TOWARDS IMPROVING THE CONTRIBUTION OF THE EIA PROCESS TO ENVIRONMENTAL GOVERNANCE: ANALYSIS OF NAMIBIAN CASE STUDIES

By

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Thesis presented in fulfillment of the requirements for the degree of Master of Philosophy Environmental Management in the Faculty of Economic and Management Sciences, at Stellenbosch University

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December 2018

DECLARATION

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ABSTRACT

Over the past years sustainable development has received more attention in the development of international and national policies, making it the essential component in legal documents of business community, government institutions and international agencies.It is widely recognised that environmental assessment is a valuable planning tool in the promotion for sustainable development. Most countries around the world, including Namibia, have legislation in place that requires environmental impact assessment in one form or another.

Good governance has been identified as essential to sustainable development as the basic principle of good environmental decision-making, endorsed by the 178 member states at Rio Earth Summit in 1992. Namibia is committed to promoting sustainable development, which aims "to meet the needs of the present, without compromising the ability of future generations to meet their own needs". Namibia has one of the few constitutions in the world with specific sections on the environment. The country has an Environmental Management Act (No. 7 of 2007) which clearly stipulates the promotion of sustainable development in all aspects related to the environment.

The main aim of this study was to assess how the EIA tool can contribute to the improvement of environmental governance, based on an analysis of EIA case studies undertaken in Namibia. The methodology used in this research comprised of literature review, use of questionnaires and case study reviews and analyses. The researcher worked closely with various institutions, especially the office of the Environmental Commissioner, to obtain information on EIA projects to be used as case studies. The research methodology was case study design, used to establish an understanding of the situation and critically analyse decision-making procedures for the five case studies, namely: Swakopmund Waterfront project; Tobacco plantation in Katima Mulilo; B2 Gold mine; Ohorongo Cement factory and Phosphate mining in Namibia.

The researcher conducted quantitative research, and presents original findings. The convenience sampling method was used as sampling technique, based on specific players and EIA practitioners in the country.

A survey included ten EIA practitioners throughout the country who were selected using systematic sampling based on the total population of 60 received from the Environmental Commissioner`s database.

The findings from the case studies showed a satisfactory compliance with the legal framework of the country. The EIA report and verification programme for the Phosphate mining case study, in particular, set a high standard against which future EIAs in the country may be compared. The EIA process in the country was given an overall rating of low compliance on institutional control and relatively low quality of practice in administrative activities, with the exception of legal framework compliance and community participation /consultations.

This study concludes that EIA practice for environmental governance and decision-making in Namibia is of moderate to low quality. Therefore, government and all relevant stakeholders need to develop and implement strategies that will improve environmental governance in the country.

OPSOMMING

Oor die afgelope jaar het volhoubare ontwikkeling meer aandag ontvang in nasionale en internasionale ontwikkelingsbeleid, wat dit die kern element van die beleidsdokumente van regerings, internasionale agentskappe en besigheid gemeenskappe maak. Dit word algemeen erken dat die omgewing assessering 'n nuttige beplanning, hulpmiddel vir die bevordering van volhoubare ontwikkeling is. Die meeste lande regoor die wêreld, insluitend Namibië, het wetgewing in plek wat omgewingsimpakstudie in een of ander vorm vereis.

Goeie bestuur is as noodsaaklik geïdentifiseer om volhoubare ontwikkeling as die basiese beginsel van goeie omgewing besluitneming, onderskryf deur die 178 nasies in Rio Aardeberaad in 1992. Namibië is verbind tot die bevordering van volhoubare ontwikkeling. Dit is daarop gemik om die behoeftes van die huidige te voorsien, sonder om die vermoë van toekomstige geslagte om aan hul eie behoeftes te kompromeer. Namibië het een van die min grondwette in die wêreld met 'n spesifieke afdeling op die omgewing. Die land het 'n Wet op Omgewingsbestuur No. 7 van 2007, wat duidelik die bevordering van volhoubare ontwikkeling in alle aspekte wat verband hou met die omgewing stipuleer.

Die hoofdoel van die studie was om te bepaal hoe die OIE hulpmiddel kan bydra tot die verbetering van omgewingsbestuur, gebaseer op 'n ontleding van OIE gevallestudies onderneem in Namibië. Die gebruikte navorsingsmetodologie bestaan uit 'n literatuuroorsig, die gebruik van vraelyste en gevallestudie resensies en ontleding. Die navorser het nou saamgewerk met verskeie instansies, veral die kantoor van die Omgewing Kommissaris, te bekom inligting oor OIE projekte gebruik word as gevallestudies. Die navorsingsmetodologie was ‘n gevallestudie ontwerp, wat gebruik word om 'n begrip van die situasie te vestig en om die besluitnemingsproses prosedures vir die vyf gevallestudies, naamlik: Swakopmund Waterfront projek; Tabak plantasie in Katima Mulilo, B2 Goudmyn; Ohorongo Cement fabriek en Fosfaat mynbou in Namibië krities te ontleed.

Die navorser het kwantitatiewe navorsing gedoen, en bied oorspronklike bevindinge. Die gerieflikheidsteekproefneming is gebruik as steekproeftegniek, gebaseer op spesifieke spelers en OIE praktisyne in die land. 'n Opname sluit tien OIE praktisyn regoor die land in, wat gekies is

met behulp van sistematiese steekproefneming wat gebaseer is op die totale bevolking van 60, ontvang van die Omgewing Commissioner`s databasis.

Die bevindinge van die gevallestudies toon 'n bevredigende voldoening aan die wetlike raamwerk van die land. Die OIE-verslag en verifikasie program vir die Fosfaat mynbou gevallestudie, in die besonder, stel 'n hoë standaard waarteen toekomstige OIS in die land vergelyk kan word. Die OIE-proses in die land is 'n algehele weging van lae voldoening op institusionele beheer gegee en relatief lae gehalte van die praktyk in administratiewe aktiwiteite, met die uitsondering van regsraamwerk nakoming en gemeenskapsdeelname/konsultasies.

Hierdie studie het tot die gevolgtrekking dat OIE praktyk vir omgewingsbestuur en besluitneming in Namibië van ‘n matige tot lae gehalte is, gekom. Daarom moet die regering en alle relevante belanghebbendes ontwikkel en strategieë implementeer wat omgewingsbestuur in die land sal verbeter.

ACKNOWLEDGEMENTS

Firstly I would like to give thanks to the Almighty Lord for the provision of wisdom in abundance and understanding which enables me to complete my thesis.

Great appreciation and gratitude go to Mr Henri Fortuin, my supervisor during this research project. Thank you for your endless guidance, patience and encouragement throughout the entire research process. Special acknowledgement goes to the Environmental Affairs Directorate in the Ministry of Environment and Tourism, particularly the office of the Environmental Commissioner for providing me with relevant information for my thesis and for the unwavering support until I successfully completed this research.

Most importantly, I would like to acknowledge all the respective participants who provided support with data collection, which to a large extent contributed to the successful completion of my research project.

Additional acknowledgement goes to Dr. Raili Hasheela for her guidance and support during the research project. I would like to extend my sincere gratitude and appreciation to Ms Jennifer Saunders, Ms Magano Amukoshi and my Dr Rosalia Neshuku. I really appreciated your endless support and encouragement when things were really tough. Finally I don`t want to forget my whole family for support and prayers. Thank you very much for being there for me. May God bless you in abundance.

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ACRONYMS AND ABBREVIATIONS

CSIR	Council for Scientific and Industrial Research
DEA	Directorate of Environmental Affairs
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
EMP	Environmental Management Plan
GRN	Government Republic of Namibia
HIA	Health Impact Assessment
I&AP	Interested and Affected Parties
IA	Impact Assessment
IAIA	International Association for Impact Assessment
IEM	Integrated Environmental Management
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MITD	Ministry of Industrialisation, Trade and SME Development
MME	Ministry of Mines and Energy
MoHSS	Ministry of Health and Social Services
MRUD	Ministry of Rural and Urban Development
NEEZ	Namibia Exclusive Economic Zone
NGO	Non-Governmental Organization
NPC	National Planning Commission
OECD	Organisation for Economic Cooperation and Development
SADC	Southern African Development Community
SDC	Sustainable Development Commission
SDGs	Sustainable Development Goals
SIA	Social Impact Assessment
TOR	Terms of References
UN	United Nations
WCED	World Commission on Environment and Development Report
WRI	World Resources Institute

CHAPTER 1: BACKGROUND

1.1 INTRODUCTION

The fundamental idea for sustainable development began in response to the environmental degradation as life threatening realities arise. The sustainable development concept was coined during the Word Commission on Environment and Development (WCED) conference in Norway, 1987. Since the Brundtland report, several clarifications emerged within various levels of societies worldwide. As the report became known, numerous efforts have been undertaken by several institutions and experts in order to understand the meaning of the concept on sustainable development (Mebratu, 1998:503). The adjustments of policies among the developed world (North) and the developing world (South) was advocated by some interpreters in order to promote sustainable development across the globe.

The notion of sustainable development arose from the WCED conference, of which the document titled "Our Common Future Report on Sustainable Development" was developed and defines sustainable development, as *"the development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (WCED, 1987 as cited in Mebratu 1998:505). According to Kirkby (1995) as cited in Mebratu (1998:501), the WCED definition of sustainable development establishes the structure and content of the present dialogue and marks the concept of political coming of age. Since 1970s the term "sustainable development" has been interpreted and defined in various ways.

With the release of the Our Common Future Report on Sustainable Development by the United Nations (UN) General Assembly in 1989, sustainable development was defined as "*the intersection between social, environmental and economic factors*" (Allen, 2001:154). The influence of this definition has increased extensively over the past years in the development of international and national policies, making it the essential component in legal documents of business community, government institutions and international agencies. This has caused the dialogue on the concept of sustainable development to broaden (Mebratu, 1998:518).

According to Michael Jacobs as cited in Dobson (1999) indicated that sustainable development has a meaning of all things to all people but argues this does not mean it has no theoretical or policy relevance. It is a contested rather than an empty concept, and there are four faultlines that produce two distinct conceptions of sustainable development which are

called radical and conservative. *"The faultlines are: limits to growth, environmental protection, equity, and participation. Jacobs argues in favour of the radical conception*" (Dobson, 1999).

According to the Environmental Management Act (No. 7 of 2007) of Namibia herein referred to as EMA (Ministry of Environment & Tourism (MET), 2007:6), sustainable development means "human use of a natural resource, whether renewable or non-renewable, or the environment, in such a manner that it may equitably yield the greatest benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations including the maintenance and improvement of the capacity of the environment to produce renewable resources and the natural capacity for regeneration of such resources".

Governance is a function of public administration (LA Feris. 2010:74) and according to the United Nations (2012) as cited in Ganahl, (2014:14),"*good governance promotes equity, participation, pluralism, transparency, accountability".*Good governance with sustainable development has long been recognized as a central point in both economic and social sphere (OECD, 1993 as cited in Harman, 2005:6).In 1992, 178 nations endorsed 27 basic principles on good environmental decision making (well known as Rio Declaration on Environment and Development) at the Rio Earth Summit.

These principles, includes: the centrality of human beings to the concerns of sustainable development; the primacy of poverty eradication; the importance of the environment for current and future generations and its equal footing with development; the special consideration given to developing countries; the principle of common but differentiated responsibilities; the participation and importance of specific group in Sustainable Development; economic principles of polluter pays and precautionary approach; and finally, countries to craft suitable legislations to address environmental issues (Stakeholder Forum for a Sustainable Future.2011:1-2).In 2002 the same principles were re-emphasised during the World Summit on sustainable development **(**World Resources Institute, 2004:137).

There is an Environmental Governance Initiative set up by United Nations through the development programme. This initiative is designed to identify good practices, generate policy advice and to promote equitable access of the poor to energy and natural resources and to advocate tools that improve countries` capacity to protect the environment.

The initiative is a recognised forum of good governance in many countries, has been initiated through environmental decision making and that much can be learnt from the work done thus far (Harman,2005:6).

According to La Feris, (2010: 74), good environmental decision-making has the potential to contribute to good governance imperatives such as accountability and transparency.This is evident not only through the outcome of decisions but the process as well and techniques followed, particularly in terms of public consultation for Interested and Affected Parties (I&APs) (Van der Merwe, 2008 as cited in La Feris, 2010:74).

1.2 PROBLEM STATEMENT

Public policy decision-making refers to actions taken within government settings to formulate, adopt, implement, evaluate or change environmental policies. Such decisions may occur at any level of government (Bonvoisin, 2009:54). Over the past decades, Nations have realised the need to attain sustainable development Bonvoisin, 2009:52).

However, lack of sustainable development remains high around the world (UN, 2015:4-6). Governments and civil society can still influence decision-making from government planning to individual consumer choices. This can be done through various means, such as by raising awareness and, in the case of governments, by imposing restrictions and providing incentives (Bonvoisin, 2009: 52-54). A starting point is the definition of sustainable development as set out in the Brundland Report, *"development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs*" (WCED,1987). This should be considered as the main reason for optimal use of resources and good decision making in order to achieve sustainable development (La Feris, 2010:83).

The term Sustainable development has been defined and interpreted in various ways by different people. The concept of sustainable development comprising environmental, social and economic dimensions is most often illustrated by a simple three-circle diagram, Campbell (2000:260). This is the definition that has been adopted for this study.

After independence, the Namibian government carried out the formulation process for a legal framework, of new laws, policies, revising outdated legislation and introducing a number of developmental programmes and projects to encourage sustainable development in the country.

All these, are based on the supreme law of the country, "the Namibian Constitution: Article 95(i)", which requires *"the State to promote and maintain the welfare of the people actively by adopting policies aimed at the:… maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future …*" (GRN, 1990:44). The Namibian Constitution assigns power and functions to the Ombudsman as appointed by the President to maintain sustainable development. Article 91(c) outlines the functions of the Ombudsman:…*"the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia …*" (GRN, 1990:43).

The definition for sustainable development stipulated in EMA (as highlighted in the introduction) is in accordance with the standard definition of the concept as per Brundtland Commission report, which advocating more on human benefits (anthropocentric view) with minimum consideration of the intrinsic value of non-human and Mother Nature, in this case sustainable development is directly linked with improvement of quality of life for human being and not necessarily human survival (Hattingh, 2001:9).

EMA is an essential tool in terms of environmental Protection in Namibia (Ruppel & Ruppel-Schlichting, 2013:106). On 6 February 2012, the Government of Republic of Namibia gazetted several notices related to the Environmental Management Act (No. 7 of 2007). The publication of EMA in the government Gazette made it operational. The EMA aims "*to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; to provide for the appointment of the Environmental Commissioner and Environmental Officers; to establish a Sustainable Development Advisory Council; to provide for incidental matters; to provide for a process of assessment and control of activities which may have significant effects on the environment*"(MET, 2007:9;).

Environmental Impact Assessments is an accepted practice globally, since 1970s at the beginning of Environmental Assessments in USA as per the National Environmental Policy Act of 1969 (NEPA).

Most countries around the world, including Namibia (as described above), have legislation in place that require EIAs to be conducted for projects that may be detrimental to the environment (Sadler, 1996:1). Environmental assessment is widely recognised as a useful planning tool for promoting sustainable development (Tarr & Figueira, 1999:3).
However, although impact assessment related tools are effective in promoting good governance, and identifying more sustainable development options, they do not appear sufficient for achieving sustainable development (OECD, 2001:15). As a result, numerous decisions around sustainable development are made without ensuring their sustainability. Notably, the results of assessment may arrive too late to undergird high level decisions, so that the assessment often remains a separate, even if a closely-tracking aspect of the policy-making process (Du Plessis, 2007 as cited in La Feris, 2010:82).

Lately environmental management has been in most legislation, local and globally. However decisions on environmental matters are frequently challenged, which means decisions are not always subjected to good environmental governance (La Feris, 2010:73). There is an increase of contradiction with decisions regarding activities and projects which may have impacts on the environment.

These contradictions to environmental decision-making have the potential to contribute to good governance imperatives such as transparency and accountability, as they highlight not only the element of decisions, but also the process and procedures followed, "*particularly the issue of consultation of Interested and Affected Parties* (I &AP)" (La Feris, 2010:74).

Clearly, "sustainability needs to be moved into the heart of all policy-making and to become a continuous narrative throughout the policy cycle: from agenda setting, through policy formulation, decision-making, implementation and evaluation, back to agenda setting for the next policy cycle" (Bonvoisin, 2009:56) see Figure 1.1 below.

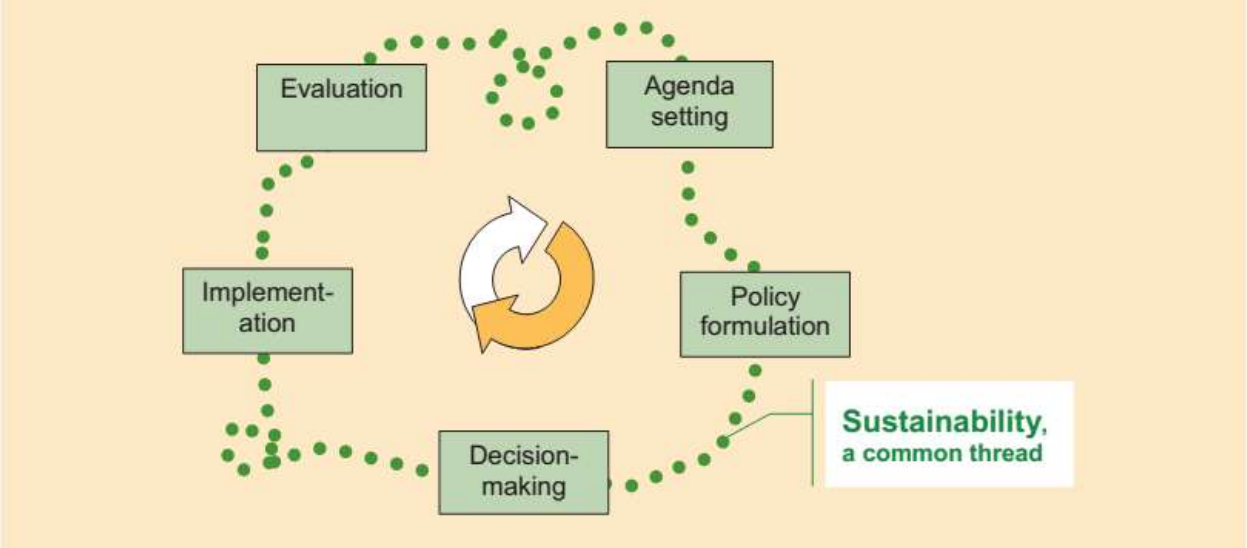

Figure 1.1: Sustainability as a continuous narrative in policymaking

Source: Bonvoisin (2009:56)

Therefore, the aim of this study was to assess how the EIA tool contributes toward improving environmental governance, based on an analysis of EIAs approved or undertaken in Namibia.

1.3 RESEARCH QUESTIONS AND OBJECTIVES

The research questions for the study were:

i. What is the legislative framework that governs the EIAs in Namibia?
ii. What is the state of environmental assessment practice in the country?
iii. What is the state of implementation of EMA (No. 7 of 2007) and what are the EIA regulations?
iv. What role is played by the Environmental Commission in the implementation of the EMA?
v. What were the decision-making procedures in the chosen case studies?
vi. How can the effectiveness and efficiency of the EMA and the EIA regulations be improved?

The specific objectives for the study were to:

i. Describe the legislative framework that governs EIAs in Namibia;
ii. Give an overview of environmental assessment practice in the country;
iii. Assess the state of implementation of the EMA and the EIA regulations;

iv. Investigate the role of the Environmental Commission on the implementation of the EMA;
v. Critically analyse decision-making procedures involved in the following case studies:
    a) Swakopmund Waterfront project;
    b) Tobacco plantation in Katima Mulilo;
    c) B2 Gold mine
    d) Ohorongo cement factory
    e) Phosphate mining in Namibia
vi. Explore existing alternatives to improve the effectiveness and efficiency of EMA and the regulations commission through consultation with major roles players

The following methods were applied to achieve the set objectives:

i. Review of published literature on environmental assessment and decision-making for sustainable development;
ii. Critical analysis of decision-making procedures involved in the EIA case studies; and
iii. Conducting a survey using a structured questionnaire.

1.4 IMPORTANCE OF THE STUDY

The study will provide a sense of strengths and weaknesses of EIA performance following decision-making. It will also seek to improve the quality of the environmental assessment process in the country. In addition, it will add to the knowledge base on the regulatory approach to environmental management, and will provide empirically-derived relevant information to the Ministry of Environment and Tourism (MET) and EIA practitioners. Furthermore, potential improvement will hopefully emerge for the effectiveness and efficiency of the implementation of the EMA.

This study aims to establish an understanding of the effectiveness of the Environmental Management Act of Namibia, along with its EIA regulations and the role of the Environmental Commission.. It was necessitated by the fact that the environment is degraded due to lack of proper planning prior to major development where no environmental assessments are conducted.

1.5 LIMITATIONS OF THE STUDY

This study is an exploratory cross-sectional study. Therefore it does not pretend to include all EIAs practitioners nor all the developers or project proponents whose projects required EIAs (exclusion criteria). Only officials who are directly involved with EIAs (inclusion criteria) could be consulted. The sampling technique employed was specific (convenience sampling), based on non-random selection of certain institutions for specific information – as a result it is selection biased.

1.6 RESEARCH ETHICS

This project ensured that ethical values and principles of all respondents and participants was respected, through:

- Maintaining information confidentially, and using it for research purpose only.
- Avoid revealing areas that demonstrate some weaknesses.
- Gaining approval or consent from all institutions that participated in this study and all involved participants.
- Allowing participants to withdraw from the study at any point if they wish to do so.
- The use of others people`s work is acknowledged (Maree, 2008; Mouton, 2001, as cited in Hasheela, 2009:28).

1.7 OUTLINE OF THE CHAPTERS

This study consists of eight chapters. Chapter one is an overview of the study background, contextualize the topic of the study with a focus to problem statement, objectives and research questions, importance of the study, limitation of the study and research ethics, the outline of the chapters is also included.

Chapter two provides an overview of the environmental governance and decision-making as well as rationality and principles of environmental impact assessment, the use and significance of EIA at different stages of EIA process, framework for EIA effectiveness, the shortcoming of EIA and strengths and weakness of EIA in Namibia.

Chapter three focused on the frameworks that guide decision-making for sustainable development in Namibia. This includes the Namibian Constitution (1990), national legislations pertaining to EIA, new legal and policy frameworks for EIA in Namibia; EMA (2007) in particular including the EIA procedures in accordance with EMA in the country.

The focus in chapter four for is on research methodology which entails approaches or study design in research, qualitative and quantitative approach and research design.

Chapter five provide an indication of Namibia case studies; EIAs conducted after the promulgation of the EMA, namely: Swakopmund waterfront project, Tobacco plantation in Zambezi region, B2 Gold mine, Ohorongo Cement factory and Phosphate in Namibia.

Chapter six provides an evaluation of the study findings and analysis of results.

Chapter seven illustrate in depth discussion of the study findings and results. The discussion draws more attention to the results of the survey on gender, legislation, EIA process, effectiveness and efficiency of EIA.

The conclusion and recommendations of the study are indicated in chapter eight.

CHAPTER 2: THEORETICAL FRAMEWORK

2.1 ENVIRONMENTAL GOVERNANCE AND DECISION-MAKING

The term governance has several definitions in different disciplines can be used in the environment, economic, social, and political discipline. In the political arena it commonly refers to the way in which political authority exercise their power and manage resources.

According to the United Nations (2012) as cited in Ganahl, (2014:14), "*good governance promotes equity, participation, pluralism, transparency, accountability and the rule of law, in a manner that is effective, efficient and enduring"*. Good governance is sometimes referred to as democratic governance aims to ensure inclusive participation, making governing institutions more effective, responsible and accountable, and respectful of the rule of law and international norms and principles (Ganahl, 2014:14).

In principle, to achieve consistent and effective policies, good governance is required, where decisions are made and implemented through a clear and legitimate process.
This can be applied at institutional or organisational, national and international levels to manage different types of resources. According to Harman, (2005:5) when considering environmental resources, good governance refers *"to the manner in which decisions are made, which promotes sustainable development, including environmental protection"*.

Environmental governance is a specific form of the broader governance, and refers to processes and institutions through which societies make decisions that affect the environment (Gunilla *et al*., 2012:14). The main focus of environmental governance is on how to accomplish environmental goals such as sustainable development. Environmental governance can be assessed by the initiatives being implemented to attain environmental goals and the effectiveness of strategies (Jeffrey, 2005:7). The involvement of various stakeholders is a crucial aspect of accomplishing good environmental governance. This includes minority groups, access to information, adequate funding, transparency and accountability. In addition environmental management can be used to reinforce the general governance components by making ways for participation, accountability, legitimacy, transparency and the building of trust.

These values are crucial in the implementation and enforcement of procedural environmental law as they "ensure that citizens are aware and involved in the decision-making processes and have the ability to advocate effectively for environmental protection" (La Feris, 2010:76).

