following:

- At least 50% of the wetland below the proposed clubhouse should be preserved.
- The perennial wetland is considered to be the single most important seasonal wetland complex on the property.
- Its importance is enhanced by the fact that it is directly connected to the Blaauwklippen river, which will facilitate movement of all kinds of aquatic animals between the two habitats.
- The extremely rare *African Rail (Ralluscaerulescens)*, as well as the *Redchested Flufftail (Sarothrurarufo)* occur within the wetland habitat.
- These two species are extremely reliable “indicator species” of prime wetland habitat.

In 1998, the Environmental Control Officer, after a site visit dated 16 January 1998 revealed that the entire wetland habitat of the two Red Data Book Bird species (*Red – Chested Flufftail* and *African Rail*) had been completely destroyed. These actions were contrary to:

1. The conditions of approval from Provincial Administration Western Cape in 1996.
2. The Environmental Management Plan.
3. The following agreement between the applicant and the Environmental Control Officer:
 - The clay core for the proposed pond to the east of green No. 9 would only be completed in January 1998 but that water would not be allowed to dam up so as to maintain the habitat of the two RDB bird species in tact until after the breeding season end January to middle February.
 - The remaining wetland habitat below the pond would not be impacted upon and would remain intact with its connection to the Blaauwklippen river. In addition, it was agreed that earthworks to neaten up the edges of the fill of the first T-box and the driving range would only take place after the breeding season of the RDB bird species (i.e. end January to mid February 1998), so as to not to disturb these birds should they be breeding.
 - The existing wetland would be extended by constructing an artificial wetland, together with “wildewingerd”, would be located near the site of the sediment coffer dam created to the north of the driving range and connected to the river. Only after this newly created wetland had been established would the remaining RDB species habitat be allowed to be modified if necessary.

Cape Nature stated in their letter dated 23 February 1998 that the destruction of the wetland is regarded as a serious matter due to its importance as habitat for the Red Data Book bird

species as well as its link to the Blaauwklippen river and that legal actions are being considered. This was followed by a meeting on 10 September 1998, which included representatives of the following organizations (Cape Nature, 1998: 1 in AN 105/25/4 De Zalze Golf Estate):

- De Zalze Golf Estate
- Dennis Moss Partners
- Wildlife and Environmental Society
- Wynland District Council
- University of Stellenbosch, Department of Nature Conservation
- Aquatech
- Cape Nature Conservation
- Matkovith and Hayes

It was decided that mitigation action must be followed by creating a wetland of similar size and quality of the one that was destroyed. This mitigation action was, however, not seen as adequate to ensure the survival of the affected birds. Furthermore, there was no guarantee that the artificial wetland habitat would be suitable for the birds.

However, as advertised in the "Eikestad Nuus" on 21 August 1998 in AN 105/25/4 De Zalze Golf Estate "*Justice is proceeding at a snail's pace in the De Zalze wetlands controversy due to short-staffed Cape Nature. The developers of the luxury De Zalze Golf Resort bulldozed scarce wetlands on the construction site. With the destruction of the wetlands, a death warrant was in effect issued for the Red-chested flufftail and the African rail species which breed in this scarce habitat. At the time, Cape Nature made a big fuss and threatened the developer with legal action. But now the incident, which sparked outrage in conservation circles, is just another unattended file in the pile on a Cape Nature's official's desk. This week Mr Paul Geldenhuys said that he needed to review the incident as well as the current situation before deciding whether it was worthwhile for Cape Nature to go to court...If convicted, the developer could be liable for a maximum fine of R100 000 or imprisonment of up to ten years according to the Environment Conservation Act of 1989.*"

On request of the Winelands District Council and Cape Nature Conservation, an audit report was undertaken of the destruction of the wetland habitat and reinstatement of a new wetland habitat to cover the whole issue of the infilling of the wetland, the steps taken to reinstate a new wetland and the way forward. This audit report dated November 1998 revealed that the destruction of the wetland is a direct contravention of Section 39 (2)(a)(ii) of the Land Planning Ordinance, 1985 (Ordinance 15 of 1985) and the regulations of the Environment

Conservation Act, 1989 (Act 73 of 1989) as published in Government Notice No. R1183 of 5 September 1997 and concluded the following as the way forward:

- The reinstatement of a new wetland.
- The wetland should be rehabilitated by removing the Kikuyu grass and invasive Acacia species.
- Appropriate wetland trees, shrubs, herbs, grasses and other water plants should be planted in an around the wetland habitat.
- Provision must be made for drought conditions, by augmenting the water supply to the wetland from a connection to the main irrigation supply line.
- Monitoring of the rehabilitation process of the wetland on a regular basis, say quarterly.
- An annual audit of the process of rehabilitation of the wetland habitat, covering the next 5 years.
- Recommendations made by the specialist consultants for ensuring an efficient rehabilitation process must be carried out by the developer or the Home Owners Association.

(Dennis Moss Partnership, 1998: 11-12 in AN 105/25/4 De Zalze Golf Estate).

Table 4.1: The De Zalze interpretation of the concept of SD

Fault Line	Interpretation
The degree of environmental protection that is envisaged to attain SD	Weak interpretation of SD <ul style="list-style-type: none"> - The development destroyed a very important wetland area which hosted important Red Data book bird species. - Adopted a very weak degree of environmental protection.
The emphasis placed on equality as prerequisite for SD	Non-egalitarian concept of SD <ul style="list-style-type: none"> - The development is aimed at personal enrichment and does not contribute to improving the living conditions of the poor.
The measure and nature of participation required to attain SD	Top-down interpretation of SD <ul style="list-style-type: none"> - Only comments from relevant authorities were considered. - The development did not include public participation.
Scope of the concept of SD	Scope of SD: Social development <ul style="list-style-type: none"> - The development does not entail concerns such as participation

	and equal opportunity for culture and leisure.
Environmental evaluation and monitoring required to attain SD.	<p>Short term Environmental Monitoring</p> <p>- Non-compliance with the decision's condition which requested that 50% of the natural wetland may be altered on the condition that the same area of wetland is recreated in another location. The whole wetland was destroyed. The way forward as concluded by the audit report made provision for long term environmental monitoring but this was only done after the entire wetland area has been destroyed.</p>
Environmental planning to achieve the goal of SD.	<p>Insufficient environmental planning</p> <p>- According to the audit report dated November 1998, the development were in contravention of Section 39 (2) (a) (ii) of the Land Use Planning Ordinance, 1985 (Ordinance 73 of 1989) and has therefore achieved insufficient environmental planning.</p>

4.3 The Kayamandi case study

This development was done in terms of the Environmental Conservation Act (ECA). The development entailed the change of land-use of Farm No's 181 and 183, Stellenbosch (Kayamandi) from Agriculture to sub divisional area with zonings of public open space, single residential and street, for the purpose of extending the Kayamandi residential area.

4.3.1 Geographical location

The study site is located on the north-western outskirts of Stellenbosch and situated to the east on Farms 181 and 183 with agricultural lands and plantation to the North. The south-eastern portion falls within a well-established pine plantation and the north-western portion is natural veld that has been partly degraded. The northern border is severely polluted and is the existing edge of the informal shacks of Kayamandi. The site is on fairly steep south facing slope, with a deep gully in the central area that supports a small seasonal stream.

Khayamandi [Farm 181 and 183]

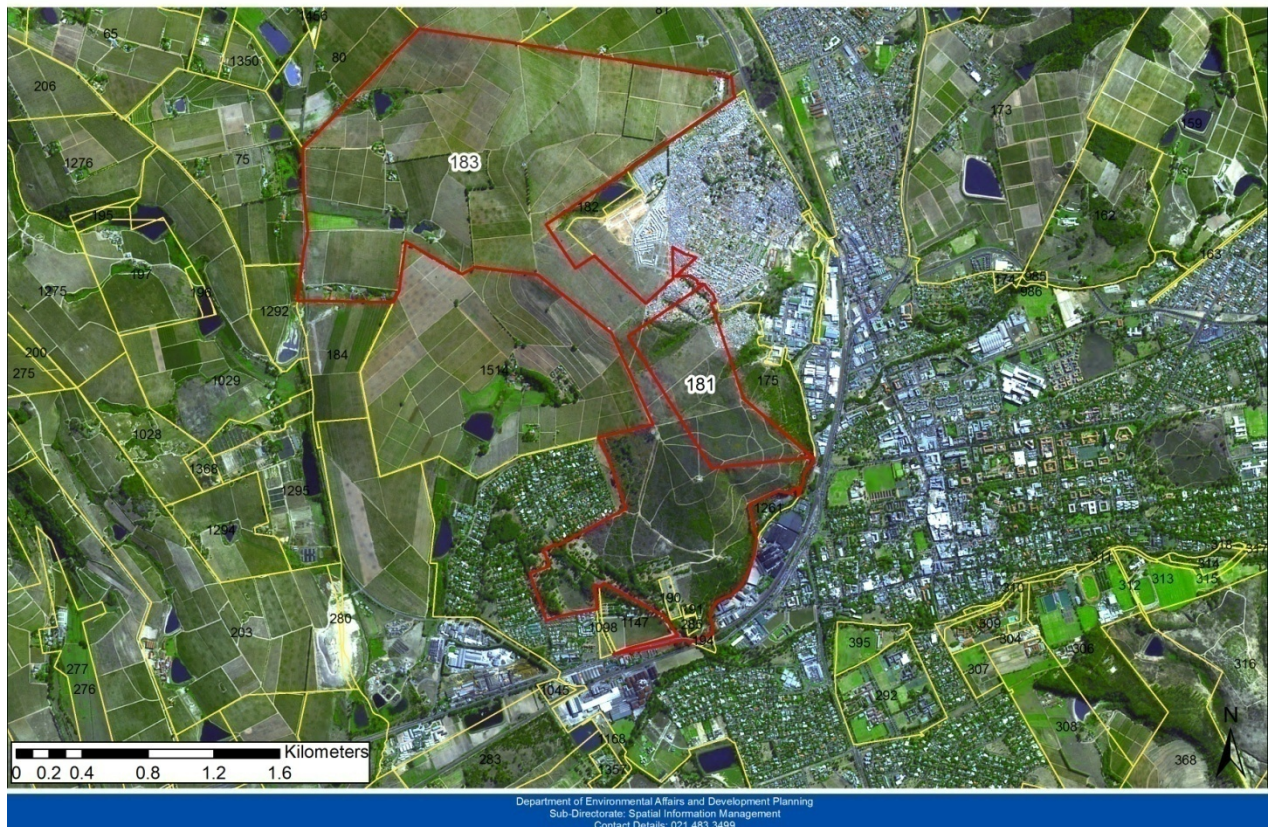


Figure 4.3: The Kayamandi low-cost housing development

4.3.2 The approval process

In terms of the regulations under Sections 22 and 26 of the ECA, an EIA is required for the change on land use from agricultural to any other use. However, an exemption application was submitted to the Department to carry out an EIA, due to the urgent need to extend Kayamandi by allowing the upgrade of the township which has been recognised and accepted by the Stellenbosch Municipality and the Kayamandi Social Compact Committee. The exemption application for not conducting an EIA and the change of land-use of Farm 181 and 183, Stellenbosch (Kayamandi), from agriculture to any other land-use, for the purpose of extending the Kayamandi residential area was approved by the Department of Environmental and Cultural Affairs on 15 December 1999 in terms of ECA.

4.3.3 The public participation process

The planning and urban restructuring of Kayamandi as a neighbourhood extension of Stellenbosch was identified during May 1994 as a high priority project by the Stellenbosch Discussion Form. A draft Spatial Development Framework Report was drafted during the same year and it was envisaged that this framework would give rise to a SD Strategy, directing and promoting SD for Kayamandi. Public meetings and interactions with interested

and affected parties, i.e. Town Council, Reconstruction and Development Programmes Forums, Ward Leaders, Liaison Committee and farming communities took place over a period of 6 months and the Spatial Development Framework was formally approved in 4 September 1996.

