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COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE-BASED DECISION-MAKING

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COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ *UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE-BASED DECISION-MAKING*

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DECLARATION

I, Jessica de Beer, declare that the mini-dissertation entitled: Competing values in the Integrated Environmental Management process ~ understanding the dynamics between evidence versus value-based decision-making, which I hereby submit for the degree Masters (Environment and Society) at the University of Pretoria, is my own work and has not been previously submitted by me for a degree at this or another tertiary institution.

SIGNATURE:……..

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ABSTRACT

Within the Integrated Environmental Management (IEM) process, Environmental Assessment Practitioners are expected to gather information or evidence in order to formulate decisions on the suitability of development projects as it relates to the environment which takes the form of an Environmental Impact Assessment. The EIA decision-making framework relies mainly on a technocratic-, rationalist or technical-rational approach, which is based largely on cognitive or scientific knowledge. This over-reliance on scientific evidence (evidence-based knowledge) limits the level to which non-scientific evidence (value-based knowledge) is incorporated into the EIA decision-making framework. There is a concern that an over-reliance on evidence-based decision-making will lead to valuable information being overlooked or ignored, resulting in a skewed and fragmented process which could fail in ensuring environmental justice for the citizens of South Africa. The overall methodological approach that was used to achieve the aim and objectives of this study was of a qualitative nature, relying on three main methods, including document analysis, expert interviews and focus group meetings. The literature review provided six thematic areas of interest which was further elaborated during the thematic analysis of the data. One of the key findings of this research was that although the South African legislative framework makes provision for value-based decision-making processes, the EIA decision-making framework in particular is too rigid to incorporate non-scientific knowledge or value-based evidence. The need to shorten the EIA decision-making timeframes to allow for social and economic development in addition other challenges facing the IEM field can also attributed to an over-reliance on a formulaic tick-box approach which limits the incorporation of value-based decision-making in the EIA decision-making process.

Key Words: Environmental, Process, EIA, Social, Public, Participation, Integrated Environmental Management, Values, Development, EAP, Perceptions, Decision-making, Framework

DEDICATIONS

This research paper is dedicated to my parents, Johann and Ina. Thank you for always teaching me the importance of academic enquiry and for encouraging me to invest in my education.

This research paper is also in the memory of Andre Lourens. We still remember you fondly and carry you in our hearts.

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LIST OF ABBREVIATIONS

CSIR	Centre for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DTI	Department of Trade and Industry
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
I&APs	Interested & Affected Parties
ICCPR	International Covenant On Civil And Political Rights
IEM	Integrated Environmental Management
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
KZN	Kwa-Zulu Natal
MA	Millennium Ecosystem Assessment
MPRDA	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)
NDP	National Development Plan
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMAA	National Environmental Management Amendment Act (Act No. 62 of 2008)
NEM:BA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)

NEPA	National Environmental Policy Act
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NGO	Non-Government Organisations
NRC	National Research Council
PAJA	Promotion of Administrative Justice Act (Act No. 3 of 2000)
SIA	Social Impact Assessment
SEA	Strategic Environmental Assessment
SLP	Social and Labour Plan
UN	United Nations
UNCED	United Nations Conference On Environment And Development
UNDRIP	United Nations Declaration on the Rights of Indigenous People
UNECE	United Nations Economic Commission For Europe
UNESC	United Nations Economic And Social Council
USA	United States of America

1 Introduction

Within the Integrated Environmental Management (IEM) process, Environmental Assessment Practitioners (EAPs) are expected to gather information or evidence in order to formulate decisions on the suitability of development projects as it relates to the environment which takes the form of an Environmental Impact Assessment (EIA). In this chapter a chronological approach is adopted to illustrate key moments in the evolution of the EIA decision-making framework as it was adopted into South African environmental policy and how it transitioned into a post-apartheid context.

Chapter 1 will further aim to illustrative how the EIA decision-making framework relies mainly on a technocratic-, rationalist or technical-rational approach, which is based largely on cognitive or scientific knowledge. It is argued that this over-reliance on scientific evidence (evidence-based knowledge) limits the level to which non-scientific evidence (value-based knowledge) is incorporated into the EIA decision-making framework.

The chapter continues to describe the research question and rationale of the research, which is mainly centred on the concern that an over-reliance on evidence-based decision-making will lead to valuable information being overlooked or ignored within the EIA decision-making framework. The research further questions whether the dominance of one type of decision-making process could potentially constrain/impede the outcomes of development projects with regards to environmental justice and human well-being considerations within South Africa.

1.1 Background to Environmental Impact Assessment in South Africa

Environmental Impact Assessment as a procedure for identifying and investigating the environmental consequences of development had its foundation in the enactment of the United States National Environmental Policy Act (1970) (Sowman *et al.*, 1995). However,

South Africa only enacted similar legislation in 1989, in the form of the Environmental Conservation Act (73/1989), hereafter referred to as ECA to regulate activities that may have a detrimental impact on the environment (Sowman *et al.*, 1995).

In South Africa, like many other developing countries, the general lack of environmental policy, political will and awareness of the need to consider environmental issues has constrained advances in the field of IEM. Sowman *et al.*, (1995:46) highlighted other factors, such as "an authoritarian system of government, a lack of accountability by decision-makers, inadequate public participation, inefficient administrative structures, legislative inadequacies, as well as a lack of environmental expertise and financial resources" as key constraints to the development and implementation of environmental evaluation procedures in South Africa.

In addition to the above, the lack of popular support for environmental issues is strongly related to South Africa's past political policies and practices. The South African government, through its apartheid laws and policies effectively alienated the majority of the population from their traditional role as guardians of the land (Sowman *et al.*, 1995). The processes of colonization, dispossession, and European expansion served to alienate the majority of South Africans from the environment and cultivated negative, even "hostile" attitudes toward environmental issues (ANC, Khan, Koch, Ramphele *et al.*, in Sowman *et al.,* 1995).

Efforts to foster greater environmental awareness and promote regulation of activities and decisions that were harmful to the environment were therefore in the hands of the government and white elite. Consequently, environmental issues were not high on the political agenda during the previous dispensation (Sowman *et al.*, 1995).

However, a new perspective, regarding environmental issues as deeply political because they are concerned with access to and utilization of resources (Ramphele *et al.* in Sowman *et al.*; 1995), was busy emerging in South Africa during the early 1990's. This was reinforced by the growing popularity of the concept of sustainable development, especially since the publication in 1987 of the Brundtland Report (United Nations World Commission on Environment and Development, 1987). Therefore the publication of the IEM procedural document in 1989,

which coincided with the promulgation of the new ECA that replaced the Environmental Conservation Act (100/1982), was establishing a new direction in environmental policy making. Specifically, provisions contained in this new legislation provided opportunities to give IEM the force of law. The revised IEM procedure and a series of guideline documents and checklists were finally published in 1992 (DEAT, 1992; Sowman *et al.*, 1995).

Initially, the system of IEM was dominated by the expert/elitist approach toward planning and decision-making, which was encouraged by the system of apartheid (Sowman *et al.*, 1992). Proponents of this model, such as professional planners and engineers, decision-makers and politicians, believed that those who are best qualified and most knowledgeable should be responsible for making societal decisions (Hudspeth in Sowman *et al.*, 1995).

This approach was, however, criticised for its over reliance on technical and financial, rather than environmental and social considerations in the decision-making process (Sowman *et al.*, 1995). In terms of this approach the believe was that the public was not qualified to make judgments or provide meaningful contribution to the planning and decision-making process, since the projects involved complex technical issues often beyond the understanding of the public. However, Sowman *et al.*, (1995) note that an increased awareness among the public of the environmental implications of development activities, as well as a growing insistence from communities of the right to be consulted, suggested that this approach was no longer acceptable. Any proposed environmental evaluation procedure in South Africa would therefore need to be more holistic, multidisciplinary, and participatory. In particular, the public would have to be involved throughout the lifecycle of projects, including the monitoring of developments once implemented.

As remarked by Sowman *et al.*, (1995), inclusionary decision-making in the post-apartheid era is in stark contrast to the current apartheid system, designed to exclude the majority of South Africans from political participation, and which necessitated the development of administrative, legal, and social structures that prevented people from participating in decisions affecting their lives. Although the post-1994 government had a strong focus on redrafting draconian apartheid-era legislation and policies, it was only in September 1997 that the

government gazetted regulations enforcing EIA, in terms of the ECA. The publication of the National Environmental Management Act (NEMA) (107/1998), hereafter referred to as NEMA, followed shortly thereafter.

On 21 April 2006 the Minister responsible for Environmental Affairs promulgated Regulations in terms of Chapter 5 of NEMA. When these Regulations came into effect on 3 July 2006 they replaced the EIA Regulations that were promulgated in terms of the ECA in 1973, and introduced new provisions for EIAs. Subsequently, the National Environmental Management Amendment Act (62/2008), was promulgated on 9 January 2009 and came into effect on 1 May 2009. The 2008 amendment made a number of significant amendments to the general provisions applicable to EIAs. On 18 June 2010 the Minister responsible for Environmental Affairs promulgated amended EIA Regulations in terms of Chapter 5 of NEMA. From the date of effect of these amended EIA Regulations, 2 August 2010, these amended EIA Regulations replaced the previous EIA Regulations that were promulgated on 21 April 2006. Refinements were made to the EIA Regulations in order to make the EIA process more efficient and effective (Bond *et al.*, 2014), ostensibly to allow for economic development and progress. However, according to Kidd and Retief (in Bond *et al.*, 2014:11) refinements to the EIA regulations first in 2006 and then again in 2010 was a "… mechanistic straight jacketing of EIA into an overly structured legalistic process". According to Bond *et al.* (2014), the purpose of these revisions was to improve efficiency, but ultimately led to the erosion of EIA's value adding potential, making the process over complicated. Towards the end of 2014, the EIA Regulations underwent another big change with the publication of the NEMA EIA Regulations of 2014, which amended the timeframes of the EIA process considerably. In terms of the 2014 EIA Regulations, EAPs had to adhere to even stricter timeframes (**Figure *1-1***), binding not only the competent authority(as was the case with the 2010 EIA Regulations) to timeframes, but now also the EAP. Where the 2010 EIA Regulations allowed for an open-ended consultation process, the 2014 EIA Regulations restricts the entire EIA process to a maximum of 350 days. Further amendments to the NEMA EIA Regulations of 2014 were published in April 2017, however, these amendments were not related to the decision-making timeframes.

Figure *1-1* further indicates instances where interaction between the three main role-players (i.e. EAP, Interested and Affected Parties (I&APs) and competent authority) is required and where most of the value judgements within the decision-making framework occur.