Environmental authorities in transition and developing countries in most cases face various challenges, such as limited access to the policy agenda, competition for scarce budgetary resources, and resistance from sectors of the society in when implementing environmental governance (Gunilla *et al*., 2012:16).

When low priority is given to issues concerning the environment, there is always a lack of understanding on relations concerning environmental sustainability and other top priority areas. Top priority areas include; power supply, access to health, economic growth and alleviation of poverty. Uninformed decisions have a risk that can negatively affect the livelihood opportunities or long term economic growth. Moreover, lack of transparency, high levels of corruption and lack of participation have a negative impact on the outcomes of the efforts made toward environmental governance (Gunilla *et al.,* 2012:16).

Efforts to fight corruption must therefore go hand in hand with determination to improve environmental policies in order to have good environmental governance. According to Welsch (2004:92), it has been established that there is a correlation between corruption and pollution. In addition, Rothstein (2011:80-92) discovers positive correlations among the three indicators on quality of government namely; Corruption Perception Index, Rule of law and government effectiveness. Several indicators on quality of local environment such as water quality, improved drinking water sources and air quality, forest cover and the Environmental Sustainability Index were also identified. As indicated above, generally, good governance improves implementation of environmental legislation and management of natural resources. It can similarly work *vice versa* when there are concerns on development effects due to environmental governance and this can contribute towards improved democratic governance at a more broad-spectrum level (Gunilla *et al*., 2012:38).

2.2 RATIONALITY IN THE EIA PROCESS

Generally, the decision-making criteria must guide the selection of alternatives. This can be attributed to the fact that environmental assessment has been associated with the rationalistic ideal of planning, from the beginning. According to this ideal, "*a planning process begins with the definition or identification of the objectives of the assessment, the results of which are required by the planners or policy makers, considering the steps to for accomplishing the desired objectives*"(Elling, 2009:121). The rationale in the ideal planning process is a matter of identifying the most effective way of accomplishing the planned objectives. In any environmental assessment, the main specific objective will be to attain adequate information regarding the affected environment. Afterward, this information will be used to balance negative and positive effects so that, taken together, an ideal state for the affected environment is realised during the project or through the implementation of the plan (Elling, 2009:121).

March (1988:386) pointed out that the main rationale for using information in rational decision-making is its role in reducing uncertainty when choosing among policy alternatives. In models that maximise utility functions, the lack of information is often perceived as the determinant of seemingly "irrational action" (Cook and Levi, 1990 as cited in Rich & Oh, 2000:176). However, the notion of bounded rationality also assumes that information is essential for allowing individuals to compare alternatives, despite the psychological and other constraints such as costs in decision making (March & Levi, 1958 as cited in Rich & Oh, 2000:176). In a similar vein, Elster (1990:12) claims that if decision-makers have little information, rationality requires them to abstain from forming and acting on estimations of possible consequences of alternatives.

However, the issue of rationality in EIA has been raised many years ago and is still complex. Following Richardson (2004:341) and Watson (2003: 395) it is evident that conflicting values and rationalities need to be accommodated values within EIA and planning processes. This was stated earlier by Kornov and Thissen (2000:191):

> "*Most of the work in SEA seems to be based on the assumption that the provision of rational information will help improve decision-making, but the literature points to other characteristics of real decision-making processes, including cognitive limitations, behavioural biases, ambiguity and variability of preferences and norms, distribution of decision-making over actors and in time, and the notion of decision-making as a process of learning and negotiation between multiple actors. All these are very relevant at the planning and policy level."*

Rationalistic planning has been confronted by other approaches and objectives, such as:

- Economic efficiency in the reduction of environmental impact (Söderbaum, 2000 as cited in Elling, 2009:121),
- Legal rights for different groups to participate in the planning process (Marsden, 1998 as cited in Elling, 2009),
- The outcome of dialogue between different stakeholders, such as the argumentative turn in planning (Sager, 1994; Healey, 1996 as cited in Elling, 2009:121); and
- The so-called 'post-rationalistic' approaches that emphasise dialogue and social learning (Fischer, 2000; Nooteboom, 2007; Nilsson *et al.*, 2009 as cited in Elling, 2009:121).

The last two approaches more or less highlight consensus-oriented approaches and a concept of rationality in which communication can happen with no influence of power, and in which the focus is on the discourse itself.

Fischer (2003:156-157) has defended systematic rationalistic planning as being a form of justice, in relation to set priorities and objectives, which outweighs the interests of individuals. Community members have different potentials to share their opinions and different knowledge on issues at stake. According to Fischer (2003:157), a balance must be done by planners on various issues based on planning regulations and rational principles, on the one hand, against the right of decision-makers in a political arena to make priorities within the system. It is regulative rather than communicative justice and it is recommended that communicative rationality should be mainly applied to policy cases, as they are above all depend on communication (Elling, 2009:122). The concept of communicative rationality is based on an ideal speech situation without any control by the authority (Richardson, 1996, 2004 as cited Elling, 2009:123).

Cashmore (2004:403-426) discusses the role of science in environmental assessment, and discoursed the rationality matter indirectly through an ideal of five different interpretations on the role of science, representing two paradigms.

According to Cashmore (2004:408-410), the use of natural science methods in the prediction of environmental impacts are characterised as applied science, while the views supporting the inclusion of various stakeholders` interests, values and discussion are characterised as civic science. These paradigms can be understood "*in the way that the former stresses a science-based view favouring positivism and rationalism in goal achievement and the latter stresses a view favouring dialogue and social learning*"(Elling, 2009:122).

The concept of communicative rationality can be used to clarify the key role of politically elected decision makers, and pinpoint why their decisions must give priority to the maximum amount of legitimacy they can achieve, in accordance with laws and regulations, and not any other self-defined rationality (Bolton, 2005:2). Based on this concept, public involvement and community participation can influence the authority or power, and thus create a sort of counter-power that can benefit environmental management, and render the EIA legitimate (Richardson, 1996, 2004 as cited in Elling, 2009:122). Everyone has a right to participate in project planning, because significant impacts on the environment concern everybody's life. However, not everyone has equal opportunities to participate and impact on decisions. There are various factors such as cultural, social and educational factors which may influence equal opportunities (Elling, 2009:122). According to Wallington *et al.*,(2007:579), there is a need to include more factors in environmental assessment for example economic factors or expanding theoretical views on environmental assessment such as decision making theories and discourse analysis. However, Elling (2009:123) expressed that involving more factors in decision-making may complicate the public participation process and certain theoretical views will not foster improved practice. Furthermore, Elling (2009:124) suggested that different stakeholders' views and interests should be revealed in a public discussion or debate for transparency rather than by scientific analyses only, to influence the decision making.

2.3 EIA AS AN AID TO DECISION-MAKING

EIA is a policy tool for integrating environmental concerns into proposed activities (Saidi, 2010:1), and an aid to decision making through its evaluation of the environmental consequences of a proposed activity (Sowman, *et al* 1995: 45). Through legislation in both South Africa and Namibia, EIAs are now compulsory for certain activities. According to DEAT (2004: 10) EIA is defined as *"A public process that is used to identify, predict and assess the potential environmental impacts of a proposed project on the environment. The EIA is used to inform decision-making"*.

Wood (1995:52) notes, "*the making of any decision will involve a large number of trade-offs in the information base: between simplification and the complexity of reality; between the urgency of the decision and the need for further information; between facts and values; between forecasts and evaluation; and between certainty and uncertainty.''*

The above mentioned point referenced from Wood (1995:52), indicates that EIA is not the only tool or basis for decision-making, but that it has a major influence in decision-making (Weston, 2000:185). The decisions may, or may not, be those that cause the least environmental damage. An important question, "*on which opinion vary, is whether an EIA should be neutral or value free or make the case for the best practical environmental option as well as minimising environmental damage*" (CSIR, 1996a:4).

2.4 PRINCIPLES OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA): EIA EFFECTIVENESS

According to the International Association for Impact Assessment (IAIA, 1999:2-4), EIA can be defined as: "*The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made*".

2.4.1 Objectives of an EIA

The EIA involves the following objectives:

- To ensure that environmental considerations are addressed explicitly and incorporated into the development decision-making process;
- To anticipate and avoid, minimise or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- To promote development that is sustainable and optimises resource use and management opportunities. (IAIA,199:2-4)

2.4.2 Principles of an EIA

There are two tiers of EIA Principles, namely: basic and operating.

The **Basic Principles** are applicable to all stages of EIA. They also apply to Strategic Environmental Assessment (SEA) of policies, plans and programmes. The list of Basic Principles should be applied as a single package, recognising that the Principles included are interdependent and, in some cases, may conflict each other's (e.g., rigour and efficiency). A balanced approach is critical when applying the Basic Principles to ensure that an EIA fulfils its purpose and is carried out in accordance with the internationally accepted standards. The EIA thus produces both complete analyses and the means of reconciling apparently conflicting principles.

The **Operating Principles** describe how the Basic Principles should be applied to the main steps and specific activities of the EIA process; e.g., screening; scoping; identification of impacts and assessment of alternatives.

It is also envisaged that subsequent tiers of Principles could evolve, such as activity-specific, state-of-the-art and next generation of impact assessment principles. However such development would constitute a separate effort, building on and extending the Basic and Operating principles as shown below.

2.4.2.1 Basic Principles

Environmental Impact Assessment should be:

*"**Purposive** – the process should inform decision-making and may result in appropriate levels of environmental protection and community well-being."*

*"**Rigorous** – the process should apply best practicable science, employing methodologies and techniques appropriate to address the problems being investigated".*

*"**Practical** – the process should result in information and outputs which assist with problem-solving and are acceptable to and able to be implemented by proponents".*

*"**Relevant** – the process should provide sufficient, reliable and usable information for development planning and decision-making".*

*"**Cost-effective** – the process should achieve the objectives of EIA within the limits of available information, time, resources and methodology".*

*"**Efficient** – the process should impose the minimum cost burdens in terms of time and finance on proponents and participants consistent with meeting accepted requirements and objectives of EIA".*

*"**Focused** – the process should concentrate on significant environmental effects and key issues; i.e., the matters that need to be taken into account in making decisions".*

*"**Adaptive** – the process should be adjusted to the realities, issues and circumstances of the proposals under review without compromising the integrity of the process, and be iterative, incorporating lessons learned throughout the proposal's life cycle".*

*"**Participative** – the process should provide appropriate opportunities to inform and involve the interested and affected publics, and their inputs and concerns should be addressed explicitly in the documentation and decision-making".*

*"**Interdisciplinary** – the process should ensure that the appropriate techniques and experts in the relevant bio-physical and socio-economic disciplines are employed, including use of traditional knowledge as relevant".*

*"**Credible** – the process should be carried out with professionalism, rigour, fairness, objectivity, impartiality and balance, and be subject to independent checks and verification".*

*"**Integrated** – the process should address the interrelationships of social, economic and biophysical aspects".*

*"**Transparent** – the process should have clear, easily understood requirements for EIA content; ensure public access to information; identify the factors that are to be taken into account in decision-making; and acknowledge limitations and difficulties".*

*"**Systematic** – the process should result in full consideration of all relevant information on the environment, of proposed alternatives and their impacts, and of the measures necessary to monitor and investigate residual effects".*

Adapted from IAIA, (1999:2-4)

2.4.2.2 Operating Principles

The EIA process should be applied as early as possible in decision-making and throughout the life cycle of the proposed activity, in the following manner:

- It should be applied to all project proposals that have potentially significant effects;
- It should be applied to assess the possible biophysical impact and relevant socio-economic factors, including health, culture, gender, lifestyle, age, and cumulative effects consistent with the concept and principles of sustainable development;
- It should aim to provide for the involvement and input of the concerned stakeholders (e.g. communities, institutions or industries) that may be affected by the proposed project, as well as the interested public;
- It should be applied in accordance with internationally agreed measures and activities.

As part of the Operating Principles, the EIA process should specifically provide for:

*"**Screening** - to determine whether or not a proposal should be subject to EIA and, if so, at what level of detail".*

*"**Scoping** - to identify the issues and impacts that are likely to be important and to establish terms of reference for EIA".*

*"**Examination of alternatives** - to establish the preferred or most environmentally sound and generous option for achieving proposal objectives".*

*"**Impact analysis** - to identify and predict the likely environmental, social and other related effects of the proposal".*

*"**Mitigation and impact management** - to establish the measures that are necessary to avoid, minimise or offset predicted adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system".*

*"**Evaluation of significance** - to determine the relative importance and acceptability of residual impacts (impacts that cannot be mitigated)".*

*"**Preparation of environmental impact Statement (EIS) or report** - to document clearly and impartially the impact of the proposal, the proposed measures for mitigation, the significance of effects, and the concerns of the interested public and communities affected by the proposal".*

*"**Review of the EIS** - to determine whether the report meets its terms of reference, provides a satisfactory assessment of the proposal(s) and contains the information required for decision-making".*

*"**Decision-making** - to approve or reject the proposal and to establish the terms and conditions for its implementation".*

*"**Follow up** - to ensure that the terms and conditions of approval are met; to monitor the impact of development and the effectiveness of mitigation measures; to strengthen future EIA applications and mitigation measures; and, where required, to undertake environmental audit and process evaluation to optimise environmental management".*

Adapted from IAIA (1999:4)

IAIA (1999:4) further indicated that it is required where possible, to have evaluation, monitoring and management plan indicators to be designed for certain specific projects, to contribute to global, national and local monitoring for sustainable development and the state of the environment.

2.5 THE USE AND SIGNIFICANCE OF ENVIRONMENTAL IMPACT AT DIFFERENT STAGES OF THE EIA PROCESS

Evaluating the significance of environmental impacts is a crucial component of impact analysis. It is associated and used throughout the EIA process and formal or intuitive evaluations can be done at various stages. An example is in the screening stage, where some nations have prescribed lists of projects, activities or threshold criteria for which an EIA is compulsory (Department of Environmental Affairs and Tourism (DEAT), 2002:27-28). There are different meanings of significance concept at different stages of the EIA process. (see Table 2.1, below). For instance, in screening stage, it is used to determine whether an EIA is required or not. In the decision-making stage, significance is used to assess and rank impacts (negative & positive) and make compromises or trade-offs (DEAT, 2002:28).

The key challenge of determining significance of EIA process are (DEAT, 2002:29): scientific uncertainty (i.e. lack of or limited information or understanding); communication of scientific information (it is difficult to communicate scientific information to the public so that it is widely understood); and the multiplicity of values (the parties involved in EIA view impact significance and its acceptability differently. Different groups of the public may have opposing views and even within a single group, values may differ).

DEAT (2002:28-29) urged that making the process of determining the significance of impacts more explicit, open to public input and comment, would improve EIA practice. The current common practice of determining significance is to derive it from a combination of scientific methods and values endorsed by the EIA team. The inclusion of the views of the affected and interested parties helps to ensure that the EIA process is open, transparent and robust. However, some time public participation varies significantly and is not as strong as expected (Sadler, 1996:68).

The evaluation of significance will remain contentious even when using a structured generic approach or when using scientific criteria for thresholds of significance. Therefore, assessment of significance and impact prediction should include consideration of value judgements and whose values they represent.

Lessons learned from the published literature and local EIA practice reveals that (DEAT, 2002:29):

- If scoping is not done properly, the EIA team can exert strong influence on determining which key issues are to be addressed;
- The EIA team often determines impact significance from a professional perspective. Public input and values seldom informs determination of significance and acceptability of impacts;
- The value judgements contained within scientific information are not made explicit; and
- Multiple perspectives and opinions are often articulated during the EIA process. There is seldom a community with a single viewpoint or value judgement. These varying values and viewpoints are difficult to identify, integrate and communicate to decision-makers.

Significance of potential impact is considered at each stage of the EIA practice. Table 2.1 describes these stages and how significance is considered.

Table 2.1: Stages in the EIA where the concept of environmental significance is used

Stage in the EIA process	Objectives	Methods and approaches
Screening	Process that determines whether a project should be subject to an EIA because of its associated potential significant impacts.	Approaches used at this stage involve: checklists of projects, impacts or activities; and/or predefined criteria such as thresholds of significance.
Scoping	Process in which key (significant) issues are raised and the focus is on determining the specific issues or significant impacts that need to be addressed in the EIA.	Approaches used at this stage include: facilitation; stakeholder consultation and engagement; mediation and negotiation.
Specialist studies	This stage includes the identification and prediction of project impacts by specialists and the evaluation of their significance.	Approaches used at this stage involve: experiments of test; numerical calculations or modelling; mapping; physical or visual simulations and professional judgement.
Environmental Impact Report	This stage involves the preparation of a report by the EIA practitioner. The EIA practitioner integrates different forms of information and uses impact description and significance criteria to present the results to the decision-maker.	Approaches used at this stage involve: professional judgement; predefined criteria for evaluating impacts; verbal description; mapping visualisation; and matrices.

Decision-making	The decision-maker uses judgement to rate and determine the significance and acceptability of impacts.	Approaches used at this stage involve: professional judgement; and predefined criteria for evaluating, rating and weighting significant impacts.

2.6 FRAMEWORK FOR EIA EFFECTIVENESS

Effectiveness is a term which has many different meanings. According to Young and Levy (1999), as cited in Chanchitpricha and Bond, (2013:66) "*effectiveness is a matter of the contribution that organisations make toward problem solving, which motivates players to invest the necessary energy and time*".

Wimbush and Watson (2000), as cited in Chanchitpricha and Bond (2013:66), indicated that through the means of effectiveness evaluation, unintended and intended effects of programme, project and policies could be identified. This means that based on the outcome of the actions the effectiveness can be observed (Chanchitpricha & Bond, 2013:66). In terms of the environmental assessment field; this includes environmental assessment tools such SEA, EIA, social impact assessment (SIA) and health impact assessment (HIA). The effectiveness of impact assessment processes influences decision-making processes in the selection of the most appropriate option for the development, based on sustainability measures (Partidário, 2000; Van Buuren and Nooteboom, 2009, as cited in Chanchitpricha & Bond, 2013:66-67).

According to Chanchitpricha and Bond (2013:67) for an EIA process, effectiveness can be defined as "*the extent to which: it works (procedurally); its findings contribute to decision-making of project/ programme/plan/policy development, and gain the acceptance and satisfaction of key stakeholders, on the basis of resources used (transactively); it achieves its intended aims (substantively); stakeholders can learn, improve their knowledge, and change their views (normatively), when the impact assessment tool/or process is implemented*". This definition is based on the four categories of effectiveness as shown below. The development of these four categories started with Sadler's study in 1996 titled "International Study of the Effectiveness of Environmental Assessment" which remains a starting point of literature on evaluating EIA effectiveness combining the above mentioned categories (Sadler, 1996:1-248).

2.6.1 Categories for effectiveness

Effectiveness for environmental assessment is allocated into four categories namely; procedural, substantive, transactive and normative. These categories of effectiveness explained below can refer to the EIA process (which includes steps in conducting an EIA, such as screening, scoping, selection of alternatives, and mitigation measures), or to the wider EIA system, which involves more than just the process but also the external factors (Loomis & Dziedzic: 2017:30).

2.6.1.1 Procedural effectiveness

The common criteria to assess the procedural effectiveness focused on the EIA process and compare the regulatory frameworks, identify weaknesses, and innovations. These criteria have been continually shifting from the process to the system. The criteria often include one or more qualitative case, and then review documents, policies, legislation, and or historical contexts (Loomis & Dziedzic: 2017:32).

Various studies have acknowledged that, procedural category remains the central category given the preventative nature of EIA practice and its direct link with implementation and the legal system (Cashmore et al., 2008; Chanchitpricha and Bond, 2013; Gallardo and Bond, 2011; Middle and Middle, 2010; Runhaar et al., 2013 as cited in Loomis & Dziedzic, 2017:32). Nevertheless, the studies concluded with the need for an iterative process that focuses more on the outcome than simply on the process a 'recurrent theme' (Loomis & Dziedzic: 2017:33).

In this category of effectiveness, the assessment complies with acceptable guiding principles, whereby the process should be open, fair, and objective including good consultation techniques to facilitate participation and feedback provision (Chanchitpricha & Bond, 2013:67). Procedural guiding principles are relates to the principles governing environmental assessment processes which provide a means to evaluate both project-based and strategic assessment. These principles includes: "respect uncertainty; adopt sustainability as the central objective; set clear rules for application and implementation; assess needs and alternatives; ensure transparency and openness and public participation; monitor the results and apply the lessons; and to be efficient" (Baker and McLelland,2003:583).

Procedural effectiveness is influenced by factors such as political context and availability of resources, policy framework, active public participation and the knowledge and experiences of the impact assessment professionals (Chanchitpricha & Bond, 2013:67-68) as illustrated below:

- ***Political context for impact assessment*** in terms of the decision-making process, integrating the impact assessment with the planning process, and collaboration among institutions could influence the procedural effectiveness.
- ***Availability of financial resources for impact assessment*** practice is another likely factor in commencing and conducting impact assessment processes. The quality of the practice is related to the availability of money to finance an effective IA process. For example, the budget should be separated from the project fund (Ardern, 2004; Scott-Samuel *et al.*, 2001 as cited in Chanchitpricha & Bond, 2013:68). This means planning and management for financial resources should be taken into account when conducting the impact assessment processes. The availability of funds is separate from planning their actual application in the assessment (Chanchitpricha & Bond, 2013:68).
- ***The policy framework for impact assessment*** is likely to be fundamental in setting the scope or regulatory framework for the practice of impact assessment, for example, a national plan, legal regulations, or basic guidelines for practitioners (Bekker *et al.*, 2005; Caussy *et al.*, 2003, as cited in Chanchitpricha & Bond 2013:67). Guidelines or performance standards provide fundamental principles, which influence the quality of impact assessment practice.
- ***Public participation in the impact assessment process*** tends to influence procedural effectiveness as a supporting mechanism. Integrating social concerns or undertaking public consultation can assist in conceptualising and determining the consequences of any development. In essence, stakeholder engagement is an integral part of any EIA process (Del Furia & Wallace-Jones, 2000:459). Furthermore, accessibility of information, fairness, and transparency in public hearings can help achieve procedural effectiveness in environmental assessment policy-making (Baker & McLelland, 2003:585;).
- ***The knowledge and experience of impact assessment professionals influence procedural effectiveness***; during the development of the IA practice is achieved through refinement of the process from time to time.

The experience gained when parties engage in the IA practice could help to improve impact assessment process. Most importantly, IA evidence should be made understandable to such an extent that the IAs can benefit decision-making (Bekker *et al.*, 2005; Therivel, 2010 as cited in Chanchitpricha & Bond, 2013:68). This means the IA practitioners' experience and lessons learned from conducting the IAs could improve the effectiveness of the IA practice (Chanchitpricha & Bond, 2013:68).

2.6.1.2 Substantive effectiveness

This category of effectiveness is based on the extent to which the set aims can be achieved when applying the impact assessment tools or policies (Chanchitpricha & Bond, 2013:68). In practice, substantive effectiveness shows how well a procedure can be identified and applied in practice.

This can be measured by rating the performance in relation to the achievement of the objectives of the assessment (Baker & McLelland, 2003:595) Substantive category is related to the outcomes of EIA in terms of the objectives for which it was developed and evaluates whether the EIA helps to include environmental aspects in decision-making and contributes to environmental protection (Sadler 1996; Baker & McLelland 2003 as cited in Veronez and Montaño, 2015:2).

Substantive effectiveness has an influence on project decision-making and mitigation of negative environmental impacts. The available literature on this category focuses on the decision aspect more and little efforts are allocated on how EIA can be better integrated into planning and development. Loomis and Dziedzic: (2017:31), Suggests that there is likely "*a possibility that EIA's preventative nature is more influential than its proactive side. ...this effectiveness category remains a difficult dimension to measure given the lack of transparency of decision-making in EIA and almost impossible for counterfactual testing negative environmental impacts prevented by an EIA process".*

The achievement of substantive effectiveness depends on several factors, such as the regulatory framework for the implementation of the impact assessment in the decision-making process, the decision-making context for an impact assessment, public participation, and quality of the impact assessment report (Chanchitpricha & Bond, 2013:68):

- ***The regulatory framework controlling the implementation of the impact assessment processes in decision-making*** is considered to be a high priority.

In the impact assessment processes, legal requirement is one of the criteria for determining the substantive effectiveness of EIA (Partidário, 2000; Bekker *et al.*, 2005; Chanchitpricha & Bond, 2013:68).

- ***The decision-making context for an impact assessment*** can significantly influence the achievement of the substantive effectiveness. Jay *et al.*, 2007; Sadler (1998), as cited in Chanchitpricha and Bond (2013:68), suggest that the main aims of impact assessments are to support sustainable development and improve EIA`s projects. However, mechanisms throughout the EIA process which focus on sustainability are too diverse and causation is difficult to establish.
- ***Stakeholder and public participation*** could influence the decision-making context and should be taken into account. For instance, in an EA, public involvement through an interactive community forum has been argued to strengthen the EA's role in informing decisions (Becker *et al.*, 2003, as cited in Chanchitpricha & Bond, 2013:68).
- ***The quality, accuracy, and comprehensibility of the impact assessment report*** could enhance effective decision-making. Improving the quality of impact assessment reports could help practitioners and regulators or decision-makers understand the contents for relevant consideration (Ross *et al*., 2006; Sandham and Pretorius, 2008, as cited in Chanchitpricha & Bond (2013:69).