Objections were raised during the PPP which requested that an EIA must be done because according to the Environment Conservation Act, 1989, no development on agricultural land can be considered prior to an EIA. They further stated that it was in contravention with the Stellenbosch Municipality's Integrated Development Plan (IDP) (1999) which stipulates that no further extension of urban boundaries could take place until a holistic investigation by the relevant Advisory Panel (task group) was undertaken. The objectors were as follow:

- Blaauwklippen Valley Landowners Association
- Stellenbosch Interest Group
- Linton Projects (Pty) Limited

Comment from Cape Nature dated 30 September 1999, responding to a notice of the development published in the "Eikestad Nuus" on 23 July 1999, in AN 105/25/4 Farm: 181 and 183, states that Scientific Services' botanical data indicate that a number of Red Data Book plant species occur on the few remaining patches of undeveloped land on and around Stellenbosch. The Farms 181 and 183 are known sites where at least 2 endangered Red Data Book plant species occur. Therefore, because of the possible impact on the Red Data Book plant species and the sensitivity of the area in question, Cape Nature opposed the development until an EIA had been done under the ECA, showing that no sensitive areas and species will be lost.

4.3.4 How environmental issues were addressed

A Motivation Report for exemption on respect of the regulations under Section 22 and 26 of the Environmental Conservation Act (Act 73 of 1989) was submitted to the Departments of Environmental and Cultural Affairs. The motivation report included a botanical assessment which was conducted on 9 November 1999 as part of the requirements deemed necessary for an application to be lodged with Cape Nature for exemption from the EIA requirements of the ECA.

The botanical assessment conducted by Doug Jeffery Environmental Consultants dated November 1999 indicated that the lowland Renosterveld vegetation on the site was severely damaged. This vegetation occurred mainly in the open areas, particularly on the edges of the gully (just outside the site). Few bulbs were found, which is likely due to the season in

which the survey was done. The indigenous species noted were *Chrysanthemoidesmonilifera* (bietou), *Elytropappustriflora*, *Stoebeericoides*, *Berkheyaarmata*, *Salvia sp.*, *Anthospermumspathulatum*, and *Cyanellahyacithoides*, none of which are rare or localized. Due to the degraded Renosterveld, the site was given a low-moderate conservation priority on a local scale, and low on regional and national scales. The following recommendations were made in the Botanical Impact Assessment:

- There are no rare or localized species on the site that need to be translocated, but care should be taken not to disturb the edges of the gully, which were the most of the Wild Olives and the clumps of *Aristea* mostly occur (both these species are commonly suggested for landscaping the proposed development on the site).
- If any areas were to be maintained as Public Open Space, the authorities should consider landscaping with indigenous species, as they tend to be lower maintenance, and require less water.

The bulk services associated with the development would be connected to the existing municipal services. According to the local Council’s Town Engineer there were no restrictive factors prohibiting the implementation of the project.

The following mitigation measures were placed as conditions in the decision by the Departments of Environmental and Cultural Affairs:

- Litter traps to be incorporated into the storm water system.
- Sufficient litter bins are to be placed along the internal roads and Open Space areas.
- Mitigation measures should be taken to ensure that the natural vegetation surrounding the proposed development area is not disturbed during the construction phase or thereafter.
- The applicant must submit an environmental audit report to the satisfaction of this Department after construction has been completed and also after the site and approach road have been rehabilitated. Conditions may be imposed by this Department.

The Department also recommended that the applicant plants indigenous trees along the roads, so as to “green” the new township and to provide windbreaks and shade. It also recommended placing rain-shelters at points identified as taxi/bus collection points.

Table 4.2: The Kayamandi interpretation of the concept of SD

Fault Line	Interpretation
The degree of environmental protection that is envisaged to attain	Strong environmental protection - The botanical assessment conducted concluded that the

SD	<p>indigenous vegetation mentioned by Cape Nature was in a degraded state with a few remnants found outside the site on the edges of a gully.</p> <ul style="list-style-type: none"> - No sensitive sites were destroyed.
The emphasis placed on equality as prerequisite for SD	<p>Egalitarian concept of SD</p> <ul style="list-style-type: none"> - The development will raise the living standards of the poor by providing low-cost houses to the residents of Kayamandi.
The measure and nature of participation required to attain SD	<p>A bottom-up interpretation of SD</p> <ul style="list-style-type: none"> - A public participation process was conducted which involved public meetings and consultation with the relevant authorities. - A botanical assessment was conducted to address the comment from Cape Nature
Scope of the concept of SD	<p>Scope of SD: Social development</p> <ul style="list-style-type: none"> - The development meets the local needs by providing houses. - The development will bring out an improvement of the living conditions and environment for many of the Kayamandi squatters.
Environmental evaluation and monitoring required to attain SD.	<p>Short term environmental monitoring</p> <ul style="list-style-type: none"> - The decision imposed a condition that an environmental audit report needed to be submitted after the construction phase and after the site and approach road had been rehabilitated but it did not say what the reports should include and what needs to be monitored. - The condition was also included in the decision that mitigation measures should be adopted to protect surrounding indigenous vegetation but it does not indicate what the mitigation measures must involve making it difficult to monitor.
Environmental Planning to achieve the goal of SD.	<p>Insufficient environmental planning</p> <ul style="list-style-type: none"> - Due its urgent need, the development was in contravention with the Municipality's IDP which stipulated that no further extension of boundaries could take place until a holistic investigation by the relevant Advisory Panel (task group) was undertaken. - Consideration of the soil for agricultural production was not

	<p>investigated.</p> <ul style="list-style-type: none"> - The Stellenbosch Municipality did not give confirmation that they have adequate capacity with regards to solid waste management, water supply, effluent management and electricity services.
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4.4 The Nuutgevonden case study

This project was conducted in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) EIA regulations 2006. It consisted of the rezoning of Erf No. 10496 in Stellenbosch from Agriculture Zone I to Sub divisional Area to subdivide the property into 51 single residential erven, four general residential erven for apartment buildings (244 units), a private open space around the Plankenbrug river as a private and public road portion. This development was approved in 2009.

4.4.1 Geographical Location

The development is located on the Farm “Lekkerbly” which is to the east of the R304 road at the turnoff to the Welgevonden Estate, of the Stellenbosch to Koelenhof road. It is situated from the R304 road verge, through the Plankenbrug river eastward of the railway line.

Formal buildings are located on each side of the Plankenbrug river here with some informal settlement on the right bank adjoining the R304 road and labourer cottages on the left bank part of the property. Most of the property on the left bank has been tilled for agricultural purposes.



Figure 4.4: The Nuutgevonden medium-cost development

4.4.2 The approval process

The Environmental Authorisation was issued on 19 March 2009 by the Department of Environmental Affairs and Development Planning. The activities applied for was Activity 1(k), 1(m), 7, 15 and 16 of Government Notice R. 386 NEMA EIA regulations, 2006. Approval for the rezoning and subdivision of Erf No. 10496 from Agricultural Zone 1 to Subdivisional Area in terms of Section 16 of the Land Use Planning Ordinance No. 15 of 1985 was issued on 8 December 2010 by the Stellenbosch Municipality. An appeal was lodged shortly after the approval on 24 April 2009 and was based on the following grounds:

- The high visual impact of the development.
- Lack of unbroken recreational space.
- No planning allowance for non-motorised transport.

The appeal was dismissed by the Western Cape Minister of Local Government, Environmental Affairs and Development Planning on 2 November 2009. The Minister was satisfied with the findings of the visual assessment that the development will not cause a high visual impact. He also concluded that enough open space will be provided by the development and was further satisfied that adequate provision has been made within the development for future accommodation of non-motorised transport facilities.

4.4.3 The public participation process

The PPP for the Basic Assessment Process was conducted in terms of Regulation 56 of the NEMA EIA regulations. A Notice of Intent to develop was submitted to the Department of Environmental Affairs and Development Planning on 24 November 2007 in terms of Section 24(5), Section 44, Section 24 and 24D of NEMA. This document contained the necessary background information of the site and the type of listed activities applied for in terms of the NEMA EIA regulations 2006. No notifications of exemptions or amendments were included in the application. A letter of consent from the registered property owner, a locality map, and a detailed site development plan of the preferred alternative to be considered during the application, was attached to the notice. The Department acknowledged receipt of the notice and granted permission to proceed with the Basic Assessment Process on 26 November 2007. The public participation process consisted of the following components:

1. The Background Information Document

A list of interested and affected parties was obtained from the Stellenbosch Municipality that could play a role in the Basic Assessment Process, which included owners and occupiers of land adjacent to the development, the relevant authorities and the municipal ward councillor. A Background Information Document was compiled informing interested and affected parties of the development and the availability of the Draft Basic Assessment Report (“BAR”) at the local Stellenbosch and Cloeteville libraries. The Background Information Document also included a comment sheet to be sent to the Environmental Assessment Practitioner. This information was also advertised in two regional newspapers, the Cape Times and “Die Burger” and in the local newspaper, the “Eikestad Nuus”. A copy of the Draft BAR was also hand delivered or posted to key Interested and affected parties.

2. The Draft BAR

A Draft BAR was sent to registered I&APs. The purpose of the draft BAR is to provide interested and affected parties with all the relevant information regarding the surrounding environment, including the biophysical and the socio-economic environments, the local spatial planning for the region and the more detailed development proposals of the site. This included preliminary results from specialist studies in the Nuutgevonden development referenced “E12/2/3/1-B4/37-0543/07”:

- Town planning and layouts of the development compiled by TV3 Architects and Planners.
- A Services Report compiled by Bart Senekal
- A Soil Survey of the development areas compiled by B. Scholms.
- A Botanical Impact Assessment compiled by Dr C Boucher.

- A Geotechnical Site investigation compiled by J.C Engelbrecht on behalf of B Senekal.
- An Electrical Services Report compiled by H.W Consultants.
- A Traffic Impact Study compiled by the I.C.E Consulting Services.
- A preliminary design of the buildings compiled by C.M Architects.
- A Notice of Intent for Heritage Western Cape compiled by R Martin.

3. The Final BAR

The Final BAR was sent to all registered I&APs. The Draft BAR included the results of the specialist reports and the comment received from I&APs to form the final BAR. Comments from interested and affected parties were grouped into key environmental categories and have been included in the Final Report. Responses from the Environmental Assessment Practitioner (“EAP”) and the specialist consultants were also provided to each comment from I&APs. The potential significant impacts and what mitigation could be employed to reduce such impacts to acceptable limits were also completed. Such recommendations were included in the Environmental Management Plan for the construction and operation phases of the project. A full copy of the final BAR, including the specialist studies, comments from interested and affected parties and responses made was submitted to the Department of Environmental Affairs and Development Planning for an Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) EIA regulations.

4. The commenting authorities

The following authorities were consulted but they had no objection to the development:

- Heritage Western Cape
- The Department of Agriculture
- The Department of Water Affairs and Forestry
- Cape Nature
- Stellenbosch Municipality

5. Issues raised during the PPP

1. Biophysical issues

- Impact on wetlands on the site
- The impact of soils on stability of structures
- The impact of the development on the Plankenbrug river and its riparian zone
- Impact on remaining indigenous vegetation.

2. Socio-economic issues

- Impact on existing farmhouse

- Visual impact of the development

3. Engineering issues

- Impact on traffic congestion
- The impact of the development on the municipality's sewerage capacity
- Impact on the railway system

4. Planning issues

- Impact of layout of roads in preferred alternative
- Impact of development on open space
- No allowance is made for non-motorised transport
- Future costs of the development to be covered by the developer

4.4.4 How environmental issues were addressed

1. Biophysical Impacts

- The impact of the wetlands on the site

The Environmental Assessment Practitioner responded that the wetlands associated with the Plankenbrug river will remain intact and will not be impacted upon by the development. Other wet areas on the property (designated by reeds) were not true wetlands but existed because of past agricultural activities and the perched water table from underlying clays. All storm water would be channeled into an artificial wetland system that would run along the north-eastern border of the property along the railway line and then along the south-eastern border to eventually join the Plankenbrug river.