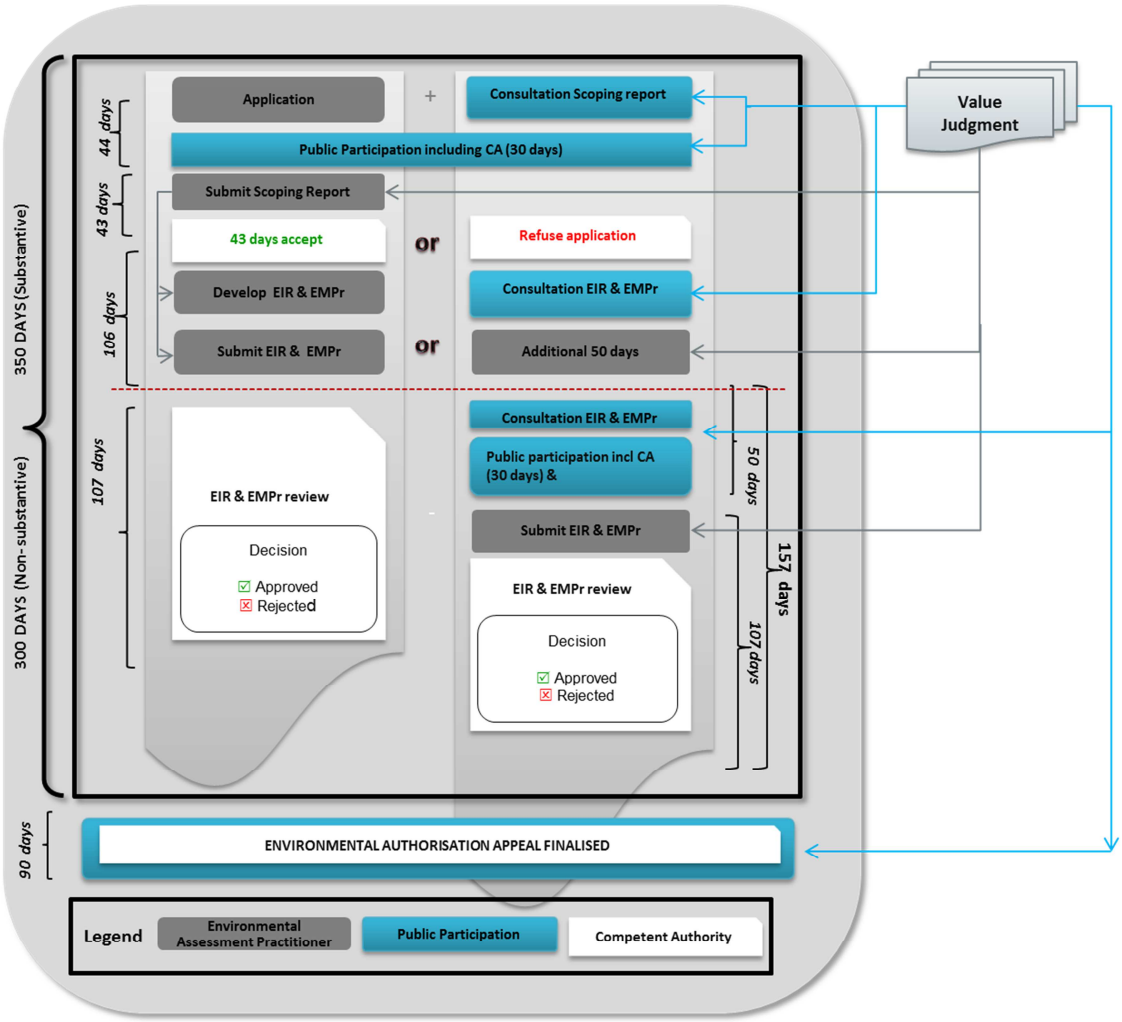


Figure 1-1: Environmental Impact Assessment Process with timeframes (adapted from NEMA EIA Regulations, 2014)

Despite its slow start, post-apartheid South Africa has made great strides in reforming legislation and policy to align with the new democratisation of society. This overhaul of environmental law and policies has resulted in an explicit commitment to reversing injustices in all its forms, environmental law and policies (Patel, 2009). In this respect, Section 2(4)(c) of

NEMA particularly provides for the concept of environmental justice, stating that "[It] must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons".

The internationally recognized principle of environmental justice (Schlosberg, 2007) emerged in the early 1980s in the United States of America (USA), and referred to a social movement that focused on the fair distribution of environmental benefits and burdens.

In terms of political and activist practice, the environmental justice movement in the USA has particularly opposed traditional methods of environmental impact and risk assessment as discriminating against marginalised communities by ignoring cumulative and multiple exposures and hazards (Hillman, 2004). Hillman (2004) further remarks how these traditional methods of EIA has been undertaken by excluding local knowledge through an expert-driven, top-down environmental planning process (Corburn, 2002; Faber and Krieg, 2002; Fox *et al.*, 2002).

In South African law, this concept of environmental justice is not only included in NEMA section 2(4)(c), but is further provided for in the Constitution of the Republic of South Africa, 1996 (108/1996) as amended, hereafter referred to as "the Constitution", which gives South Africans a constitutional right to Environmental Rights. This provision implies that people have the right to an environment that is safeguarded, in fulfilment of the government's public trust duties, for current and future generations. NEMA section 2(4)(d) further strives to ensure that all parties have "Equitable access to environmental resources, benefits and services to meet basic human needs…".

Importantly, NEMA requires the participation of all interested and affected parties (I&APs) in environmental governance be promoted. There is not only a requirement for the participation of I&APs to be addressed, but NEMA section 2(4)(f) further calls for the capacitating of stakeholders to "… develop the understanding, skills and capacity necessary for achieving equitable and effective participation… ". Furthermore, when decisions concerning environmental management are to be taken, the interests, needs and values of all I&APs must

be considered, including traditional and ordinary knowledge. Moreover, the vital role of women and youth in environmental management and development must be recognized and their full participation therein must be promoted.

This principle coincides with the requirement to promote the wellbeing and empowerment of communities, which can include methods such as environmental education, environmental awareness raising, the sharing of knowledge, etc. Furthermore, the NEMA Principles (section 2(4)(i) states that "The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment".

Lastly, the principles of NEMA section 2(4)(o) emphasizes that the environment is held in public trust for the people and, therefore, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

This section therefore provided a short summary of the evaluation of EIA within the South African context and provided some of the main legislative frameworks for ensuring environmental justice within South Africa. The following section will consider in more detail the decision-making theory within the EIA decision-making framework.

1.2 Key concepts of knowledge types and decision-making theory

1.2.1 Knowledge types within Integrated Environmental Management

Within the IEM process, EAPs are expected to gather information or evidence in order to formulate decisions on the suitability of development projects as it relates to the environment. According to NEMA section 2(4)(b) EAPs must consider how their decisions could affect all the interconnected aspects of the environment, not just the biophysical aspects, but also as it relates to society's reliance on environmental resources.

Within the context of these decisions, it is important to understand the types of information that may be used within the decision-making process. According to Glicken (1999), information can either follow a technocratic approach, which is based largely on cognitive knowledge. Glicken (1999) defines cognitive knowledge as knowledge that is based on technical expertise and which is generated by individuals (i.e. scientists and experts), and involves factual arguments about "… issues, such as the nature and extent of potential environmental damage and the most effective methodologies for assessing such damage or the risks of damage". Here issues are defined as issues of "correctness," not "appropriateness" or "goodness" (Glicken, 1999).

A second type of knowledge, as defined by Glicken (2000), is experiential knowledge, which is based on common sense and personal experience and, again, is developed by individuals (i.e. residents or users). Within experiential knowledge, debates revolve around "appropriateness" and tend to be based in emotive content which lends it to a tendency to stimulate greater conflict (Glicken, 2000). The third type of knowledge as defined by Glicken (2000:307) is value-based knowledge, which is seen as moral or normative knowledge, "…derived from social interests and based on perceptions of social value". Value-based knowledge engenders debates about the "goodness" of activities, is highly emotional and perceived as the least rational of the three (Glicken, 2000). Value-based knowledge is an attribute of groups (i.e. advocacy groups) and tends to stimulate the most conflict because "…they revolve around worldviews, around beliefs about the way the world ought to be, and around the lifestyles and actions associated with those beliefs" (Glicken, 1999:302).

Glicken (1999), points out that this typology distinguishes among and recognizes the appropriate role of the scientific (cognitive) and the social (experiential and value-based) part of any decision. Glicken (2000) also suggests that each should play different roles in the decision-making process, which is presented as part of a pluralist approach which seeks to bring the last two types, experiential and value based, into the decision-making process along with cognitive knowledge. This approach raises the importance of stakeholder identification

and participation, which is discussed in more detail within the literature review in the following section.

1.2.2 Decision-making theory within Integrated Environmental Management

Having provided information on the types of knowledge, this section serves to better contextualise IEM in decision-making theory, and provides a brief description of different theoretical perspectives on decision-making. According to Nilsson and Dalkmann (2001), decision methodologies and perspectives can be grouped into three categories:

- Descriptive theories, which attempt to explain how decisions are actually being made in practice;
- Normative theories that explain how decisions should be made, often based on rationality and consistent methodologies; and
- Prescriptive theories, that attempt to improve decision-making in a specific context through removing limitations and biases identified in descriptive theories (Kleindorfer *et al.*, in Nilsson and Dalkmann, 2001).

IEM aims to provide a prescriptive approach for decision makers who want to think systematically about environmental factors in decision-making (Nilsson and Dalkmann, 2001). Jay *et al.*, (2007) trace back the philosophy and principles of IEM, especially in the form of appraisal tools such as the EIA, to a rationalist or "technical-rational" approach to decision-making that emerged in the 1960s.

The rationalist perspective has its roots in Weber's sociological theory in which he sees the rationalisation of decision-making within bureaucratic structures as the dominant approach to organisation (Weber *et al.*, 2012). According to rationality theory, the decision-making process is goal-oriented and rational and it is assumed that actions are undertaken to achieve objectives that are consistent with the actor's preference hierarchy (Zey, 1997). The action will be chosen, based on the hierarchy of preferences that gives an outlook of highest benefit (Nilsson and Dalkmann, 2001).

When examining present guidelines and practices of environmental assessment, it is no surprise to see traces of the rationalist paradigm, which was dominant in the 1960s when the first environmental assessment approaches were developed (Kornov and Thissen, 2000; Nitz and Brown, 2000). Nilsson and Dalkmann (2001), says that although the rational decision-making process is a useful model for structuring decision-making, in practise, rationality in real decision-making processes is usually very limited (Nida-Rüme lin, 1997). Rationalism's normative nature makes it very difficult for persons in the IEM field to explain issues such as power, conflict, trust, solidarity, inequality, communication and legitimacy (Zey, 1997). Nilsson and Dalkmann (2001) argues that rationalism especially, does not allow for the real world public decision-making that often takes place in complex systems, characterised by uncertainty; the involvement of mutually dependent organisations; social interaction; unpredictability; divergent problem definitions; and lack of knowledge. According to Nilsson and Dalkmann (2001), decision-making along the lines of a rational model hinders decision-making where a number of stakeholders are dependent upon each other in order to come to a decision. Academics (Green and Shapiro, 1994; Weston, 2000) argue that rationalism is frequently used as an explanation to justify decisions and to legitimise the concept, and that it attempts to portray policy making as value free and objective, while in reality it is known that decision-making, and in particular on the environment, is inherently value-laden. According to the literature, there is therefore an inherent divergence between the rationalist model being used within the IEM field and collective action (Nilsson and Dalkmann, 2001).

According to (Audouin and Hattingh, 2008), this modern worldview that defines IEM is at the root of many of the constraints to effective environmental assessment. Audouin (2009) points out some of the main assumptions inherent in the modern view, which could be linked to EIA's inability to address a wider range of philosophical perspectives:

- That technical, objective, natural science-based information and processes are separate from, and regarded as superior to, non-technical, subjective, and value-based information and processes. According Audouin (2009) this constrains, for example, the ability to include a multitude of disciplines (i.e. more value-based disciplines) into the

EIA, the ability to conduct effective stakeholder engagement processes, and the ability of EAPs to address the normative aspects of impact prediction;

- That a system can be understood by observing the behaviour of its parts. Due to this viewpoint, EAPs have struggled to predict impacts that rely more heavily on value assessments, such as social or cumulative impacts; and
- That all processes flow along linear, deterministic, predictable and orderly paths. This assumption makes it very difficult for EAPs to determine cumulative impacts and makes no allowance for the inclusion of impacts that are not measurable or unclear (i.e. value-based information).

Within the context of this research, decision-making theories will be grouped into two categories, namely evidence-based decision-making and value-based decision-making.

Briefly, evidence-based decision-making relates to the decision-making framework used within a variety of disciplines, but mostly in the medical field and is seen as an instrument of rationality and reliant on a modernist or rationalist paradigm (Sanderson, 2002; Baba and HakemZadeh, 2012; De Marchi *et al.*, 2014).