2.6.1.3 Transactive effectiveness

This type of effectiveness is mainly focused on costs in terms of financial and time resources invested and the outcomes of the process as per the judgement by the participants (Veronez & Montaño.2015:2). The efficiency of the process in terms of money and time invested has been claimed to be a key contributing factor in achieving transactive effectiveness (Baker & McLelland, 2003:596)

Transactive effectiveness is categorised using four criteria; time, financial resources, skills, and specification of roles, respectively. These criteria tend to reflect how resources and time are invested and how they support the transactive effectiveness. (Chanchitpricha & Bond, 2013:69). According in Loomis and Dziedzic, (2017:32) transactive effectiveness tended to be weak in some studies due to poor substantive effectiveness on the part of the consultants involved.

There are limited recorded literatures on measures for cost effectiveness of EIA and this may cause EIA critics and a call for further deregulation due to transactive ineffectiveness (Runhaar et al., 2013 as cited in Loomis & Dziedzic: 2017:34). However there is a widespread desire to streamline the process under the assumption that this will lead to a more effective outcome (Veronez and Montaño, 2015:4).

2.6.1.4 Normative effectiveness

This category of effectiveness is related to the sense of principles to which society (or a community) agrees, as well as the sense of accepted behaviour within society. The behaviour tends to connect with attitudes which have a close relationship with perceptions (Ashcroft & Palacio, 1996, as cited in Chanchitpricha & Bond, 2013:69). Incremental changes in culture, science, philosophy, organisations and institutions, are some of the normative goals that could impact on consent and decision-making and could bring about desired change for society in the long term. According to Morrison-Saunders (2013) as cited in Chanchitpricha and Bond, (2013:69), normative goals consist of both social and individual norms which emerge from the perceptions and attitudes that make individuals to take action or respond in a process of the impact assessment. In the case of culture, individual expectation, policy, practice, and existing condition are more likely to be the main factors that influence the normative effectiveness (Chanchitpricha & Bond, 2013:69).

Baker and McLelland (2003:584-585) defined normative effectiveness as EIA's contribution to wider policy goals, namely sustainable development. This involves a definition of the environment which includes socioeconomic aspects. It also contributes to policy processes that are more democratic and transparent.

Normative effectiveness is related to the improvements in the process regardless of the available legislations. Amongst other approaches, this dimension of effectiveness can be determined from the lessons learned and incremental changes in the process (Cashmore et al., 2004 as cited in Veronez and Montaño, 2015:2). This analysis can be made based on the identification of lessons learned and understanding how and to what degree there is evidence of learning along the process(Chanchitpricha et al. 2011:69).

Most of the studies on normative effectiveness focused entirely on the EIA process especially the decision-making stage. Absent in the literature are studies regarding a broader EIA system analysis such as institutional designs' impacts on more sustainable outcomes (Loomis & Dziedzic: (2017:34).

The framework effectiveness of EIA (procedural, substantive, transactive and normative), as mentioned above is interconnected and the progression evaluation is possible over time.

2.6.2 Other categories to be considered in EIA effectiveness framework

Apart from the four categories mentioned above, additional aspects can influence the decision-making. According to Cash *et al.* (2002:1) decision-making requires three attributes, namely, salience, credibility and legitimacy:

- **Salience** refers to the extent to which the particular concerns of users are addressed (Kunseler *et al.*,2014: 3);

  This include the relevance of information for an actor's decision choices, or for the choices that affect a given stakeholder. A classic pitfall for salience is the identification of interesting and tractable questions within a scientific community that have little relevance outside of it, including no bearing on a decision-maker's real-world situation (Toth and Hiznyik, 1998 as cited in Cash *et al.* 2002:4).

  Such questions lack salience for intended users of the information. For instance farmers need to have information on the time-line of the rain season, not just the predicted amount, as well as information on the flood or drought-tolerant plants and animals, how and when to plant or keep them, etc. "*Such information that is timely and informs decision-makers about problems that are on their agendas has high salience. Information that arrives at the wrong time in the evolution of an issue (too early, or too late), or that is too broad or narrow in scope, or is not at the right scale for a decision-maker can also fail to influence action for lack of salience"* (Kingdon, 1995 as cited in Cash *et al.*, 2002:4). According to Carpenter *et al.* (2002), as cited in Cash *et al.*, (2002:4), technology that is inappropriate for the environmental context in a local setting or do not match the existing technological landscape also suffer from lack of salience. The main component of making assessment salient is to ensure that participants in the assessment are taken from institutions or areas that contain the user who might find the assessment salient, if only they knew about it. Research has shown that assessments lack influence over certain issue domain because they did not include participants from the institutions they hoped to influence. Even when assessment is salient, it is unlikely that all elements of the assessment will be equally salient.

The salience of an assessment can be influenced by external factors or events. Over time the salience of the assessment of particular issue can increase or decrease (Farrel & Ja¨ge, 2005:10).

- **Credibility** refers to whether an actor perceives information as meeting standards of scientific plausibility and technical adequacy. This attribute includes the trust audiences place in the scientific and technical quality of the study at hand.(Farrel & Ja¨ge,, 2005:9). Sources of knowledge must be deemed trustworthy and/or believable, along with the facts, theories, and causal explanations raised by such sources. Individuals are often unable to evaluate independently the credibility of information in decision-making. This makes translating expert knowledge for the use of non-technical decision-makers a challenge, raising a demand for Science and Technology (S&T) decision support systems (Tesh & Williams, 1996 as cited in Cash *et al.,* 2002:4). In such cases, credibility is often assessed by proxy and participants judge credibility by the scientific process (information tends to be discounted by those who believe the process allowed "interests" rather than "science" to determine the results), key individuals seen as experts encourage credibility, and engaging organisations with a history of getting the right answers or valid results increase credibility.

  "*Credibility is hard to establish in arenas in which considerable uncertainty and scientific disagreement exists, either about facts or causal relationships"* (Clark, Mitchell *et al*., in review, as cited in Cash *et al*., 2002:5). Usually, actors opposed to an assessment's implications will highlight such uncertainty and disagreement in efforts to question credibility.

  In addition, credibility has a dynamic component, in which the perception of credibility can evolve as predictive capability which can be ascertained over time, as users may ask whether the scientists get it right (Cash, *et al*., 2002:5). According to Farrel & Ja¨ger, (2005:9-10), assessment gain credibility from several means: Firstly, a vital criterion involves the conformance of new information to competing sources of information. New information that is consistent with existing information, especially well-established facts and casual beliefs, will be accepted as credible faster than information that refutes existing facts and theories. Secondly assessments are often deemed credible based on the process by which they were created.

Assessment can seek to build credibility by ensuring that the assessment passes muster in with respect to standard of scientific rigor and process, such as that those decision makers who cannot assess the validity of the findings directly will be willing to view the information as credible based on such process criteria.

Thirdly, assessment can also be deemed credible based on credentials of the participants. Although the credentials that lead to acceptance of information may vary from participants to participants, this includes education, source of financial support and prior research record (common in the peer-reviewed literature) (Kunseler et al.,2014:4). The credentials help document that the assessment participants are both experts and trustworthy. Fourthly, credibility also is a function of the degree of consensus on an issue and the correspondence between the information being evaluated and such consensus exist. When an assessment makes claims regarding an area in which considerable uncertainty and variation in scientific opinion exists, either about facts or causal relationships the credibility of an assessment may prove hard to establish (Farrel & Ja¨ger, 2005:10).

- **Legitimacy** refers to whether an actor perceives the process in a system as unbiased and meeting standards of political and procedural fairness (Cash *et al.,* 2002:5). Legitimacy is the trustworthiness of the process, with respect of diverse views and concerns in the eyes of various audiences (Kunseler et al.,2014:4). This attribute involves the belief that assessment systems are fair and consider appropriate values, interests, concerns and specific circumstances from multiple perspectives. Usually, audience judge legitimacy based on who participated and who did not, the processes for making those choices, and how information is produced, vetted, and disseminated. When connecting knowledge to action, choices are made about which problems and potential solutions will be considered, and which ones will not. The legitimacy that policy participants and scientific participants attribute to a given process rests on their belief that the processes are respectful of their view and concerns and conform to their perceptions of procedural fairness (Cash *et al.,* 2002:5). According to Farrel & Ja¨ger, (2005:10) legitimacy is a measure of the political acceptability or observed fairness of an assessment to a user. A legitimate assessment process is one in which the process was fair and conducted in a good manner whereby users are satisfied that their interests were considered.

"*An example of a lack of legitimacy occurs when a global assessment is questioned buy developed countries because they feel their inputs was not considered or interested were ignored*" Farrel & Ja¨ger, (2005:10). Therefore participants and user must believe that their concerns, views, perspectives and interests were included and given appropriate consideration in an assessment if they are not given the assessment legitimacy.

Often, legitimacy concerns are raised when an assessment is perceived as recommending behavioural change by a certain group of actors that extremely benefit some other group of actors (Kunseler et al., 2014:6). In this case certainly, the legitimacy of an assessment is hardly questioned by those whose interests would be extended by the policy`s implication of the assessment. Increasing the perception of an assessment as legitimate for certain participants in an issue domain often can be achieved by engaging those participants to voice their view and concerns (Farrel & Ja¨ger, 2005:10).

These qualities of the three attributes enable one to reflect upon the outcome of assessment processes, whether the assessment produced effective knowledge that is perceived of as credible, and salient and legitimate among different audiences at once (Kunseler *et al*., 2014:5). The above mentioned attributes are often in tension, because the easiest ways of enhancing any single attribute almost invariably cause declines in another. Therefore there is a need for those who design and manage assessment process to balance efforts to enhance salience, legitimacy and credibility (Kunseler *et al*., 2014:8).

Table 2.2 below summarised the application of effectiveness of EIA used in this study in terms of the above descriptions:

Table 2.2: The application of effectiveness of EIA

Category	Definition	Description
Procedural	How well a procedure can be identified and applied in practice	How well the EIA is aligned with standards and principles. The policy framework sets the scope of the quality of work. Considers how meaningful stakeholders' participation is.
Substantive	Whether the aim and objectives have been achieved: how well the EIA was done 'outcome'	The regulatory framework, quality of the impact assessment report and level of public participation involvement

Transactive	How the required resources are minimised while the outcomes are achieved	Human resources, cost and time for resources
Normative	Considering the social and individual norms in the society	People want to participate, learn from the process, and see the benefit of EIA
Salience	Significance of information for decision-making or for the choices that affect a given stakeholder	How relevant information is to decision-making bodies or publics
Credible	Information meets standards of scientific plausibility and technical adequacy	How "fair" an information producing process is and whether it considers appropriate values, concerns, standards and the perspectives of various players.
Legitimate	The process is unbiased and meet standards	How fair the project is and whether the appropriate aspects have been considered

2.7 THE SHORTCOMINGS AND BENEFITS OF AN EIA

According to Canada *et al.* (1991), as cited in Spinks *et al*. (2003:305), *"EIA is a planning tool that functions as an integral component of sound decision-making, which provides the decision-makers with an objective basis for granting or denying the approval for a proposed development"*.

EIA is also a decision-aiding tool. The EIA process comprises two types of challenges namely; intrinsic shortcomings (faults within the nature of the EIA process) and extrinsic shortcomings (faults in how the EIA process is applied) (Spinks *et al*., 2003:308).

EIA can benefit directly for instance by improving project design or indirectly through environmental awareness raising of the staffs involved in the project and the follow effect this has in their future work. The potential benefits of the EIA increase, once the EIA start early in the designing stage of the project (CSIR, 1996b:12).

2.7.1 Intrinsic shortcomings of an EIA

The intrinsic shortcomings of an EIA are as follows (as adapted from Spinks *et al.*, 2003:308-310):

- Lack of real commitment**:** Developers have a tendency to develop quickly in order to maximise profit. The usefulness of public engagement is often tainted by claims of manipulation and mistrust. Usually the lack of commitment is due to lack of political will at all levels of government (local, provincial and national).
- Timing: EIA is undertaken too late in the decision-making cycle, which makes designs difficult and expensive to change. EIAs may become reactive, excessively negative and may lead to considerable cost and delay the development process.
- Cumulative impacts: EIAs are typically carried out on specific developments, whereas cumulative impact may result from broader biophysical, social and economic considerations which cannot be addresses at the project level.
- Bias and confidentiality: A developer may be inclined to introduce bias to the assessment by determining restrictive terms of reference and appointing environmental consultants, who might be under pressure to produce a sweetheart report, or manipulate the public process to smooth the path of development application.
- Defining significance: Beside EIA's attempts to provide an objective and impartial assessment of the environmental implications of particular development activities, the EIA process cannot escape the subjectivity inherent in attempting to define significance. Determining the significance of an impact depends on norms and values as per legal requirement and understanding as well as the context and intensity of the impact.
- Project focus: By nature EIAs are project specific on a particular development, but they rarely influence which projects are selected before the assessment is undertaken. As a result EIAs are typically reactive and thus are really only able to influence yes or no decisions or ensure the implementation of relatively minor measures.
- Wrong and undefined assumption: Wrong and unclearly defined assumptions make it difficult to identify and distinguish significant impacts and non-significant impacts.

2.7.2 Extrinsic shortcomings of EIA

The extrinsic shortcomings of an EIA are as follows (adapted from Spinks *et al*. (2003: 310-313):

- Inflexibility of the nature, scope and process of EIAs in accordance with legal requirement: Environmental insignificant projects are often burdened by difficult and unnecessary application procedures while large-scale activities or those in sensitive areas with significant risk of environmental degradation can conceivably pass through the environmental net without effective control.
- Restrictive application of Integrated Environmental Management (IEM): In most cases EIAs are regarded as mandated documents, rather than a critical part of determining project feasibility or as a valuable tool for standard project selection and design, and accordingly the non-legislated IEM components are typically neglected.
- Lack of screening: Small projects which pose little risk of severe environmental impacts are forced to proceed through unnecessary EIA processes.
- Public participation: Public participation is often inadequate and does not provide sufficient opportunity for public input into key phases of development proposals.
- Lack of governance in environmental arena: Environmental officers make decisions that fall outside their area of expertise and equally importantly, of legislation they are legally mandated to enforce.
- Ethical: There are no guidelines in EIAs about how to solve ethical dilemmas.
- Limited resources and technical capabilities: People with little or no experience or environmental management background may be involved in conducting EIAs.

2.7.3 Benefits of EIA

Generally the benefits of EIA include (CSIR, 1996b:12):

- **More environmentally sustainable design or improvements in the design and setting of projects:** Carrying out an EIA entails an analysis of possible alternatives in the design and setting of projects. A well designed project can also minimise the risk of project-induced conditions and the costs involved in the compensation and treatment. This results in an overall improvement in the general state of the environment and location of projects.
- **Better compliance with environmental standards:** Compliance with environmental standards reduces disruption and damage to the environment and reduces the likelihood of fines and penalties.

- **Savings in capital and operating costs**: Costs can escalate if environmental problems have not been considered at the beginning and require rectification later. This may involve adopting some expensive mitigation measures or reducing the size or output of the project. The chances of expensive late changes can be minimised by carrying out an EIA at the earliest stages of the project cycle.
- **Reduced time and costs of approvals of development applications**: If all environmental concerns have been taken into account before submission for project approval, then it is unlikely that delays will occur.
- **Increased project acceptance by the public**. This is achieved by public involvement throughout the process.

2.8 THE STRENGTHS AND WEAKNESSES OF EIA IN NAMIBIA

The analysis conducted by Tarr and Tarr (2003:3-26) on EIA in Namibia has indicated that application of EIA shows differences between policy and practice. The analysis has shown that there has been a slow pace of consolidating the consensus reached during a decade of multi-stakeholder consultation, which led to the development of policy and draft legislation. *"The expectations of the use of EIA as a planning tool for sustainable development are often not being met, as both public and private sectors, at national and local level, apply EIA in a rather selective and subjective way"*(Tarr & Tarr 2003:16). The analysis further indicated that decision-makers often violate or sidestep the EIA process when it suits them. Consequently EIA is being considered as a paper exercise conducted primarily to satisfy an administrative or legal requirement (SAIEA, 2003:8).

The following strengths and weaknesses of EIA in the country is shown in a Table 2.3 below, as identified during the analysis:

Table 2.3: The strengths and weaknesses of EIA in Namibia

Strengths	Weaknesses
Policy and Legislation - Good framework conditions exists in the form of Constitutional clauses, the office of the Ombudsman, and a functional democracy; - A good policy and environmental legislation exists; - The EMA Act (No. 7 of 2007), provides list of activities that require an environmental assessment, including: participation of the	- Environmental Assessment and EIA legislation are not readily available to the general public Inconsistencies across sectoral legislation still exist, with some laws contradicting each other in terms of EIA; - There are not enough safeguards for rehabilitation (e.g. a fund).

interested and affected parties during the EIA process to express their views regarding the project; - A fast track EIA system is in place to deal with listed activities (System is flexible).	
Institutions and partnerships - The Office of the Ombudsman is an important cornerstone; - The MET (Ministry of Environment and Tourism) has an EIA Unit; - Namibia has some very good local non-governmental organisations (NGOs) with expertise in EIA and are willing to become involved in local issues; - There is reasonably good multi-sectoral cooperation within Government and between government and the private sector; - There is a reasonably good relationship between private sector, NGOs and the government:; - There is a growing culture of bottom –up decision-making (e.g. community-based natural resources management and decentralisation) which should promote better EIA practice; - International agencies (e.g. United Nation Development Programme) provide good support; - The local media are free and strong and some newspapers give extensive coverage of environmental issues. This has helped improve awareness amongst the public; - The education system has started to in cooperating environmental issues in the school curriculum and institution of high learning, various resource materials have been produced for local educational Institutions.	- There is a minimum involvement of the office of the Ombudsman in issues concerning EIA; - The MET is less effective and the EIA Unit depends on limited capacity. Its functioning is very vulnerable to staff turnover; - The structure exists on paper, but is not properly operationalised; - There is not enough access to politicians on matter pertaining EIA; - There is too much jurisdiction overlap and sectoral rivalry, although these are gradually diminishing; - There is still antagonism towards NGOs, especially when government is challenged; - Although one or two people in ministries other than the MET are knowledgeable of and committed to EIA the majorities of government officials seem unaware and uncommitted; - The government is not well-staffed with specialists and the few competent staff available are overloaded with work; - In certain department within the government, there is reluctance to outsource EIA reviews, although this could benefit the entire government.
EIA practices - There is a systematic and transparent EIA review system (checklist template); - Limited corruption occurs; - Experience of the application of EIA has so far been good. This has improved awareness and attitudes; - As a result of the above, many government agencies, parastatals, NGOs and private companies have internalised EIA and developed their own systems and in some cases, guidelines; - A number of well-qualified and experienced local consultants are available and can do most of the EIAs. Hence, there is minimal importation of foreign experts;	In most cases, the EIA review checklist is not used; - Although corruption is limited, its presence is felt. This can undermine EIA implementation; - EIA is applied selectively, being strict and highly sophisticated in some cases (e.g. oil and gas exploration), but ignored in others, especially those project initiated by influential people (e.g. politicians); - Some antagonism exists between NGOs and Government, even though both theoretically share a common vision; - Because of inexperience personnel at government level, terms of reference for EIA are usually inadequate, leading to frustration and inadequacy during the EIA process; - Due to inadequate post-implementation

- As a result of the above, the quality of EIAs done in Namibia to date is regarded as high; - Despite Inadequate baseline data, a number of resource materials that are useful to EIA continue to be produced (e.g. atlas, profile, biodiversity country study, state of the environment reports); - Reliable communication (e.g. internet) facilitates a quick and easy exchange of information.	monitoring, EIA is largely a paper exercise - EIA has not enjoyed enough positive coverage in the media. As a result, decision- makers and the public have not been shown the real value of EIA, which has led to some negative perceptions. - Very minimum use has been made of Strategic Environmental Assessment, even though it is well-known that project-level EIA (although not good) does not generally address issues such as cumulative impact.

Source: Tarr & Tarr (2003:8-9)

2.9 CHAPTER SUMMARY

This chapter provided an overview of the environmental governance and decision-making as well as rationality and principles of environmental impact assessment, the use and significance of EIA at different stages of EIA process, framework for EIA effectiveness, the shortcoming of EIA and strengths and weakness of EIA in Namibia. The rationality of EIA in the planning process is a matter of finding the most effective way of achieving the planned objectives which can be used to balance positive and negative effects on the affected environment and this can be realised in the project or through the implementation of the plan.

Based on the constrained /bounded rationality in the chapter, planning can be confronted by other approaches and objectives via economic efficiency ,legal rights for the participants in the planning process, social learning and advocacy on the outcome of the dialogue among various parties.

In the context of EIA being an aid to decision-making ; it is indicated that EIA is a planning tool which function as an essential element of sound decision-making, which offers the decision-makers with an objective basis for granting or denying the approval for a proposed development. The IAIA demonstrated that EIA can be implemented with core principles (Basic and operating principles) and with clear objectives to identify the effectiveness of the EIA process.

The strength and benefits of EIA in three areas namely; social, environment and economic benefits are highlighted in the chapter including the two types of EIA shortcomings namely intrinsic shortcomings (faults within the nature of the EIA process) and extrinsic shortcomings (faults in how the EIA process is applied).

The EIA process setting in Namibia is considered as a paper exercise conducted mostly to satisfy administrative standards or legal requirement. Evaluating the use and significance of EIA at various stages (screening, scoping, specialist studies, environmental impact report & decision-making) with specific objectives is a crucial component of impact analysis. The relevant assessment categories on EIA effectiveness are also highlighted in the chapter this include procedural, substantive, transactive, and normative effectiveness. In addition, there are attributes that influence decision-making for the EIA process, namely salience, credibility and legitimacy. The effectiveness of an impact assessment processes has an influence on decision-making processes in the selection of the most appropriate option for the development.

CHAPTER 3: FRAMEWORKS THAT GUIDE DECISION-MAKING FOR SUSTAINABLE DEVELOPMENT IN NAMIBIA

3.1 INTRODUCTION

Namibia is committed to promote sustainable development: "the development that aims to meet the needs of the present, without compromising the ability of future generations to meet their own needs" (Glazewski, 2005:103). According to the Environmental Management Act (No. 7 of 2007), sustainable development must be promoted in all aspects related to the environment in the country. It is highly important in Namibia, especially due to the fact that the national population is growing and many people are living in poverty.

Namibia has developed some frameworks in an attempt toward achieving sustainable development. These frameworks have to serve a common purpose and that is to serve as a guiding tool to achieve their goal. One of these frameworks are the National Development Plans (NDPs) which is a 5 year national development strategy with its core focus on reviving and sustaining economic growth (Hasheela, 2009:58). Namibia has also articulated Vision 2030; a long-term development framework, with the following goal *" that the people of Namibia are well-developed, prosperous, healthy and confident in an atmosphere of interpersonal harmony , peace and political stability; and as a sovereign nation, Namibia is a developed country to be reckoned with as a high achiever in the comity of nations. Namibia enjoys: Prosperity, Interpersonal Harmony, Peace and Political Stability"* (LAC, 2004:199). The Namibia government also formulated a five year national plan known as the Harambee Prosperous Plan 2016/17-2019/20 which aims *"to accelerate development in clearly-defined priority areas, which lay the basis for attaining prosperity in Namibia".*

The country has a formalised Constitution (GRN, 1990) which is the Supreme Law of Namibia, against which all other laws are tested. Moreover, in its commitment to the concept of sustainable development, Namibia is a signatory to various international environmental agreements; some agreements are illustrated in the table 3.1. Such agreements each has a role to play in the management of the environment. According to Ruppel & Ruppel-Schlichting, (2013:44), most international agreements *"improve environmental governance and generally promote transparency, participatory decision-making, accountability, conflict resolution, and*

have an indirect positive influence in terms of democratisation processes in any given developing country context".

Furthermore, Namibia is a global partner to the world's Sustainable Development Goals[1] (SDGs) (United Nations, (UN) 2000), officially known as "*Transforming our World: The 2030 Agenda for Sustainable Development*" (UN, 2015). The 17 goals with 169 targets have been agreed world-wide with an aim of "considering economic, social and environmental dimensions to improve people's lives and protect the planet for future generations to be attained by the year 2030. This set of goals covers a broad range of sustainable development issues, including ending poverty and hunger, improving health and education, making cities more sustainable, combating climate change, and protecting oceans and forests (UN, 2015:1-36)".

The Namibian government has structures and procedures in place related to environmental management and sustainable development via various ministries (e.g MET, MAWF, NPC, MFMR, MRLGH, MME, MoHSS & MITD), NGOs and UN agencies within the country. The Directorate of Environmental Affairs (DEA) in the Ministry of Environment and Tourism is the leading agency in the promotion of sustainable development (Tarr & Tarr, 2003:3).

3.2 NAMIBIAN CONSTITUTION

The Namibian Constitution (GRN, 1990) is the starting point for sustainable development in the country. Namibia has one of the few Constitutions in the world with specific sections on the environment. The Namibian Constitution (GRN, 1990) has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution, but they are intended to guide the government in making laws which can be enforced. One of these guiding principles says that the government will take steps to maintain Namibia's ecosystems, essential ecological processes and biological diversity (MET, 2008a:5; GRN, 1990).