According to the botanical assessment the Plankenbrug river is heavily invaded by exotic weeds and invader plants and a dense forest of the invasive *Populus x canescens* is situated in the upper reaches of the river. The site is characterized by naturally high water and a drainage ditch has been cut along the southern border of the property and another along the edge of the railway line servitude to reduce the high water table. Both ditches support wetland species such as *Phargmites australis* and *Typhacarpensis*. According to the specialist the high water table appears to be due to rainfall collecting in a flat topography with little runoff. A patch of highly threatened vegetation type, *Swartland Shale Renosterveld*, was found between the R304 road and the dry banks of the Plankenbrug river and was eminently suitably located to be incorporated into a Riparian Conservation Corridor along the river (Boucher, 2007: 7-16).

- The soils and the stability of structures

The Environmental Assessment Practitioner responded that the Geotechnical Study suggested that raft foundations would be suitable for the development. It was also recommended that a thin binding layer of sand be spread over the entire site. Various drainage and cut-off drains would also be used to “dry-out” the wetter areas. The response made by the practitioner was the conclusions made in the Geotechnical Study. Regarding the suitability of the soils for crop production the soil survey concluded that the farm was not suitable for perennial crop production due to its small size and unfavourable soil conditions (Scholms, 2007: 3-5 in E12/2/3/1-B4/37-0543/07).

- The impact of development on the Plankenbrug river and its riparian zone.

The Environmental Assessment Practitioner responded that all hard structures would be located outside of the 1:100 year flood line of the river and a 30 m buffer zone would be kept to the eastern bank of the river.

- Impact on remnant indigenous vegetation.

The Environmental Assessment Practitioner responded that alien vegetation would be removed and no development would take place on the western bank of the river where the Shale Renosterveld Thicket is located.

2. The socio-economic impact

- Impact on the existing farmhouse

The Environmental Assessment Practitioner responded that the family currently living in the farmhouse on the farm are the owners of the land and will move once the development has started. The new owners has bought the property with the condition that nobody will be living on the property.

3. Visual impact of the development

The Environmental Assessment Practitioner responded that the site was located in a low lying area and was not visually prominent. It was barely visible from the R304 road, and was currently screened by existing trees within the road reserve and riparian zone of the river. These trees would not be removed. Heritage Western Cape concurred with this fact by not requiring a visual impact assessment before approving the development. The architecture would be sympathetic to the environment and would aim to enhance the character of the area. The building plans would also be submitted to the Municipal Heritage Committee for approval. A wider road reserve was provided along this section of the R304 road. No

development would take place along the western bank of the property, thus allowing a wide area for screening vegetation.

4. Engineering Services

- The impact on traffic.

The Environmental Assessment Practitioner responded that a Traffic Impact Assessment was conducted and the following recommendations made by the assessment were incorporated into the development:

- Access to the development should be located approximately 120 m from the R304 road.
- A dedicated right turn lane of 25 m in length would be provided on the western approach to the Welgevonden Link road / Access road-intersection as well as two lanes on the southern approach to the intersection (Access road).
- Street lighting would be provided along the R304 road for the length of the functional area of the R304 road / Welgevonden Link road-intersection as well as along the Welgevonden Link road.
- A bus/taxi embankment would be provided to the south of the R304 road / Welgevonden Link road-intersection as well as along the Welgevonden Link road.
- That the sidewalk on the southern side of the Welgevonden Link road would be extended to beyond the proposed taxi embayment.
- A sidewalk would be provided along the access road on at least one side of the road up to the last erf set aside for flats.
- Various portions of the development would be security controlled, the security gates would be at least two car lengths (12 m minimum) from the edge of the main collector road.
- That refuse removal would be addressed.
- That parking would be provided in accordance with the requirements of the Local Authority.

5. The impact of the development on sewage capacity availability.

The Environmental Assessment Practitioner responded that the Stellenbosch Municipality was in the process of upgrading their sewage system and had provided written confirmation that the sewage system of the town would be upgraded and be able to accommodate the additional sewage proposed by the development.

6. Planning

- Impact on development on open space.

The Environmental Assessment Practitioner responded that enough open space would be provided. Objections claiming that there was an absence of an unbroken public open recreational space in the Residential Zone IV erven was incorrect, as $\pm 1000\text{m}^2$ recreational open space would be provided on each of the four Residential Zone IV erven.

13. No allowance is made for non-motorised transport.

The Environmental Assessment Practitioner responded that the recommendation made by the Traffic Impact Assessment that a bus/taxi embayment be provided to the south of the R304 road/Welgevonden Line road-intersection along the southbound lane was incorporated into the development.

14. Future costs of the development to be covered by the developer.

The Environmental Assessment Practitioner responded that the developer would have to pay the standard (required) bulk infrastructure contribution levy to the municipality.

Table 4.3: The Nuutgevonden interpretation of the concept of SD

Fault line	Interpretation
The degree of environmental protection that is envisaged to attain SD	<p>Weak environmental protection</p> <p>The wetlands areas located along the southern and northern boundaries were destroyed and would be recreated through a system of artificial wetlands to manage and polish water (Environmental Authorisation, 2009:6)</p> <p>The following mitigation measures recommended by the Botanical Assessment were placed as conditions in the Environmental Authorisation:</p> <ul style="list-style-type: none"> - The remnant of indigenous Shale Renosterveld Thicket should not be developed. - A riverine buffer of at least 30 m should be set aside and rehabilitated. - Wetland function should be recreated through a system of artificial wetlands to manage and polish the water.
The emphasis placed on equality	Non-egalitarian concept of SD

as prerequisite for SD	<ul style="list-style-type: none"> - The development will not raise the living standards of the poor.
The measure and nature of participation required to attain SD	<p>Bottom-up interpretation of SD</p> <ul style="list-style-type: none"> - The issues raised by the public were effectively addressed by the specialist studies conducted. - The public participation process was also compliant with the NEMA EIA Regulation requirements. - Expert's advice had been required to determine objectives but the participation also involved ordinary members of the public.
Scope of the concept of SD	<p>Scope of the SD: Social development</p> <ul style="list-style-type: none"> - Dominant motivation for development was social development. - According to the Environmental Management Plan dated 20 August 2008, the development will give rise to job opportunities during the construction and operation phase.
Environmental evaluation and monitoring required to attain SD.	<p>Short term environmental monitoring</p> <p>Neither the decision nor the BAR indicated how impacts with regards to the recreated wetland function and water quality of the nearby Plankenbrug river would be monitored.</p> <p>No provision was made for the monitoring of the socio-economic impact of the development e.g. the developer could have been expected to provide an audit of the use of labour during the contract period.</p>
Environmental planning to achieve the goal of SD.	<p>Sufficient environmental planning</p> <p>The following comments were provided by the chief town and regional planner of the Cape Winelands region at the Department of Environmental Affairs and Development Planning dated 5 February 2009:</p> <ul style="list-style-type: none"> - The site designated for urban development in terms of the Stellenbosch Urban Structure Plan. - The site is earmarked Spatial Planning Category Dd (main local town) in terms of the Winelands Integrated Development Framework and although located beyond the urban edge in terms of the Stellenbosch Spatial Development Framework (SDF) (2001), the site is identified as an Urban Edge Site, i.e. one of the 7 sites located outside, but on, the urban edge that should be investigated for future urban development.

	<ul style="list-style-type: none"> - The SDF for the broader Stellenbosch area (2005) does not indicate an urban edge, but does emphasise urban development without creating urban sprawl. - The development is also in line with the principles of the Western Cape Provincial Spatial Development Framework (WCPSDF) which encourages the inward focus of urban development opportunities, so as to counteract urban sprawl. - The development does not contradict any policy documents and is in line with the WPSDF, Urban Edge and the SDF of the Stellenbosch Municipality (Environmental Authorisation, 2009: 6).
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4.5 The Klapmuts mixed-use development

The development which is ±38 ha in size entails the establishment of a mixed use or township comprising of a housing component and associated infrastructure, a commercial and retail component, an office complex, a secondary school, a church, a private hospital, a retirement village and a filling station. The development were carried out in 4 phases but this study only focuses on phase 1 of the development which was planned and applied for by the Simonsberg Employees Development (Pty) Ltd and included 197 affordable housing (GAP housing) units to the west of the Klapmuts river, a filling station at the intersection of the new proposed access road with the existing R44 road, 88 group housing units, 108 high density residential units, and 5 low density residential units along Merchant Street.

4.5.1 Geographical location

The site which is located on Erf No. 1336 in Klapmuts is situated south of the border of Klapmuts, next to the R44 road. Klapmuts lies off the N1 road, close to Stellenbosch in the Western Cape. The property's current zoning is Agricultural I and was previously used for agricultural purposes. The Klapmuts river flows through the site, and this fills the large excavated dam on site. The river (a seasonal river) has been heavily modified by earthmoving machinery in the past, pollution, erosion, agricultural activities and littering. The river has moderate conservation value and can act as an important ecological corridor in a disturbed area. The site is between the R44 road and the primary school, next to Merchant Street.



Figure 4.5: The Klapmuts township development.

4.5.2 The approval process

A full EIA process was undertaken in terms of Chapter 5 of the NEMA. The activities applied for in terms of the NEMA EIA regulations 2006 for Environmental Authorisation from the Department of Environmental Affairs and Development Planning were 1(k), 1(m), 1(n), 1(s), 15, 16(b) of Listing Notice 1 which required a Basic Assessment Process and activities 1(e), 2, 3 of Listing Notice 2 which requires a full assessment (Scoping EIA). The environmental authorisation was issued on 21 May 2008.

4.5.3 The public participation process

The PPP comprised of the following:

- A background information document with invitation to a public meeting was distributed on 24 September 2006.
- Notification to all residents within 100 m from the boundary of the site was sent on 24 September 2006.
- A site notice was erected on 26 September 2006.
- Advertisements were placed in Die Burger, Paarl Post and “Eikestad Nuus” on 28 September 2006.

- An open house meeting was held in Klapmuts on 10 October 2006.
- Copies of the draft scoping report were made available for comment from 24 November 2006 at the following places:
 - Klapmuts Primary School
 - Klapmuts police station
 - Stellenbosch public library
 - Offices of Doug Jeffery Environmental Consultants
- Availability of the draft Scoping Report for public review was advertised in the Cape Times, Die Burger and Paarl Post and “Eikestad Nuus” on 24 November 2006.
- Availability of the draft EIR for public review was advertised in the Cape Times, Die Burger, Paarl Post and “Eikestad Nuus” on 4 and 5 October 2007.
- An open house meeting to present the findings of the draft EIR was held on 24 October 2007.

- The Scoping Report

Concerns regarding aspects associated with the development were raised through informal discussion with the project team, specialists and authorities as well as during the PPP. Comments were received supporting the development. There were however, also concerns raised and these issues are categorised and summarised below:

1. Alternatives

- Is the development appropriate for agricultural land?

2. Vision of Klapmuts

- The development must form part of the vision for development for the whole town and must maintain the character of the area

3. Design

- The style and architecture is very important to keep the character of the area
- There may be too many houses planned in the development

4. Economic

- There must be an opportunity for small businesses and tourism

5. Social

- The development must ensure advantages for disadvantages
- Housing must be affordable for the residents of Klapmuts
- There must be a library
- How will the school be funded?

6. Cumulative impact

- Can the municipal sewage system cope with the development?