Research in decision-making processes further suggests that a strong moral basis for decision-making makes it easier to make a decision (Beattie in Retief *et al.*, 2013), where 'morally challenging decisions tend to be perceived as difficult by decision makers' (Krosch *et al.*, 2012). Moral decisions are those decisions based on moral conviction devoid of personal interest or emotions (Retief *et al.*, 2013).

According to Retief *et al.* (2013), difficulty within the decision-making process of impact assessment can be viewed as a morality clash between the interests of different stakeholders such as the proponent, consultants and government. In contrast, with evidence-based decision-making which relies on evidence to avoid making moral decisions, value-based decision-making is based on a moral agreement on what the right thing to do would be for society as a whole. Value-based decision-making is also viewed as decision-making that relies on intangible "evidence", such as sense of place or indigenous knowledge. In this sense, Schroeder (2013)

contends that decision-making must not by-pass the implicit level of experience or ignore or lose touch with the felt value that underlies held and assigned values. With regard to intangible "evidence", Schroeder (2013), calls for decision-making process to include implicit, felt level of experience within the decision-making process.

In summary, this "morality clash" as defined by Retief *et al.* (2013) is at the core of decision-making within the IEM field, with EAPs struggling to make trade-offs between the interests of different stakeholders such as the applicant, I&APs and the competent authority. Since concrete measurable evidence is viewed by society as a more reliable tool for decision-making (Sanderson, 2002; Baba and HakemZadeh, 2012; De Marchi *et al.*, 2014), value-based decision-making is often ignored as a decision-making framework within EIA (Retief *et al.*, 2013).

Within this scientific (cognitive) driven environment in which EAPs function, conflicts often arise between the different role-players as a result of a disjuncture between types of evidence being presented or debated. Majone (in Renn *et al.*, 1991) distinguishes between scientific, legal, political, and anecdotal evidence. Luhmann (in Renn *et al.*, 1991) makes a similar argument, saying that conflicts arise when parties struggle to communicate the contradictions of one evidence system with the other. Renn *et al.* (1991) therefore argues that conflict arises between the decision-makers or scientists and the public as participants when different types of evidence are being used for decision-making. According to a model developed by Renn *et al.* (1991) conflict arises when the degree of complexity within a debate increases, thus leading the public's stake in the outcome of decisions to increase, which in turn leads to the introduction of world-views and values and, by association, more non-scientific (non-cognitive) knowledge into the debate.

In a case study presented by Renn *et al.* (1991), when decision-making reaches a level where world-views and values play an increasingly pronounced role, there should be a fundamental consensus on the issues that underlie the debate. An example of this type of conflict resolution is presented by Renn *et al.* (1991:202), referencing the nuclear debate in Sweden during the 1970's, where the debate culminated around "… the desired direction of technological development in which nuclear power served as a symbol for large centralized technologies and

its impacts on economics and society". The final decision centred on the legitimacy of nuclear power within the larger technological scenario, with the majority acknowledging that nuclear power was undesired but necessary. As soon as an agreement was reached that replacement technologies should be investigated as soon as alternative technologies were available and that nuclear power should be phased out, the debate, according to Renn *et al.* (1991), moved to a lower level of complexity and conflict. According to Renn *et al.* (1991), the debate could now focus on technical and organizational solutions, since the moral implications of nuclear power and its symbolic meanings were no longer part of the debate. The case study shows that the form of public participation should be able to adapt to the level of conflict, as well as the level complexity of each scenario. Renn *et al.* (1991) warns that not even the best technical expertise or cognitive knowledge can overcome unresolved social, cultural, and political value conflicts. In order to resolve conflicts at a level where values plays a heightened role in the debate, Renn *et al.* (1991:202) concludes that neither education nor incorporating stakeholders' interests will be sufficient, instead "…the affected citizens must be brought into the decision-making process".

The concepts of evidence-based and value-based decision-making is further unpacked within the literature review in Chapter 2. Further to these main concepts, the importance of stakeholder engagement, especially as it relates to the types of evidence and knowledge that is being used by role-players in the decision-making process will also be elaborated on within the literature review (Chapter 2).

1.3 Scope of the research

In order to understand the scope of this research, it is important to note that experts working in the field of IEM are often required to make judgements or decisions on the suitability of development projects as it relates to the environment. According to NEMA section 2(4)(b) EAPs must acknowledge that the environment is made up of interrelated elements, and that the EAPs must consider how their decisions could affect all of these interconnected aspects of the environment. The EAP is therefore required to consider not just the biophysical aspects,

but also social, cultural, political and economic aspects. EAPs are therefore required in terms of NEMA section 2(4)(b) to take a range of factors into consideration, when determining "the best practicable environmental option" and this process often requires a complex decision-making framework. In order to achieve the ultimate goal of sustainable development and environmental justice for all the people living in that environment, EAPs are often required to balance social, environmental and economic considerations. During this decision-making process, EAPs have to weigh a multitude of information and factors when determining the best suitable option. While NEMA requires that environmental justice take place when decisions are made around the use of the environment, the EIA as decision-making tool is specifically aimed at evaluating the impact of development on the environment. According to Retief *et al.* (2011:154), the main aim of an EIA is to:

> *"Identify and evaluate environmental impacts (both negative and positive) at an early stage, and to investigate methods to reduce or avoid the negative impacts, in order for the licensing authority to be able to make an informed decision that optimally supports the achievement of sustainable development".*

The EIA therefore implicitly states that development should take place, allowing for sustainable economic growth aimed at eliminating poverty and reducing inequality (National Planning Commission, 2011). EAPs are therefore faced with a complex, and often conflicting task of protecting the environment, whilst at the same time assist to enable the government to reach its aims as stated in National Development Plan (National Planning Commission, 2011:14). Through this policy document, the South African Government is mandated with "… growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society… ", whilst at the same time acknowledging that these objectives may provide policy makers with conflicting challenges (National Planning Commission, 2011). Policy makers are challenged with ensuring sustainable development for the benefit of future generations, limiting emissions and improving energy efficiency to limit the impact on climate change, adapting to the challenges of climate change to secure social and economic resilience, whilst at the same time permitting sustainable exploitation of natural resources to the benefit of human well-being (National Planning Commission, 2011).

Developing countries, especially African countries, need to constantly weigh up the need to develop their economy to address socio-economic, health, education and other developmental needs, whilst at the same time ensuring that the countries' natural resources and ecosystems are protected and maintained. These countries are required to make every-day trade-offs between economic, social and environmental objectives. In South Africa, for example, decision makers have tended to prioritise social and economic development agendas, often at the expense of environmental integrity (Nahman *et al.*, 2009).

Although South Africa has historically been economically strong, the legacy of social inequalities that remained after the advent of democracy is still to be addressed. South Africa's social structure is often known for its contrasting social classes, where a minority has access to wealth and opportunity and the majority are still faced with poverty and unemployment. These social classes are often linked to race and were exacerbated by the spatial distribution of communities, as a result of apartheid spatial planning (Seekings, 2011). These policies often forced the poor, black communities towards the periphery of cities, limiting their access to employment opportunities, housing, education and healthcare (Seekings, 2011).

In order to understand the need to formalize certain of the NEMA Principles into legislation and policy documents, it should be seen within the context of the South African social and economic milieu. The way in which policy makers address these developmental challenges, alongside the challenge for sustainable development is critical within the IEM process and one that is addressed by the concept of sustainable development as contained in NEMA.

Within the preamble of NEMA, sustainable development is defined as "… the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations". This broad definition of sustainable development incorporates two of the internationally recognised elements of the concept of sustainable development, namely, the principle of integration of environmental protection and socio-economic development, and the principle of inter-generational and intra-generational equity.

One of the key principles of NEMA requires people and their needs to be placed at the forefront of environmental management, which is referred to as "*batho pele*". Section 2(4)(i) of NEMA requires all developments to be socially, economically and environmentally sustainable. Section 2(4)(i) of NEMA also requires that the social, economic and environmental impact of proposed interventions or policies be "… considered, assessed and evaluated… " and that any decision made "… must be appropriate in the light of such consideration and assessment". This is underscored by the requirement that decisions must take into account the interests, needs and values of all interested and affected persons. NEMA therefore requires the integration of environmental protection and economic and social development. It requires that the interests of the environment be balanced with socio-economic interests.

In this respect, it is the responsibility of the EAP to evaluate and measure the impact of development against a myriad of possible factors, whilst still ensuring that a thorough and holistic assessment is undertaken. This challenge is underscored by the requirement in NEMA section 3(18) as well as the EIA Regulations section 13(1)(a) for the EAP to be independent and to be an objective facilitator of the process. In this process, the EAP must consider a proposal for development by an applicant (often government), without favouring the interest of the applicant over the interests of environmental justice.

Within this broader context of economic, social and environmental trade-offs, role-players such as the EAP and the I&AP have to struggle to make sense of their own personal evidence- and value-based decision-making processes (Nahman *et al.*, 2009). In a complex decision-making framework, as discussed above, the importance of science and value-based decision-making frameworks can play a crucial role in the outcome of the IEM process. For the purposes of this research, the above role-players will be closely examined, considering their decision-making frameworks as drivers that influence the way in which they interact with the IEM process. While EAPs have a responsibility of weighing up economic development needs with environmental consequences within the context of a human environment, not all the role-players are always in agreement as to what the achieved outcome should be.

Examining one particular mechanism of IEM, the EIA process, EAPs often encounter a range of conflicting needs, when determining the likely impact of development proposals on the environment. Within the IEM process, the environment is not only described as the sum total of its biophysical aspects, but according to NEMA section 2(2) also includes people's physical, psychological, developmental, cultural and social interests. By acknowledging that the process entails various role-players, each with competing needs and priorities, this research aims to understand the way parties engage within the IEM process and how they use different evidence types for petitioning for those needs. The role-players, starting with the applicant, the competent authority, the EAP and the I&AP each have different and competing interests. The challenge for EAPs is to make decisions that will ultimately be in the interest of human well-being, allowing for development to take place in a sustainable manner that will preserve environmental resources for the benefit of future generations. This leads us to the aim and objectives of the research, which is elaborated on within the following section.

1.4 Problem statement and the aim and objectives of the research

Within the EIA decision-making framework, there are limitations (Bond et.al, 2014, Audouin, 2009) to the process which could lead to certain perspectives or knowledge systems being prioritised over others. There is a risk that this could lead to decisions being reached that may be to the detriment of environmental justice and the well-being of people. Due to the inability of the EIA framework to process non-scientific knowledge types or even intangible aspects of the environment such as cultural services, values, sense of place or indigenous knowledge (MA, 2005; Schroeder, 2013), there could be a risk that an over reliance on evidence-based decision-making will lead to valuable information being overlooked or ignored (Nahman *et al.*, 2009). In the event of this taking place, the assessment could be skewed and fragmented, failing to address the environmental rights of citizens.

To address these stated concerns this research seeks to interrogate the application of the EIA decision-making framework within the context of South African legislation and policy directions to reach the following objectives:

- Establish to which degree legislation, policy and regulations make provision for value-based decision-making;
- Establish how competing needs and priorities can influence the IEM process in order to benefit particular role players;
- Uncover the mechanisms/strategies used by certain stakeholders to influence the IEM process in order to give priority to their needs or priorities over those of others; and
- Propose methods and recommendations to encourage a more balanced application of decision-making processes that still complies to the regulations and guidelines within the IEM process.

1.5 Research question

In order to examine the problem statement above, the following two research questions informed the research process.

In the first instance the researcher wanted to find out to what extent other non-scientific types of knowledge (i.e. value-based knowledge), are being incorporated into the EIA decision-making framework. And then the researcher wanted to consider whether the dominance of one type of decision-making process could potentially constrain or impede the outcomes of development projects with regards to environmental justice and human well-being considerations.