[1] United Nations Millennium Goals (http://www.developmentgoals.org/)

Table: 3.1 Some of the International agreements/treats where Namibia is involved

		Namibia Participation	
Agreement/treat	**Aim**	**Ratification (R) Accession (Ac) Acceptance (At) Signature (S)**	**Date**
The 1971 Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar)	-To stem the progressive encroachment on and loss of wetlands now and in the future, recognising the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value.	Ac	23.08.1995
The 1972 Convention Concerning the Protection of the World's Cultural and Natural Heritage	-To establish an effective system of collective protection of the cultural and natural heritage of outstanding universal value organised on a permanent basis and in accordance with modern scientific methods.	At	06.04.2000
The 1985 Vienna Convention for the Protection of the Ozone Layer	-To protect human health and the environment against adverse effects resulting from modifications of the ozone layer.	Ac	02.10.2002
The 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	-To protect certain endangered species from over-exploitation by means of a system of import-export permits.	Ac	18.12.1990
The 1980 Convention on the Conservation of Antarctic Marine Living Resources	-To safeguard the environment and protect the integrity of the ecosystem of the seas surrounding Antarctica -To conserve Antarctic marine living resources.	Ac	29.06.2000
The 1982 United Nations Convention on the Law of the Sea (UNCLOS) was	-To set up a comprehensive new legal regime for the sea and oceans -To establish material rules concerning environmental standards as well as enforcement provisions dealing with pollution of the marine environment.	R	10.12.1982
The 1992 United Nations Framework Convention on Climate Change (UNFCCC)	-To regulate levels of greenhouse gas concentration in the atmosphere, in order to avoid the occurrence of climate change on a level that would impede sustainable economic development, or compromise initiatives in food production.	S/R	12.06.1992

The 1992 Convention on Biological Diversity (CBD)	-To conserve biological diversity, promoting the sustainable use of its components, and encouraging equitable sharing of the benefits arising out of the utilisation of genetic resources.	S/R	12.06.1992
The 1994 United Nations Convention to Combat Desertification in those Countries Experiencing serious Drought and/or Desertification, Particularly in Africa	-To combat desertification and mitigate the effects of drought in the countries affected through effective action at all levels supported by international cooperation and partnership arrangements.	S/R	24.10.1994

The government have a mandate to "make sure that all of the nation's living natural resources are used on a sustainable basis for the benefit of all Namibians, for both present and future generations" as per the Constitution. The Constitution further indicates that the preventive measures will be provided by the government to avoid the recycling or dumping of foreign toxic waste or nuclear waste on the Namibian soil (GRN, 1990:45).

Box.3.1: Namibian Constitution article, 95 (I)

NAMIBIAN CONSTITUTION

Chapter 11 – Principles of State Policy

Article 95 Promotion of the Welfare of the People

"The State shall actively promote and maintain the welfare of the people by adopting, *inter alia*, policies aimed at the following: l) Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory".

3.3 NATIONAL LEGISLATION PERTAINING TO EIA

There are various sectors in Namibia that are relevant to EIA. Table 3.2 below illustrates a summary of the relevant sector legislations in the country:

Table 3.2: Relevant environmental legislation in Namibia

Sector	Primary agency	Legislation	Purpose
Water resources	Ministry of Agriculture, Water and Rural Development	Water Resources Management Act, No. 24 of 2004	This Act makes provision for the development, management, protection, conservation and use of water resources, in order to establish various regulatory and advisory institutions. Section 78 specifies the permission required if a person wishes to block a watercourse.
Air pollution and noise	Ministry of Health and Social Services	Atmospheric Pollution Prevention Ordinance, No. 11 of 1976	Air pollution is controlled primarily by this Ordinance, which deals with air pollution as it affects occupational health and safety issues. These issues are the controlled and due to this, there are requirements to be met before a a registration certificate is issued under this Ordinance. It considers air pollution from point sources but does not address ambient air quality.
Waste Management	MET and others	Pollution Control and Waste Management Bill (in preparation)	The purpose of this Bill is to regulate and prevent the discharge of pollutants to the air and water, and enable the country to fulfil its international obligations in this regard. With respect to water pollution, the draft Bill forbids any person from discharging or disposing of pollutants into any water or watercourse without a Water Pollution Licence, aside from the discharge of domestic waste from a private dwelling or the discharge of pollutants or waste to a sewer or sewage treatment works
Health	Ministry of Health and Social Service	Public Health Act, No. 36 of 1919, with subsequent Amendments Public and Environmental Health Act, No 1 of 2015	This Act is only relevant in as much as workers must be protected from harm, especially during construction It aims to provide a framework for a structured uniform public and environmental health system in Namibia and to provide for incidental matters.

Planning and zoning	National Planning Commission	National Planning Commission Act No. 15 of 1994	The National Planning Commission is important because it theoretically coordinates all development in the country, especially capital projects. It does not issue authorisations or permits, but needs to be involved in decision-making processes.
Mining and mineral Resource	Ministry of Mines and Energy	Minerals (Prospecting and Mining) Act, No.33 of 1992 - Minerals (Prospecting and ,Mining) amendment act, No, 8 of 2008	The Act aimed to monitors all mining activities in Namibia. The states is entrusted with Mineral rights and whoever planning for exploring and mining mineral in the country is required to apply for an exploration certificate at The Ministry of Mines and Energy. The requirements for monetary assurances for the compensation of environmental damage and the rehabilitation trust funds are being set up for after a mine closure. This is included in the new bill on Minerals being prepared as per Cabinet authorisation and endorsement by the Parliament on the Minerals Policy of 2003.The Regulations on specific requirements is yet to be drafted including penalties for noncompliance
Petroleum exploration and production	Ministry of Mines and Energy	Petroleum (Exploration and Production) Act, No. 2 of 1991, as amended	All rights related to the exploration for the production and disposal of petroleum are controlled by government. In Article12 of the Act it is indicated that the Minister may require the applicant to conduct an environmental impact studies prior to an application for a licence. It also "provides for the issuing of licences for reconnaissance, exploration and production of petroleum and, in Article 71, for the control of environmental pollution caused by such activities". The Act makes provision for the establishment of a Petroleum Agreement among the State through the Ministry of Mines and Energy and the applicant for the licence. This agreement involves the environmental protection and legitimately strict environmental requirements as stipulated in the Act, as well as the predicaments of licence holders.

Marine pollution	Ministry of Works, Transport and Communication	Prevention and Combating of Pollution of the Sea by Oil Act, 1981, and the Amendment Act, No. 24 of 1991	This Act provides a framework for the prevention and combating of pollution of the sea by oil and for determining liability in respect of loss or damage caused by the discharge of oil from ships, tankers or offshore installations. It is the enabling legislation for the International Convention for the Prevention of Pollution from Ships (Marpol 73/78) signed and ratified by Namibia, but is limited to oil pollution
Marine pollution	Namibia Port Authority (NAMPORT)	Namibian Ports Authority Act, No. 2 of 1994	In terms of this Act, Namport "is responsible for protecting the environment' within its demarcated area of control". Although open-ended, the Act does afford Namport the power to monitor and regulate activities within the ports and adjacent bays. However, there may be uncertainty about who is responsible for enforcing this, as the Ministry of Fisheries and Marine Resources has overall responsibility for all living marine resources, and the Ministry of Agriculture, Water and Rural Development has responsibility for water quality and marine pollution from land-based sources
Conservation	Ministry of Environment and Tourism	Nature Conservation Ordinance No.2 of 1975	This outdated Ordnance will be replaced by the Parks and Wildlife Bill, which includes provisions to declare protected areas and protect against alien species. The new legislation will, *inter alia*, enable the proclamation of nature reserves and generally improve the conservation of biodiversity in Namibia
Agriculture and Forestry	Ministry of Agriculture, Water and Forestry	Forestry Act, No.12 of 2001 Various policies and law	This Act enables the state to declare forest reserves, some which may be managed by communities. It also regulates the trade in forest products and has some reference to EIA requirements (mostly regarding de- or reforestation projects). The various policies and laws are sector-specific (e.g. pest control and livestock diseases).
Land and Resettlement	Ministry of Lands and , Resettlement	Agricultural (Commercial) Land Reform Act,No.6 of 1995	This Act enables the redistribution of freehold land to the previously disadvantaged under the willing seller, willing buyer principle. Problematic issues include the unclear definition and interpretation of underutilised land

		Communal Land Reform Act,No. 11 of 2002	and 'economic unit'. The Act aims to improve the use of communal land and to reduce irregularities and constraints regarding livelihood strategies. Issues addressed are: - Fencing (which is illegal); - Land degradation and impacts from prospecting, mining, road works and the use of water resources; - Allocation of land; and Institutional arrangement
Fisheries	Ministry of Fisheries and Marine Resources	Marine Resources Act, No. 27 of 2000	The Act governs the exploitation and conservation of marine resources and specifies governance issues relating to the issuing of licences, etc. It is not strong on EIA issues.
		Inland Fisheries Resources Act, No. 1 of 2003	The Act aimed to control the conservation and exploitation of freshwater resources and specified supremacy issues relating to the issuing of licences. It is not strong on EIA issues. The Act makes allowance for community based management.
		Aquaculture Act, No. 18 of 2002	This Act encourages aquaculture activities in the country but ignore the environmental impacts associated with fish farming, for example over-enrichment of water due to a build-up of fish faeces, and water pollution from harmful algal blooms and how these would be prevented.
Roads Infrastructures	Ministry of Works and Transport		The Ministry is responsible for establishing and maintaining the national roads network and upholding all States infrastructures.
Cultural, historical and Archaeological	Ministry of Education and Culture	National Monuments Act, No. 28 of 1969	The Act enables the proclamation of national monuments and protects archaeological sites.
		National Heritage Act, No. 27 of 2004	The Act extends the protection of archaeological and historical sites to private and communal land, and defines permit procedures regarding activities at such sites.

Local Government	Ministry of Urban and Rural Development	Regional Councils Act, No. 22 of 1992, amended in Act No. 24 of 2000 Local Authorities Act, No. 23 of 1992 Traditional Authorities Act, No. 17 of 1995	Reference to these three Acts is involved due to a fact that traditional and regional authorities have a say in how land is allocated including local authorities. This has implications for an EIA process in that these structures must be consulted and the correct protocol must be followed.
Environmental Assessment and Management System	Ministry of Environment and Tourism	Environmental Management Act (Act 7 of 2007), and EIA Regulations (2012):	This Act is custodian of Environmental Management in the country. It makes provision for the list of activities that need an environmental assessment. The Act includes the public participation in the EIA process and for affected and interested parties to air their views and comments on the proposed project.

Source: South African Development Community (SADC) (2012:306)

3.4 NEW LEGAL AND POLICY FRAMEWORK FOR EIA IN NAMIBIA: ENVIRONMENTAL MANAGEMENT ACT, 2007

A lengthy process of the development of the country`s policy and legislation on EIA started in 1992, with the consultation among stakeholders. In August 1994 the Cabinet approved the Environmental Assessment Policy while the work of drafting the Environmental Management bill began in 1996 (MET, 1995:6). According to Tarr and Tarr (2003:10), a series of workshops, focus-group discussions and external review were used as platforms during the process of drafting the bill and was very consultative with local experts as a driving force "locally driven". During the drafting process, the main challenge was to accommodate the diverse of sectoral interests, particularly in the areas of, waste management, pollution control and land use planning. By December 1998, negotiation of the 6th and final draft of the bill was discussed with main stakeholders, although in June 2003, the bill was not presented to Parliament yet as planned. The cause of the delay *"was due to a lack of consensus over whether the new Act should be administered by the Office of the Environmental Commissioner to be located within the MET and overseen by a proposed Sustainable Development Commission (SDC), or whether there should be a more neutral Namibia Environment Agency located outside of Government, but still contracted to it"* (Tarr & Tarr, 2003:11). The Environmental Management Bill was passed in 2007, although there were no regulations to enforce it.

Finally in 2012, the EMA (No. 7 of 2007) became enforceable, after gazetting the EIA regulations on the 6th of February 2012. The EMA defines EIA as "a process of identifying, predicting and evaluating the significant effects of activities on the environment, as well as the risks and consequences of activities and their alternatives and options for mitigation, with a view to minimising negative impact, maximising benefits, and promoting compliance with the principles of environmental management (Namibia EIA framework)". In addition, the EMA (No. 7 of 2007) outlines the integration nature of an EIA. It defines the term 'environment' as "the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including land, water and air; all organic and inorganic material; all living organisms; as well as various components of the human environment. These include the landscape and the natural, cultural, historical, aesthetic, economic and social heritage and values".

Thus, there is no distinctive assessment for health, social, ecological and cultural components within the EMA (MET, 2007:2-32).

The EMA is in line with modern legislative trends, including:

- Adherence to 'the polluter pays' principle;
- The inherent need to incorporate adequate provisions to achieve 'reduction at source' in the areas of pollution control and waste management;
- The need to consider alternatives and to avoid or minimise negative impacts wherever possible;
- The costs of EIAs being borne by the proponent, who is also responsible for ensuring that the EIA and the EIA report are of an acceptable standard;
- The need for a binding agreement between the proponent and government, based on the recommendations contained in the EIA report, that specify how the environmental issues will be dealt with in project implementation; and
- The need for public participation in the EIA process (EMA, No. 7 of 2007).

Section 32(1)(b) in part VII within the EMA outlines various listed activities where EIA is mandatory required, the list serve as a guide for developers. This list can and may be amended by the Minister from time to time. In cases where the activity is not listed, the office of the Environmental Commissioner may advise if such activity requires an EIA, based on its anticipated environmental impacts. The screening checklist is used, to determine whether an EIA is required by the proponent to conduct an activity or not.

The activities requiring an EIA as stipulated in EMA broadly include:

- Water use and disposal
- Land use and transformation
- Resource renewal
- Resource removal, including natural living resources
- Industrial process
- Chemical treatment
- Agricultural processes
- Waste and sewage disposal
- Transportation
- Energy generation and distribution
- Recreation
- Any other area that the Minister considers necessary for listing (No. 7 of 2007).

3.5 EIA PROCEDURE IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT ACT IN NAMIBIA

The Act (No 7 of 2007) indicates that any application proposal with an activity under the listed activities must be submitted to a relevant authority or ministry with a filled questionnaire on environmental issues. If the Authority intends to allow the activity to go through, there is a need to link up with the office of the Environmental Commissioner for both parties to agree whether an EIA can be conducted or not. The decision should be based on the collective findings of the significance and nature of possible impacts the activity might have on the environment.

In the occasion whereby the EIA is not necessary for a certain activity, an Environmental Clearance Certificate is issued by the Environmental Commissioner with or without conditions. The proponent may begin with such an activity once the approval has been granted by all relevant authorities. The EMA makes provision for public participation, to take part and air their views in proposed activities. This is one of the essential requirements for affected and interested parties to be involved or consulted during the EIA process. The EIA regulations outline the specific requirements clearly.

The office of the Environmental Commissioner reviews the EIA reports for certification. The clearance certificate can be issued only after completion of the review and when the Environmental Commissioner is pleased with the environmental status quo of the project based on the standards. Usually discussions are conducted by the office of the Environmental Commissioner with the line ministry where the proposed project will take place. In some cases, the final report may be sent to panel for an external review or an independent expert and may also be subjected to general public hearing particularly if EIA is very technical or controversial project.

The Ministry of Environment and Tourism through the office of Environmental Commissioner is authorized to recover the total cost of the external review from the proponent on behalf of the government as per article 45 in the EMA. Once the review of the EIA report is completed, the application may be grated given that the prescribed fee is paid. The Environmental Commissioner may also decline the application, however the proponent must be provided with concrete explanations or details for the refusal.
If the proponent feels that the Environmental Commissioner's decision is not fair, can appeal to the Minister (MET, 2008a:30-33). The record of decisions on EIAs within the office of the Environmental Commissioner are required to be kept in the prescribed form and made available for public inspection at any time, as per article 38 in EMA. The obligation of the development of environmental management plans by the proponent is not explicitly required in the Act; however this is implied by the fact that the environmental clearance certificate can be issued with prescribed conditions attached to it (see Figure 3.1).

Given the fact that, the environmental clearance certificate last for a maximum of three years, environmental management plans need to be reviewed at least every three years. "It is a norm in Namibia for EIAs to lead to the development of an outcomes-based environmental management plan, which eventually becomes the implementation manual for projects" (SADC, 2012:303).

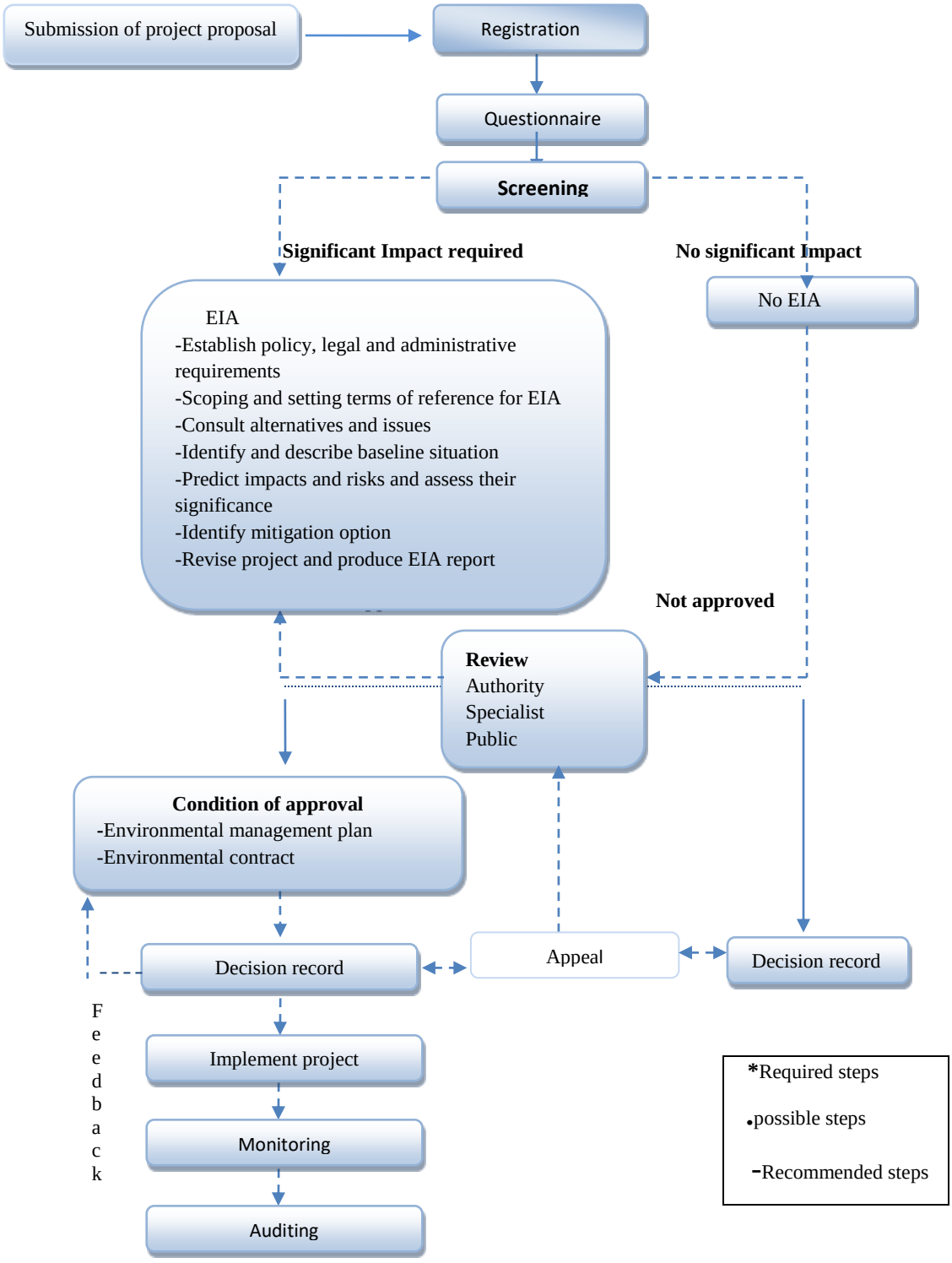

Figure 3.1: EIA process flowchart in Namibia

Source: SADC (2012:303)

3.6 CHAPTER SUMMARY

This chapter illustrated a theoretical overview of the frameworks that guide decision-making for sustainable development in Namibia, starting with the Namibian Constitution and other relevant legislation pertaining to EIA; including the Environmental Management Act (No. 7 of 2007).

Namibia has developed legal frameworks in an attempt toward achieving sustainable development. These frameworks have to serve a common purpose and that is to serve as a guiding tool to achieve their goal. One of these frameworks are the national development strategy refer to as National Development Plans (NDPs), Harambee prosperous plan, Vision 2030 as long-term development framework. The country is also signatory to international bodies and some of the agreements /treats are illustrated in the chapter.

Namibia has a Constitution; a Supreme Law of the country, against which all other laws are established and the concept of sustainable development is clearly stated in the constitution, thus various legislations in different sectors related to Sustainable development are in place (GRN, 1990).

This chapter also highlighted the EIA procedure in accordance with environmental management act in Namibia. The EMA (No.7 of 2007) came into force, after gazetting the EIA regulations in 2012. Various activities are subjected for EIA screening before development occurs raging from: water use and disposal; land use and transformation; resource renewal; resource removal, including natural living resources; industrial process; chemical treatment; agricultural processes; waste and sewage disposal; transportation; energy generation and distribution; recreation and any other area that the Minister considers necessary for listing.

The office of the Environmental Commissioner within the Ministry of Environment and Tourism reviews the EIA reports and issue for an Environmental Clearance Certificate. The Environmental Clearance Certificates are issued only after the review has been completed and the Environmental Commissioner is satisfied that the project is environmentally acceptable based on the required standards.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 APPROACHES OR STUDY DESIGN IN RESEARCH

The research design refers to the "overall strategy that is chosen to integrate different components of the study in a coherent and logical way, thereby ensuring that the research problem will be addressed effectively" (De Vaus, 2001 as cited in University of Southern California (USC), 2016:2). The research design aims to ensure that the evidence attained from the research findings answered the research questions explicitly. The purpose of the research design is to generalise from the sample to the population so that inferences can be made about some characteristics, specification of the evidence needed to answer the research questions, to test the theory used, to assess a programme and describe in details the research phenomenon. Quantitative and qualitative methods are the approaches every researcher can use to gain the research information for their studies. The following are some of the various study approaches that may be used in research to achieve research goals:

4.1.1 Case study design

A case study is "an in-depth study of a particular research problem rather than a sweeping statistical survey or comprehensive comparative inquiry". It is often used to unpack a wide-range field of research into simplified areas to work on. The case study research design is very suitable to identify whether a specific theory and model do relates to issues in the real life setting. It is a useful design when not much is known about a phenomenon (De Vaus, 2001 as a cited in USC, 2016:4).

Case study approach helps the researcher to gain an in-depth understanding of complex issues, as it provides a background analysis of a limited number of events or conditions and their relationships. The information from case studies can help the researcher to apply a variety of methodologies and depend on a variety of sources to investigate a research problem. Case study is designed in a way that can extend experience or add value to the already existing findings from previous studies. It is therefore for these reasons that social scientists make use of case studies to scrutinize existing real-life situations and relate different concepts, theories and extension of procedures (Stephen, 2013 as cited USC, 2016:4).

Unfortunately in a case study design, the single or small number of cases offers little basis for creating reliability or generalising the findings to a broader population of people, places, or things. The intense exposure to the study of a case may bias a researcher's interpretation of the findings. At times critical information may be left out which makes the case hard to interpret. Case study is not suitable for an investigation of larger problem because it narrowly focuses on very specific cases within the research phenomenon, and the findings obtained from case studies can only apply to that particular case (Vogt *et al*., 2012 as cited in USC, 2016:4).

4.1.2 Cross-sectional design

The cross-sectional design can only measure differences between or from a variety among people, subjects or phenomena because its designed with three distinctive features, namely: No time dimension, a reliance on different existing differences rather than change following intervention and groups are selected based on existing differences rather than a unsystematic allocation. It can therefore not apply on a process of change, and it requires the researcher to strictly employ a relatively approach to making casual interpretations based on findings (Jelke, 1999 as cited in USC, 2016:8).

Cross-sectional studies provide a clear snapshot of the outcome and the characteristics associated with it, at a specific point in time. Cross-sectional study includes collecting data at and concerning one point in time and is focused on finding relationships between variables at one moment in time. Groups identified for cross-sectional study are purposely selected according on existing differences rather than being random samples (Linda, 2004 as cited in USC, 2016:8). These studies are capable of using data from a huge number of subjects and not geographically bound. In most occasions, cross-sectional studies can estimate prevalence of an outcome of interest since the sample is usually taken from the whole population (John, 2008 as cited in USC, 2016:8). Finding people, subjects, or phenomena to study that are very similar can be difficult in cross-sectional study, apart from cases with one specific variable. In this study outcomes are time-bound and static, thus the findings give no indication of a sequence of events or temporal or historical contexts. The cause and effect relationships cannot be established through cross-sectional studies. These studies only provide a snapshot of analysis hence there is always the possibility for a study to have different outcomes if different time-frame is chosen (Barratt & Kirwan, 2009 as cited in USC, 2016:8).