7. Traffic

- A robot is required to allow safe crossing of the R44 road

The following specialists were consulted to address the above concerns:

- Botanists
- Freshwater ecologists
- Heritage practitioners
- Socio-economic practitioners
- Geo-hydrologists
- Traffic and civil engineers
- Town planner

-The EIA Report

All the concerns were assessed in the specialist reports and formed part of the Final EIA Report. The assessments conducted were as follow:

- The Botanical Impact Assessment conducted by Nick Helme Botanical Surveys dated 30 March 2006.
- The Freshwater Assessment conducted by Kate Sniddon of the Freshwater Consulting Group dated June 2007.
- The Social Assessment prepared by Professor Jonathan Bloom and Mr Nolan Arendse of Multi-Purpose Business Solutions dated March 2007.
- The Economic Impact Assessment conducted by Professor Jonathan Bloom of Multi-purpose Business Solutions dated March 2001.
- The Hydrogeological Assessment conducted by Regan Rose and Julian Conrad of Geohydrological and Spatial Solutions International (Pty) Ltd dated November 2006.
- The Civil Engineering services report conducted by Klomp Consult Western Cape (Pty) Ltd dated June 2006.
- The town planner report conducted by the TV3 Group dated 10 May 2007.

- Stakeholder participation

The draft EIA Report was sent to following stakeholders for their comment and input:

1. Authorities

- Department of Environmental Affairs and Development Planning
- Department of Agriculture (provincial and national)
- Department of Education
- Department of Water Affairs and Forestry
- Department of Public Works
- Department of Minerals and Energy

- Department of Health
 - South African National Roads Agency
 - District Road Engineer
 - Heritage Western Cape
 - Cape Nature
 - Stellenbosch Municipality
2. Non-Governmental Organisations
- Wildlife Society of South Africa
 - Botanical Society of South Africa
 - HOP and SAPD Forum
 - Klapmuts Action Group
 - Klapmuts Civic Group
 - Klapmuts Community Forum
 - Klapmuts Housing Committee
 - The Cape Institute of Architects (Habitat Committee)
 - Stellenbosch Interest Group
3. Other
- Immediate neighbouring land owners
 - Ward Councillor of the area
 - Registered and Interested and Affected Parties

Only one written submission was received from Cape Nature on the draft EIA Report on 12 November 2007, in E12/2/3/1-B4/37-0543/07, in which they indicated that they have no objection to the proposed development. It was assumed that the environmental assessment practitioner had addressed the majority of the concerns raised by the public and registered stakeholders to their satisfaction.

4.5.4 How environmental issues were addressed

The issues raised during the PPP were addressed as follows:

1. Alternatives

When addressing whether the land was more suitable for agricultural purposes as opposed to residential purposes, it was found that the site has limited agricultural potential and the continued farming practices would not present significant benefits to the society of the area. The preferred alternative to create a residential development would help alleviate the extreme demand for affordable housing opportunities in the area. The dire need for development was indicated in various planning frameworks for the Klapmuts area. It would

also contribute towards the improvement and further development of commercial activities thereby creating much-needed job opportunities. Skills development and transfer was also anticipated as a result of the development. Furthermore, the neglected state of the Klappmuts river would also improve within the context of the development.

2. Vision of Klappmuts

The heritage impact assessment identified visual and socio-economic impacts, both relating to the character and sense of place of the area, as the most significant issues that related to heritage sources. The various mitigation measures proposed by the specialist had been accommodated in the development concept, as such the overall impact of the development on heritage (related) resources was considered to have medium-low negative significance which is considered acceptable by the specialist.

3. Design

The development had been designed in such a way that the visual impact on the surroundings had been taken into account. A setback of 30 m from the R44 road has been allowed for and landscaping of the parking area will be done for screening purposes. The height of the buildings was restricted to two storeys for the erven facing to the R44 road.

4. Socio-economic

Klappmuts was characterised by high levels of unemployment and poverty, low education levels and poor access to basic services and infrastructure. As a result of increased unemployment in Klappmuts, the community experienced various social problems related to alcohol, drug abuse and crime. The anticipated benefits associated with the development were largely economic in nature and would serve to strengthen the social fabric that needs attention in Klappmuts.

5. Cumulative impact

The municipality confirmed that the existing network would have the capacity to accommodate phase 1 in terms of the additional sewerage and waste disposal, as well as water provision requirements, and that the services would be readily connected to the existing service infrastructure. The remaining phases of the development were dependant on the upgrade of the Klappmuts Wastewater Treatment Works and electrical bulk supply infrastructure from service providers. Access to the site could easily be gained from the existing road network. The site was also in close proximity to public transport routes.

6. Traffic Impact

A Traffic Impact Assessment was undertaken and the outcome was that traffic was anticipated to increase as a result of the development. However, the development could be accommodated via the existing R44/Merchant street intersection without any upgrading.

7. Overall Significance concluded by specialist studies

The majority of the mitigation measures proposed by the specialist studies had been implemented in the development. Other mitigation measures which related to the management of impacts associated with the construction and operational phase of the development was implemented in the EMP.

With the exception of the river corridor and a single small area of *Swartland Shale Renosterveld* with moderate and high conservation status, the majority of the site was of very low to low botanical sensitivity with low rehabilitation potential. The development layout plan reflected the necessary mitigation measures (EMP, Environmental Trust Fund, alien clearing and management and rehabilitation) that would ensure that the development would not result in any significant detrimental environmental impacts.

According to the findings of the freshwater specialist, the development (with mitigations) would result in a negative low, or no impact (no significance) during construction and an negative medium to no impact (no significance) during the operation phase. The removal of existing obstructions in the river course, as well as the reshaping and rehabilitation of the river course and banks was considered to be highly positive.

Since no heritage resources or structures/sites with any heritage value were found on-site, the development would have no impact directly affecting heritage resources. The significance of potential impacts on specific matters relating to heritage resources including visual and socio-economic (relating to sense-of-place) was rated at a negative medium-low impact for the construction and operation phases.

The economic benefits if the project outweighed the potential leakages, externalities, and alternative land use and opportunity costs associated with the project. The economic impacts associated with the construction phase related mostly to employment and income generation and was rated as highly positive. The operation phase impact was considered to have a medium-high positive significance and related mainly to employment opportunities, revenues and community and business development in the area. Although the economic benefits were considered significant, the associated social cumulative impacts relating to

increase in crime levels, additional pressure on existing basic services and infrastructure, influx of job seekers and the anticipated change in character of the area (rural to urban) results was only a low-moderate positive impact during the construction and operation phase.

Any potential leakages or spills from the filling station would be cleaned up and the relevant authorities notified when an incident happened. Provided that the relevant mitigation measures were implemented successfully, the hydro geological specialist confirmed that the filling station would be considered for authorisation without resulting in any significant detrimental impacts on the receiving environment.

Table 4.4: The Klapmuts interpretation of the concept of SD.

Fault line	Interpretation
The degree of environmental protection that is envisaged to attain SD	<p>Strong environmental protection</p> <ul style="list-style-type: none"> - The site was vacant and was previously used for agriculture and was in a disturbed state. A seasonal river (Klapmuts river) flows through the site and filled a large excavated dam on the site. The river had been heavily modified by earth moving machinery and agricultural activities. Very limited natural vegetation remained in the riverine strip. The mitigation measures proposed by the specialist studies and included in the rehabilitation plan would lead to the rehabilitation of the currently degraded Klapmuts river. - A rocky outcrop with high conservation status existed on the site but would be retained and form part of the private open space.
The emphasis placed on equality as prerequisite for SD	<p>Equalitarian concept of SD</p> <ul style="list-style-type: none"> - According to Bloom (2007) and Bloom and Arendse (2007), in E12/2/3/2-B4/20-0241/06, the population of Klapmuts was mostly socially and economically disadvantaged in that there were high levels of poverty and unemployment, low education levels and poor access to basic services and infrastructure. Amongst others, an aim of the greater development, and also a potential benefit to the local community, was to address such issues by providing affordable housing opportunities, additional community facilities and services and creating new employment opportunities both during construction and operation phases.

	The development addressed these needs.
The measure and nature of participation required to attain SD	<p>Bottom-up public participation process</p> <ul style="list-style-type: none"> - The issues raised by the public were adequately addressed in the final EIA Report, EMP and conditions of the environmental authorisation.
Scope of the concept of SD	<p>Social Development</p> <ul style="list-style-type: none"> - Klapmuts was characterised by high levels of unemployment and poverty, low education levels and poor access to basic services and infrastructure. As a result of increased unemployment in Klapmuts, the community experienced various social problems related to alcohol, drug abuse and crime. The anticipated benefits associated with the development were largely economic in nature and would serve to strengthen the social fabric that needs attention in Klapmuts.
Environmental evaluation and monitoring required to attain SD.	<p>Long term environmental monitoring</p> <ul style="list-style-type: none"> - The Environmental Authorisation and Environmental Management Programmes made provision for long term environmental monitoring.
Environmental Planning to achieve the goal of SD.	<p>Sufficient environmental planning</p> <ul style="list-style-type: none"> - The application area in question was located within the proposed urban edge and was designated for future urban development. The approved Klapmuts Development Framework (2001) identified the site for future extension to allow for residential, commercial, tourist and community (church, school) related land uses. The development was also in line with Western Cape Provincial Spatial Development Framework. - In terms of the Stellenbosch Municipality SDF Klapmuts had been identified as an existing built up region / settlement that should form part of the focus of urban growth in the short, medium and long term. An urban edge for Klapmuts had yet to be determined, but the application area was located within the existing proposed urban expansion area for Klapmuts. It could

	<p>therefore be accepted that the site would be included within any “new” urban edge to be determined.</p> <ul style="list-style-type: none"> - In terms of the Winelands Integrated Development Framework the town of Klapmuts had been identified as a so called “hamlet”, which was considered to be a place with potential to accommodate future growth without compromising medium or high potential agricultural land.
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4.6 The Longlands case study.

The Longlands Vlotenburg housing development stretched over an area of 81.5 hectares and consisted of the following components:

- An upmarket residential estate (100 single residential units)
- The Longlands Village (106 low cost houses)
- A guest house
- 2 small off-stream dams (45MI to 60MI)
- A storage reservoir
- 2 temporary 5000ℓ diesel storage tanks for the construction phase
- 2 pipelines to remove sewerage form the village and to bring treated sewage effluent back to the farm for irrigation.

4.6.1 Geographical location

A portion of the Longlands farm was currently planted to dry land vineyards, with a small section planted to annual crops (vegetables), and located in the small rural village of Vlotenburg, about 7 km to the west of Stellenbosch. The farm is bounded by the M12 Stellenbosch Arterial road to the north and the R310 road to the southeast. The Vlotenburg road connects the M12 and R310 and is located on the eastern boundary of the property. The Bonnievale Smallholdings had been developed to the north of the Longlands Farm. Vineyards had been planted on all the farms to the west and south, whilst stock grazing was undertaken on the farm to the east of Longlands. An informal agricultural village and the Vlotenburg Junior School had been developed on the lease area to the southeast of the farm. The property was situated on a prominent east-west trending spur, with gentle slopes to the east and northeast between the Sanddrift river valley to the north and Eerste river to the south.