1.6 Rationale

Patel (2009) established that vulnerable communities along with the natural environment continue to be marginalised in South Africa's decision-making processes. The relationship between power, knowledge and rationality, and the effects these have on decision-making processes can, sometimes unintentionally, perpetuate and maintain some of the social injustices from the past (Patel, 2009).

Academics have commented on the fact that evidence-based decision-making processes are dominating the IEM field, especially within the EIA process which has an over-reliance on a legislative tick-box approach (Kidd and Retief in Bond *et al.*, 2014). There is therefore an argument for the inclusion of value in the decision-making process, with researchers (Patel, 2009; Bond *et al.*, 2015) arguing for an approach that acknowledges the limits (i.e. uncertainty, ambiguity and ignorance) of current levels of scientific understanding. This research is thus concerned with determining to what extent value-based knowledge is incorporated into the dominant evidence-based decision-making process of the EIA process. Secondly, the research is also concerned with unravelling the implications of this over reliance on a legislative tick-box approach and tries to understand how EAPs manage these contending situations.

1.7 Organisation of this study

The study has been divided into six chapters. Chapter 1 serves to provide an introduction and overview of the research study as well as the broader context within which the study is framed. Looking at the field of IEM and in specific the EIA process, emphasis is placed on the integrated nature of all elements within the environmental field. The problem statement, research question as well as the objectives of this study is further elaborated on, framing questions around concepts such as rationality, modernism and systems theory.

Chapter 2 provides a review of the literature related to the research problem, providing an overview of key concepts in decision-making theory and a more in-depth look at evidence and

value-based decision-making. The literature also seeks to establish to which degree legislation, policy and regulations make provision for value-based decision-making and also provides the context within which these legal documents are applied, specifically focussing on stakeholder engagement.

Chapter 3 introduces the research methodology used for this research study in order to address the research objectives set out in Chapter 1. The overall methodological approach that was used for this study was qualitative, focussing on the socially constructed nature of reality (Denzin and Lincoln, 2000). The main method of data collection consisted out of interviews and focus group meetings, which was aimed at obtaining valuable insight into the perspectives of key role-players within the field of IEM.

Some limitations included the lack of a comprehensive document analysis, due to challenges in consistency, which would have complicated the comparison if information. Key experts with experience working on large infrastructure projects were approached as part of the interviews and these experts were able to provide sufficient insight based on their vast experience.

The findings of the research study are presented in Chapter 4, which provides an overview of the thematic results from the document analysis and interviews. The results that were presented in Chapter 4 are discussed in more detail as part of Chapter 5 and also consist of an analysis of the results. Finally, Chapter 6 returns to the research question that was framed as part of Chapter 1 and provides a summary of the key findings as well as recommendations for future research.

2 Literature Review

The literature review provides an overview of the main pieces of legislation, policy and regulations that govern the IEM field. The literature review also considered important aspects of stakeholder engagement and how this process is being used within the EIA decision-making process to not only elicit input into the decision-making process, but also how a deliberative analytical approach can validate their input, leading to the augmentation of cognitive, evidence based information gathered by EAPs.

Further to this, key concepts of decision-making theory were studied to provide insight into the main philosophical approaches to knowledge and evidence and to establish the main arguments for and against evidence-based decision-making versus value-based decision-making.

2.1 Legislation, policy and regulations

Almost at the core of all relevant legislation, policy and regulations, the United Nations Declaration on Human Rights (United Nations, 1948) provides for the right to life, liberty and security of person. Specific provision is made in Article 22 for the right to social security and the realization of the economic, social and cultural rights indispensable for his dignity and the free development of his personality (United Nations, 1948). Article 25 provides for the right to a standard of living, adequate for the health and well-being of individuals and families, whereas Article 27 provides for rights to freely participate in the cultural life of the community (United Nations, 1948).

According to Article 27 (United Nations, 1966), it is acknowledged that culture manifests itself in many forms. It also makes provision for a particular way of life associated with the use of land resources, especially as it relates to indigenous peoples, which can take the form of traditional activities such as fishing or hunting and the right to live in reserves protected by

law. This covenant stresses the basic rights of all people to have access to land and equal participation in decision-making.

Emerging from the fourth World Parks Congress in Caracas, 1992, the International Union for Conservation of Nature (IUCN) principles and guidelines on indigenous and traditional peoples and protected areas (IUCN, 1996) calls for policies to be developed for protected areas to ensure that the interests of indigenous people, taking into account customary resource practices and traditional land tenure systems are protected. Once again, there is a call for the recognition of indigenous people's rights, transparency, as well as benefit sharing.

Within South African legislation, the Constitution clearly highlights the underlying principle that all South Africans have the right to a healthy and well-conserved environment, but also have the right to benefit from natural resources for economic and social development. According to section 24(a) and 24(b), everyone has the right to an environment that is not harmful to a person's health and well-being, as well as the right to have the environment protected through reasonable legislative and other measures.

Section 24 of the Constitution explicitly states that justifiable "… economic and social development… " must be recognised and promoted. Economic and social development is recognized as being essential to the well-being of human beings.

Further to this, NEMA is the overarching piece of environmental legislation that promotes the sustainable use of natural resources and co-operative governance in environmental management in South Africa. It aims to promote equitable access to natural resources, as well as the fair and equitable sharing of the benefits arising out of the use of these resources. Section 27 of the Constitution furthermore makes provision for everyone to have equitable access to health care services and sufficient food, water and social security.

The EIA Regulations focuses primarily on creating a framework for co-operative environmental governance by establishing principles for decision-making on matters affecting

the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by state departments.

Other South African environmental legislation, such as the Mineral and Petroleum Resources Development Act (28/2002) as amended, hereafter referred to as MPRDA, specifically makes provision for the consideration of the social impacts of mining activities on the surrounding socio-economic environment, affected individuals and communities. To avoid socio-economic marginalisation by mining companies, the MPRDA requires mining companies to develop and implement a Social and Labour Plan (SLP), which focuses on promoting the long-term development of their workforces, employee households, communities and regions.

The Constitution furthermore makes regulatory provisions for public participation in terms of section 33, which states that (1) Everyone has the right to administrative action that is lawful, reasonable and procedurally fair, and (2) Everyone whose rights have been adversely affected by administrative action has the right to be given written reasons. This provision has been confirmed by the enactment of the Promotion of Administrative Justice Act (3/2000), hereafter referred to as PAJA, which also speaks to a fundamental principle of common law that relates to administrative justice, that being the *audi alterum partum* rule (the *audi* rule). Essentially, this rules states that even prior to being provided with reasons for a decision which adversely affected the rights of a person, a person whose rights stand to be affected in future by any administrative decision is entitled to a reasonable opportunity to be heard before such a decision is taken. In this respect, section 3 of PAJA provides for a person with the right to a procedurally fair administrative action and further provides for the provision of (2)(b)(i) adequate notice of the nature and purpose of the proposed administrative action; (2)(b)(ii) a reasonable opportunity to make representations; (2)(b)(iii) a clear statement of the administrative action; and (2)(b)(iv) adequate notice of any right of review or internal appeal, where applicable, among other provisions.

Further to this, Chapter 10 (section 195) of the Constitution provides for the basic values and principles governing public administration, and states that public administration must be

governed by the democratic values and principles enshrined in the Constitution, including the following principles:

a) A high standard of professional ethics must be promoted and maintained;
b) Efficient, economic and effective use of resources must be promoted;
c) Public administration must be development-oriented;
d) Services must be provided impartially, fairly, equitably and without bias;
e) People's needs must be responded to, and the public must be encouraged to participate in policy-making;
f) Public administration must be accountable;
g) Transparency must be fostered by providing the public with timely, accessible and accurate information;
h) Good human-resource management and career-development practices, to maximise human potential, must be cultivated; and
i) Public administration must be broadly representative of the South African people, with employment and personnel management practices based on ability, objectivity, fairness, and the need to redress the imbalances of the past to achieve broad representation.

These requirements have been translated into section 24(4)(a)(v) of NEMA, which requires that procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, inter alia, ensure, with respect to every application:

> *"Public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures".*

Furthermore, one of the general objectives of IEM laid down in section 23(2)(d) of NEMA is to "Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment".

Lastly, as was previously mentioned, the NEMA Principles section 2(2) provides for the requirement that "Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably". Section 2(4)(f) further requires that "The participation of all I&APs in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured".

Whilst both international and local legislation, policies and regulations provide for the integration of social, economic and environmental aspects of our society, the legislation isn't explicit on values. Further investigation into this sphere of the policy making is required.

2.2 Stakeholder Engagement

The general public, or I&APs as they are referred to within IEM use different mechanisms to engage in public decision processes (Glicken, 1999). These mechanisms, as defined by the American Bar Association's Standing Committee on Environmental Law (Bear in Glicken, 1999), are described as either paternalistic, consensus building, or confrontational. Glicken (1999) describes that the paternalistic model of public decision processes as one dominated by the decision-maker, who defines the terms of the process based on their own needs. In the consensus-building model, all affected parties are invited to participate, whereas conflict or confrontational models of public participation may in its extreme form, result in litigation. Historic participation, in South Africa, but also world-wide has been according to either the paternalistic or confrontational models (Friedman, 1993; Muller, 1994; Glicken, 1999).

Decisions around IEM, is at its core, a social decision that involves on its most elementary level a decision about the trade-offs between various types of social resources (i.e. ecosystem services), which must be implemented in a social-orientated environment (Glicken, 2000). A decision-making framework must illuminate the risk of human activities to the environment (EPA in Glicken, 2000), which is why Glicken (2000) points out that the information provided to the EAP should be relatable to a social decision.

This approach is a quite recent departure from a more rationalist or paternalistic approach to decision-making. Glicken (2000) compared two policy documents by the USA National Research Council (NRC) to illustrate the increasing importance and changing nature of public participation in IEM. The first publication dated 1983 (NRC in Glicken, 2000) indicated the role of science and government in informing contentious public decisions about hazards to human health. More than a decade later (1996), the policy document NRC (in Glicken, 2000:306), calls for a "deliberative analytic approach", based on "… legitimizing the role of non-experts in the process of ascertaining the likelihood of dangerous events and depending equally on systematic analysis [that] treats uncertainties of importance to the decision problem in a comprehensible way [and on] deliberations that formulate the decision problem, guide analysis to improve decision participants' understanding, seek the meaning of analytic findings and uncertainties, and improve the ability of interested and affected parties to participate effectively in the risk decision process".

The emphasis on non-technical sources is seen as significant since the information provided by non-scientists and the way it informs decisions is different from that provided by technical experts (Glicken, 2000). Information obtained from non-technical sources should, however, be used to augment, and not substitute, scientific knowledge (Glicken, 2000). Instead, Glicken (2000) argues that the process should ensure that an iterative process of communication takes place about what is technically feasible before values are converted into outcomes or decisions. In this respect, the EAP must not only apply scientific principles to the decision-making process to ensure the information is technically competent, but must also apply that competency to appropriate questions (Glicken, 2000). The EAP should therefore provide technical information about the character of the risk to the competent authority, who according to Glicken (2000), can then balance that information against other decision-drivers such as budget and social agendas other than environmental preservation (such as economic development). Similarly, Glicken (2000) argues that the deliberative side of the process must balance the right technical suite of engagement methods, whilst at the same time ensuring that all the appropriate stakeholders are included in the process.

As noted earlier, the importance of public participation in environmental decision-making has been recognized internationally from the early 1990's (Glicken, 2000; Doelle and Sinclair, 2006). Principle 10 of the Rio Declaration on Environment and Development (UNCED, 1993) for example, considers public participation to be a cornerstone of its effort to become sustainable, emphasising the need to provide access to information as well as judicial and administrative proceedings, including redress and remedy.

More recently, the Aarhus Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters (UNECE, 1998) has recognized the importance of facilitating public participation in environmental decision-making.

Public participation in environmental decision-making, according to Du Plessis, (2008), speaks directly to the South African notion of participatory democracy and environmental justice. Du Plessis, (2008:172) asserts that the concept of public participation, citizen involvement, indigenous peoples' rights, and local community consultation has developed alongside a recently new idea that "the governed should engage in their own governance".