4.1.3 Descriptive design

Descriptive design proves to be helpful to a study of this sort as it provides answers to the four W's and H question, which is the who, what, when, where and how types of leading questions, however it cannot thoroughly ascertain answers to the why questions. It thus look at the current happenings of a given research phenomenon, and gives a clear insight as to what really exists with respect to the given variables or conditions in a situation (Jeane, 1999 as cited in USC, 2016:9). Descriptive design goes well with the quantitative method approach as it gives a general overview of the variables which are worth testing quantitatively. Limitations of this study would also help in developing more focused findings, given that they are well understood (Lisa, 2007 as cited in USC, 2016:9). Crucial data, which can be used to raise very important recommendations, can be acquired from this study. The study can also collect a reasonably large amount of data which can be used for a comprehensive analysis. Unfortunately, the results obtained from a descriptive research cannot provide conclusive answers or condemn the study's hypothesis as it is greatly dependent on instrumentation for measurements and observations (Connie, 2008, as cited in USC, 2016:9).

4.1.4 Experimental design

Experimental design refers to "a blueprint of the procedure that enables the researcher to maintain control over all factors that may affect the result of an experiment" Jeane, 1999 cited in USC, 2016:10). Through experiment the investigator tend to predict an occurrence that may arise. In cases where there is a time priority in a fundamental relationship, there is consistency and the magnitude of the correlation is great; experimental designs are frequently used. Experimental design is a combination of two designs; the classic experimental design which specifies an experimental group and control group. In cases where experiments are true, they must have control, randomisation and guidance. It's through this form of design whereby a researcher is permitted to control the situation at hand as it allows the researcher to find answers as to what the causes of a given problem really are. In so doing, the researchers is therefore allowed to identity causes and effects relationships and make a distinction between variables and effects from treatment effects (Salkind, 2010 as cited USC, 2016:10). This approach highly provides the level of evidence for a single study (Siu, 2000 & Walliman, 2006 as cited USC, 2016:10).

Results gathered through experimental designs may however not be able to generalise well into the real world because the design is artificial and due to its artificial set-ups, the outcome of the experiments might modify the behaviour and responses of the participants. Experimental designs require a high standard of ethics, as a result, it may be expensive as special equipment and facilities will be needed to carry it out. Its type of design is also not favourable for qualitative method (Dummies, 2006 & Roger, 2013 as cited in USC, 2016:10).

4.1.5 Exploratory design

In cases where there are limited or previous studies to rely upon in predicting the outcome of the study, exploratory design is conducted as it focuses more on gaining insights and familiarity for later investigation or commenced when research problems are in a first stage of investigation (Michael, 2002 as cited in USC, 2016:11). Whenever a study aims to create an understanding as to how one can proceed with studying an issue at hand, exploratory designs are routinely used. Its goals are to produce certain goals based on the given situation and it can do this by either developing a timid theory or hypothesis. Exploratory design is also useful in cases where the researcher's aim is to gather background information on a particular topic, by defining new terms and clarifying existing concepts. Exploratory design can therefore generate a new hypothesis, develop a more precise research problem and it can also help with the establishment of research priorities and indicate where the resources should be allocated, especially in the policy arena or applied practice (Albert, Durepos & Wiebe, 2010 as cited in USC, 2016:11).

Exploratory research is segmented into small sample sizes, the findings are not a representation of the entire population and as a result one cannot make definitive conclusions with findings from the exploratory design. "The research process underpinning exploratory studies is often flexible but unstructured, leading to only tentative results that have limited value to decision-makers" Exploratory design has been criticised for lacking rigorous standards applied to methods of data gathering and analysis because one of the areas for exploration could be to determine what method or methodologies could best fit the research problem (Taylor, Catalano & Walker, 2002 as cited in USC, 2016:11).

4.1.6 Mixed design

Creswell (2007:) as cited in USC (2016:11), defines mixed method which focuses on research problems that require an inspection of real-life background understandings, insight into cultural influences; multi-level viewpoints an deliberate application of rigorous quantitative research assessing magnitude and occurrence of hypotheses and rigorous qualitative research exploring the meaning and understanding of the constructs. In simpler terms, mixed method focuses more on scrutinizing the research problem itself rather than the methodology.

Mixed design combines both qualitative and quantitative methods hence reflecting a new "third way" epistemological model that subjugates the conceptual space between the two other research paradigms such as positivism and interpretivism (Katrin, 2009 & Wanqing 2014 as cited in USC, 2016:14). When using the mixed method approach, the researcher strengthens the quantitative and qualitative data to formulate a holistic interpretive framework for producing possible solutions or new understanding of the given problem (Tashakkori and Creswell, 2007 as cited in USC 2016:15).Mixed method is very crucial to a given study as it combines both descriptive and numeric findings to come up with a narrative explanation to the research questions. A broader or more complex research problem can be investigated since the researcher is not restricted by using only one method. It can also create new insights or uncover hidden perceptions, patterns, or relationships that a single methodological approach might not reveal (Patricia and Heinrich, 2016 as cited in USC 2016:14).

Mixed approach can use already existing data while at the same time generating and analysing a grounded theory approach to describe and explain the phenomenon something the methodological approach might not reveal. This is important because in mixed method design the non-textual and narrative can supplement and add value to already existing numeric data which were gathered quantitatively. This method proves to add more knowledge and understanding of the research problem that can increase the broad outcomes attributed to theory or put into practice (John et al., 2010 as cited in USC, 2016:14).

Whenever the two methods of data collection are used, the researcher should ensure that there is coherence between them, as this will avoid issues of confusion due to conflicting results or ambiguous findings that inhibit drawing a valid conclusion or setting forth a recommended course of action (John, 2014 ; Silvia, 2014, & Sharlene, 2010 as cited in USC, 2016:15). It is important that one uses mixed method approach correctly.

To ensure adequate sample sizes, using comparable samples, and applying a steady unit of analysis, the researcher must combine the two methods appropriately. Mixed design requires wide-ranging time due to multiple forms of data being collected and analysed (Anthony & Leech, 2006; Abbas & Creswell, 2007 as cited in USC, 2016:15).

4.2 QUANTITATIVE AND QUALITATIVE APPROACH

Quantitative research is used aimed at responding to questions on relationships among measured variables with the purpose of guessing, explaining and monitoring the phenomena whilst responding to questions relating measured variables with the study purpose. Quantitative studies usually finish with rejection or confirmation of the hypothesis that was tested as it mostly aim to create, conform, and validate relationships and to develop a general understanding that contribute to theory. Findings from quantitative approach can be generalised to represent other people or things associated with the study (Leedy & Ormrod, 2005:20).

In state of affairs were complex nature of a given phenomenon, and where one seeks to elaborate and explain the research problem, quantitative method is usually the right approach method. Qualitative approach is also referred to as the constructivist or interpretative approach. Qualitative researchers seek a better understanding of difficult situations. Their work is often exploratory in nature, and they may use their observation to build theory from the ground up (Leedy & Ormrod, 2005:20-21).

Both approaches involves similar processes, for example; formulation of one or more hypotheses, review of the relevant literature, collection and analysis of data. Yet these processes are often combined and carried out in different ways. For instance, a quantitative researcher usually starts with a specific hypothesis to test while; qualitative researchers often begin with general research questions rather than specific hypotheses. Quantitative studies usually ends with rejection or confirmation of a hypothesis that was tested.

In a qualitative study is more likely to end with uncertain answers or hypotheses about what was perceived. During the introductory phase of the quantitative studies, variables, concepts, methods of measurement and hypotheses are defined before the study begins and stay the same throughout the study. Researchers select methods that allow them to measure the variable(s) of interest. They also try to stay aware from participants of the study in order to draw unbiased conclusions.

The quantitative research process has a specific focus, measurement instruments such as interviews, interpretations and design, for possible change along the process. In qualitative studies, researchers enter the setting with open minds, prepared to immerse themselves in the complexity of the situation and often interact with their participants.

There are various strength and weakness to these two approaches. For instance, a common weakness of quantitative research is that it is often conducted in a laboratory in an artificial setting. The results obtained in some cases may not be comparable to a natural setting, even though controlled circumstances can give the researcher considerable control over the events that may occur. In contrast qualitative research occurs within natural setting and in this case, is more true to life. Yet the findings of qualitative studies may be so specific to a particular context that they do not apply or generalise to other contexts. Table 4.1 below summarises the differences between quantitative and qualitative approaches (Leedy & Ormrod, 2005:25).

Table 4.1: Distinctive characteristics of quantitative and qualitative approaches

Question	Quantitative	Qualitative
What is the purpose of research?	-To predict and explain -To validate and confirm -To test theory	-To explain and describe -To interpret and explore -To build theory
What is the nature of the research process?	-Known variables -Predetermined method -Established guidelines - Detached view -Somewhat context-free - Focused	-Holistic -Personal view -Unknown variables -Emergent methods -Flexible guidelines -Context-bound
What are the data like, and how are they collected?	-Numeric data -Standardised instruments -Representative, large sample	-Informative, small sample -Textual and image–based data -Loosely structured or non-standardised observations e.g. interviews
How are data analysed to determine their meaning?	-Stress on objectivity -Statistical analysis -Deductive reasoning	-Acknowledgement that analysis is subjective and potentially biased -Inductive reasoning -Search for themes and categories
How are the findings communicated?	-Numbers -Statistics, aggregated data -Formal voice, scientific style	-Words -Narratives, individual quotes -Personal voice, literary style

4.3 RESEARCH DESIGN

This study is a qualitative survey, exploratory cross-sectional study The strength of the qualitative approach is that the researcher attempts to study people in terms of their own definitions of the world (the focus is more on the inside perspective rather than an outsider perspective) (Mouton, 2001:89). This qualitative approach focused on the subjective experiences of individuals towards the implementation of the new EMA and the Environmental Commissioner`s office on the implementation of EIAs in Namibia.

The case study review was used to establish an understanding of the specific situation (the decision-making procedure of environmental impact assessment for projects in the country) by focusing on specific projects case studies instead of being general. Five case studies were selected as the main case studies for this research, namely: Swakopmund Waterfront project; Tobacco plantation in Katima Mulilo; B2 Gold mine; Ohorongo Cement factory and Phosphate mining in Namibia. This approach aimed to critically analyse the decision-making procedures of these projects and to explain and clarify the phenomena of interest by attaining various viewpoints as the investigator networked with different participants (Maree,2008:26). This method assisted the researcher to have an understanding of the dynamics of the set-up of the environmental management process as far as the EIA system in the country.

4.3.1 Population of the study

The study population involved in this study were EIA Practitioners (inclusion criteria). The study also focused on other role players such as the personnel from the local authorities, developers and officials from the office of the government, to give their views on the recorded and perceived achievements and challenges associated with EIA process in Namibia.

4.3.2 Size of the sample

The study was conducted in Windhoek. A sample included ten (10) EIA officials throughout the country who were selected using systematic sampling based on the total population. Representatives from the local authorities, and government officials, were included.

4.3.3 Data collection and analysis

Data were collected through direct observation and through a survey conducted in the form of a structured questionnaire with close-ended questions.

The questionnaires were administered to selected participants. Interviews were also used as method of collecting information based EIA activities and processes of the EMA.

Upon completion of the study, information was analysed using Social Packaging for Social Sciences (SPSS) version 23.0 and Microsoft Excel respectively, e.g. Bar chart, crosstabs table, and pie chart, highlighting the project outcomes on EIA processes and how the EIA tool contributes toward improving environmental governance, based on an analysis of EIAs approved or undertaken in the country. The analysis illustrated the opinions of EIA practitioners regarding the EIA process in the country and compared projects that have been conducted within EIA with those that have been conducted previously.

4.3.4 Sampling procedure

The non-probability, purposive or judgmental and convenience sampling was used, since this study is based on specific players and EIA practitioner in the country. Purposive sampling is "*a non-probability sampling technique where the researcher selects units or respondents based on their knowledge and professional judgment* (Leard, 2012: 2)". The researcher used this method since the interests were more in working with participants who are well-informed on the Environmental Assessment process of the country (Mouton, 2001:91).

Probability; systematic sampling techniques was used for selection of respondents to a questionnaire.

$$\frac{\text{Total population}}{10^{th}} = \text{Sample size} \qquad 60/10 = 6$$

Every 6^{th} EIA institution (two institutions were represented by two practitioners each) was selected as appropriate respondents for the sampling size.

6+4 = 10 total population (participants)

A probability sample is "a sample in which each element in the population has a chance of being included in the sample" (Fox & Bayat, 2007:7-8). Probability sampling was used in the study indirectly, to determine the sample: the number of professionals or participants as included in the study. The variables in this study are quantitative which are based on the information from the structured questionnaire, interviews, and reviews of published sources or other literatures.

4.4 CHAPTER SUMMARY

The chapter indicated the theoretical concept on research methodology which entailed approaches or study design in research, qualitative and quantitative approach and research design. The overall function of a research design is to ensure that the evidence obtained should be able to answer the initial question as clearly as possible. Different study approaches or designs can be used such as: case study design; cross-sectional design; descriptive design; experimental design; exploratory design and mixed design. Any researcher must be proficient in understanding how to apply a chosen method or design to explore a research problem that can be used to increase the broad findings attributed to theory or applied in practice. Each design has its advantage and disadvantage.

This chapter emphasized a distinctive between qualitative and quantitative research approach. The quantitative research approach has a specific focus, design, measurement instruments (e.g interviews), and interpretations developing and possibly changing along the way. In a qualitative approach, researchers enter the setting with open minds, prepared to engage themselves in the complexity of the situation and often interact with participants. The strength and weakness to these two approaches is also highlighted.

The study was a cross-sectional descriptive study therefore, was not able to include all companies that do not conduct EIAs, nor all the developers or project proponents whose projects required EIAs (exclusion criteria). It was limited to those directly involved with EIAs (inclusion criteria).

The chapter further indicated the research design of the study. This study is was a qualitative survey, descriptive cross-sectional study (point in time). A limited number of participants were involved in the study (inclusion criteria). Data collection and analysis were conducted by means of literature review and self-administered structured questionnaires. Collected data was analysed using Social Packaging for Social Sciences (SPSS) version 23.0 and Microsoft Excel.

CHAPTER 5: NAMIBIAN CASE STUDIES: EIAs CONDUCTED AFTER THE PROMULGATION OF THE ENVIRONMENTAL MANAGEMENT ACT, 2007

5.1 INTRODUCTION

The office of the Environmental Commissioner was identified as being a competent authority in the country to coordinate the EMA which aims "to maintain biological diversity, to conserve and rehabilitate essential ecological processes and life support systems, and to ensure that the utilisation of natural resources in the country is sustainable for the benefit of all Namibians, both present and future, as well as the international community, in accordance to the Constitution" (GRN, 1990; SADC, 2012:290). The main aims are to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; to provide for the appointment of the Environmental Commissioner and Environmental Officers; to establish a Sustainable Development Advisory Council; to provide for incidental matters; to provide for a process of assessment and control of activities which may have significant effects on the environment (MET, 2007:9).

This section discusses five EIA reports which are registered with the Environmental Commissioner`s office, and were assessed and analysed for the study.

5.1.1 Swakopmund Waterfront project

In March 2006 the Swakopmund Waterfront Development Company (Pty) Ltd applied to MET and Swakopmund municipality to develop the Swakopmund Waterfront on unimproved portion 74 of Swakopmund town and Town lands No. 41 in the Municipality of Swakopmund. The developer intends to develop in addition to completed residential units, a commercial and residential node as well as a small craft harbour. The project area was not fenced or demarcated as a conservation zone. Potential environmental impacts were assessed based on their nature, extent, duration, intensity, probability of occurrence, mitigation possibilities and significance.

The following environmental issues were considered to be potential impacts on the environment:

- Land use aspects;
- Associated impacts with the phase for construction;
- Impacts on hydrography and geology;
- Impacts on dredging activities;
- Threat to sea bird species;
- Pollution of the marine environment; and
- Socio-economic impacts.

Dredging operations at the harbour were identified to be a main cause of environmental impacts such as:

- Loss of marine macro fauna;
- Effects of increased suspended sediment concentrations on the oyster farms;
- Effect of inundation of biological communities by redisposition of suspended sediment.

Mitigation measures were also discussed, on which the developer plans to implement and these mitigation measures formed the basis of the Environmental Management contract (currently Environmental Management Plan) between the municipality, Environmental Commissioner and the developer.

The main impacts on the environment were

- The creation of sand south of the main breakwater,
- Disturbance of the marine ecosystem by dredging activities; and also
- The potential pollution of the marine environment by harbour activities and possible influences of that on the aquaculture farms north of the development site.

Regarding the necessary mitigation measures enforced, the impacts can be reduced substantially and not pose a major threat to marine environment. Compliance audits were to be carried out by the municipality at regular intervals to ensure compliance to the study and to promote transparency and best environmental management practices.

The Swakopmund Waterfront Development Company (Pty) Ltd was awarded an EIA Clearance Certificate on 18 April 2006 by the Ministry of Environment and Tourism to cater for all proposed development as part of Swakopmund Waterfront on condition that each project has the Environmental Management Plan to mitigate and control any possible impacts on the environment.

In July 2014 the Ministry of Fisheries and Marine Resources raised a concern over possible erosion resulting from the construction of a breakwater which has changed the dynamic of the near shore currents with severe coastal erosion. The Ministry of Fisheries requested the developer to implement mitigation measures to protect the beaches and properties north of the development where fast erosion was occurring and which had to appease all affected and interested stakeholders. Environmental clearance for Environmental Management plan for the proposed of the Swakopmund Waterfront Development was issued on 19 July 2013 respectively.

Based on their concern a study was conducted by WSP group Africa (WSP, 2014:2-43) for Safari Investment Namibia. The study included a discussion on sediment transport; an assessment of shoreline changes at Vineta; comparison of the physical effect of the new breakwater on the environment with the original breakwater and the effect of having one instead of two breakwaters on the usage of the slipway was discussed as well. In addition in 2014 the WSP Group Africa conducted a study to determine historical and present evolution of the shoreline, based on previously analysed beach surveys and the evaluation of satellite images and aerial photographs (MFMR, 2014:2; WSP, 2014:2-43; Voges, 2006:2-55; MET, 2006:1-16; MET, 2013:1-2).

5.1.2 Tobacco plantation in Zambezi region

The EIA study for the new tobacco and maize farm west of Katima Mulilo in the Zambezi region, north-eastern part of Namibia, was conducted by Botha and Faul in 2014 in accordance with Terms of Reference (TOR) and based on the EMA`s provisions. The tobacco and maize farm involves the preparation of land and infrastructure for cultivation of tobacco and maize as well as the subsequent operations of the farm which include: clearing of land for irrigation and erecting infrastructure; installation of a water pipeline and power line; construction of a road connection to the national road network; rational cultivation of tobacco and maize; harvesting and processing of tobacco and maize; and transporting tobacco for export to China and maize to local, national or international customers.

Upon completion the project will cover up to 10 000 hectares of land will be cleared with 9000 ha being prepared for cultivation. Buildings, sheds, storage dams and up to 2 400 tobacco curers will be constructed and installed. This scale of tobacco production will provide jobs to an estimated 3000 workers (25 % permanent and 7.5% seasonal).
Irrigation will be by means of centre pivot systems and water will be sourced from the Zambezi River. The project may play a positive role in the Zambezi Region due to job creation and economic stimulus in a poor population with a high rate of unemployment.

The study was conducted to determine environmental, health, safety and socio-economic impacts linked with the proposed development and its operations. Appropriate environmental record was compiled by making use of secondary data and from a reconnaissance site visit. Possible environmental impacts and social impacts associated with the project were identified and mitigations were addressed accordingly in the Environmental Management plan. The development has a potential for loss of biodiversity, habitat, flora and fauna, and the development also has potential impacts on the existing and surrounding land uses especially around local communal villages near the proposed farmland. The results of the overall impacts and key issues associated with the proposed sources of potential impacts with respect to the receiving environment were clearly presented in the EIA report. The components of the project activities that are likely to have an impact on the natural environment (physical, biological and social) were broken down into individual development stages and activities. The results of the overall significant impact assessment associated with the proposed activities or sources of potential impacts were clearly indicated. Due to the scope of the tobacco and maize farm development, as well as its location, the main concern was the potential environmental impact.

Hence the EIA was suggested for the project based on findings of the scoping assessment, observing major concerns such as legal implications, impacts of deforestation, ground water and soil pollution and social-economic impacts. In all these four areas of concern, specialist studies were conducted. For other environmental risk, preventative measures and sound management system, environmental performance will be implemented and monitored to ensure compliance and that corrective measures are taken as suggested in the scoping report (include in recommendations).

Based on the EIA report the following activities were conducted during the assessment process:

- Environmental Management Plan addressing all identified impacts;
- Stakeholder engagement and consultation conducted throughout the assessment of the proposed project, to make sure all the institutional and authorities as well as the local communities of Interested and Affected Parties (I&AP) are fully informed on the implementation of each of the development stages;
- Final scoping EIA report by Botha and Faul, 2014;
- Field-based Flora and Fauna specialist study by Peter L. Cunningham;
- Socio-economic specialist study by Janke Cunningham;
- Groundwater specialist study by HM Resources and Waste CC.

It is important to note that the development of the new tobacco and maize farmland will create sustainable jobs and training opportunities for the people of the region. If the proposed project is managed well through training the local community and in conjunction with the University of Namibia and other key stakeholder, the proposed project will be a catalyst for introduction of commercial agricultural development in the Zambezi region, compared to the current unsustainable slash-and-burn subsistence type of agricultural practices. Overall, the proposed project will support a rural development drive in the Zambezi region greatly (Botha & Faul, 2014:1-58; Geo Pollution Technologies, 2014:1-33).

5.1.3 The B2 Gold mine

Auryx Gold (Namibia), owner of B2 Gold mine contracted Aspeiser Environmental Consultants cc (ASEC) to conduct the scoping study in 2008. B2 Gold mine is located in the central-north part of Namibia about 50 km south of Otavi and lies exclusively on commercial land and extends over a number of farms. The scoping report provides the baseline database from six separate specialist studies (on vegetation, fauna, hydrology, air quality, archaeological sites, socio-economic impact) and identifies some of the potential environmental (biophysical), social and economic impacts that will have to be addressed and mitigated when necessary. Public participation was implemented throughout the study, and all the findings identified were incorporated in the EMP construction and operation of the open pit mine. Based on the outcome of the scoping study, there was no evidence that B2 Gold mine will have a significant impact on any known species national conservation status. The mine will need to make provision to protect the pan areas much as possible.

Protecting the quantity and quality of the groundwater is seen as the most critical environmental concern. The owner of the mine, Auryx Gold (Namibia) is legally obliged to take all the necessary steps to protect or relocate any burial sites near the mine area in accordance with official directive. The B2 Gold mine is expected to bring socio-economic benefits to the nearby towns and the region as a whole (Speiser, 2010:16-123).

5.1.4 Ohorongo Cement factory

Ohorongo Mining (Pty) Ltd (a joint venture between a subsidiary of SCHWENK Zement in Germany and Namibian investors) planned to construct a cement plant in Namibia. The project was motivated by the growing demand and shortage of cement in Southern Africa and lack of a cement plant in Namibia. The proposed plant was established on the farm called Sargberg No. 585, 17 km north of Otavi. Collin Christian & Associates cc were contracted to conduct the EIA, which identified potential impacts through conducting public consultation, site investigation, consultation with specialists, professional experience and a Checklist of Environmental Characteristics. Each of the potential impacts was assessed based on the criteria such as the nature, extent, duration, intensity and probability of the impact. Potential mitigation measures were recommended in each case and further monitoring and investigation throughout the relevant phases of the project were recommended. A review of relevant policy requirements and legislation for a project of this nature was undertaken by Envirolex as part of the EIA report.

The EIA provided key aspects of the environment that are relevant to the potential impacts of the project. With regard to bio-physical aspects, the project is located within the Otavi Mountain Lands which are known to be sensitive, especially in the cases of some vegetation and aquatic fauna in karst caves. These aspects were considered in detail. The major concern was the conservation status of fauna and birds or any species being affected by the project. In March 2008, the Ministry of Environment and Tourism gave an Environmental Clearance for Environmental Assessment and Plan for the proposed Cement manufacturing plant to Ohorongo Mining (Pty) Ltd. The clearance recommended that regular environmental monitoring of performance and possible improvement should be conducted once the project commenced. In considering the location of the project being in the sensitive area, the MET reserved the right to attach further legislative and regulatory conditions during the operation of the project (Collin & Associates 2008:4-70; MET 2008b:1-2).

5.1.5 Phosphate mining in Namibia

Namibia Marine Phosphate (Pty) Ltd (NMP) planned to develop the Sandpiper Marine Phosphate Project, located 160 km south of a coastal town; Walvis Bay in Namibia. The proposed location of the project is one of the resourced area with phosphate mineral on the continental shelf south of Walvisbay and is part of the mapped zone regionally. The proven deep water dredging method was intended to be used to mine phosphate.
The process of segregating phosphate sand and other marine sediments was planned to be located on shore at Walvis Bay and minimal beneficiation will be required.