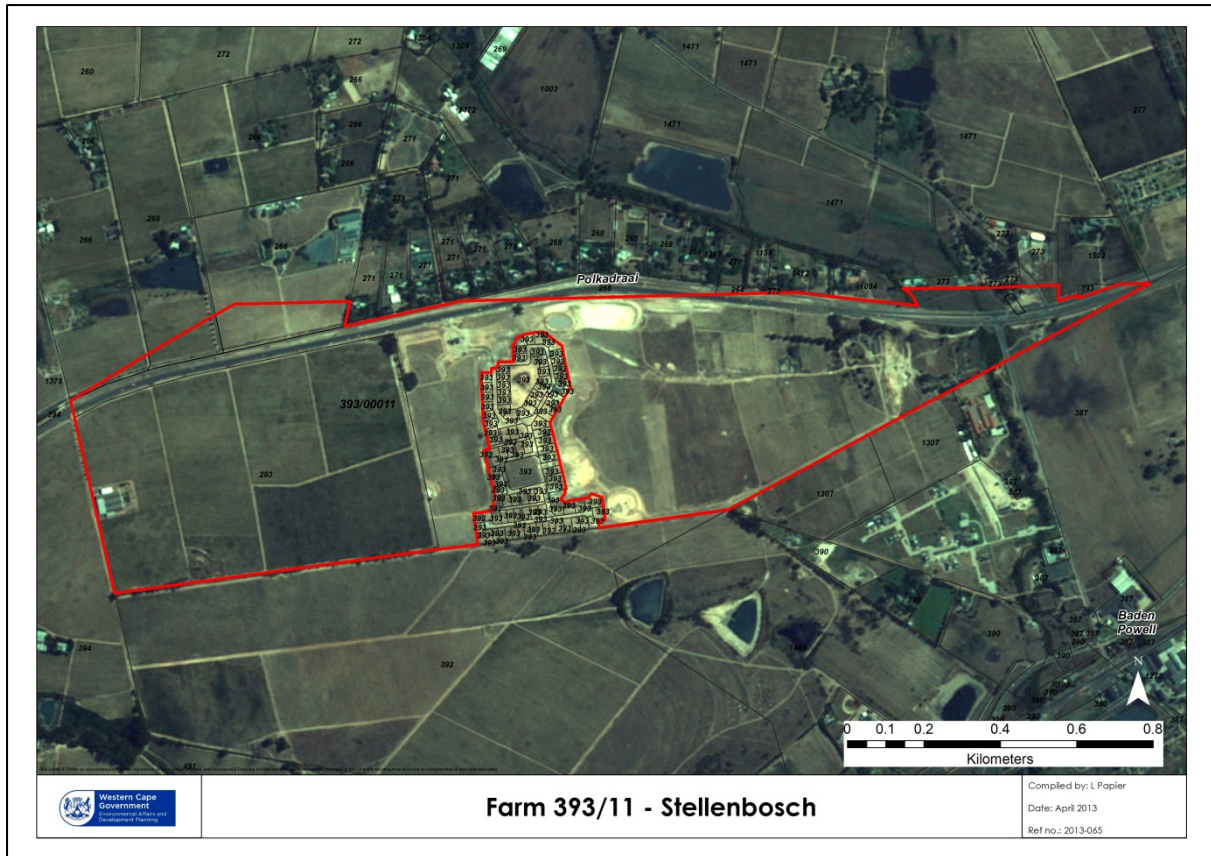


Figure 4.6. The Longlands high-cost and low-cost development.

4.6.2 The approval process

An EIA was conducted for the Longlands development since it required a RoD, now known as an environmental authorisation from the Department of Environmental Affairs and Development Planning (DEA&DP) in terms of the EIA regulations, i.e. Government Notices R1182 and R1183 in Government Gazette No. 18251, 5 September 1997, published in terms of Section 21, 22, and 26 of the Environmental Conservation Act (Act 73 of 1998). The listed activities in terms of Schedule 1 of Section 21 of the EIA regulations are 1(c) (ii), 1(d), 1(j), 1(k), 1(n) and 2(c) and were approved on 22 May 2006.

In the approval dated 22 May 2006, in E12/2/1-105-Farm 393/9 and 11, the authority refused the upmarket residential estate since it was outside of the urban edge as determined by the Stellenbosch Municipality and not consistent with regional planning policies and guideline documents such as the Settlement Framework for the Western Cape Province (October 2003), the Draft Winelands Integrated Development Framework Spatial Plan, the Urban Structure Plan for Stellenbosch (1998) and the Western Cape Provincial Spatial Development Framework. The authorities were of the opinion that irrespective of the development happening on low or medium agricultural land and irrespective mitigation measures provided, approval of the upmarket residential estate would set an undesirable

precedent. The cumulative impacts of similar developments would result in fragmentation and place pressure on valuable and scarce agricultural land to be used for urban land uses (Record of Decision, 2006: 9-12 in E12/2/1-105-Farm 393/9 and 11).

An appeal was lodged by the applicant in 2006 shortly after the RoD was issued regarding the refusal of the upmarket residential estate. After a year the authority had not made a decision on the appeal and the applicant launched court proceedings in order to force the authority to make a decision on the appeal. Two weeks after the service of papers in the court proceedings on March 2007, the appeal was upheld and the first RoD was varied to allow for an upmarket residential estate. A month later on 11 April 2007, the authority issued a second RoD which included the upmarket residential estate but contained a number of conditions which were not included in the first RoD or the appeal decision. The applicant raised objections against the conditions and the court ruled in favour of the applicant by setting aside the second RoD. The court also reviewed the appeal decision taken on 27 March 2007 and the condition contained therein regarding the provision of gap housing was set aside. It was declared that the valid and operative decision was contained in the first RoD signed on 22 May 2006. The upmarket residential estate was approved since the low-cost housing development was totally dependent on the profit made by it. If the upmarket residential estate was not approved the low-cost housing development would not happen. It was submitted that as result of the time delays on the part of the authority, the applicant suffered a loss of R175 000 per month. The authority had to pay the cost of the application, including the costs to counsel (High Court of South Africa, 2007: 1-16).

4.6.3 The public participation process

During the initial phase of the PPP, a Background Information Document was compiled and advertised in the local newspaper, the "Eikestad Nuus" on 21 November 2003. This was followed by a public meeting on 4 December 2003 to discuss the development, the scoping process and any concerns regarding the development. The PPP consisted of the following components:

- The Scoping Report

A Draft Scoping Report was compiled from the results of the environmental evaluation undertaken of the site, the comments received from I&APs (verbal and written), and the results of the specialist studies undertaken for the previous 1998 (Wooltru) application for the development of the Longlands farm, (which are still applicable to the development proposal of the new application), i.e.:

- A soil survey of the Longlands Farm, undertaken for Chittenden Nicks de Villiers dated November 1997.
- A geotechnical report on the proposed development of Longlands Farm, by Liebenberg and Stander Consulting Engineers dated March 1998.
- Internal Civil Engineering Services report by Liebenberg and Stander Consulting engineers dated April 1998.
- The traffic impact assessment by GIBB Africa dated February 1998.

The availability of the Draft Scoping Report was advertised in the local “Eikestad Nuus” newspaper, inviting I&APs to attend a second public meeting, held on 2 March 2004, and to provide written comment on the Draft Scoping Report. The following issues were raised:

1. Biophysical issues

- Removal of alien vegetation
- Loss of habitats and disturbance to wildlife
- Loss of agricultural soil
- Surface waters (wetland, existing dam and Sanddrift river)
- Pollution from sewage (treatment and discharge)

2. Socio-economic issues

- Visual (aesthetic) impacts
- Job opportunities
- Economic viability and sustainability of the proposed Development
- Provision of low cost housing for Vlottenburg community
- Squatters on the site
- Benefits to tourism
- Archaeology and heritage resources
- Lighting (light pollution)
- Noise pollution (from traffic)
- Potential poor odours as a result of the recommended use of treated sewage effluent for irrigation
- Safety of pedestrians crossing the M12 road

3. Engineering issues

- Traffic impact
- Sewage disposal
- Stormwater and drainage
- Water supply

4. Planning issues

- Density of development (high)

- Urban sprawl
- Setting a precedent
- Special management areas
- Compliance with existing planning frameworks

The following specialist studies were conducted to address the issues raised during the scoping phase and included in the Draft EIA report:

- Urban design and landscaping guidelines for both the upmarket estate and the Agri Village component of the proposed Longlands development, to determine the significance of the visual impact on the surrounding environment.
- A traffic impact study, to determine the significance of the traffic impact of the development on the Polkadraai road especially the residents of the Bonniemile Smallholdings.
- Engineering services report, including sewage, potable water mains and reservoir, electricity, telephone and stormwater management.
- Heritage impact assessment, with particular reference to the two historic buildings on the property.
- Social impact assessment and additional information on how the houses of the Agri Village will be allocated.

The draft scoping report was revised according to the I&APs comments made and the final scoping report was submitted to the authority together with the plan of study for EIA, to proceed to the EIA phase.

-The EIA Report

The Draft EIA report was compiled including the results of the specialist studies undertaken for the proposed development. The significance of and duration of potential environmental impacts and any recommended mitigation for reducing such impacts for the alternative development options were put forward. The availability of the Draft EIR was advertised in the "Eikestad Nuus" on 11 June 2004, inviting I&APs to attend the third public meeting, held on 28 June 2004, and to provide written comment on the Draft EIR were again analysed and divided into the given key categories and key issues. The Draft EIA report was revised according to the comments received on the Draft EIA report, before submitting the final EIA report to the DEA&DP for a RoD for the Longlands development.

4.6.4 How environmental issues were addressed

1. Biophysical Impact

A small wetland, which is seasonally very wet, occurs in the eastern sector of the property adjacent to the labourers' cottages and informal dwellings and is associated with the Sanddrift river, a perennial to seasonal watercourse which flows past the eastern sector of the property and is part of the Eerste river system. The wetland would be retained as a feature within the Agri Village.

The property originally comprised predominantly West Coast Renosterveld vegetation but it had been cleared of almost all its natural vegetation for mining activities (Laterite) and the planting of vineyards. The West Coast Renosterveld remnants, including *Elytropappusrhinocerotis* (Renosterbos), *Elytropappuslongifolius* (Slangbos), *Elytropappusgnaphaloides*, *Erica curviflora*, *Rhuslucida* and *Oleaeuropaea* (wild olive), are confined to isolated pockets ("islands") within and around the laterite mined area within the western sector of the farm. The mined area had become inundated with exotic vegetation, notably *Acacia*, *Eucalyptus*, *Pinus* species. Some remnant Renosterveld species had reappeared on the fringes of the mined area, however the species diversity was low. Cape Nature, previously known as the Western Cape Nature Conservation Board (WCNCB), confirmed that the Renosterveld fragment on the property was of low conservation value due to its small size, isolation from other remnants and transformation due to surrounding land uses and lack of natural ecological processes (e.g fire), which would otherwise have maintained the integrity of the fragment (WCNCB, 2004).

It recommended that Renosterveld species be planted as part of the landscaping of the farm and housing estate. Such water-wise gardens would reduce the use scarce water reserves. It recommended that treated sewage effluent and stormwater captured within small dams be used for irrigation of vineyards. It should be remembered that indigenous plants grew in nutrient poor soils and did not require fertilizers. Therefore judicious use of sewage effluent for their irrigation needs should be practiced.

Over 40 bird species inhabit the Vlotenberg area throughout the year, including *Gymnogone*, Black Sparrowhawk and Fiery Necked Nightjars, that roosted on the ground under the trees during the day (Bonniemile Property Owners Association, 2004). However, Cape Nature confirmed that the impact of the development on the day roosting site for the Fiery Necked Nightjar would be negligible.

With the proposed mitigation measures imposed by the specialist studies, no significant negative environmental (biophysical and/or socio-economic) impacts were anticipated to occur as a result of the proposed development. Most of the site had been ploughed for agricultural production. The edges of the vineyards were lined with stands of alien plants, blue gums, *Eucalyptus spp.* Further to a site inspection, Dr Cobus Coetzee of ARC Roodeplaat (1998) determined that small areas of the farm contain fynbos vegetation of the type Renosterveld. According to Low and Rebelo (1996) because Renosterveld was largely confined to fertile soils, much of the vegetation type had been ploughed for agriculture. Less than 5% of West Coast Renosterveld remained with other Renosterveld types also threatened by extensive agriculture. The Renosterveld fragment on the property was of low conservation value due to its small size, isolation from other remnants and transformation due to surrounding land uses and lack of natural ecological processes (e.g. fire), which would otherwise have maintained the integrity of the fragment. Due to the limited amount of indigenous vegetation on the site and history of intensive agriculture, no species of ecological significant fauna or avifauna was expected to exist. (Environmental Design Partnership, 1998: 3)

2. Socio-economic impact

The development of the proposed Longland Village would provide housing and services for the farm workers and other members of the Vlotenburg community, and would upgrade the living conditions of many members of the local community. This significant positive social impact would go a long way to social upliftment in the Vlotenburg area and will act as a catalyst for the development of the Vlotenburg Hamlet. Apart from positive impact of providing housing, the development of the 100 house estate would provide domestic gardening jobs, whilst the guest house would also provide various job opportunities. The re-development of the farming component would also provide more permanent job opportunities and add to the GDP of the region (greater production of grapes).