Within the context of participatory democracy and environmental justice, (Muller, in Muller 1994) community participation should aim to decrease dependency; increase social, economic and personal development; promote self-determination, self-reliance and dignity; dismantle discriminatory, oppressive and paternalistic structures and replace these with developmental, democratic and liberating systems. Muller refers to a publication by the South African National Civic Organisation (in Muller, 1994) on community development stated that the single biggest complaint was about the lack of consultation and participation. One team member commented: "This is not just political rhetoric as some would assume. It is a genuine desire on the part of community organisations to be taken seriously and be given due responsibility for implementation" (South African National Civic Organisation in Muller, 1994:12).

Allowing for a definition that addresses the above, Picolotti and Taillant (2010) defines participation as the real involvement of all social actors in social and political decision-making processes that potentially affect the communities in which they live and work. Simply put,

public participation is the process of communicating views or concerns on public issues by those concerned and or affected (Du Plessis, 2008).

Public participation is most often viewed as a practical process aimed at the furthering of important outcomes or decisions, however Du Plessis, (2008:180) notes that it can also be viewed as an end in itself, where it can, for example "… raise public awareness and educate the public, give the public an opportunity to express its concerns, allow for representation of diverse interests and facilitate the accountability of governors". In environmental decision-making, public participation can also be used as an effective tool to establish environmental priorities, offer solutions to environmental challenges and prepare, execute and apply the most accurate decision possible (Picolotti and Taillant, 2010).

According to Pieraccini (2015), arguments in favour of participation have been made both on instrumental grounds (participation as a way to improve environmental decisions and environmental protection) and on socio-political ones (participation as a way to share power between different groups and as a way to democratise environmental decision-making and increase trust). However, Pieraccini (2015) points out that the extensive use of participation techniques in different environmental arenas has also attracted much academic criticism. Pieraccini (2015 and Mosse and Cooke, in Pieraccini, 2015) notes for example the discourse questioning the strategic and political way in which participation is used by certain development institutions (i.e. Non-Government Organisations or NGOs and public sector bureaucracies wishing to market their rural development projects), neglecting the empowerment potential of participation. Cleaver (2001) also highlights criticism aimed at the ways in which participation is sometimes incorporated into a functionalist ethos, blind to specific historical and cultural contexts, thereby undermining its transformative potential of participation.

Pieraccini (2015), also points out the proceduralisation of participation using the example of Lee and Abbot's (2003) review of the Aarhus Convention. In this assessment Lee and Abbot (2003) provide an assessment of the mechanisms of public involvement in environmental law

arguing that the call for participation doesn't relate to the quality of the engagement process, ignoring issues of power distribution and therefore risking to continue favouring elite groups rather than the public. Another example is Holder's (2004) work on environmental assessment that pointed out that despite the legislative requirements for participation, the developer or applicant sets the conditions for engagement, shaping the outcomes with the amount of initial information that is provided and upon which all decisions are made.

Stakeholder engagement and participation is therefore seen as a central mechanism for achieving environmental justice, however, as literature suggests, the process can also be diverted for several reasons, which will be further analysed as part of this research.

2.3 Evidence-based decision-making

The study of evidence-based practices has become popular over the last few decades and especially in terms of how evidence must be obtained, classified, and disseminated. This section is therefore aimed at investigating evidence-based decision-making in order to determine whether it has possible linkages to the rationalist perspective outlined above.

Evidence-based approaches can be traced back to the 1980s when, governments started to emphasize the need for policy and practices to be based on accurate evidence (Tranfield *et al.*, 2003). Evidence-based policy-making was in fact founded on the ideas of evidence-based medicine. The evidence-based approach was most influential in medical science and health care and was mainly aimed at reducing bias (Cook *et al.*, 1997; Greenhalgh, 1997). According to De Marchi *et al.*, (2014:24) evidence-based approaches are based on a simple concept, "… that is, to find the best solution integrating past experience".

It became apparent that an increasing number of applied disciplines were adopting evidence-based approaches to assess scientific information, especially in terms of knowledge transfer which involved a systematic review and where the evidence on effectiveness of interventions had to be shared at the practical and policy levels (Stevens and Milne 1997; Khan *et al.* 2003). According to De Marchi *et al.*, (2014) the concept of evidence was used by other disciplines,

especially in government to replicate the results achieved in the field of human health in the social policies. Evidence-based policy making was therefore conceptualised as "… an instrument of rationality that let the society avoid the waste of expensive but failing social policies" (De Marchi *et al.*, 2014:26).

Sanderson (2002) pointed out that the increasing emphasis on the need for evidence-based policy was indicative of the continued influence of the 'modernist' faith in progress informed by reason.

This over reliance on a modernist or rationalist paradigm has presented several problems. Baba and HakemZadeh (2012:833) asserts that while evidence-based research in the medical field can be useful, recommendations on evidence-based medicine tend to be "context independent and implicitly universal". This means that it cannot as easily be translated into other disciplines with a more specific context, i.e. organisational management. In the context of organisation management, for example, recommendations will be more contingent and sensitive to variation in the organizational context (Dean and Bowen, 1994).

The literature points to the fact that there are challenges in replicating evidence-based decision-making for all fields of investigation. Fazey *et al.* (2004) for example point out the fundamental differences between medical science and conservation science, being the type and quantity of information available for synthesis and review. Whereas the field of medicine provides for more controlled conditions, Fazey *et al.* (2004) argue that similar experimental conditions rarely presents itself in conservation biology. Similar constraints are experienced within the social sciences realm (Witkin and Harrison, 2001), where the focus is as much on recognizing people's differences as it is to identify commonalities that links them to classifiable problems or diagnoses.

2.4 Value-based decision-making

The relationship between economic and social factors in the context of decision-making was first explored by Ward Edwards (Edwards in Retief et. al., 2013). Edwards looked at the classic

economic theory that argues that the correct action will create maximum function or effectiveness, the practise of psychology argues that the decision-maker, when faced with two decisions, will choose the option that is better than the status quo (Edwards in Retief et. al., 2013).

Looking at the decision-making context of these two models, Simon (1959) described that the 'economic man' is perceived to have unlimited cognitive ability and to operate in a stable environment in which goals are clearly defined and perfect information (or evidence) is available. In this perfect situation, it is assumed that the decision-maker's personal attributes are irrelevant. However, the psychology approach acknowledges that in reality decision-making contexts are complex and unstable and that different individuals will perceive and interpret this environment differently, as well as having different information processing abilities. Retief *et al.* (2013) therefore emphasise the need to understand both the perceptual and the cognitive characteristics of the decision-maker.

Research in decision-making processes suggests that a strong moral basis for decision-making makes it easier to make a decision (Beattie in Retief *et al.*, 2013), where 'morally challenging decisions tend to be perceived as difficult by decision makers' (Krosch *et al.*, 2012).

Moral decisions are those decisions based on moral conviction devoid of personal interest or emotions. Many of the difficulties in dealing with competing values within the IEM could potentially be explained by this lack of moral agreement on what is the right thing to do for society as a whole. According to Retief *et al.* (2013), difficulty within the decision-making process of impact assessment can be viewed as a morality clash between the interests of different stakeholders such as the proponent, consultants and government.

Closely related to moral decisions is the consideration of the role of values and emotions in decision-making. Fiske and Tetlock (1997) define four value systems within which decisions are made and social relations are carried out. Retief *et al.* (2013) re-configured these definitions to add relevant EIA-related examples to each of the value systems as follows:

- Communal sharing value systems – where all community members get an equal share of resources or involvement in processes. From an environmental perspective, environmental resources such as clean air or national parks are to be shared by all. The concept of inter-generational considerations can also be classified under this value system, meaning that there is an understanding that future generations should inherit high quality environmental resources;
- Authority ranking value system – where some things or persons obtain more authority than others (this hierarchical system can, for example, provide for positive discrimination to restore the levels of equity). Within the IEM process, the requirement to allow effective access to EIA activities, such as the public participation process, accounts for the differences in power. Certain highly valued natural resources, or even heritage sites, automatically obtain a higher protection status;
- Equality matching value system – which is based around a tit-for-tat exchange in which equivalent resources are exchanged in order to maintain a clear balance sheet. Within the South African IEM context, this value system has been used in rehabilitation and environmental offsets projects with respect to ensuring maintenance of natural and social capital; and
- Market pricing value system – in which a unit of measurement (usually monetary values) is assigned so that meaningful ratios between options can be calculated, for example, the use of cost-benefit analysis in EIA.

Social norms or shared values are used by decision-makers to make choices within any one system. Decision-making processes are determined by these shared values (e.g. as is the case within political parties). Problems arise, however, when decision-makers or stakeholders involved in a particular decision (i.e. coal mining) subscribe to different value systems. As the span across the spectrum of each value system becomes greater, the more problematic decision-making can become. For example, within the IEM field, decision-makers may hold different value positions to the EAP presenting the information and this may affect the decisions they make (Retief *et al.*, 2013).

2.5 Values and place based values

The common elements attributed to values are that they are specific modes of conduct or guiding principles (Rokeach, 1973) that influence our choices and actions (Braithwaite and Scott, 1991 in Schroeder, 2013) and that values are relatively enduring (Brown, in Schroeder, 2013).

Brown (in Schroeder, 2013) focuses on value concepts that relate directly to human preference. In a literature review of value concepts, he finds three "realms" of value, where the conceptual realm deals with the basis of preference, the relational realm deals with the act of preferring, and the object realm deals with the result or outcome of preference.

Differently defined concepts of value are associated with each of these three realms. In the conceptual realm, Brown (in Schroeder, 2013:133) defines held value as "an enduring conception of the preferable which influences choice and action".

According to Schroeder (2013:133), held values are labels by which people identify basic modes of behaviour, end-states, and qualities that are good or desirable – like "honesty", "freedom", "beauty", and "loyalty". In the object realm, Brown (in Schroeder, 2013:133) defines assigned value as "the expressed relative importance or worth of an object to an individual or group in a given context". Assigned values are behavioural expressions of preference for one thing in comparison to others, and can take many forms (Schroeder, 2013).

When it comes to the relational realm, Brown (in Schroeder, 2013) is less direct about defining a corresponding value concept. He characterizes value in the relational realm as that which arises from the preference of a subject for an object in a given context. In this instance, Brown (in Schroeder, 2013) sees value not as an intrinsic quality but something which flows from the interaction between a subject and an object. According to Schroeder (2013) Brown's definition seems to characterize value in the relational realm as a feeling that arises from a person's preference for an object in a given context.

Providing contemporary commentary, Schroeder (2013), compared Brown's assessment of the relational realm, which merely describes it as an unobservable, intermediate step on the causal pathway from held to assigned value to that of Hetherington *et al.* (1994:538) who reiterates that the relational realm of value consists of "unobservable thoughts, feelings, or psychological states". The assertion made by Hetherington *et al.* (1994) is that the relationship between latent concepts of value (held values) and manifest expressions of value (assigned values) must be measured. Similarly, a review of literature on environmental values (Dietz *et al.*, 2005), discusses how people's general concepts of what is good or desirable influence their overt choices and actions.

Schroeder (2013) stated that it is a common assumption of researchers that people employ (or should employ) a mathematical process to compute assigned values for specific objects based on their general held values, instead of inquiring into the function of feeling and its relationship to held and assigned values. For example the multi-attribute utility theory (Keeney and Raiffa, 1993), which relies on weighted values for a set of attributes, features, or components for each decision outcome, which is then calculated to obtain the assigned value of the object. In this instance, Schroeder (2013) states that value is treated as an abstract quantity rather than as a subjective feeling, and the actual experience of liking or disliking, accepting or rejecting, is replaced by a mathematical formula for calculating assigned values.