The EIA was conducted in terms of Namibia`s Environmental Management Act (No. 7 of 2007) for the marine and land-based activities. The NMP appointed Jeremy Midgley & Associates and Enviro Dynamics cc as the lead consultants of this study. The key issues were identified during the scoping process to be investigated through description of the project, summary of environment regulatory framework of the project, an overview of the socio-economic and bio-physical environment of the project, public consultation and identification of key issues. Different specialist studies were undertaken in various field; marine ecology, sediment dynamics, terrestrial ecology, birds, water quality including groundwater surface water on land and at sea, air quality, visual change, noise, socio-economic factors including tourism, traffic, archaeology, carbon emission and radioactivity.

The EIA study acknowledged that there were major constraints to the project in terms of power, transport, water supply, export logistics and land availability. The impact assessment conducted by various specialists was of high quality. However the specialists recognised that a fieldwork based verification study was necessary primarily to improve the level of confidence in their scientific predictions of the extent, severity and duration of possible impacts arising from the operations during the dredging process. This verification survey would serve as an environmental baseline for the target dredge area and serve as a benchmark against which the actual impact of dredging could be assessed. Independent reviews were conducted on the NMP project in 2014, through various external reviews by specialists in areas such as water column and sediments, biodiversity, fish and fisheries, marine mammals and seabirds.

Verification programme (all studies included) suggested that NMP be committed to a planned monitoring programme and adaptive management approach, as highlighted in the Environmental Management Plan.

The office of the Environmental Commissioner issued the Environmental Clearance Certificate on 05th September 2016, but was withdrawn by the Office of Attorney General few days after being issued as per application of the Ministry of Fisheries and Marine Resources and other I&APs (Jeremy Midgley, 2014:1-34 & Enviro Dynamics, 2012:1-117).

5.2 CHAPTER SUMMARY

This chapter gave an overview of the five EIA reports or case studies which are registered with the Environmental Commissioner`s office after the promulgation of EMA (No. 7 of 2007) and were assessed and analysed for the study. The five case studies were, namely: Swakopmund Waterfront project; Tobacco plantation in Katima Mulilo; B2 Gold mine; Ohorongo Cement factory; and Phosphate mining in Namibia. This approach aimed to analyse critically the decision-making procedures of these case studies, in order to develop an understanding of the perceived dynamics of the environmental management system in Namibia. All case studies had a common goal, to inquire an Environmental Clearance Certificate through the office of the Environmental Commissioner.

CHAPTER 6: ANALYSIS OF RESULTS

6.1 INTRODUCTION

Data collection and analysis was conducted by means of literature review and self-administered structured questionnaires. The target total sampling population was met and the questionnaires were administered successfully to the ten respondents from various institutions, completed and returned all the questionnaires. The quest for information was on the following: the legislative framework on EIA assessment in Namibia; the role and decision-making of the Environmental Commissioner and the effectiveness and efficiency of EIA assessment process.

The analysis below is the information from the survey (questionnaires) which were analysed using graphical presentation from the database in Statistical Package for Social Sciences version 23.0 (SPSS). All of these were analysed using SPSS software and Microsoft Excel 2010 respectively.

6.2 ANALYSIS OF RESULTS

The analysis shows that the participants hail from different professions, such as EIA practitioner, environmental officer and “other”. Their distribution was: 70% of participants were Environmental officers; 20% EIA practitioners and “other” were 10% (see Figure 6.1). Only 20% were female (see Figure 6.2), and they were either EIA practitioners (50%) or environmental officers (50%) respectively. Most of the male participants were environmental officers (75%), and the rest were EIA practitioners and other professions 12.5% (see Figure 6.3).

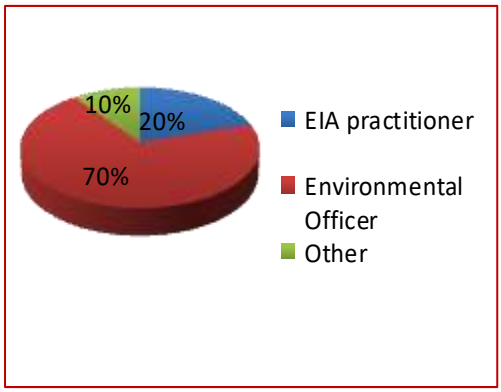

Figure 6.1: Occupational representation for respondents, Sept 2016

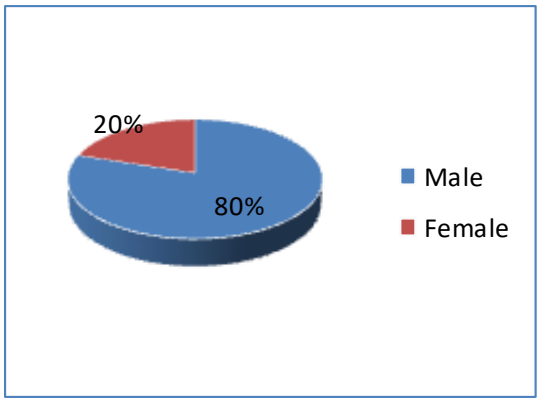

Figure 6.2: Gender of respondents, Sept 2016

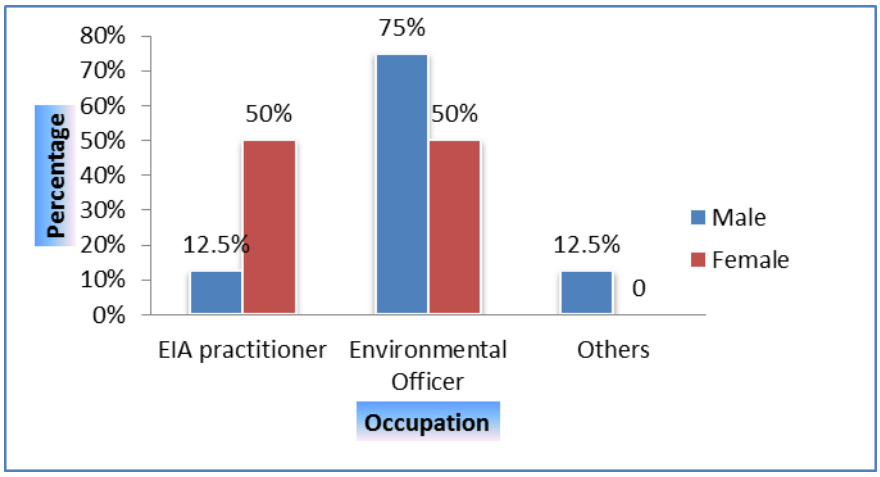

Figure 6.3: Occupation correlated with gender for respondents in the project, Sept 2016

To assess the credibility of their responses, respondents were requested to indicate their years of experience in the profession. As shown in Figure 6.4, most of the respondents, 50%, have worked for more than 8 years and 20% has been working less than a year (6 months-1 year) and 2-4 years respectively. Only 10% worked for more than 5 years (5-7 years).

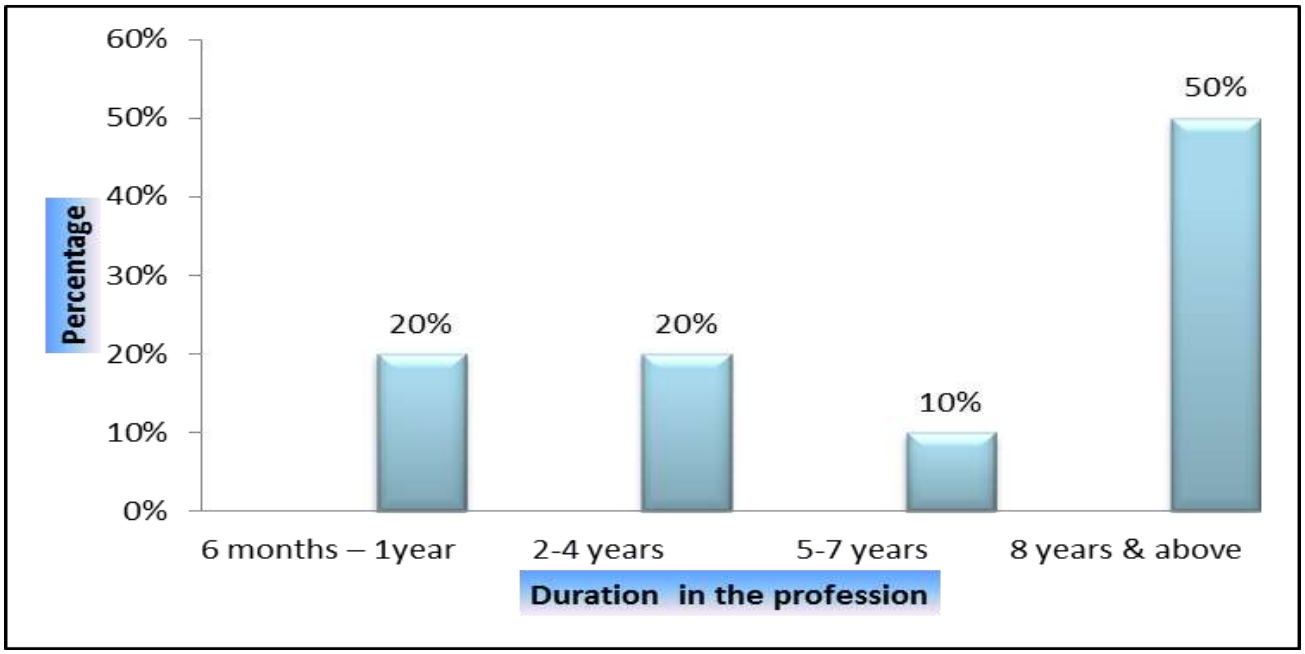

Figure 6.4: Years of experience in the profession of participants, Sept 2016

Key elements of the legislative framework governing environmental management in Namibia were identified by respondents (Figure 6.5) as the Environmental Management Act (No.7 of 2007) and its Regulations (30% of respondents each), the Constitution of the country (20%) and "Other" measures (20%) that regulate environmental management in the country. Other measures identified were in areas such as natural resource management, water resource management, nature conservation, soil conservation, public health (noise control, occupational health and safety and solid waste management) and petroleum.

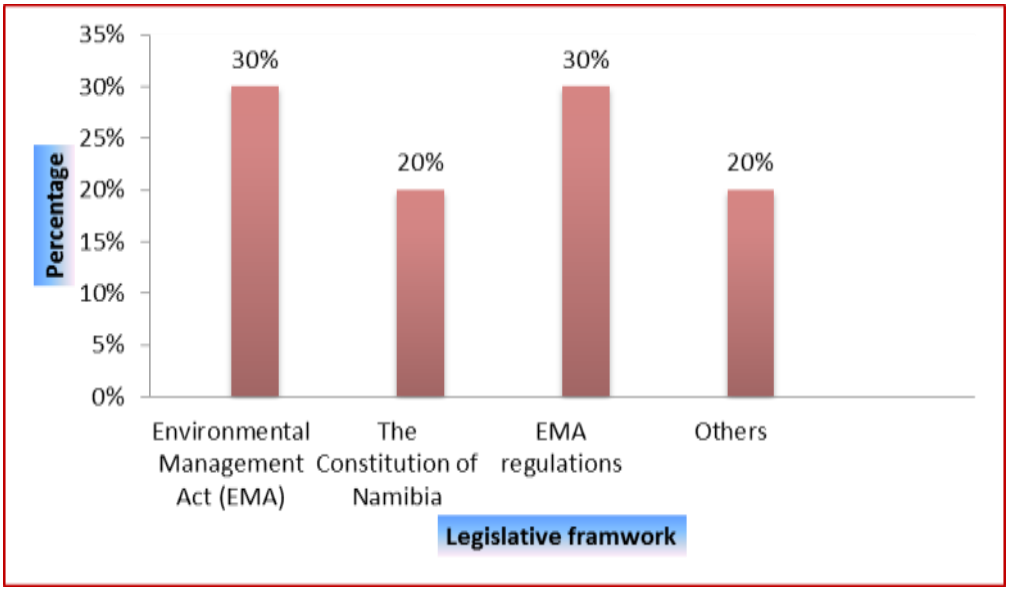

Figure 6.5: Legislative framework governing EIAs in Namibia, Sept 2016

Respondents assessed the implementation of the legislative framework in the country in three categories namely: good, fair and poor. As illustrated in Figure 6.6 below, the majority (80%) rated the implementation of EIA framework as "Fair", with 20% rating it "Good".

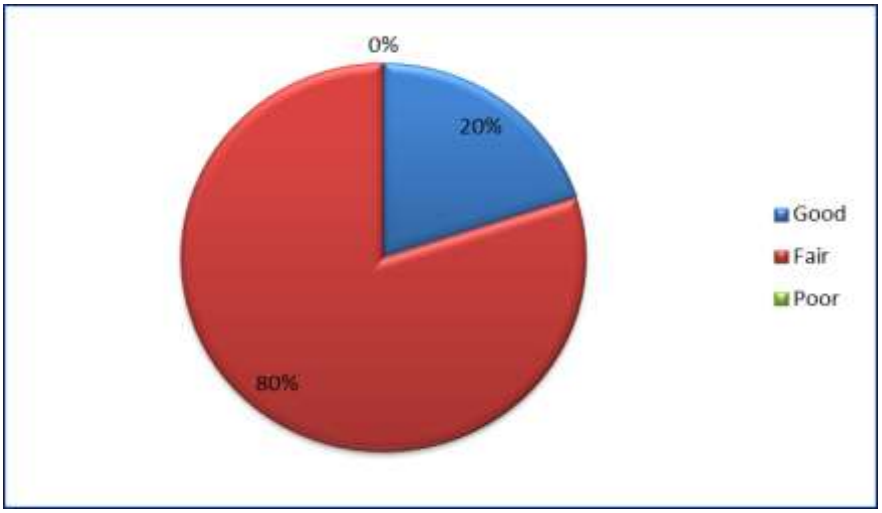

Figure 6.6: Legislation framework in Namibia, Sept 2016

Respondents were also asked to select projects submitted to the office of the Environmental Commissionner in terms of public concern. The analysis (see Figure 6.7) shows that 54% identified Phosphate mining as raising the most concern; next was Swakopmund Waterfront (23%), 14 % identified the tobacco plantation in Zambezi region and only 9% identified other projects as part of the reason for objection by the general public.

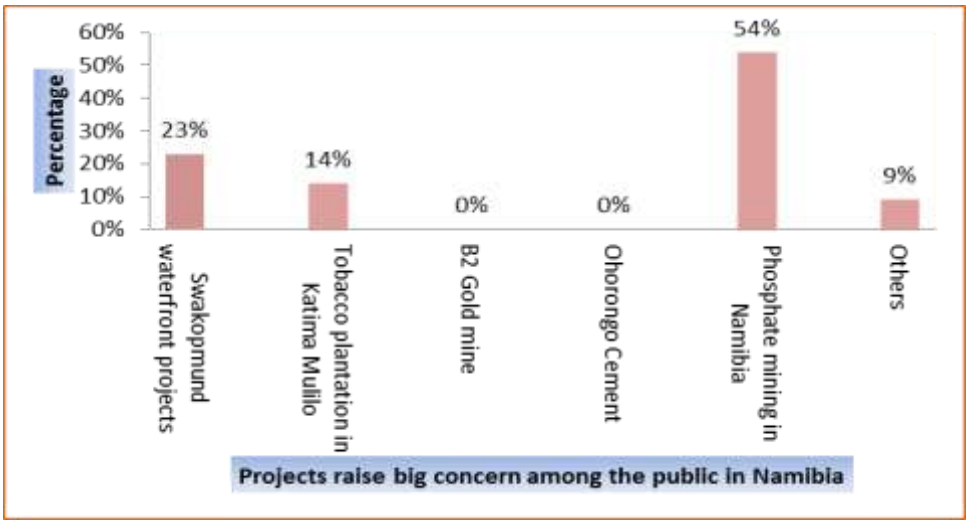

Figure 6.7: Projects that raised concern among the public in Namibia, Sept 2016

Various factors play a role in the EIA process, with an influence on the final decision of the EIA process. Respondents were asked to indicate which factor they believed to have the biggest influence on the final decision.

Most (35%) chose impacts of the project, followed by public/community consultation (20%), Other (social and economic impacts and mitigation plan as per EMP - 20%), the office of the Environmental Commissioner (10%), and type of project (10%), while 5% chose the location of the project as the most important factor for decision-making as illustrated in Figure 6.8.

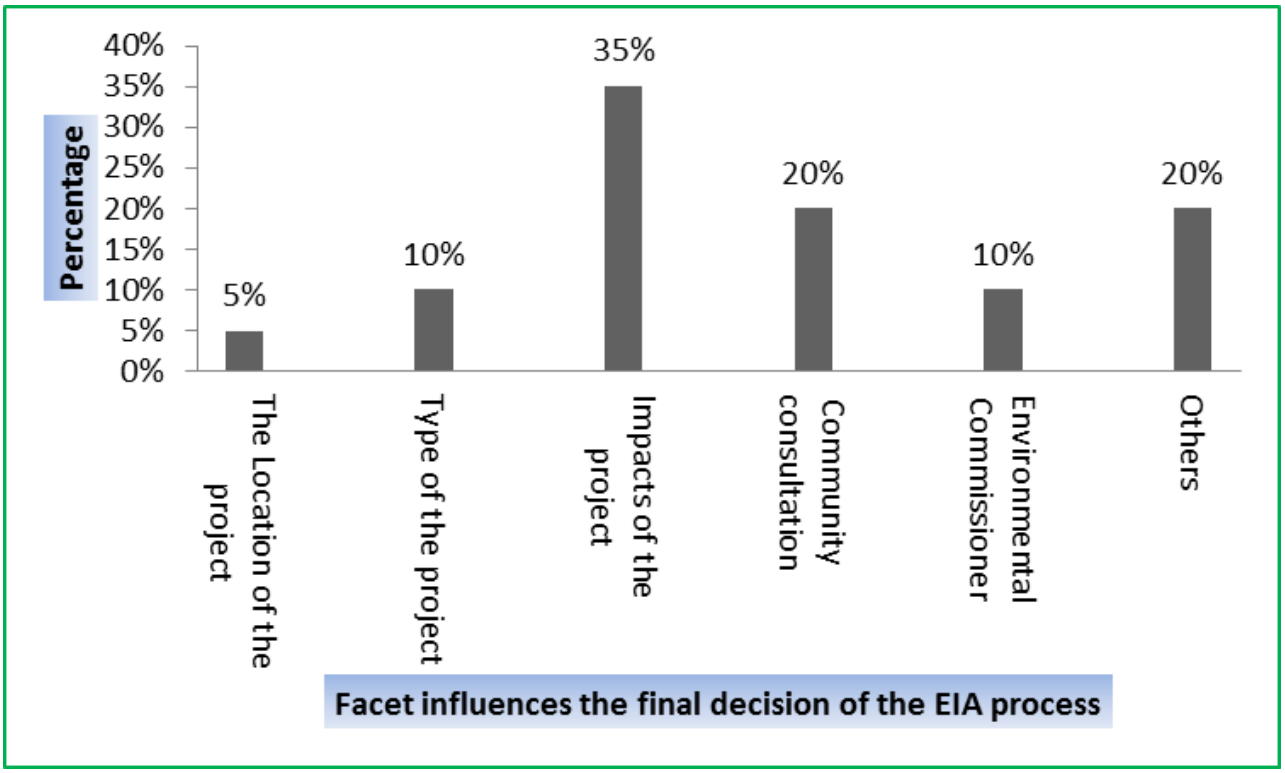

Figure 6.8: Factor influencing the final decision of the EIA process, Sept 2016

To assess the effectiveness and efficiency of EIA process in the country, respondents were asked to categorise EIAs in the various categories of effectiveness and efficiency for the implementation of EIA process (See Table 6.1 and Figure 6.9). The preferred category was procedural (70% of respondents), followed closely by substantive, normative and salience. There was little difference between these and categories of legitimate (50%), transactive and credible (40%).

Table 6.1: Categories of effectiveness and efficiency of EIA process and its application in Namibia, Sept 2016

Category	Application in Namibia		
		Frequency	Percentage
Procedural	Yes	7	70
	No	0	0
	Don`t know	3	30
Substantive	Yes	6	60
	No	2	20
	Don`t know	2	20
Transactive	Yes	4	40
	No	3	30
	Don`t know	3	30
Normative	Yes	6	60
	No	1	10
	Don`t know	3	30
Salience	Yes	6	60
	No	1	10
	Don`t know	3	30
Credible	Yes	4	40
	No	3	30
	Don`t know	3	30
Legitimate	Yes	5	50
	No	0	0
	Don`t know	5	50

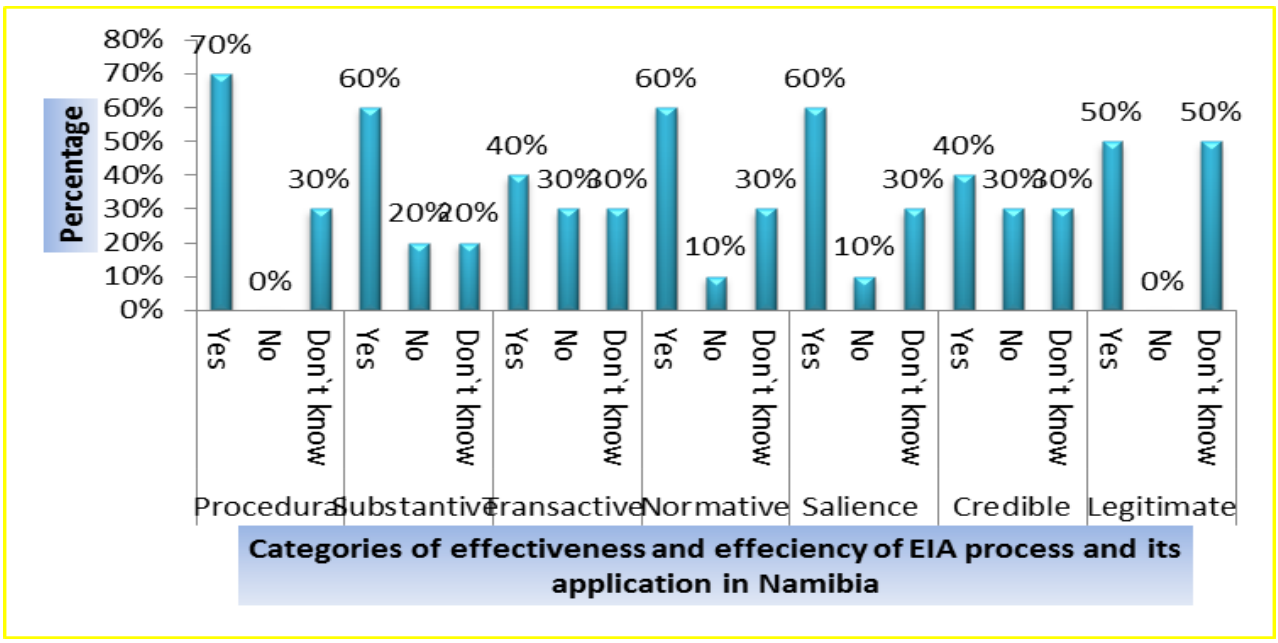

Figure 6.9: Categories of effectiveness and efficiency of EIA process and its application in Namibia, Sept 2016

For the effectiveness and efficiency of EIA process in Namibia to be improved, the respondents suggested the following:

- Amendments to legislative framework of EIA in the country;
- Strengthening educational awareness on EIA;
- Conducting monitoring and evaluation on EIA;
- Setting minimum requirements for EIA practitioners;
- MET to empower local authorities to contribute on decision-making of EIAs;
- More resources needed to monitor EMPs;
- Environmental officers at all level to conduct inspection to ensure that EIAs are conducted for all listed activities.

6.3 CHAPTER SUMMARY

The data collection tools used for this chapter includes literature review and self-administered structured questionnaires. The target total sampling population was met and the questionnaires were administered successful. Ten respondents from various institutions completed and returned all the questionnaires. The quest for information was the legislative framework on EIA assessment in Namibia; the role and decision-making of the Environmental Commissioner and the effectiveness and efficiency of EIA assessment process. The data analyses were conducted using graphical presentation from the database in Statistical Package for Social Sciences version 23.0 (SPSS).

The analysis in the chapter indicated that the participants hail from different professions, such as EIA practitioner, Environmental officer and "other". Most of the respondents, have worked for more than 8 years and some has been working less than a year (6 months-1 year) and 2-4 years respectively. Only few worked for more than 5 years (5-7 years).

The respondents assessed the implementation of the legislative framework in the country in to rate and rated it within three categories namely: good, fair and poor. Majority the respondents rated the implementation of EIA framework as "Fair".

Respondents were also asked to select projects submitted to the office of the Environmental Commissioner in terms of public concern. The analysis shown majority identified Phosphate mining as raising the most concern; followed by Swakopmund Waterfront and Tobacco plantation in Zambezi respectively.