3. Engineering services

The Stellenbosch Municipality had sufficient services for the development and confirmed that the Waste Water Treatment Works (WWTW) did have existing unused capacity to treat the additional 305 kl/day from the developments currently under application in Stellenbosch, i.e., Longlands, De Bosch, Brandwacht and La Postorate. With mitigation, the long term impact of 150 kl/day of effluent generated by the proposed Longlands development on the WWTW capacity and commensurate discharge into the Veldwachters river (and Eerste river) was low.

DWAF indicated that not all new development proposals in the Stellenbosch area were sent to them for comment, therefore it was not possible for DWAF to comment on cumulative impact of all developments currently under consideration by the Stellenbosch Municipality. However, considering the developments currently under application in Stellenbosch, DWAF indicated that the WWTW could accept the additional sewage flow of 305kl/day and still remain within the legal requirements (in terms of volume) of their existing authorisation.

The traffic impact statement concluded that the proposed access to the Longlands estate development on the Polkadraai road was located at a position where it is considered acceptable both for arterial access management reasons and safe shoulder sight distance considerations. A separate right turn lane had to be created for eastbound traffic on the Polkadraai road entering the site. The District Roads Engineer stated that they had no objection to the access to the proposed Longlands development from the Polkadraai road.

4 Planning

The proposed Longlands development was well founded within the forward planning undertaken for the Vloottenburg Neighbourhood Area, which proposed that a rural settlement (“hamlet”) be established that was to be centered around the Vloottenburg road. This was in line with the Winelands Integrated Development Framework criteria and the Sectoral Plan for the Establishment of Rural (“Hamlets”) and On-Farm Settlements.

Table 4.5: The Longlands Interpretation of the concept of SD

Fault line	Interpretation
The degree of environmental protection that is envisaged to attain SD	Upholds a weak interpretation of SD. - The development destroyed the only last remains of Renosterveld on the property.
The emphasis placed on equality as prerequisite for SD	Upholds an egalitarian concept of SD (the equal distribution of resources). - The development would provide low-income houses to the east of the property and high-income homes to west of the property. The low-income houses will be built from the profit of the high-income houses.
The measure and nature of	A bottom-up interpretation of SD.

<p>participation required to attain SD</p>	<ul style="list-style-type: none"> - The public participation process followed had been adequate. Interested parties had been identified by placing advertisements in local and regional newspapers. - Sufficient information had been provided to these parties through the provision of background information documents which facilitated the identification of issues and concerns. - Adequate time was allowed for input and response by interested parties. - Further interaction took place through several meetings which were held with relevant authorities and interested parties.
<p>Scope of the concept of SD</p>	<p>Scope of the subject area: Social development</p> <ul style="list-style-type: none"> - The development would lead to economic and social benefits such as employment and low-cost housing.
<p>Environmental evaluation and monitoring required to attain SD.</p>	<p>Short term environmental monitoring.</p> <ul style="list-style-type: none"> - The decision-making authority was not legally compliant with all environmental policies and legislation by imposing conditions in the RoD which was not assessed in the EIA process.
<p>Environmental Planning to achieve the goal of SD.</p>	<p>Insufficient planning</p> <ul style="list-style-type: none"> - The high-cost housing development was situated outside of the urban edge of Stellenbosch.

Chapter 5: Site visits, interviews and summation of case studies

This chapter involves a participation observation methodology which included site visits and interviews as well as the summation of the case studies

5.1 The site visits and interviews

A site visit was conducted at each case study. Interviews (questionnaire attached as Appendix B) were conducted on site with the relevant people such as the environmental control officer for the De Zalze Golf Estate, the Nuutgevonden development, the Longlands development and the Kayamandi development. Officials from Stellenbosch Municipality who is the applicant for both the Klapmuts and Kayamandi low-cost housing developments was also interviewed.

5.1.1 The De Zalze Golf Estate case study

The environmental control officer for the development agreed to meet on the site and identified area where the wetland used to be before it was destroyed. It was explained that it had been deliberately destroyed, since it was located on the golf course and that a different layout had been considered and approved to keep the wetland intact. The developer of the golf estate had contravened the relevant environmental legislation and if the environmental control officer had not reported the non-compliance to the relevant authority nothing would have been done about the situation. The key stakeholders decided that the destroyed wetland had to be rehabilitated in three parts, as depicted in the first four photographs. It cost the developer approximately R340 000 to rehabilitate the destroyed wetland.

In the Environmental Management Programme that had been submitted to the decision-making authority for approval, it was initially motivated to use a certain percentage of the profit from the golf estate for the socio-economic development of the surrounding area in Stellenbosch. However, this never came to fruition and was also not followed-up by the decision-making authority.

An employee of the golf estate, who claimed to be an environmental lawyer representing the golf estate was also questioned. When asked about the conditions of the approval, such as the environmental audit that had to be done, it was explained that it had not yet been done but was in process. When asked regarding the golf estate's use of water from the Blaauwklippen river, it was reported that the golf estate had obtained a water-use license to extract water from the Blaauwklippen river.



Figure 5.1: Part of the wetland that was rehabilitated.



Figure 5.2: Part of the wetland that was rehabilitated. Links up with the first part as shown in Figure 5.1.



Figure 5.3: Part of the wetland that was rehabilitated.



Figure 5.4: Another small part of the wetland.



Figure 5.5: Only indigenous vegetation that previously occurred on the destroyed wetland has been used for the rehabilitation of the wetland.



Figure 5.6: The Blaauwklippen river which flows through the site. Water is being diverted from this river for utilisation for the golf estate.

5.1.2 The Kayamandi case study

Officials from the Stellenbosch Municipality agreed to meet on the site. The Environmental Control Officer for the development was also present on the site. Officials from the municipality were questioned regarding services delivered by the municipality such as effluent management. The officials from the municipality responded that the Waste Water Treatment Works currently does not have the capacity for any new development in Stellenbosch and that there will only be efficient capacity once the system has been upgraded, by 2014.

One of the conditions in the environmental authorisation issued on 15 December 1999 is that litter bins should be placed along internal roads and open space areas. Compliance with this condition could not be found on the site. One of the recommendations of the environmental authorisation is the planting of indigenous plants and trees along the roads, to provide windbreaks and shade. When officials enquired about this recommendation, it was reported that the necessary funding was not available. The conditions of this approval were never followed up by the decision-making authority when the second phase of the development was approved.

It was also noted that the site is bordered by a stream (gully) containing an earth-wall dam and indigenous vegetation. A fence has been placed between the stream and the development as a mitigation measures to protect this sensitive area from development.



Figure 5.7: The site has a steep east facing slope.



Figure 5.8: A new phase of the housing development which is currently being constructed.



Figure 5.9: The gully next to the site which still contains indigenous vegetation on its banks.



Figure 5.10: A fence has been placed between the Kayamandi residential development and the gully which also contains an earth wall dam.



Figure 5.11: Many of the new completed houses have been occupied by residents.

5.1.3 The Nuutgevonden case study

The Environmental Control Officer for the development agreed to meet the researcher at the site. During the site visit it was noted that the ditch along the railway line which hosted wetland species had been turned into a drainage line which collects stormwater from the site and then dumped into the Plankenbrug river. The second ditch along the southern boundary still had to be recreated through a system of artificial wetlands to manage and polish the water.

The patch of Renosterveld along the river was still intact and the Stellenbosch Municipality had cleaned the river from invasive plants. The buffer area of 30 m between development and the Plankenbrug river had also been maintained. The development was compliant with the conditions as contained in the Environmental Authorisation issued on 19 March 2009 by the Department of Environmental Affairs and Development Planning.



Figure 5.12: Ditch next the railway line that has been cleared of all wetland species and is being used as a drainage line.



Figure 5.13: Ditch along the southern boundary of the site containing wetland species. According to the EAP, structures will be placed inside the ditch to clean and polish the water before it enters the Plankenbrug river.



Figure 5.14: The Plankenbrug river has been cleared by the Stellenbosch Municipality from invasive plant species. Only indigenous vegetation still exists along the banks of the river.



Figure 5.15: The buffer area between the development and the Plankenbrug river.

5.1.4 The Klapmuts case study

The site is along the R44 and R45 roads which is regarded as a scenic route and is characterized by open views, mountains to the east and cultivated landscapes. It was noted during the site visit which was conducted with officials from the Department of Environmental Affairs and Development Planning that the construction activities within the residential component of the development which consists of 297 subsidised units had already commenced as well as the construction of an access road to the R44 road.

Some of the completed houses which comprise two or more units had been occupied by residents. It was also observed that the seasonal river that flows through the site was subjected to littering by pedestrians crossing the site and general disturbances such as erosion. The development would lead to the improvement of the river system if the mitigation measures as proposed by the specialist studies were included in the final EIA Report and EMP and as conditions in the environmental authorisation were being implemented.



Figure 5.16: The seasonal Klapmuts river which flows through the site. The river will be rehabilitated as part of the construction and operational phase of the development.



Figure 5.17: The tributary that enters the Klapmuts river from the south-west on the site.



Figure 5.18: Construction activities has commenced on the site.



Figure 5.19: Some houses have been completed and occupied.

5.1.5 The Longlands case study

The Environmental Assessment Practitioner who conducted the EIA in 2004 for the Longlands residential development agreed to a meeting at the entrance of the upmarket residential estate at the northern section of the farm for a site visit and to answer any questions pertaining to the case study.

During the site visit it was noted that some of the houses had been built on site and had been occupied by owners. There were also many open plots visible and some houses were still being built. The area where the last remains of Renosterveld fragment existed on the site had been stripped clean. The EAP reported that Cape Nature had commented that the vegetation was of such low conservation value that there was no need to keep it intact and it was subsequently destroyed for the development. The comment from Cape Nature dated 30 August 2004, states that they are of the opinion that the Renosterveld fragment on the site was of low conservation value because of its small size, isolation from other remnants and transformation due to surrounding land uses and lack of natural ecological processes (e.g. fire), which would otherwise have maintained the integrity of the fragment. They further recommended that a specialist botanical assessment was not needed. It was also noted that only indigenous trees should be planted alongside internal road ways.

On the eastern section of the farm it was noted that no houses had been built on the site. The EAP explained that the low-cost houses will be built on the eastern section but only once profit has been made from the upmarket development.



Figure 5.20: Board at the entrance of the development advertising the cost of the units.



Figure 5.21: Internal roads have been constructed with indigenous trees alongside the roads.



Figure 5.22: A few houses have been completed but some are still in the process of being built. The steeper areas on the property are being used for vineyards.



Figure 5.23: Wetlands of the Sanddrift river that flows past the eastern section of the Longlands farm where the 106 low-cost houses was approved. It is also bound by the M12 Stellenbosch arterial and Vlottenburg road. The houses still have to be built on the site.

5.2 Summation of case studies

The summation of the case studies as discussed in chapter 4 as well as the site visits and interviews are completed in this section. The case studies were conducted in the Stellenbosch Municipal area and were approved both in terms of the ECA and the NEMA and the applicable EIA regulations at the time.

5.2.1 The ECA case studies

The De Zalze Golf Estate, the Kayamandi and the Longlands developments were approved in terms of the ECA. The De Zalze Golf Estate development was approved before the ECA EIA regulations came into effect in September 1997 and did not involve an EIA process since it was not mandatory at that time. The Kayamandi development was approved after the ECA EIA regulations came into effect but was exempted from conducting an EIA process. In contrast the Longlands development followed a scoping EIA process and was appealed after it was authorised and ended up in court, the subsequent ruling was in favour of the developer.

5.2.1.1 The public participation process

The De Zalze Golf Estate did not involve a public participation process and as a result the broader public's interest and concerns were not represented. Instead, only a self-selected few were able to effectively engage with the process. Cape Nature commented on the

Environmental Management Plan and baseline information available and said that the wetlands on the site appeared to host important bird species and should be maintained and incorporated into the development.