Although this approach can be very useful within the impact assessment process, which forms part of IEM, it doesn't really accommodate more subtle nuances in the decision-making process of subjective human beings. The multi-attribute utility theory assumes that cultural significance or sense of place is just the sum of all the attributes which, when added up can reveal the value of the whole (Schroeder, 2013). However, research on sense of place, for example, suggests that place is a holistic, dynamic, experiential phenomenon that cannot be reduced to such a simple, additive model (Bott *et al.*, 2003; Brooks *et al.*, 2006; Patterson *et al.*, 1998).

Schroeder (2013) therefore argues for a re-evaluation of Brown's relational realm to better understand and incorporate the holistic, subjective experience of place based values into the

decision-making process. Our understanding of place based values therefore requires a shift towards a more affective and experiential perspective, in which the process of decision-making matters as much as the end results of decisions.

In the relational realm, value is an immediately felt experience of liking or disliking, approving or disapproving, accepting or rejecting (Schroeder, 2013). Schroeder (2013) points out that Jessup (in Schroeder, 2013) does not see value in the relational realm as consisting of unobservable feelings that are inaccessible to empirical study but instead argues that feeling is an element of awareness just as much as is sensation. Jessup (1949;138) phrased feeling as "felt-value" within the relational realm. Schroeder (2013:137) defines felt value as "the immediate, subjective feeling of the importance, worth, or significance that something has for an individual". It is important to make the concession that the relational realm can be open to observation, and that it is able to relate to the other realms of value in the process of valuing.

In the critique of Brown's interpretation of the valuing process, which starts with the concept of held values (abstract ideas around things that are good or desirable) and then only arrive at felt value once a preference ordering of objects has been established based on held values, Schroeder (2013) argues that held values are not simply abstract concepts about what is good. Instead research suggests that feeling is involved in every aspect of the human phenomenon of value. Held values therefore already carry with them an immediate feeling of importance or "requiredness", which is what makes them so prominent in our decision-making processes (Fuller, 1990).

Schroeder (2013) further contends that Brown's three realms of value cannot be seen as linear but is more interactive and dynamic. Schroeder (2013:138) explains that held values are "generalized concepts about what is desirable, which emerge over time from our feelings of liking and disliking in particular circumstances and situations". However, once these abstract held values have been formed, it could give rise to the transformation of our underlying felt values (Schroeder, 2013).

More recently, the study of human values from a social science perspective has been applied to the field of natural resource management (further referred to as IEM) in trying to understand place attachment (Bricker and Kerstetter, 2000; Gustafson, 2001). In other words the study of values are being used to better understand how the community values specific natural features and natural resources (Curtis and Robertson, 2003; Kellert, 1997; Winter, 2005) within the process of IEM.

As far as place based values are concerned, Schroeder (2013) looks at a felt sense, which has the ability to possess much more intricate information than can be expressed in mere words or concepts at the explicit level. In essence implicit feelings contain far more detailed information to be captured in a multi-attribute utility model. This is because the felt value of a specific place or cultural connection has the ability to encompass a person's whole history and experience of interaction with that place or cultural aspect. Therefore Schroeder (2013) argues that each person's own dimension of value develops from their personalised holistic felt sense of place and may change depending on the context.

Schroeder (2013:140) therefore contends that, "to include sense of place in decision-making we need decision practices that do not by-pass the implicit level of experience and do not ignore or lose touch with the felt value that underlies held and assigned values". According to Schroeder (2013:140), decision-making process must include new ways of thinking about this implicit, felt level of experience.

Because it's important to be able to understand how a person's value process is constructed, especially in terms of measuring why a specific person have attached certain place based values to a location, Schroeder (2013) considered experiential practice and value process described by Grendlin's (in Schroeder, 2013) research on psychotherapy. Grendlin's research found that when people took time to contemplate their sometimes blurry, implicit felt sense of a situation in a particular way, they could in fact gain new insights into why they have these implicit feelings, and they were able to change the way they felt about and related to the place or situation (in Schroeder, 2013). Schroeder (2013) explains that this act of illumination, i.e. when a felt sense is explained, doesn't cause a feeling to lose its implicit character but instead

transforms into a new, greater sense of understanding, beyond what has already been illuminated. In these terms, Schroeder (2013) explains that held values and assigned values can be seen as the illumination or better explanation of felt value, or in other words "held values and assigned values are words and actions that make explicit, in different ways, some of what is implicit in a felt sense of value"(Schroeder, 2013:143).

The application of experiential practices to enhance decision-making has gained considerable interest in various fields, including environmental management (Walkerden, 2005). By making use of this practise, complex or difficult issues can be illuminated to help an individual make better decisions about the issue, find creative alternatives and feel more confident about the outcome of their decision. Importantly, some individuals have reported that the process empowered them to resist pressure from expert authorities and to participate more proactively with professionals in deciding on a course of action (Darer in Schroeder, 2013; Hendricks-Gendlin, 2003).

Because experiential practices, like focusing, are based in the experience of the individual, their most obvious application in decision-making is to situations where one person must make a decision about which they feel ambivalent or conflicted (Schroeder, 2013). However, Schroeder (2013) continues to argue that when multiple role-players or stakeholders are involved, individuals are required to not only access and express their own felt sense of value for a place, but must take into account the values, meanings, and feelings of other people involved in the decision as well.

According to Schroeder (2013), the presence of another person can have an insightful effect on a person's ability to illuminate their own felt senses. In a scenario where a person is in an open, accepting and non-judgemental environment, the process is more successful, as compared to a situation where a person is faced with judgments and opinions or a person who tries to direct the other person's process according to their own agenda (Schroeder, 2013).

2.6 Summary

The literature review provided an overview of the main pieces of legislation, policy and regulations that govern the IEM field. Internationally, there has been a more pronounced drive towards environmental justice as part of our basic human rights, acknowledging the importance of engaging directly with citizens on decisions that will affect their well-being.

From a local perspective, South African legislation in the form of NEMA, MPRDA and PAJA combined with the provisions of the Constitution incorporates environmental justice- as well as administrative justice aspects, which includes regulatory provisions for public participation.

Academic literature further showed that the role of science in decision-making is increasingly debated as the assumed status of scientific knowledge as a neutral arbiter in public decision-making is challenged by scientists, policy makers, and the public (Janse and Konijnendijk, 2007). This shift is related to the call for a greater plurality of forms of scientific knowledge, calling for non-science based knowledge and values (i.e. greater incorporation of public participation) to form part of the decision-making process (Smith and Kelly, in Janse and Konijnendijk, 2007).

The literature showed that while scientific knowledge is a central factor to decision-making, environmental decision-makers must not only rely on scientific knowledge when making prudent environmental decisions (Janse and Konijnendijk, 2007).

3 Methodology

The literature review (Patel, 2009) has established that evidence-based decision-making processes are dominating the IEM field, especially within the EIA process which has an over-reliance on a legalistic and rationalist approach (Patel, 2009).

Within this research study it is argued that the IEM process may be influenced by a group of role-players, which could lead to a general perception that the IEM process are being manipulated to ignore value-based decision-making as a valid form of participation. The purpose of this study is to establish to what extent the current decision-making process is being dominated by evidence-based decision-making that could be excluding valuable information leading to different outcomes in the IEM process.

The research methodology describes the actions to be taken by the researcher in order to investigate a research problem (Kallet, 2004). Kallet (2004), further states that the research methodology provides the rationale for the use of specific techniques in order to identify, select, process, and analyse information applied to understanding the problem, thereby, allowing for the critical evaluation of a study's overall validity and reliability.

The overall methodological approach that was used for this study was qualitative. According to Denzin and Lincoln (2000), the word qualitative implies an emphasis on the analysis of entities, processes and meanings that are not experimentally examined or measured in terms of quantity, amount, intensity, or frequency. Instead, the focus is placed on the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry (Denzin and Lincoln, 2000). Qualitative forms of inquiry are considered by many social and behavioural scientists to be as much a perspective on how to approach investigating a research problem as it is a method (Denzin and Lincoln, 2000).

The design of the research was purposeful, a key element of qualitative research study, meaning that the cases for study were selected because they offer useful manifestations of the phenomenon of interest (Labaree, 2009). Therefore, sampling was aimed at providing insight into the research question. A rationale for using a qualitative research methodology was based on its ability to generate rich, detailed data that leave the participants' perspectives intact and provide multiple contexts for understanding the field of IEM (Labaree, 2009).

This chapter therefore includes a discussion on the research design and data collection methods applied, the method used for data analysis and synthesis as well as ethical considerations that formed part of this research study.

3.1 Rationale for qualitative methodology

Denzin and Lincoln (2000:3) offer the following definition for Qualitative Research:

> *"Qualitative research … consists of a set of interpretive, material practices that makes the world visible. These practices...turn the world into a series of representations including field notes, interviews, conversations, photographs, recordings and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them".*

According to Ritchie and Lewis (2003), there is also consensus that qualitative research is concerned with understanding the meanings which people attach to phenomena (actions, decisions, beliefs, values etc.) within their social worlds. According to Bryman (in Ritchie and Lewis, 2003:3) "The way in which people being studied understand and interpret their social reality is one of the central motifs of qualitative way in which people being studied research".

Key aspects defining the characteristics of qualitative research methodology has been described by researchers (Bryman, 1988; Denzin and Lincoln, 2000; Miles and Huberman, 1994). These key aspects include:

- the overall research perspective and the importance of the participants' frames of reference;
- the flexible nature of research design;
- the volume and richness of qualitative data; the distinctive approaches to analysis and interpretation; and
- the kind of outputs that derive from qualitative research.

Certain data collection methods have also been identified with qualitative research such as observational methods, in-depth interviewing, group discussions, narratives, and the analysis of documentary evidence (Ritchie and Lewis, 2003).

The setting of the research is the EIA process and development planning within the context of an economically and demographically diverse society. A qualitative research methodology will thus be used in this research since the process of qualitative research involves emerging questions and procedures, where data analysis builds from particular to general themes, and where the researcher is required to interpret the meaning of the data (Creswell, 2013). Creswell (2013) also notes that qualitative research methods supports research that uses an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation.

The research followed a qualitative research methodology that included a literature research. As Creswell (2013), a literature review helps the researcher to establish whether the topic of inquiry is worth studying, and assists the researcher in focussing the area of inquiry. The literature review, furthermore, shares with the reader the results of other studies that are closely related to the one being undertaken. It relates a study to the larger, on-going dialogue in the literature, filling in gaps and extending prior studies (Cooper, 2015; Marshall and Rossman, 2014). Not only does it provide a framework for establishing the importance of the research,

but also establishes a benchmark for comparing the results with other findings (Creswell, 2013). The literature research therefore focused on earlier research relating to social perspectives of environmental justice, and the over-reliance of IEM tools on scientific research whilst ignoring value-based decision-making.

One of the characteristics of qualitative research is its use of multiple sources of data (Creswell, 2013). Accordingly, qualitative researchers gather multiple forms of data, such as interviews, observations, documents, and other forms of information rather than rely on a single data source. Researchers then review the data, make sense of it, and organize it into categories or themes that cut across all of the data sources. Another characteristic is that qualitative researchers collect data themselves through examining documents, observing behaviour, or interviewing participants (Creswell, 2013).. For this reason a document analysis was undertaken in conjunction with other methods such as interviews and focus group meetings, as discussed below.

The literature review and document analysis was also used to further contextualize the IEM process within national, regional and international perspectives, policies and guidelines on environmental management.

3.2 Philosophical and conceptual framework

For the purpose of this research the critical realism research philosophy is deemed to be particularly useful as it will allow the researcher to capture cumulative outcomes of development interventions in relation to power dynamics between differently positioned actors thus focussing the research inquiry on aspects of structure and agency. According to Yeung (1997), critical realism has been widely recognized as the hallmark of the Bhaskarian version of scientific realism in the social sciences. Yeung (1997) observes that the critical realist approach celebrates the existence of reality independent of human consciousness (realist ontology), ascribes causal powers to human reasons and social structures (realist ontology), rejects

relativism in social and scientific discourses (realist epistemology) and re-orientates the social sciences towards its emancipatory goals (realist epistemology).