In terms of various factors which play a role in the EIA process, with an influence on the final decision of the EIA process. The impacts of the project was chosen as most influential factor, followed by public/community consultation and other (social and economic impacts and mitigation plan and location of the project was least.

The preferred category on the effectiveness and efficiency of EIA was procedural, followed closely by substantive, normative and salience. There was little difference between categories of legitimate, transactive and credible. The Chapter further highlighted the recommendations by the respondents towards the improved effectives and efficiency of EIA in the country.

CHAPTER 7: DISCUSSION

7.1 RESULTS OF SURVEY: GENDER

In this study, environmental management experts expressed their opinions on the EIA process and its influence on environmental decision-making for development projects in the country, based on: the legislative framework on EIA assessment in Namibia, the role and decision-making of the Environmental Commissioner, and the effectiveness and efficiency of EIA assessment process.

Three types of environmental management experts, namely, Environmental Officers, Environmental Impact Assessment Practitioners and Researchers responded to the questionnaire and individually evaluated EIA in the country, as shown in Figure 6.3. Most of these experts have vast experience in their respective positions in environmental management areas; with working experience of more than 8 years (see Figure 6.4).

The findings show that, overall, this group of environmental management experts were male, with smaller gaps between environmental officers, as indicated in Figures 6.2 and 6.3. Wolthers *et al*. (2006:615) state that measuring any development with gender disaggregation is conducive to accurate assessment, gender-sensitive and gender-appropriate development within relevant policies.

The findings do not mean there is less involvement of females in environmental activities. Women have a critical role to play in all developments and sustainable development is not an exception, as is well-stipulated in the Sustainable Development Goal 5 of the United Nations on Gender equality: “Achieve gender equality and empower all women and girls”. The target is specifically to recognise women’s equality and empowerment as both the objective, and as part of the solution (UN, 2014:4). According to Leach (2016:23), women have connections to nature, nurturing behaviour and environment knowledge that enables them to assume an active role in environmental projects. Therefore, women should always be recognised like their male counterparts in all areas of development.

7.2 RESULTS OF SURVEY: LEGISLATION

Respondents identified the legislative framework that governs the Environmental Impact Assessment in Namibia. As seen in Figure 6.6, the Environmental Management Act (No.7 of 2007) and its Regulations (2012) received most weighting, with the Constitution (GRN, 1990) and other statutes that govern the EIA in the country as secondary.

Namibian Constitution (GRN, 1990) is formalised as a Supreme Law against which all other laws are tested. Moreover Namibia has a strong commitment to sustainability, as its Constitution has a specific sections on the environment, among one of the few countries in the world (MET, 2008:5-6). The country has various legal frameworks that guide environmental management in different sectors, such as water resources, pollution control, public health, waste management, planning and zoning, mineral resources and mining, fisheries and marine control, nature conservation, land resettlement, roads and archaeological historical and cultural contexts (SADC, 2012:305). Namibia has developed frameworks to achieve sustainable development, to serve as guiding tools to achieve the sustainable development goals, such as National Development Plans (NDPs), Vision 2030, Harambee Prosperous Plan. It has been specified by EMA that sustainable development must be promoted in all essential areas related to the environment. It is also good to note that there is a system in place for making decisions on matters related to environmental management and sustainable development, in the country through various ministries, non-governmental organisations and agencies of which the Ministry of Environment and Tourism is a competent authority in promoting sustainable development (Tarr & Tarr, 2003:3).

To assess the implementation of the legislative framework in the country, the respondents had to categorise the country's status as good, fair or poor, as shown in Figure 6.6. The participants' responses highlighted a fairly satisfactory status, as most describe the implementation EIA legislative framework in Namibia as being fair, if not good.

The existence of environmental legal compliance is crucial in the development of any country. These findings are promising, as Namibia is among the countries in the world with a reputable Constitution (GRN, 1990) as starting point for sustainable development. Equally the adoption of EMA in Namibia is a great step forward in the development of its national environmental legal framework, although there are still rooms for improvement.

The EMA (No. 7 of 2007) is still at an early stage, and its implementation needs to be strengthened, especially community participation in decision-making on issues pertaining sustainable development and the environment. The definition of the concept of sustainable development in the EMA comprised of environmental, social and economic dimensions which is in line with definition of sustainable development adopted for this study.

7.3 RESULTS OF SURVEY: EIA PROCESS

The analysed responses on evaluation of the EIA process revealed some similarities among respondents as well as some differences. Most of the respondents were more concerned with the impact of the project while others thought factors with more influence would be the location of the project, type of project, public/community consultation, decisions by the Environmental Commissioner and others factors such as such as social and economic impacts and mitigation plans as per projects` EMP (see Figure 6.8).

The evaluation of various factors in the EIA project is not limited to the analysis and impact reporting stage of an EIA only. There are different meanings of significance concept at different stages of the EIA process (see Table 2.1, above). For example, the screening stage is used to determine whether an EIA is required or not. Decisions are made at all stages based on the significance, as it is used to weigh and rank impacts (negative & positive) and make compromises or trade-offs (DEAT, 2002:28). Mitchell *et al*. (1998:10) indicated that each of the stages of an assessment has different potential effects and each stage is subject to various decision interventions. Hence the following factors were assessed, based on the case studies featured in this study (Figure 6.7).

7.3.1 Community participation

Community participation is a vital factor in a project, and has an impact on the final decision. However, in most management projects and environmental assessments, the stakeholder engagement and technical assessment processes are perceived as separate, but interacting, procedures; i.e. “the more subjective engagement processes are used to guide the more technical assessment processes”. As a result, various stakeholders may raise concern resulting from the lack of integration and this challenge is being encountered worldwide (Greyling, 2000 as cited in Audouin & Hattingh, 2008:11).

Greyling (2000) as cited in Audouin and Hattingh, (2008:11) stated that "… *a lack of such integration … is the burden of many EIAs and causes much pricey delay, social risk and conflict…*"

An example is illustrated in the Phosphate Mining case study and Tobacco plantation in Zambezi region, where it appears that the public participation process during the EIA process was not followed satisfactorily (SAIEA, 2015:5-6). Regulation 23(1) of the EMA states that "a registered or affected party is entitled to comment in writing, on all submissions made to the Environmental Commissioner by the applicant responsible for the application…" Contrary to this, registered Interested and Affected Parties for Phosphate Mining were not informed of the revised EIA or Environmental Management plans drafts that were submitted to and approved by the Environmental Commissioner. The I & APs were not given a chance to peruse and comment on the documents (Namibia Environmental & Wildlife Society (NEWS), 2016:32). Based on these findings full transparency in the phosphate mining project and tobacco plantation in Zambezi had been required, so that all affected and interested parties and concerned members of the general public could inform themselves regarding the proposals.

Participation of affected and interested parties is also highlighted in the Environmental Management Act (No.7 of 2007) under the environmental management principles; "the participation of all interested and affected parties must be promoted and decisions must take into account the interest, needs and values of interested and affected parties" (MET, 2007:7). The EMA also make provision for public participation, to take part and air their views in proposed activities. This is one of the essential requirements for affected and interested parties to be involved or consulted during the EIA process. In addition, the EIA regulations outlined specific requirements clearly (SADC, 2012:303).

Its is also worth mentioning that other case studies have shown a good representation of community participation, especially B2 Gold mine. Most of the interested and affected parties (community and other stakeholders) were engaged in a process of dialogue. The high level of interaction was maintained, including discussions of potential and real social and environmental impacts being identified, and some are built into the development plan for the mine. This is supported by Wood (1995:51) who stated that "*good consultation helps to build relationships with mutual respect, shared concerns and objectives between the company pursuing the development and the community*".

The methodology used in the public participation process is described in each of the scoping reports and summarised in the EIA report of each case study.

Hence, fully understanding most environmental problems requires not only synthesizing across different disciplines within a specific area but also requires integration with various areas pertaining to the environment; as a result the outcomes of the assessment may be useful and valuable to the public and decision-makers (Mitchell *et al*., 1998:8).

7.3.2 Environmental impacts of the project

The findings indicate awareness of environmental issues within the general public. Phosphate mining in the country received more voices of concern from the general public, including interested parties and affected parties. This may be due to the predominance of conventional political concerns on the final decision of the project and its impacts on the environment. There were contradictions between two leading ministries, that is, the Ministry of Fisheries and Marine Resources and the Ministry of Environment and Tourism, regarding the phosphate mining. MET had issued an Environmental Clearance Certificate on 05 September 2016, for phosphate mining, based on the scientific monitoring plans to be instituted by the proponent.

However the Ministry of Fisheries and Marine Resources (MFMR) felt there were no credible scientific results backed by sound methodologies to justify issuing an Environmental Clearance Certificate (MFMR, 2015:1-2). The MFMR (2015:2) further indicated that the phosphate mining would have a negative impact for marine resources and aquatic ecosystems, and social aspects attached to it. The marine component of the project was initially assessed in 2011 and then subjected to a verification study by a team of independent marine experts during the moratorium on marine phosphates that was arranged by the Government, and expired in 2015. Thus, the outcome of the verification study and other reviews of the EIA informed the Environmental Commissioner's decision.

The question is, will this decision be good for the country (Namibia) and its sustainable development, and will it not compromise the health and safety of the marine environment? According to the above findings, it seems that Harring (1997) was right, who indicated that "…*the social concerns/public involvement and consultation should not be separated from the scientific ones during Environmental Assessment as large projects of this nature are no*

longer simply scientific or engineering matters, the human and environmental impacts are fundamental and must be given full weight at all time".

Based on the literature reviewed, the EIA report for Phosphate mining was characterised by lack of data required for accurate impact assessment, the presence of unsupported concepts or claims, outdated methodology and a failure to consider key issues and concepts relevant to the assessment of the impact for phosphate mining. The overall impacts indicated in the report for mining phosphate are severely underestimated.

The Swakopmund Waterfront development project raised concerns among the general public as well. The EIA indicated main impacts on the environment such as the creation of sand south of the main breakwater, disturbance of the marine ecosystem by dredging activities, and also the potential pollution of the marine environment by harbour activities and its possible influences on the aquaculture farms north of the development site. Mitigation measures for all these impacts were articulated in the EMP of the project and in addition compliance audits were to be carried out by the municipality at regular intervals, to ensure compliance to the study and to promote transparency and best environmental management practices (WSP, 2014:1-43; Voges, 2006:2-55).

However, in 2014 the Ministry of Fisheries and Marine Resources, as competent authority in fisheries and marine resources, raised a concern over possible erosion due to the construction of the breakwater that has changed the dynamic of the near shore currents with severe coastal erosion. The competent authority demanded that the developer implement mitigation measures to protect the beaches and properties north of the development area, where fast erosion was occurring, and that such mitigation should be approved by all affected and interested stakeholders (MFMR, 2014:2). This is aligned with the environmental system, as monitoring and evaluation as a significant stage to improve the implementation of EMP and actual implications of the development projects, on the environment.

It has been noted that all the reviewed case studies have been conducted by independent consultants, whose credibility and independence may be questioned if all appointed and paid by the applicant (McDaid, 2000:11). To overcome such bias and confidentiality, Luger *et al*., (2000:8) proposed the use of peer reviews to promote the concept of independence.

Most of the case studies' EIA documents favour the interests of the project`s proponents, rather than the health and wellbeing, financial and environmental interests of Namibian people, especially in the cases of the Tobacco plantation and Phosphate mining projects.
In general all case studies made provision for useful information, reflecting on the status of the various aspects of the environmental impact assessment process. These reflections are measured against the outcomes or results obtained reviews to establish resemblances.

Most studies have included various specialist studies which involve the prediction and identification of the impacts of the project as conducted by specialists and the evaluation of their significance. Different methods were used, including predefined criteria for evaluating impacts; visualisation; verbal description; professional judgement; visualisation; matrices and mapping (DEAT, 2002:28). The approach that was used was that of desktop studies and a literature review.

7.3.3 The location and type of the project

Most of the case studies in this study are located/to be located in sensitive areas:

- Phosphate mining (located in Atlantic ocean);
- Swakopmund Waterfront (at the edge of the Atlantic Ocean);
- Tobacco plantation (deep in the forest in Zambezi region-state forest reserve);
- Ohorongo Cement factory (located in Otavi mountain land) and
- B2 Gold mine (near archaeological sites).

Based on the nature of some projects and their locations, specific cumulative effects were not well-addressed in EIA reports, especially in the phosphate mining and Swakopmund Waterfront projects. This is a concern, because secondary development is likely to occur in the wake of such large-scale development projects (Ballot & Jansen, 1997:22). A Strategic Environmental Assessment needs to be commissioned as a matter of urgency for authorities to determine future proposals for mining, fishing and oil and gas in the coastal zone. The issue of cumulative impacts in the Namibia Exclusive Economic Zone (EEZ) needs to be fast-tracked as well.

Most of the case studies conducted a good screening process. Fuller (1999:52) indicated that the screening process ensures that EIA is conducted or applied correctly and impacts are assessed; if EIA is not applied inappropriately it enhances cost-effectiveness. The scoping process aims to detect or identify the impacts and issues that are likely to be significant in order to establish terms of reference for EIA (IAIA 1999:4).

In most case studies pre-feasibility studies were concluded before the scoping study; for effectiveness purposes pre-feasibility studies should be conducted at the same time as screening and part of the scoping study. This allows practitioners to be well-briefed, competent with clear objectives towards the project. It is strongly recommended that a scoping process/study should start as early as possible in the project planning in order to influence the design and location of the proposed project (Fuller, 1999:50). When scoping is not done properly, the EIA team can have a strong influence on the determination of key issues to be addressed (DEAT, 2002:29).

7.3.4 Legal framework

To achieve sustainable development and protect the environment, all policies, programmes, projects, and plans that are considered to have adverse impacts on the environment require an EIA, as per Namibian legislation. Most of the relevant laws are listed in the case studies; however, they were not interpreted in terms of projects' compliance. The Polluter Pay Principles (Section 2(j) of EMA stipulates: "*a person who causes damage to the environment must pay the costs associated with rehabilitation of damage to the environment and to human health caused by pollution, including costs for measures as are reasonably required to be implemented to prevent further environmental damage*") was not mentioned in four case studies, except for the Tobacco plantation project in Zambezi region.

7.3.5 Decision-making and Environmental Commissioner

All five case studies were recorded in the Environmental Commissioner's office. The functions of the Environmental Commissioner as per EMA, (2007) are to: "advise organs of State on the preparation of environmental plans; receive and record applications for Environmental Clearance Certificates; determine whether a listed activity requires an assessment; determine the scope, procedure and methods of an assessment; review the assessment report in accordance with the Act; issue Environmental Clearance Certificates in terms of the Act; maintain a register of environmental assessments undertaken in terms of the Act; maintain a register of Environmental Clearance Certificates issued and environmental

plans approved in terms of the Act; conduct inspections for monitoring compliance with the Act; and perform any other duty or function which the Minister may assign or prescribe" (MET, 2007:13).

Most of the reviewed case studies have been approved by the office of the Environmental Commissioner and are operational. These are: Swakopmund Waterfront, B2 Gold mining and Ohorongo Cement factory. The decision of the Environmental Commissioner to issue an Environmental Clearance Certificate is based on the collective judgment of the nature and significance of the impact the activity is likely to cause, and the scientific monitoring plans to be instituted by the proponent (MET, 2008a:34). The other two: Tobacco plantation in Zambezi and Phosphate mining, are still in the process. These two caused an outcry among the general public including interested and affected parties due to the potential significant impacts on the environment. These two case studies (Tobacco plantation in Zambezi and Phosphate mining) have led to some positive perceptions regarding the EIA's as extensive media coverage was made available. As a result, decision-makers and the public were starting to understand the real value of EIA's in the country.

In the case of Phosphate mining, as mentioned earlier, an Environmental Clearance Certificate was issued by the Environmental Commissioner on 05 September 2016. However, it was withdrawn by the Office of Attorney General a few days after it was issued, as per application by the Ministry of Fisheries and Marine Resources. In addition, other interested and affected parties such as the Namibian fishing association and environmental clubs filled an application through the High Court to obstruct the decision made by the Environmental Commissioner. The reason was that they were not given an opportunity to peruse and comment on the documents, as highlighted above.

In regard to the EIA for the Tobacco plantation in Zambezi region, all procedures were taken for the application of the Environmental Clearance Certificate; however, most of the general public were not happy, especially the youth. To date, the Environmental Clearance Certificate for this project has not yet been issued, as an authorisation (forest permit) from the Ministry of Agriculture, Water and Forestry is still outstanding. This proposed project came at a time when the country passed the law on tobacco product control referred to as Tobacco Product Control Act No 1 of 2010, which aims to reduce the demand and supply of tobacco products and to protect the public from the exposure to tobacco smoke in the country (Ministry of Health and Social Services (MoHSS), 2010:2).

The MoHSS is also against the project, because the Tobacco Product Control Act No 1 of 2010 does not stop anyone from growing tobacco, a gap that is being exploited by the proponent (Haindula, 2015:5).

This observation gives an indication that experience of the application of EIA system in the country has so far been good. This has improved awareness and attitudes of the general public and all interested and affected parties, as illustrated above in figure 6.7. However some antagonism still exists between NGOs and Government, even though both theoretically share a common vision (Tarr & Tarr, 2003:11).

All in all, the reviewed case studies have shown a transparent process. Hopefully this can challenge the perception of the EIA as a paper exercise conducted primarily to satisfy an administrative or legal requirement, where the analysis conducted by Tarr and Tarr (2003:12) reveals that decision-makers often violate or sidestep the EIA process when it suits them.

7.4 EFFECTIVENESS AND EFFICIENCY OF EIA

Table 6.1 and Figure 6.9 describe an assessment by respondents of the effectiveness and efficiency of the EIA process in Namibia. The relevant assessment categories include procedural, substantive, transactive, and normative (Chanchitpricha & Bond, 2013:66). According to Loomis & Dziedzic, (2017:30) the three categories of effectiveness can refer to the EIA process (which includes steps in conducting an EIA, such as screening, scoping, selection of alternatives, and mitigation measures), or to the wider EIA system including external factors.

In addition, there are attributes that influence decision-making for the EIA process, namely salience, credibility and legitimacy (Cash, *et al*., 2002:1). At the end of this section, all effectiveness categories will be assessed for each case study as illustrated in Tables 7.1-7.5.

According to Cashmore *et al*. (2010:377), the purpose of effectiveness assessment, as interpreted, is not to dull dissent from a particular expert or model of impact assessment regarding expectations of effectiveness, nor is it to provide politically expedient, but incomplete results. The value of effectiveness assessment lies in the capacity to connect the learning potential for social interpretations in understanding the dynamics of policy integration.

The findings of the study have shown that most of the participants evaluated the EIA process in the country as being procedural (procedural effectiveness). This means the assessment process complies with acceptable principles and standards. According to Chanchitpricha and Bond (2013:67) procedural effectiveness is influenced by factors such as policy framework, availability of resources, active participation, political context, experience and knowledge possessed by assessment professionals. Procedural effectiveness remains the central category with the preventative nature of EIA practice and its direct link with implementation and the legal system. Therefore there is a need for an iterative process that focuses more on the outcome than simply on the process (Loomis & Dziedzic: 2017:32-33).

Credibility, Saliency and Legitimacy of the EIA process were also assessed. This is consistent with the literature that describes these attributes; credibility comprises arguments and the scientific adequacy of the technical evidence of the study at hand, while salience deals with the relevance of the assessment to the needs of role-players such decision makers and public members. Legitimacy reflects the perceptions that the assessment respect diverse views and concerns of various stakeholders', unbiased in conduct, and fair in the treatment of views and interest (Cash *et al.*, 2003 as cited in White *et al*., 2010:222; Kunseler, 2014:5).

The qualities of credibility, salience and legitimacy are enable one to reflect upon the outcome of assessment processes, whether the assessment produced effective knowledge that is perceived accurate among different stakeholders at once (Kunseler *et a*l., 2014:5). Hence there is a need for those who design and manage assessment process to balance efforts to enhance salience, legitimacy and credibility (Kunseler *et al*., 2014:8).

The theoretical and practical implications of the study findings can be used for the strategic goal of advancing knowledge on policy integration. Therefore the effectiveness evaluation for impact assessment instruments should seek to give voice to plural interpretations for design, use and promote policy-relevant learning (Cashmore *et al.*, 2010:377).

Impact assessment instruments have often been introduced to encourage better accountability and participation in decision-making, in addition to the prime goal of policy integration. It has been proposed, however, that in formalising the procedures of participation (and hence defining the legitimate ways in which EIA can be evaluated), impact assessment instruments may actually constrain opportunities for those role players with limited power to exert an influence on policy (Amy, 1990 as cited Cashmore *et al.*, 2010:378).

The importance of the topic for effectiveness evaluation might then be to determine what degree impact assessment system tools reproduce these effects. (Cashmore *et al*., 2010:378).

Furthermore the support for the framing of effectiveness evaluation can be found in various dimensions of research in social science, including (Cashmore *et al*., 2010:378):

- Recognition of the importance of social legitimacy in the use of knowledge in policy decisions;
- Acceptance of the need for more honesty on political and institutional constraints to the use of knowledge in policy decision-making;
- The dynamic, complex and indexical nature of policy decisions and knowledge utilisation; and,
- The importance and magnitude of conceptual outcomes of impact assessment mechanisms.

Tables 7.1-7.5 demonstrate the application of various categories of effectiveness among five reviewed case studies. Some weaknesses concerning the efficiency and effectiveness of EIA process in Namibia have been identified. Identification of such weaknesses can be used as opportunities for improvement, and survey respondents suggested the following:

- Amendments of legislative framework pertaining to EIA in the country;
- Strengthening educational awareness on EIA;
- Conducting monitoring and evaluation on EIA;
- Setting minimum requirements for EIA practitioners;
- MET as responsible ministry to empower local authorities to contribute on decision-making of EIAs;
- More resources needed to monitor EMPs;
- Environmental officers at all levels to conduct inspection to ensure that EIAs are conducted for all listed activities.

Table 7.1: Application of effectiveness and efficiency of EIA process for Swakopmund Waterfront case study

Categories	Application
Procedural	The project is aligned in accordance with standards and principles required for decision-making as per EMA. The EIA report contains most of the information required as far as public participation is concerned. Range of options and alternatives addressed specific policies, programmes and projects. The report strove for a high degree of public participation and involvement of all sectors (affected and interested parties).
Substantive	The required steps in the process has been followed and addressed adequately in the report and the proposed activity is described accurately especially on the impact assessment. However, other authorities' requirements were not recognised or included in the implementation phase of the project (example, the Ministry of Fisheries and Marine Resources was not consulted in the process of reclaiming land (construction of breakwater) beside the conditions for the Environmental Clearance Certificate). Based on the nature of this specific project the cumulative effects were not well-addressed. This is a concern because secondary development is likely to occur in such large-scale development projects (Ballot & Jansen, 1997:23). There was a need for a strategic environmental assessment.

Transactive	The proponent hired a seasoned practitioner with more than 20 years' experience and various qualifications in marine resources and sustainable development. The time-line of the project is satisfactory as it began in 2006 with a minor project, which is being upgraded to major projects and EMP was developed in 2012 with a valid Environmental Clearance Certificate. The cost of the project could not be identified; however cost is always measured by the human capital with timeline.
Normative	A part from employment and recreational facilities, residential apartments other economic benefits, the project report did not highlight any aspect on norms of the community of Swakopmund towards the area. This may be the cause of the attitudes or reaction experienced recently towards the projects.
Salient	In general the EIA process has been fair to all involved parties and most regulatory compliance and procedural requirements were met, and as a result the Environmental Clearance Certificates were issued for EIA and EMP respectively.
Credible	The information from the report seems to be fair enough scientifically and technically. For instance, in 2014 a special study was conducted to discuss erosion/accretion which showed that the shoreline surrounding the developed area had been affected, as per concern raised by the Ministry of Fisheries and Marine resources. The main aim of the study was to determine historical and present evolutional of the shoreline, based on the analysed beach survey and the evaluation of satellite images and aerial photographs (WSP, 2014:2-43).

Legitimate	The project tends to be fair concerning legitimacy as it was conducted in the loop of the standards and principles, although the community norms and other authorities' requirements were not adhered to. As part of monitoring and mitigation specific authorities may provide input or concerns to the project; hence the Ministry of Fisheries and Marine Resources utilised the opportunity. This is a form of legitimacy.

Table 7.2: Application of effectiveness and efficiency of EIA process in for the Tobacco plantation in Zambezi region case study

Categories	Application
Procedural	The project is aligned with national standards and principles of EIA process. The report contained adequate information required by all affected and interested parties; however, the public consultation or community involvement was very poor.
Substantive	This EIA report comprised a comprehensive legal framework; most of the relevant national and international standards were highlighted including the "Polluter pay" principle which most reports often overlook. However the local community felt left out as only one public meeting was held in Katima Mulilo town and not in the forest where the proposed area is. The specific cumulative effects of the project were not addressed although the nature of the project has significant impact. There is a need for a strategic environmental assessment for such projects.
Transactive	The project was conducted by a reputable institution in the country for conducting EIAs, with well experienced personnel. Four specialist studies were conducted in four areas such: legal implication, deforestation, groundwater and soil pollution and socio-economic impacts. The report was completed within a reasonable time-frame and is now in the hand of the decision-makers.