The Kayamandi and the Longlands development involved public participation processes and included comments and issues raised. Regarding the comments which were received for the Kayamandi development, three objections were received that an EIA should be conducted and comment from Cape Nature indicated that at least 2 endangered Red Data Book plant species occurred on the site. For the Longlands development, a background information document was advertised in the local newspaper and was also distributed to I&APs. Public meetings were held, a scoping report was made available for comment and an EIA report which included the findings of the specialist studies was addressed. These findings included, but were not limited to biophysical and socio-economic impacts as well as engineering and planning issues.

The ECA EIA regulations did not uphold any compulsory timeframes for the decision-making authority. There was a lengthy time delay for the De Zalze development regarding the way forward as indicated in the article published in the newspaper, the "Eikestad Nuus" in 1998, in which Cape Nature indicated that the delay was caused by a shortage in staff. Regarding the Longlands development, the applicant took the Department of Environmental Affairs to court after it had failed, for a period of more than a year, to make a decision on the appeal.

5.2.1.2 How issues were addressed

Conditions were included in the De Zalze Golf Estate approval as well as the Environmental Management Programme that stipulated that the important wetland which contained the two Red Data Book bird species should not be negatively impacted upon. The wetlands were however deliberately destroyed and as a result the De Zalze development had shown non-compliance with the conditions of the approval. This high cost development showed that some affluent parties take heed of environmental issues and as a result do not consciously adapt their lifestyles (Yeld, 1997). Key stakeholders implemented a mitigation strategy of creating a wetland of similar size and quality as the previous wetland.

For the Kayamandi development, the applicant which was the Stellenbosch Municipality, requested exemption from conducting an EIA from the decision-making authority due to the urgent need for low-cost housing in the area. The exemption was approved based on a motivation report which included issues raised during public meetings and interactions with I&APs as well as a botanical assessment. The botanical assessment concluded that the site

had been disturbed by previous agricultural activities and that no rare or localized species occurred on the site but that care should be taken not to disturb the indigenous vegetation remaining on the edges of the gully. There was, however, no plan or description as to how the services would be connected to the current municipal infrastructure and what the connection would entail. The municipality did not provide confirmation that they had sufficient capacity with regards to effluent management, water supply, electricity services and solid waste management. The answer to the available capacities was assumed. It is well known that low-cost housing developments are notorious for insufficient service infrastructure. Residents of Kayamandi are very often in the local news, protesting for better service delivery, as advertised in the “EikestadNuus” on 20 November 2012.

The issues highlighted during the public participation process for the Longlands development were addressed by the environmental assessment practitioner and the specialist studies conducted in the EIA Report. The specialist studies highlighted that the indigenous vegetation on the site had been cleared by previous mining activities with a few remnants of West Coast Renosterveld left on the site. It was also envisaged that the development would have a positive impact on the standard of living for many members of the local community by providing low cost housing. The local municipality confirmed that they had sufficient capacity for the development and the traffic impact statement concluded that access to the site was considered acceptable. With regards to the planning of the development, the site was considered to be situated outside of the urban edge in terms of the relevant planning documents.

5.2.2 The NEMA case studies

The Nuutgevonden and the Klapmuts developments were approved in terms of the NEMA. The NEMA EIA regulations which made provision for timeframes for the EIA process and this was one of the major changes from the old ECA regulations since the old ECA regulations did not make provision for timeframes for the EIA process. The Nuutgevonden development was conducted in terms of the EIA regulations of 21 April 2006 and involved a Basic Assessment process and the Klapmuts development was conducted in terms of the EIA regulations of June 2010 and involved a Scoping and EIA process. The Nuutgevonden development approval was also appealed but the Western Cape Minister of Local Government, Environmental Affairs and Development Planning dismissed the appeal.

5.2.2.1 The Public Participation process

The public participation for the Nuutgevonden development consisted of a background information document that was sent to all I&APs, advertisements were placed in the local

newspaper and a draft and final BAR that was sent to all registered I&APs. The final BAR included the findings of the specialist studies as well as the issues raised during the commenting period. The main concerns were the biophysical impacts of the development with regards to the wetlands on the site, the remnant of Shale Renosterveld vegetation on the western bank of the Plankenbrug river and the riparian zone between the Plankenbrug river and the development.

The public participation process for the Klapmuts development also consisted of a Background Information Document and a scoping process which included (draft and then final) a scoping report that identified the various significant issues/impacts which required further specialist investigation and/or assessment. The EIA Report included the various specialist impact assessments, focusing on addressing, resolving and/or mitigation of potential impacts. Both the Scoping and EIA Report were made available to registered I&APs for their comment and input. The main concerns raised were mainly regarding the botanical sensitivity of the site, freshwater bodies, capacity with respect to services, traffic impact, land use and planning issues and socio-economic impacts associated with the development.

5.2.2.2 How environmental issues were addressed during the process

The issues concerning the Nuutgevonden development were addressed mainly in the botanical assessment conducted for the development. The finding was included in the final BAR and EMP as conditions in the environmental authorisation that an artificial wetland system should be created along the railway line and the south-eastern border of the site to clean and polish water before it enters the Plankenbrug river. The development should also be located outside the 1:100 year floodline and maintain a 30 m buffer on the eastern bank of the river.

The issues concerning the Klapmuts development were addressed by the specialist studies. The mitigation measures and findings concluded by specialist studies were included in the Final EIA report and conditions of approval. These mitigation measures concluded that the remnant Renosterveld vegetation still present on the site must not be disturbed but must form part of the private open space. It also concluded that a riverine rehabilitation plan must be implemented that should include alien plant eradication, erosion control and the inclusion of suitable local indigenous vegetation for replanting during rehabilitation and that a 20 m buffer should be provided around the main channel of the river. This Klapmuts development reflects a strong interpretation of environmental protection since without it the river that flows through the site would have continued degrading due to littering and erosion.

5.2.3 Site visits and interviews

The site visits conducted for the different locations of the case studies also involved interviews with the relevant roleplayers involved with the development. For the De Zalze Golf Estate it involved the ECO who was the person who notified the decision-making authority of the destruction of the wetland as well as a representative from the Golf Estate. For the Kayamandi development, it was the developer, the Stellenbosch Municipality and the ECO on the site. For both the Nuutgevonden and Longlands developments, it was the ECO. The Klapmuts development involved officials from the Department of Environmental Affairs and Development Planning.

The mitigation measures for the most of the developments were incorporated: at the Zalze Golf Estate the wetland area was rehabilitated, at the Kayamandi development a fence was placed between the gully and the development as a mitigation measure to protect the indigenous vegetation which still remains at the banks of the gully. The Nuutgevonden, Klapmuts and the Longlands developments also complied with mitigation measures although the construction phase of the development was still underway at the time of this study. It should be noted, however, that many of the completed houses had been occupied.

The remnants of Renosterveld vegetation left at the Nuutgevonden and Klapmuts was retained but the remnant left at the Longlands development was destroyed. With regard to the services, the Stellenbosch Municipality did not have the capacity for effluent management at its Waste Water Treatment Works (WWTW) at the time of this study. It seemed that project specific EIAs had not dealt well with the cumulative impacts of developments, since the "WWTW" seems incapable of managing the amount of effluent generated. Furthermore, officials from the municipality stated that the majority of new developments in the municipal area had to put on hold until the WWTW had been upgraded, which will be in 2014.

It was also found that further extensions had taken place at the De Zalze Golf Estate and the Kayamandi developments. These developments were approved by the authority without making sure that the developer had been compliant with previous conditions of approvals.

5.2.4 Table 5.1. Summation of the results of the interpretation of the concept of SD in the case studies

Case Study	Interpretation of the concept of SD					
	Environmental Protection (weak or strong)	Equality (egalitarian / non-egalitarian)	Public Participation Process (bottom-up / top-down)	Scope of the concept of SD (environmental protection / social development)	Environmental Monitoring and Evaluation (short / long term)	Environmental Planning (sufficient / insufficient)
De Zalze Golf Estate high-cost housing development	Weak	Non-egalitarian	Top-down	Social development	Short term	Insufficient
Kayamandi low-cost housing development	Strong	Egalitarian	Bottom-up	Social development	Short term	Insufficient
The Nuutgevonden medium-cost housing development	Weak	Non-egalitarian	Bottom-up	Social development	Short term	Sufficient
The Klapmuts mixed-use housing development	Strong	Egalitarian	Bottom-up	Social development	Long term	Sufficient
The Longlands High and low cost housing development	Weak	Egalitarian	Bottom-up	Social development	Short term	Insufficient

Chapter 6: Conclusion and Recommendations

This research which critically evaluated the concept of SD in legislation governing EIAs asked the following questions:

1. What does the global perspective on SD entails?
2. Is the concept of SD being applied adequately within the EIA process?
3. Is the concept of SD, which is adopted by legislation governing EIAs, being implemented?
4. What recommendations can be made to promote SD through EIAs?

In order to answer the questions the study addressed six objectives which will be revisited in this chapter to determine the degree to which they have been achieved. This chapter formulates general conclusions and recommendations.

6.1 The investigation of the emergence of the concept of SD globally and locally and the critical evaluation of this concept within NEMA

This objective was addressed in Chapter 2 which entailed a literature review of the concept of SD in international environmental law and environmental law in South Africa, proceedings and conferences as well as popular publications which made the public aware of environmental issues. It also analysed the concept of SD in the National Environmental Management Act ("NEMA") by using the identified Fault Lines associated with the concept. The main conclusions were that:

- It was only with the publication of Rachel Carson's book *Silent Spring* in the 1960's that the public became aware of environmental problems and the relationship between economic growth and the environment. This was followed by articles written by Kenneth Boulding, Paul Ehrlich and Gareth Harding which further aided this awareness.
- In the 1970's the conclusions made by *The Limits to Growth* report that the planet would reach its carrying capacity limits if we do not reach a global equilibrium of ecological and economic stability, fuelled a debate and became the starting point on discussions on the concept of SD.
- After a series of international conferences, the concept of SD was supported globally and emerged as a broad policy objective in 1987 with the publication of the *Brundtland Report* (WCED 1987).
- A critical evaluation of the concept of SD revealed many objections, different interpretations, approaches and definitions and it failed to provide clear guidelines for environmental protection when the interest of humans and nature are in direct conflict.
- Six Fault Lines which consisted of the degree of environmental protection, equality, public participation, the scope of the concept of SD, environmental monitoring and

evaluation and environmental planning were identified within the concept of SD to overcome the numerous associated interpretations, approaches and definitions.

- In South Africa, the concept of SD in the NEMA which gives effect to EIAs that is used for the application of SD is based on the WCED (1987) definition.
- An analysis of the concept in NEMA using the Fault Lines showed that this concept much like the concept of SD (WCED 1987) was open to different interpretations, approaches and meanings. The concept does not indicate to what degree the environment should be protected and does not show a strong commitment to living within the carrying capacity of the biosphere. It was also found to be vague on the concept of needs since it was not clear on what was meant by meeting people's needs.

This objective concluded that the local concept of SD was based on the global concept and that if the Fault Lines went unnoticed that our general acceptance and application of the concept of SD would continue to be vague and applied differently by stakeholders, depending on their specific agenda.

6.2 The investigation of the emergence of EIAs globally and locally and the relationship with SD

This objective was addressed in Chapter 2 and 3 and entailed a literature review of the emergence of EIAs in international environmental law and environmental law in South Africa.