Some of the key assumptions of critical realism highlighted by Backlund *et al.* (1992) include the assertion that our knowledge of the world is fallible. Sayer (1992); Backlund *et al. (*1992) further assert that the world does not only consist of events but also includes objects i.e. structures, which have powers and liabilities that can generate events, which may not necessarily follow regular patterns. In addition, Sayer (1992) highlights that social phenomena such as actions, texts and institutions are concept dependent and we have to read and interpret what they mean beyond just explaining their production and material effects. Sayer (1992) further states that social phenomena have to be interpreted by starting from the researcher's own frames of meaning, but that they exist regardless of researchers' interpretation of them. The science or the production of any kind of knowledge was, according to Sayer (1992), a social practice influenced by the conditions and social relations of the production of knowledge. Lastly, Backlund *et al.* (1992:5) conclude that social science must be critical of its object, stating that, "in order to be able to explain and understand social phenomena we have to evaluate them critically". In addition to the critical realist approach, the conceptual framework for this study will also utilise key tenets from the Norman Long's actors perspective approach (Long and Long, 1992:21) which highlights the fact that social actors respond to "similar structural circumstances, even if the conditions appear relatively homogenous".

The Actors Perspective seeks to understand "the processes by which particular social forms or arrangements emerge and are consolidated or reworked in the everyday lives of people" (Long, 2003:21). Long's (2003:21) interest therefore lies in analysing the range of "social and discursive practices enacted and interpreted by social actors in the making and remaking of their lives and those of others". According to Long (2003), an actor-oriented perspective provides the researcher with valuable insights into the processes of social construction and reconstruction. Specific to this research, this framework will allow the conceptualization of small-scale interactional settings or locales and the way in which it connects with wider frameworks, resource fields and networks of relations (Long, 2003).

3.3 Research design

Since a qualitative research methodology was proposed, an extensive literature review and document review was undertaken. The purpose of the document review and analysis was to determine trends, which provided further guidance in terms of questions for analysis. The outcome of the document analysis, determined what follow-up data collection methods had to be used in order to gain additional insight into an emerging theme. These methods included personal interviews mainly targeted towards the competent authority, the EAP, Social Impact Assessment (SIA) and public participation experts and other academics within the school of environmental sciences and sustainable development planning and management fields.

The in-depth interview is a technique designed to obtain a version of the participant's perspective on the research topic (Mack *et al.*, 2005). This technique requires a researcher to pose questions in a neutral manner, listening attentively to participants' responses, and asking follow-up questions and probes based on those responses. The researcher should avoid leading participants according to any preconceived notions, and must not encourage participants to provide particular answers by expressing approval or disapproval of what they say (Mack *et al.*, 2005).

In-depth interviews were identified as a data collection method as literature suggests that it may be useful for learning about the perspectives of individuals (Mack *et al.*, 2005). However, the use of focus group meetings were also employed to gain perspectives on, for example, group norms. A focus group meeting with a group of EAPs were conducted, as well as a small focus group meeting with a SIA specialist and a public participation expert. The first focus group meeting was conducted with seven EAPs at their workplace during their lunch hour, with the second focus group discussion being conducted after office hours with two senior members of the environmental team undertaking EIAs on both a national and international level. One member of the focus group meeting had extensive experience in planning and conducting public participation processes, with the other having extensive experience in the field of SIA.

In-depth interviews are an effective qualitative method for getting people to talk about their opinions, and experiences. Interviews are also especially appropriate for addressing sensitive topics that people might be reluctant to discuss in a group setting (Mack *et al.*, 2005).

Focus groups were used to learn the social norms of a community or subgroup, as well as the range of perspectives that exist within the particular community or subgroup. A principal advantage of focus groups is that they yield a large amount of information over a relatively short period of time (Mack *et al.*, 2005).. They are also effective for accessing a broad range of views on a specific topic, as opposed to achieving group consensus (Mack *et al.*, 2005). The richness of focus group data emerges from the group dynamic and from the diversity of the group. Participants influence each other through their presence and their reactions to what other people say (Mack *et al.*, 2005).

3.4 Data collection methods

Data collection was undertaken in order to determine what types of knowledge or evidence systems are at play within the IEM processes and to further determine whether it allows for, or contradicts efforts to make effective reasoned decision-making in the IEM process. Data collection relied on the personal experience and engagement approach, as the researcher had direct knowledge of the IEM field. The researcher's personal experiences and insights formed an important part of the inquiry and were critical to understanding the challenges faced by the IEM field.

3.4.1 Document analysis

In order to gather information on the extent to which legislation, policy and regulations make provision for value-based decision-making and whether any guidance is provided, within a South African context, from a regulatory or policy landscape, to address the issue of evidence-based versus value-based within IEM, a document analysis were performed. The main documents studied included the Constitution, NEMA, the National Heritage Resources Act

(25/1999), hereafter referred to as NHRA, the PAJA, as well as several other international policies, such as the United Nations Declaration on the Rights of Indigenous People. These documents were publically accessible and were considered in terms of any explicit commentary on environmental justice, stakeholder or public participation and how this related to decision-making processes within IEM.

3.4.2 Interviews

Based on the literature review, thematic areas were determined and experts were identified to provide insight into each of the identified thematic areas. Based on the literature review, seven thematic areas within IEM have emerged, which includes:

1. Stakeholder engagement or public participation process;
2. Social Impact Assessment process;
3. Environmental Impact Assessment process relating to large infrastructure process that will elicit a high conflict and high complexity scenario's described by Renn *et al.* (1991);
4. Sustainable development planning and management approach;
5. Cultural heritage or anthropology approach;
6. Industry or private sector perspective; and
7. Decision-making authority (i.e. competent authority) approach.

Each expert received a personalised letter (email) explaining the aims of the research and they were provided with an opportunity to participate in the research. The letter of introduction also included the draft interview schedule for their information. Only once an expert has indicated his/her willingness to participate were they asked to contact the researcher to schedule an appointment for the interview.

A snowball sampling technique was deployed to generate respondents for the research. In terms of this methodological approach participants or informants with whom contact has already been made were asked to use their social networks to refer the researcher to other people who could potentially participate in, or contribute to the study (Mack *et al.*, 2005).

In order to address the research objectives, a list of experts fields were selected, including:

1. Public participation expert;
2. Social impact assessment expert;
3. EAPs with experience on large strategic projects;
4. Expert within the sustainable development planning and management field;
5. Environmental anthropologist;
6. Representative from a large oil and gas company; and
7. Department of Environmental Affairs (DEA) representative.

The rationale behind selecting the expert fields were based on the preceding literature review, as well as the research objectives of this study. Emerging themes resulted in the addition of two additional expert fields, namely that of an environmental anthropologist working within the research field as well as a representative from a large oil and gas company who could provide information on the strategic need for energy and how it relates to environmental justice, especially within the contentions context of oil and gas exploration (fracking) within South Africa.

To investigate the mechanisms, used by certain stakeholders in the public participation process, to influence the IEM process in order to give priority to their values over the values of others it was deemed necessary to consult with public participation experts in the field of IEM. The selection criteria for the expert was a person with experience exceeding 15 years in the industry, with the knowledge of designing, facilitating and managing public participation processes, as well as awareness creation programs. In order to address specific research objectives, an expert with experience across a number disciplines (mining, industrial, oil and gas, water, power generation/energy/renewable energy, etc.) were required. The selected expert met these criteria and was furthermore an acknowledged expert with the ability to provide strategic advice regarding the management of social risks.

An expert in the field of SIA was included in order to gain insight into the ways competing values or evidence systems can influence the IEM process in order to benefit particular role players. Further to this, EAPs with experience on large strategic projects were included for

several reasons. It was assumed that these experts would be able to provide insight into the degree to which legislation, policy and regulations make provision for value-based decision-making in the EIA process, especially since the identified EAPs had experience working on the Nuclear 1 EIA in South Africa. As noted earlier, Renn *et al.* (1991) have described how the inclusion of value-based evidence increases within highly controversial decision-making processes and these concepts would be explored during the interviews with these experts. EAPs were also selected based on their experience in working with high profile projects where the projects are highly likely or certain to cause environmental and social impacts of sufficient significance.

In order to develop and propose methods and recommendations to expose and manage competing values in a balanced way that still complies to the regulations and guidelines within the IEM process, a theoretical environmental scientist with a focus on environmental assessment debates, the effectiveness of environmental assessment and environmental policy issues in general was also included.

Interview schedules were aimed at generating participant perspectives based on the experiences in the field of IEM. Interview questions were designed based on the emerging themes arising from the literature review and document analysis. The interviews were primarily, open-ended questions; however, it followed a broad framework to ensure that inference could be drawn between the responses from different experts (Copy of the interview sheet included as Appendix A). This was also done to allow for possible correlation between the different groups. The interviews included a general introduction and a preliminary set of questions to frame the experts' background and qualifications. This was later used to determine the various methods in which experts entered the field of IEM. During interviews, certain concepts or perspectives, as developed through feedback received from other respondents, were posed to the experts in order to allow them to respond to these concepts. In particular, perspectives posed by experts working within the field of EIAs, were presented to persons working within the field of IEM, but outside the field of EIAs, in order obtain alternative viewpoints.

A total of six expert interviews were scheduled at a convenient location and time that was agreed by each participant. A brief email (with introductory letter attached, see Appendix B) was forwarded to each of the potential participants. The introductory letter explaining the purpose of the research was attached to the emailed invitation to participate. A clear emphasis was placed on the voluntary nature of their participation in the research and when a respondent were unavailable, the next respondent were contacted. Some of the identified experts were not available at the time of conducting this research, and as mentioned earlier, additional research participants were identified through a process of snowball sampling. Several SIA experts were approached through the method of snowball sampling, however many experts were currently abroad or their schedules did not allow for interviews to take place. The representative from a large oil and gas company was approached, however, due to location and time constraints, the interview could not be conducted.

The duration of the interviews were between 60 and 120 minutes long, and was recorded and transcribed, with permission from the experts. During the data analysis phase of the research, transcripts were coded according to participant responses to each question and/or to the most salient themes emerging across the set of interviews, as described by Mack *et.al.* (2005).

3.4.3 Focus group meetings

In order to develop and propose methods and recommendations to illustrate and manage competing values in a balanced way that still complies to the regulations and guidelines within the IEM process, focus group meetings was used as a data collection method.

The researcher approached the General Manager at one of the environmental consulting firm that regularly undertake EIA processes, to propose that a focus group discussion be held with their employees. The aim of the research and nature of the envisaged focus group discussion was presented in an email to the General Manager, who agreed that a focus group meeting could be held at their premises as it would also be beneficial for their company to participate in these types of discussions. As per the General Manager's request, the discussion took place at their business offices and during employee lunch hours. Prior to this, an introductory letter

was forwarded to the General Manager detailing the aim of the research and the purpose of the envisaged focus group discussion. This letter highlighted the voluntary nature of participation and detailed the nature of the discussion that will be taking place. Participants in the focus group meeting were asked to contact the researcher if they should choose to participate in the process and participants were only included in the focus group once they have given their consent. The General Manager and potential participants were provided with the proposed format of the focus group meetings beforehand and all entities were provided with an opportunity to confirm whether they would like to participate in the research. Only once the General Manager and all potential participants have indicated their willingness to participate in the research (by contacting the researcher) was an appointment scheduled between the company and the researcher. A total of seven EAPs ranging between 1-5 years' experience-, 5-10 years' experience- and 10 and more years' experience within the IEM field participated in the focus group meeting. At least four of the EAPs that formed part of the focus group meeting had some form of experience working on the Nuclear 1 EIA with all of the EAPs having been responsible for designing and conducting public participation processes as part of their responsibilities.