Normative	The proposed project will benefit the Zambezi regions with employment opportunity through development, and the country will generate revenues through direct capital investment. However, if the development proceeds, the state forest reserve will be destroyed and cause a number of negative impacts. This caused worry among the interested and affected parties.
Salient	The EIA report is well–constructed, but owing to the potential negative impacts of the project and poor involvement of local community, the decision to issue an Environmental Clearance Certificate is yet to be taken.
Credible	The information from the report seems to be scientifically and technically sufficient. The four specialist studies (legal implication, deforestation, groundwater and soil pollution and socio-economic impact) have included adequate information. On the other hand, there is limited literature on local tobacco production, as most of the references were based on data from other countries.
Legitimate	The report was well-conducted within the standards and principles of the National EIA process although the local community participation was not well-considered. No alternative locations were considered despite the significant negative impact of the project on the proposed area, a state forest reserve.

Table 7.3: Application of effectiveness and efficiency of EIA process for B2 Gold mine case study

Categories	Application
Procedural	The project adhered to the national and international acceptable standards on mining and environmental management. Public participation process has been observed throughout the study and I&APs engagement was adequately done as three public meetings were conducted at three different locations/towns: Otavi, Otjiwarongo and Windhoek respectively.
Substantive	Most of the legislation at local and international level was described in the report and aligned to the project. The report is well-constructed and includes six specialist studies (on vegetation, fauna, hydrology, air quality, archaeological sites and socio-economic impact) which involve the identification and prediction of potential impacts and the evaluation of their significance. Public participation was considered in all studies within the report. Cumulative impacts of the project were not discussed, however the decision-makers are cognisant of them and they will be considered in decision-making when required
Transactive	The project was conducted by a single consultancy company which sub-contracted various consultants during the scoping phase and Environmental and Social Impact Assessment (ESIA) and conducted different specialist studies. The report was completed within a rational time frame.

Normative	The proposed project is likely to bring the socio-economic benefits to the nearby towns and Otjozondjupa region in general. The protection of quality and quantity of water is identified as the critical environmental concern. The relocation of burial sites or necessary steps to protect them might disturb the local people and their norms.
Salient	The composition of the report (scoping phase, specialist studies & EMPs) seems to be sufficient to convince the decision- makers on the desirable route to take.
Credible	The specialist studies were commissioned during the scoping phase to establish various elements of the environment but the results of studies were limited due to absence of historical information and limited timeframe to undertake baseline studies. A pre-feasibility study was conducted and this assisted the team to design and plan properly. The likelihood of impacts to be avoided scientifically was high.
Legitimate	The report was conducted within the national and international standards of mining and environmental management with good public involvement. Cumulative impacts were not discussed, but plans were established to be incorporated into decision-making when required.

Table 7.4: Application of effectiveness and efficiency of EIA process for Ohorongo Cement factory case study

Categories	Application
Procedural	The assessment/report is sufficient as it takes into account the key environmental issues and procedures concerning the proposed activity. Public participation and involvement of I&APs in the project was satisfactory. During the scoping phase, the report was made available to the public in three towns namely; Tsumeb, Otavi and Windhoek and all I&APs were notified of its availability.
Substantive	Applicable sections of relevant laws and policies were taken into consideration by the project proponent and this includes all contractors and sub-contractors or any other person involved in the project. Public participation has been shown throughout the study. Various environmental impacts were identified and, assessed during the study and mitigation measures were addressed in the EMPs. There were no specific cumulative impacts resulting from the projects were identified (as common in the Namibian setting).
Transactive	The project was prepared by an EIA consultant hired by the proponent and identified potential impacts through consultation, site investigation, specialist studies and public participation. The project was completed within a reasonable time, as it began in 2007 and the Environmental Clearance Certificate was awarded in 2008 by the office of the Environmental Commissioner.

Normative	The proposed project is in a location known to be sensitive, and elicits major concern about especially some vegetation and aquatic fauna in karst caves and the presence fauna of various species being affected by the project. There will be benefits through employment and other secondary economic benefits.
Salient	The EIA process has shown fair involvement of various aspects raging from public participation, regulatory compliance and procedural requirements, which result in the Environmental Clearance Certificate to issued.
Credible	The report review is relevant legislation, policy requirements and key aspects of the environment results that are relevant to the potential impacts of the project were intensively addressed in the EMP. There was consideration for especially the people of nearby towns to have access to employment opportunity. All in the entire project takes into accounts the key environmental aspects and convinced the decision-maker to be awarded an Environmental Clearance Certificate.
Legitimate	The report was conducted in accordance with relevant legal requirements of mining and environmental management with good public participation and I&APs involvement.

Table 7.5: Application of effectiveness and efficiency of EIA process for Phosphate mining case study

Categories	Application
Procedural	The report was conducted as per national standards and policies; it represents the most comprehensive scientific studies. The public was partially involved in the project as per national standards' requirements.
Substantive	The EIA project report was well-written and highly informative with scientific evidence. All relevant national policies have been listed but no attempt has been made to interpret them in terms of the project in the local setting. The "polluter pay" principle as per EMA was not highlighted in the project.The comment period for the general public to review the scoping document was conducted for 11 days which is sufficient according to national standards. Based on the verification studies, 11 days is not long enough given a fact that the project is a first of its kind in the world. Cumulative impacts were not adequately addressed; there was a need for a strategic impact assessment for the entire location perhaps, which could be more useful for future projects.

Transactive	The final EIA report was prepared by a well-established company (Project team) being hired and financed by the proponent. The project report was reviewed by various experts through different verification studies which have been carried out to the highest scientific and technical standards, by using appropriate and up to date methodologies. The qualification and work experience of the project team provide further confidence in the findings of the verification programme reports. The project EIA report was completed in 2012 and the verification programme was completed in 2014, and the decision is being finalised in 2016. Given the nature of the project, the timeline is reasonable, although the project cost might be very high.
Normative	The project will have a detrimental impacts to the marine ecosystem and shore environemnt during and after the life of the dredging and beneficiation process. Verification studies have shown that the report seems to favour the interests of the project proponent, rather than the well-being, health, financial and environmental interests of the Namibian citizen. The project will create employment opportunities during the dredging operations on marine and land beneficiation process.

Salient	The EIA is well-written and very informative and is scientifically based. It was endorsed by two verification studies for the Environmental Clearance Certificate to be granted, however the peer review advised that authorisation was to carry certain recommendations. The verification programme and the EIA report have set a high standard against which most of the future EIAs in the country`s marine environment will be compared. Based on the scientific data the Environmental Commisioner approved an EIA Clearance Certificate on 5 September 2016, however it was withdrawn after I&APs` appeal. The final decision is still pending.
Credible	The EIA project report was well-written and highly informative. The report included operational activities offshore and onshore; it also identified potential and real environmental impacts of Namibian citizens about marine and land-based operations. The report comprised the most comprehensive scientific studies of the project and these studies have addressed most of the uncertainties that were raised by the I&Aps
Legitimate	The EIA project report was conducted as per national standards and scientifically well-written. The report included operational activities; it also identified potential and real environmental impacts of the projects. Various specialist studies were conducted and the public and I&Aps were partially involved.

7.5 CHAPTER SUMMARY

The chapter illustrated in depth discussion of the study findings and results. The discussion draws more attention to the results of the survey aimed to collect information regarding: demographics; legislative framework on EIA Assessment in Namibia; elements of the legislative framework that governs EIAs in Namibia; adequacy of legislative framework; implementation of legislative framework; state of implementation of the Environmental Management Act and the EIA regulations in Namibia; case studies raised concern among the public; and the facet of the EIA process which was considered as influencing the final decision of the EIA assessment. The critics of effectiveness and efficiency of EIA process among the five case studies were discussed in the chapter as well.

The EIA process in the country was given an overall rating of low compliance on institutional control and relatively low quality of practice in administrative activities, with the exception of legal framework compliance and community participation/consultations.

The overall quality of EIA in Namibia can be described as moderate to low quality in practice. The proper alignment of administrative activities and practice among decision makers on environmental issues is therefore a priority. The findings have shown that there is much attention in the country to single projects, yet a far more urgent problem that needs to be solved is the nature and extent of the cumulative impact that the environment endures from the combination of other projects.

CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

8.1 INTRODUCTION

The aim of this study was to assess how the EIA tool contributes to environmental governance, based on an analysis of EIA case studies approved or undertaken in Namibia. The intention was that the study would provide a sense of the strengths and weaknesses of EIA performance in decision-making, in order to improve the effectiveness of the EMA and its EIA regulations, and the role that the office of the Environmental Commissioner is playing in this regard. The study will add to the knowledge base on the regulatory approach to environmental management, and provide empirically-derived relevant information to the MET and EIA practitioners. In addition, potential improvement will hopefully be uncovered for the effectiveness and efficiency of the EMA.

The study was a cross-sectional exploratory study therefore, was not able to include all companies that do not conduct EIAs, nor all the developers or project proponents whose projects required EIAs (exclusion criteria). It was limited to those directly involved with EIAs (inclusion criteria).

Data collection and analysis proceeded by means of literature review and self-administered structured questionnaires. The target total sampling population was met and the questionnaires were administered successfully for the 10 participants from various institutions, completed and returned all the questionnaires. The questionnaire aimed to collect information regarding:

- Demographics - gender, occupation, length in profession, geographic location.
- Legislative Framework on EIA Assessment in Namibia – Elements of the legislative framework that governs EIAs in Namibia; adequacy of legislative framework; implementation of legislative framework; state of implementation of the Environmental Management Act (No. 7 of 2007) and the EIA regulations in Namibia; which of the case studies raised concern among the public; which facet of the EIA process was considered as influencing the final decision of the EIA assessment.
- Effectiveness and efficiency of the EIA process – categories (procedural, substantive, transactive and normative); salience, credibility, legitimacy;

effectiveness of EIA in Namibia; how the effectiveness and efficiency of EIA process in Namibia can be improved.

The sampling technique was specific (convenience sampling), based on non-random selection in certain institutions for specific information – as a result it is selection biased. Specific projects were focused upon, rather than the study being general. The five case studies were: Swakopmund Waterfront project; Tobacco plantation in Katima Mulilo; B2 Gold mine; Ohorongo Cement factory; and Phosphate mining in Namibia. This approach aimed to analyse critically the decision-making procedures of these projects, and through the lens of survey respondents develop an understanding of the perceived dynamics of the environmental management system in Namibia.

8.2 CONCLUSION

The case studies show a satisfactory compliance with the legal framework of the country. The EIA report and verification programme for phosphate mining, in particular, set a high standard against which future EIAs in the country, especially in the marine environment, may be compared.

The case studies also demonstrate that the EIA process in the country has an overall rating of low compliance on institutional control, and relatively low quality of practice in administrative activities with the exception of legal framework compliance and community participation/consultations. The overall quality of EIA in Namibia can be described as moderate to low quality in practice. The proper alignment of administrative activities and practice among competent authorities (decision-makers) in environmental issues is therefore a priority. The findings have shown that there is much attention in the country to single projects, yet a far more urgent problem that needs to be solved is the nature and extent of the cumulative impact that the environment endures from all these projects (a combination of mining, coastal industrial projects, petroleum exploration, construction, dredging and urban expansion).

8.3 RECOMMENDATIONS

From the findings, the following recommendations will improve the EIA process and environmental decision-making in the country:

- Greater emphasis should be placed on trade-offs and social impacts of projects and early consideration of alternatives, preferably already at the commencement of the screening and scoping stages. The introduction of new environmental education platforms and strengthening the existing awareness programme in the country is highly recommended.
- Establishing a uniform public participation and impact significance assessment process, that can be achieved through establishing of professional bodies and related communication channels on screening, scoping, consultation and impact identification component (McDaid, 2000:12).
- Considerations of joint, up-front planning and on-going interaction within the EIA framework for a common purpose is required at all levels.
- The knowledge of experts is of great importance in project assessment but should not be treated as single variable in the EIA process and decision-making. In order to assess its role adequately, integration of social concerns/public involvement and governance or political should be considered, and should not be separated from the scientific ones during environmental assessment, as most of the projects are no longer simply scientific or engineering concerns, since the environmental and human impacts are fundamental and must be given their full weight at all times.
- Integration with other knowledge types such as local knowledge and experiential knowledge are needed to inform the various processes. A transdisciplinary approach should be used as well to promote effective joint problem identification and solutions by social, scientific, political, economic, and other stakeholders. Expert knowledge, social or local knowledge and political governance are not absolute, nor is it the solution in environmental assessment decision. Thus all should be integrated for a meaningful decision.
- The reflection of true integration between public issues and technical assessment on the EIA process in the country can only be achieved when all teams are committed to a common, well-defined purpose. It must be jointly understood that the roles of technical assessment, public participation and decision-makers are equally important, and that these team members should be mutually accountable for their efforts.

- Monitoring and evaluation is a significant phase toward improving public awareness of the actual implications of development projects for the environment, thus legitimising the consent decision and justifying the continuation of the activity is essential.
- Applications for monitoring and evaluation procedures after the final record of decision has been issued, must receive greater attention. The involvement of an independent expert/consultant; an appointed environmental officer as per EMA, to oversee the implementation of the environmental management plan, must be prolonged. Furthermore, strict fines must be introduced for non-compliance with national legal instruments.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

This project is: **"*Towards improving the contribution of the EIA process to environmental governance: analysis of Namibian case studies"*.** The aim of this study is to assess how the EIA tool influences environmental decision-making, based on an analysis of EIA case studies carried out in Namibia. *The study is conducted by Mr. Gabriel Joseph; an* M Phil student in Environmental Management, School of Public Leadership at Stellenbosch University.

The aim of this questionnaire is to collect information based on: The legislative framework on EIA assessment in Namibia, the role and decision-making of the Environmental Commissioner, and the effectiveness and efficiency of EIA assessment process. Your answers to this questionnaire will be strictly confidential and will be used for research purposes only as per the consent letter

Please fill in the questions by making a cross(x) in an appropriate box and write answers where is applicable. Please answer all the questions as objectively and honest as possible.

1. DEMOGRAPHIC DATA

a. Gender: M ☐
F ☐

Occupation: EIA Practitioner ☐
Environmental officer ☐
Engineer ☐

Others (please specify) _____

b. How long have you been in your profession?

6 months – 1year ☐
2-4 years ☐

5-7 years ☐

8 years & above ☐

c. Region Name:

Erongo	☐	Oshikoto	☐	Omaheke	☐
Hardap	☐	Khomas	☐	Otjozondjupa	☐
Omusati	☐	Kavango east	☐	//KARAS	☐
Oshana	☐	Kavango west	☐	Zambezi	☐
Ohangwena	☐	Kunene	☐		

2. LEGISLATIVE FRAMEWORK ON EIA ASSESSMENT IN NAMIBIA

a. What are the elements of the legislative framework that governs EIAs in Namibia

Environmental Management Act (no.7 of 2007) (EMA) ☐

The Constitution of Namibia ☐

EMA regulations ☐

Others (please specify)

_____

_____

_____

_____

_____

_____

_____

b. Do you think the legislative framework that governs the EIAs in Namibia is adequate?

Yes ☐

No ☐

c. How best can you describe the implementation of legislative framework that governs EIAs in Namibia - is it adequate?

Good ☐

Fair ☐

Poor ☐

d. What is the state of implementation of the Environmental Management Act and the EIA regulations in Namibia?

Good ☐

Fair ☐

Poor ☐

e. The following EIA case studies have been in the spotlight in the country recently. Which one do you think raised a big concern among the public? (You may choose more than one option)

Swakopmund Waterfront project; ☐

Tobacco plantation in Katima Mulilo; ☐

B2 Gold mine ☐

Ohorongo Cement factory ☐

Phosphate mining in Namibia ☐

Other (please specify)

_____

_____

_____

_____

_____

_____

_____

_____

f. Which facet influences the final decision of the EIA assessment?

The location of the project ☐

Type of the project ☐

Impacts of the project ☐

Community consultation ☐

Environmental Commissioner

Other (please specify)

_____

_____

_____

_____

_____

_____

_____

_____

_____

3. EFFECTIVENESS AND EFFICIENCY OF EIA PROCESS

a. Effectiveness for environmental assessment is divided into various categories as shown below. Can you please rate in the application column, the effectiveness of EIA in Namibia

Category	**Definition**	**Description**	**Application in Namibia**		
			Yes	**No**	**Don`t Know**
Procedural	How well a procedure can be identified and applied in practice	How well the EIA is aligned with standards and principles. The policy framework sets the scope of the quality of work. How meaningful is participation of stakeholders.			
Substantive	Have the aim and objectives been achieved: how well the EIA was done,	The regulatory framework, level of public participation the quality of the impact assessment report.			
Transactive	Resources required are minimized and outcomes achieved	Human resources, cost and time for resources			
Normative	Social and individual norms	People want to participate learn from the process, and see benefit of EIA			
Salience	Relevance of information for decision for decision-making or for the choices that affect a given stakeholder	How relevant information is to decision-making bodies or publics			

Credible	Information meets standards of scientific plausibility and technical adequacy	How "fair" an information producing process is and whether it considers appropriate values, concerns, and perspectives of different actors			
Legitimate	The process is unbiased and meet standards	How fair is the project and are the appropriate aspects considered			

b. How can the effectiveness and efficiency of EIA process in Namibia be improved?

_____

_____

_____

_____

_____

_____

_____

Thank you very much for your time and co-operation!

APPENDIX 2: PARTICIPANT'S ETHICAL FORM

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jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH

TITLE OF THE RESEARCH PROJECT: Towards improving the contribution of the EIA process to environmental governance: analysis of Namibian case studies

REFERENCE NUMBER: 18906443
Proposal n#: SU-HSD-000772

RESEARCHER: GABRIEL JOSEPH

CONTACT NUMBER: +264813796358

Dear Participants

My name is Gabriel Joseph and I am an MPhil student in Environmental Management, School of Public Leadership at Stellenbosch University, I invite you to participate in a research project that looks at how the EIA process contributes to environmental governance in the country. The data will be provided by an analysis of case studies of EIAs undertaken in Namibia. The aim of this questionnaire is to collect information regarding: the legislative framework on EIA assessment in Namibia, the role and decision-making of the Environmental Commissioner, and the effectiveness and efficiency of the EIA process in Namibia.

Please take some time to read the information presented here, which will explain the details of this project and contact me if you require further explanation or clarification of any aspect of the study. Also, your participation is **entirely voluntary** and you are free to decline to

participate. You are also free to withdraw from the study at any point, even if you have agreed to take part.

This study has been approved by the **Humanities Research Ethics Committee (HREC) at Stellenbosch University** and will be conducted according to accepted and applicable national and international ethical guidelines and principles.

This study will provide a sense of strengths and weaknesses of EIA performance in the process of environmental decision-making. It is hoped that the findings from the study can be used to improve the quality of environmental assessment in the country. It will add to the knowledge base on the regulation of environmental management, and provide empirical information that is relevant for the Ministry of Environment and Tourism (MET) and EIA practitioners.

Participants will not receive any remuneration on the completion of the questionnaire.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of using the information solely for academic purposes. Information will kept in a safe and sound environment and no identity will be revealed.

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

If you have any questions or concerns about the research, please feel free to contact Mr. Henri Fortuin, my Supervisor, *at* +27 21 483 5842 or henri.fortuin@westerncape.gov.za.

RIGHTS OF RESEARCH PARTICPANTS: You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

You have right to receive a copy of the Information and Consent form.

If you are willing to participate in this study please sign the attached Declaration of Consent and hand it to the investigator.

Yours sincerely

Principal Investigator

DECLARATION BY PARTICIPANT

By signing below, I ……..……. agree to take part in a research study entitled ***"How d**oes the EIA process influence environmental decision-making for development projects in the country: Namibia case studies analysis"* and conducted by **Gabriel Joseph**.

I declare that:

- I have read the attached information leaflet and it is written in a language in which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.
- All issues related to privacy and the confidentiality and use of the information I provide have been explained to my satisfaction.

Signed at (*place*) .....…..…….. on (*date*) ……...…….. 2016

_____

Signature of participant

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [*name of the participant]*. *[H*e/she] was encouraged and given ample time to ask me any questions. This conversation was conducted in *English* and *no translator was used.*

_____ _____

Signature of Investigator **Date**

APPENDIX 3: CONSENT LETTER FROM ENVIRONMENTAL COMMISSIONER

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

Tel. No. 061 – 2842717
Fax. No. 061 - 229936

Enquiries: D. Nchindo

Cnr of Dr. Kenneth David Kaunda Street
& Robert Mugabe Avenue
Private Bag 13306
Windhoek

24 August 2015

Mr Gabriel Joseph
P. O Box 40690
Windhoek
Namibia

Dear Mr Joseph

SUBJECT: PERMISSION FOR RESEARCH PROJECT INFORMATION ACCESSIBILITY

I refer to your letter dated the 10th of July 2015 in which you seek access to information for your research project on how the EIA tool influences environmental decision making, by analysing certain projects or case studies approved in Namibia.

Kindly, be informed that the ministry have no objection and will render you all necessary support, therefore report yourself to Ms Saima Angula (Deputy Director) for direction and guidance in this regard.

We wish you all the best

MINISTRY OF ENVIRONMENT AND TOURISM Private Bag 13306 Windhoek Namibia 2015 -08- 28 Office of the Environmental Commissioner

Teofilus Nghitila
ENVIRONMENTAL COMMISSIONER

APPENDIX 4: DESCRIPTIVE STATISTIC FOR QUESTIONNAIRES; DATABASE

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
S#	10	9	1	10	55	5.50	.957	3.028	9.167
Gender	10	1	1	2	12	1.20	.133	.422	.178
Occupation	10	2	1	3	19	1.90	.180	.568	.322
Duration in a profession	10	3	1	4	29	2.90	.407	1.287	1.656
Region Name	10	7	1	8	63	6.30	.633	2.003	4.011
Legislative framework in Namibia	0								
Environmental Management Act	10	1	1	2	11	1.10	.100	.316	.100
The Constitution of Namibia	10	1	1	2	14	1.40	.163	.516	.267
EMA regulations	10	1	1	2	11	1.10	.100	.316	.100
Others legslatives	10	1	1	2	14	1.40	.163	.516	.267
Is EIAs legislative framework in Namibia adequate	10	1	1	2	15	1.50	.167	.527	.278
How best is Legislative framework in Namibia	10	1	1	2	18	1.80	.133	.422	.178
State of Implementation of EMA and EIA regulations in Namibia	10	1	1	2	17	1.70	.153	.483	.233
Projects raised a big concern among the public	10	4	1	5	39	3.90	.567	1.792	3.211
Swakopmund	10	1	1	2	17	1.70	.153	.483	.233
Tobacco	10	1	1	2	16	1.60	.163	.516	.267
B2 Gold mine	10	0	2	2	20	2.00	.000	.000	.000
Ohorongo	10	0	2	2	20	2.00	.000	.000	.000
Phosphate	10	1	1	2	12	1.20	.133	.422	.178
Others project	10	1	1	2	17	1.70	.153	.483	.233
Facet infuences the final decision	10	3	3	6	38	3.80	.416	1.317	1.733
Location influence	10	1	1	2	19	1.90	.100	.316	.100

Type of project influence	10	1	1	2	18	1.80	.133	.422	.178
Impact of the project influence	10	1	1	2	13	1.30	.153	.483	.233
Community Consultation	10	1	1	2	16	1.60	.163	.516	.267
Environmental Commissioner influence	10	1	1	2	18	1.80	.133	.422	.178
Others` influence	10	1	1	2	16	1.60	.163	.516	.267
Is EIA in Namibia procedural	10	2	1	3	16	1.60	.306	.966	.933
Is EIA in Namibia Substative	10	2	1	3	16	1.60	.267	.843	.711
Is EIA in Namibia Transactive	10	2	1	3	19	1.90	.277	.876	.767
Is EIA in Namibia Normative	10	2	1	3	17	1.70	.300	.949	.900
Is EIA in Namibia Salience	10	2	1	3	17	1.70	.300	.949	.900
Is EIA in Namibia Credible	10	2	1	3	19	1.90	.277	.876	.767
Is EIA in Namibia Legitimate	10	2	1	3	20	2.00	.333	1.054	1.111
Improvements of effictiveness and efficiency of EIA process in Namibia	0								
Amendments of legislative framework	10	1	1	2	19	1.90	.100	.316	.100
Strengthening educational awareness on EIA	10	1	1	2	15	1.50	.167	.527	.278
Conducting monitoring and evaluation on EIA	10	1	1	2	17	1.70	.153	.483	.233
Set minimum requirement for EIA practitioner	10	1	1	2	18	1.80	.133	.422	.178
MET to empower local authorities to contribute on decision-making of EIAs	10	1	1	2	18	1.80	.133	.422	.178

More resources needed to monitor EMPs	10	1	1	2	18	1.80	.133	.422	.178
Environmental officers at all level to conduct inspection to ensure that EIAs are conducted for all listed activities	10	1	1	2	18	1.80	.133	.422	.178
Valid N (listwise)	0								