The main conclusions were that:

- The Earth Summit in 1992 produced the Rio Declaration and the *Agenda 21* documents for the global commitment towards SD. In the Rio Declaration under Principle 17 it was declared that EIAs shall be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision by a competent authority.
- Before the Earth Summit, EIAs were first made legislation in the United States in the NEPA in 1969 and developed slowly across the world.
- In South Africa EIAs were practiced since the 1970s and the *Agenda 21* principles and key documents at the Rio Conference have been used to inform national level policy and implementation such as the Constitution (1996), the Environment Conservation Act ("ECA") Act No. 73 of 1989, the White Paper on Environmental Policy and followed by the current NEMA. The NEMA reflects the three pillars idea which provides that development must be socially, environmentally and economically sustainable and it gives effect to Section 24 of the Constitution (1996) which legally requires that EIAs must be done in the pursuit of SD.

This objective concluded that the concept of SD had been adopted by legislation governing EIAs and that the EIA process was being used as one of the key tools for SD.

6.3 An identification of the constraints to the EIA process

Constraints regarding the effectiveness of the EIA process were identified in Chapter 3 and the main conclusions were as follows:

- The dendrogram attached as Appendix A showed that the constraints which hinder the effectiveness of the EIA process could be reflected in the quality of the assessment, the relative role-players, the scope of the assessment, the decision-making process and the post-decision process.
- With regard to the quality of the assessment, it was often the case that the assessment was poorly carried out and represented. Many EIA reports were not compliant with the relevant EIA legislation, resulting that predictions of impacts during the EIA process were often incorrect (Morris and Therival, 1995:1).
- Constraints imposed by role players in the EIA process could influence the outcome of the application. The Environmental Assessment Practitioner (EAP) who completed the assessment and submitted it to the authority for a decision, was employed by the developer. This frequently resulted in the EAP being biased in favour of the proposal and acting in the developer's best interest. Time constraints caused by lack of capacity and skill from the decision-making authority were another problem. The lack of participation by the public and fragmentation among different spheres of government (local, provincial and national) which enforced law pertaining to the outcome of the EIA process were other concerns.
- Constraints regarding the decision-making process were due to EIAs being project and site specific and not dealing with broader more strategic aspects e.g. region or country. SEA has the potential to address cumulative impacts more effectively than EIAs.
- Constraints regarding the post-decision process are the lack of enforcement and monitoring of the conditions of the environmental authorisation.

This objective concluded that due to the many constraints affecting the effectiveness of the EIA process, there was a lack of enforcement of legislation governing EIAs. This results in EIAs being used as a tool which governed developments at the cost of the environment.

6.4 To review environmental impact studies as a tool for SD as well as legislation and changes in legislation pertaining to EIAs

This objective was addressed in Chapter 3 and 4. The main conclusions were that:

- EIAs were first made legislation in the United States in the National Environmental Policy Act (“NEPA”) of 1969 in part c of title 1 of the Act it was described as a process to ensure that environmental impacts of developments were taken into consideration together with economic considerations (Fuggle, 1992: 762) and title 2 of NEPA requested that a three-member Council of Environmental Quality (“CEQ”) be established (Glazewski, 2000: 276). This CEQ produced regulations in 1979 and 1986 which provided clarification on how EIAs should be carried out.
- In South Africa, the EIA regulations which are based on the regulations produced by the CEQ were first promulgated in 1997 under the ECA, replaced in 2006 under the NEMA and replaced again in 2010 under the NEMA. It has changed three times since it came to being.
- The principles for SD found in the NEMA were adopted from the *Agenda 21* document produced at the Earth Summit in 1992.

This objective concluded that the legislation pertaining to EIAs in South Africa was based on international legislation. It also concluded that the EIA regulations which regulated the EIA process had changed three times.

6.5 Too review housing case studies in order to assess the effectiveness of EIAs in promoting SD compared to theoretical tensions

Chapter 4 and 5 addressed this objective and entailed the review of five case studies and an analysis of each study’s interpretation of the concept of SD using the Fault Lines as well as site visits and interviews with the relevant role players. The conclusions were as follows:

- Each case study emphasized mostly biophysical aspects of each development, whilst the social and economic impacts were poorly identified and assessed, in a manner that was considered to be inadequate for a decision-maker to make an informed decision on the subject. As a result, instead of providing informative solutions to improve the situation, the entire EIA process was seen as a paper hurdle to gain development approval. Although one would expect the competent authorities tasked with making such decisions to consider the public good and to provide the necessary checks and balances to ensure that public interests were represented, they were also plagued by capacity problems, including staff shortages, financial constraints and a lack of technical expertise to carry out the necessary procedures. Their general lack of technical expertise was further exacerbated by a lack of decision criteria or baseline data to guide their decision-making ability. Moreover, the process lacked transparency and accountability, which aided the extent to which hidden agendas and politically motivated decisions were able to influence the final outcomes of the decision process.

- The lack of capacity of the WWTW in Stellenbosch shows that EIAs does not deal well with cumulative impacts of developments and calls for SEAs.
- The site visits and interviews concluded that there was a lack of environmental monitoring: the De Zalze Golf Estate's further extension was approved without following up on previous conditions of approval. The same held true for the Kayamandi residential development.
- The interpretation of the concept of SD for the case studies using the Fault Lines were not the same: three had a weak degree of environmental protection and two a strong degree of environmental protection. Three were egalitarian while two had a non-egalitarian conception. Four had a bottom-up public participation process while one had a top-down public participation process, all five case studies' scope of the subject area were social development. Four had short-term environmental monitoring while one had long-terms environmental monitoring. Lastly three were found to have insufficient environmental planning while two were found to have sufficient environmental monitoring. With regards to the public participation process, only the De Zalze Golf Estate was found to have a top-down public participation process, this could be due to the fact that EIA regulations were not promulgated at that time.

This objective concluded that the interpretations of the concept of SD in the case studies were not the same and that it varied within time and space and according to the perspective of those involved.

6.6 Recommendations

- The concept of SD needs to include an identification and clarification of the satisfaction of needs and it should also indicate to what degree the environment should be protected.
- The concept of SD as applied in the EIA regulations remains vague and open to different interpretations and meanings. It should include clear guidelines as to how to ensure effective public participation, environmental protection, monitoring, equality and planning.
- There is no legislated correlation required within EIAs and environmental planning, leaving cumulative impacts of developments a mystery or something to discover later. SEAs should be formally legislated and become a procedural requirement for municipalities, in order for EIAs to take cumulative impacts into account more effectively.
- EIAs should be seen not so much as a technique, but rather as a process that is constantly changing in the face of shifting environmental politics and managerial

capabilities, it should be visualised as a sensitive barometer of environmental values in a complex environmental society (Chadwick, et al. 1998: 8).

- The EIA reviewer could simply read and assimilate the EIA report, but should rather try and uncover any bias in favour of the proposal. This bias may intentionally be subtly stated, but could also be hidden unintentionally amongst information of poor quality. Given the situation that many developments are approved with a lack of environmental monitoring and insufficient environmental planning, the EIA reviewer faces a challenging task. This challenge does, however, provide an opportunity for the reviewer to be creative in finding solutions (University of Pretoria, 2008: 16).
- On a practical level, integrating environmental goals into planning and activism implies developing as much knowledge as possible about local ecosystems and their history. Equally, environmental and planning legislation and the best practice of ecological planning and restoration. Such understanding would facilitate better decisions regarding balancing the range of possible environmental goals with economic and equality objectives (Wheeler, 2004: 55).
- The concept of SD in NEMA needs to be linked to a process where the environmental concerns have been identified and prioritised in each particular context under consideration. This could take the form of a status quo SD report that is a legislated requirement for each municipality. This is to ensure that the new development does not create any immediate environmental capacity problems in the area under consideration.
- A SD report of each municipality to be linked to adequate strategic environmental planning. This could take the form formally legislated SEAs that look at longer term environmental impacts and become a procedural requirement for municipalities in the NEMA EIA regulations, so that EIAs can be more mindful of cumulative impacts.

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Case Studies

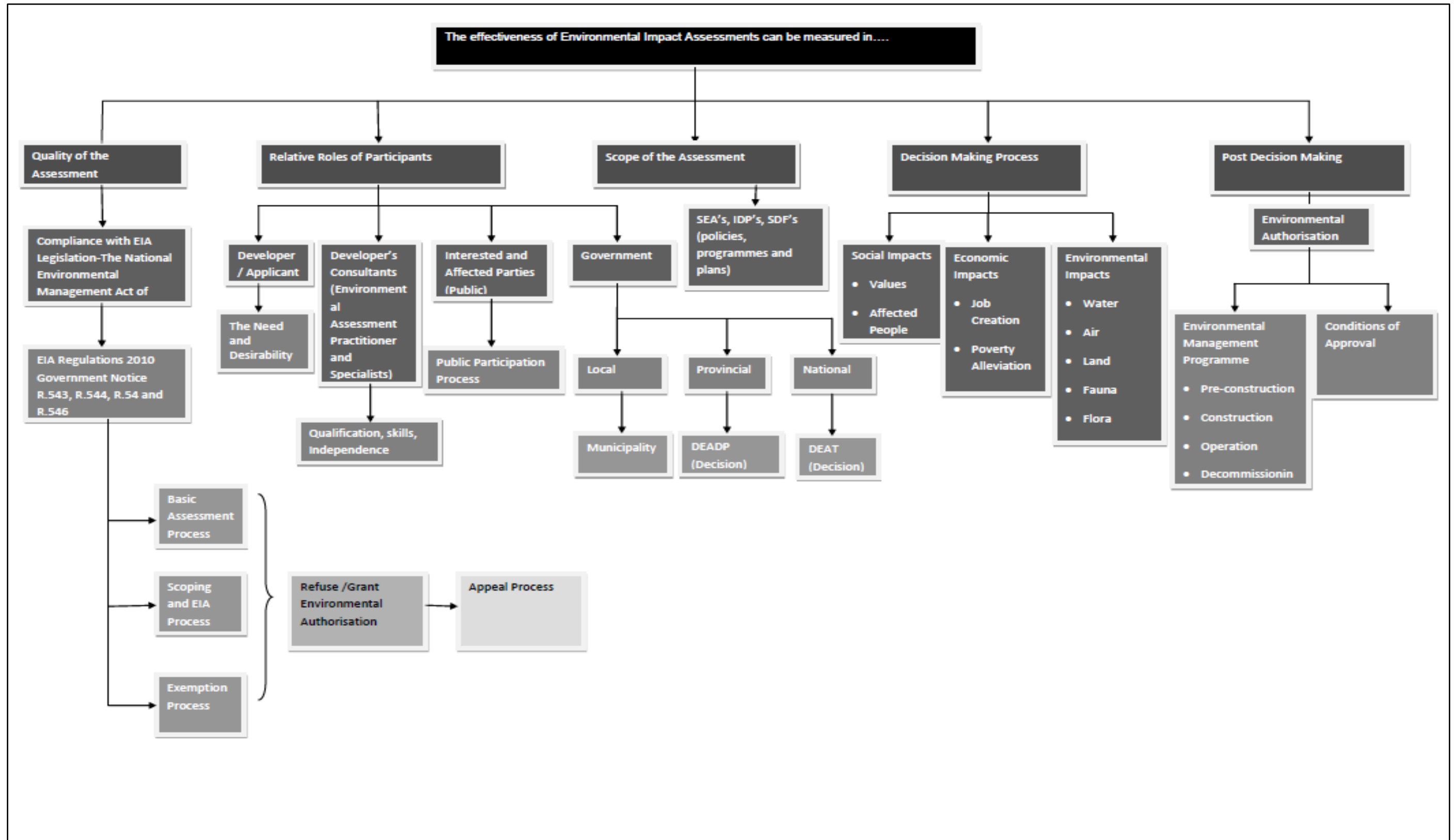
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Appendix B: Site Visit Interviews with Environmental Assessment Practitioners.

1. (a) Has the development been compliant with the conditions of Environmental Authorisation?

(b) If not, what are the key obstacles in achieving compliance with the conditions of the Environmental Authorisation?
2. Can you suggest ways in which your field of work could more effectively enhance compliance with the conditions of the Environmental Authorisation?
3. Do you think adequate compliance monitoring was provided by the decision-making authority?
4. Do you think the EIA process is effective?
5. Do you think sustainable development has been achieved through the EIA process?