Through a process of snowball sampling a second company was approached to participate in an EAP focus group meeting, however, the contact person did not respond to requests to participate. It was furthermore proposed that a grouping of SIA experts be interviewed as part of a focus group meeting. Due to difficulties in scheduling a suitable time and venue for SIA experts to be interviewed, a small focus group meeting was held with a SIA expert and a Public Participation expert working for the same environmental consulting firm. The approach followed for this focus group meeting was similar to that of the formal interview process where the participants were asked to contact the researcher should they choose to participate in the focus group meeting following the information provided to them in the introductory letter.

From the document analysis, key themes were developed and three to five key questions for discussion were developed and discussed at the focus group meeting. The discussion was opened by asking participants to respond to one of the questions developed ahead of time,

where after the discussion was stimulated with follow-up questions. Once a topic was exhausted, another pre-developed question was posed, allowing for a similar process to unfold.

The purpose of the focus groups were to stimulate discussion and debate around key themes, as well as to determine whether themes are limited to individuals or whether it followed larger trends.

A total of two focus group meetings were conducted and were recorded and transcribed, with permission from the participating experts. Consent forms were provided to participants. At the start of the focus group, the purpose of the focus group and how it slotted into the broader context of the research study was explained. The objectives of the study and the anticipated risks and benefits to the individual participant were also highlighted, more importantly the fact that no risk were linked to their involvement in the study were clearly established Following this, participants were provided with an overview of the research topic, without sharing too much detail, which could potentially have influenced the experts' responses.

3.5 Data analysis and synthesis

Data analysis was performed in order to address the research questions described in section 1.5 and was done from a holistic perspective, where the IEM field were understood as a complex system that is more than the sum of its parts (Labaree, 2009). The analysis focused on complex interdependencies and system dynamics that couldn't be reduced to linear, cause and effect relationships.

Transcribed interviews were grouped into relevant themes and these themes were used to describe patterns or trends. Interview coding software (Weft QDA) was used to facilitate the qualitative coding of interviews. Weft QDA is an open-source software package specifically designed for qualitative research. Key categories drawn from the interview schedule were developed within Weft QDA and arranged according to a) perception, b) amount of focus on value based decision-making factors, c) challenges facing the field of IEM and d) role players.

Each of the main categories also had sub-themes which overlapped within the main, as well as the sub-categories.

Using the above techniques and software, a thematic analysis was conducted for both pre-determined themes as well as emerging themes. Thematic analysis focus on identifiable themes and patterns; whereby data is collected by way of an interview and then transcribed (Aronson, 1995). From the transcribed conversations, patterns of experiences can be listed from direct quotes or by paraphrasing common ideas. Themes are identified by "bringing together components or fragments of ideas or experiences, which often are meaningless when viewed alone" and themes that emerge from the informants' stories are pieced together to form a comprehensive picture of their collective experience (Leininger, 1985:60). Constas (1992:258) state that within thematic analysis, the "interpretative approach should be considered as a distinct point of origination".

Following the interpretive approach, identified patterns were expanded on, and either combined or catalogued into sub-themes (Aronson, 1995). When gathering sub-themes to obtain a comprehensive view of the information, it is easy to see a pattern emerging. According to Aronson (1995), emerging patterns can be tested by asking the informants to give feedback on these patterns and the interviewer uses the informants' feedback to establish the next questions in the interview. Aronson (1995) further explains that a valid argument for choosing the themes is done by substantiating it with a literature review and once the themes have been collected and the literature has been studied, the researcher is ready to formulate theme statements to develop a story line. These story lines, Aronson (1995) argues should help the reader to comprehend the process, understanding, and motivation of the interviewer.

3.6 Ethical considerations

Three core principles, originally articulated in The Belmont Report (Bethesda, 1978) form the universally accepted basis for research ethics. The first of which, respect for persons, requires a commitment to ensuring the autonomy of research participants, and, where autonomy may be

diminished, to protect people from exploitation of their vulnerability. According to this principle, the dignity of all research participants must be respected, ensuring that people will not be used simply as a means to achieve research objectives (Mack *et al.*, 2005).

The second principle, beneficence, requires a commitment to reduce the risks associated with research, including psychological and social risks, and maximizing the benefits that accrue to research participants (Mack *et al.*, 2005).

Justice requires a commitment to ensuring a fair distribution of the risks and benefits resulting from research. Those who take on the burdens of research participation should share in the benefits of the knowledge gained (Mack *et al.*, 2005).

In order to protect sensitive information, all participants, as well as the names of companies will remain anonymous. Any information that was obtained in connection with this study and that can be identified with a person or a company will remain confidential and will be disclosed only with the permission of the relevant person or company or as required by law. Confidentiality will be maintained by keeping anonymity of participating experts intact and reporting individual and grouped data in an accountable non-descript manner.

Data was captured through the taking of notes and by recording the conversations digitally (audio). The researcher committed to providing the participant with a copy of the recorded conversation or a transcription of the audio file should it be required. Participants were allowed an opportunity to edit the information obtained in the interview provided that they did so in a timely fashion. Once the audio files were transcribed, the interviews were deleted and only a transcribed version of the interview remains.

Data Documentation and Management will be conducted. All materials will be labelled according to the same convention, placed together in one large envelope.

Participants names, details and organisational affiliations, as well as names, details and any proprietary information of the organisations themselves, will not be disclosed in any research

outputs and will at all times be held as confidential. The intention of the research is to gain an understanding of the trends within the IEM field and not to investigate the performance or behaviour of individuals or companies.

Document analysis was also performed on documents were readily available in the public domain. All documents were referenced, providing credit to the author.

Informed consent was obtained from research participants in order to ensure respect for persons during research. According to Mack *et al.* (2005), informed consent is a mechanism for ensuring that people understand what it means to participate in a particular research study so they can decide in a conscious, deliberate way whether they want to participate.

Research participants were furthermore informed that they were participating in this research purely for the purpose of scientific research and that the information would not be distributed to any individual, company or organisation without their prior consent.

A copy of the ethical clearance received from the University of Pretoria is included as part of Appendix C.

3.7 Limitations

The original intention was to undertake a document analysis that would include EIA reports in the public domain; however, this was not pursued due to challenges in consistency, which would have made it difficult to compare information. The analysis of enough EIA reports to provide a statistically defendable sample was also beyond the scope of this research. In terms of the objectives of this research, it was deemed more appropriate to understand the approaches followed by EAPs than to analyse the content of an EIA report, which would not be able to provide the depth of understanding required by this research. Instead, key experts with experience working on large infrastructure projects were approached as part of the

interviews and these experts were able to provide sufficient insight based on their vast experience.

The research proposal also suggested that a focus group meeting with SIA practitioners would be conducted to serve as a comparison to the EAP focus group meeting. Due to the limited availability of SIA practitioners, as well as time constraints, the focus group meeting were reduced to a focus group meeting combining the public participation expert and the SIA expert. Although this grouping was not originally suggested, it provided a good understanding in terms of the different approaches used by the two "social-related" fields. An effort was made to arrange a second EAP focus group meeting, in order to compare different groups of EAPs to each other; there was not enough interest in a second focus group meeting from other participants identified through the snowball sampling technique.

Although the EAP focus group meeting provided the researcher with an opportunity to interview EAPs with a wide range of experience, the dynamics within the focus group meeting was slightly affected by the seniority of some EAPs over other participants, which could have influenced the freedom with which some of the junior EAPs expressed their views. Since the research was conducted following a critical realism research philosophy, the interesting power dynamics within the group, however, provided additional context to the different actors within the IEM field.

3.8 Summary

Within Chapter 3, the rationale for the chosen research methodology was described as well as the philosophical and conceptual framework that was used. Since a qualitative research methodology was proposed, an extensive literature review and document review was undertaken coupled with interviews and focus group meetings. The interviews and focus group meetings were structured around six thematic areas as illustrated in Figure 3-1.

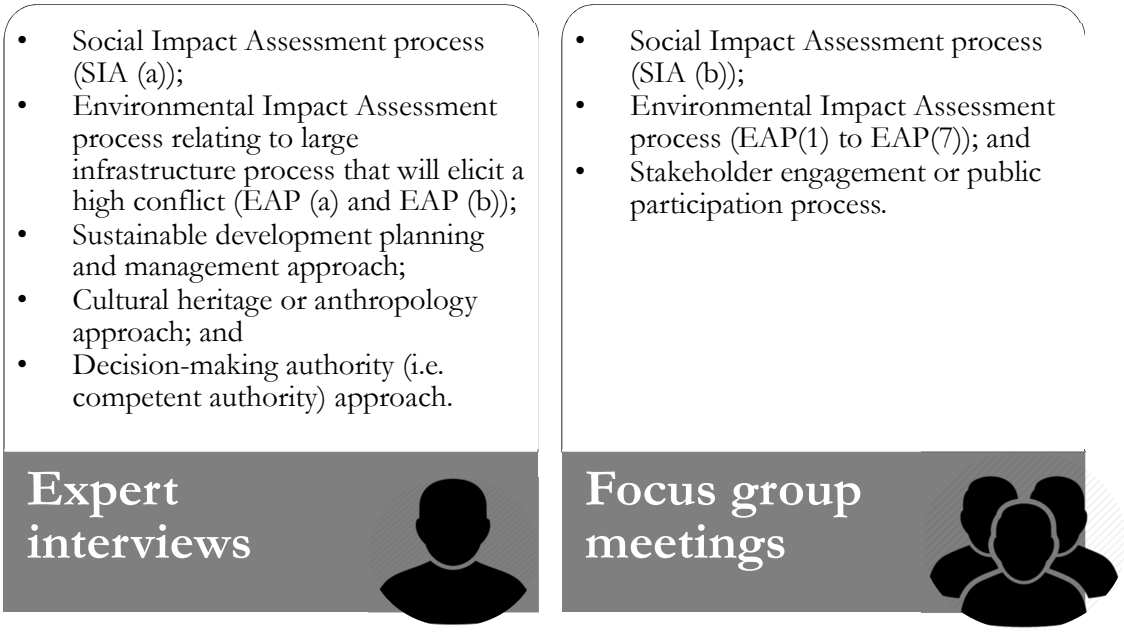


Figure 3-1: Summary of data collection methods per thematic area

Using the Weft QDA software, a thematic analysis was conducted for both pre-determined themes as well as emerging themes. The results of this analysis are described in the following section.

4 Results

In order to answer the research question, the research objectives were used to develop study themes. Data was gathered using three main methods, the first included a document analysis of legislation, policy and guidelines, which assisted in addressing the first objective, which was to establish to which degree legislation, policy and regulations made provision for value-based decision-making. The research study was aimed at establishing whether South African legislation provided any guidance in terms of the incorporation of different values, especially as it related to values and perceptions of communities and stakeholders.

Using the second and third methods for data gathering (i.e. interviews and focus group meetings), additional study themes was developed to provide a context within which these regulatory frameworks operated. Understanding some of the main challenges facing the field of IEM was important to establish since it would provide important framework for the research study.

Data was used to determine to what extent competing values had been taken up in the IEM process and to furthermore establish how competing values could potentially influence the IEM process in order to benefit particular role players.

In order to uncover the mechanisms or strategies used by certain stakeholders to influence the IEM process in order to give priority to their values, the enquiry focussed on different stakeholders within the IEM process and the level of influence they had over the outcome of the EIA process.

4.1 Thematic results from document analysis

The purpose of the document analysis was to establish to which degree legislation, policy and regulations in South Africa made provision for value-based decision-making in the IEM field.

The document analysis also informed the thematic areas of the research which is elaborated on in the following sections within Chapter 4.

4.1.1 Legislative overview

One of the main research objectives were to establish to which degree legislation, policy and regulations made provision for value-based decision-making. This section therefore provides a summary on whether any guidance is provided, within a South African context, from a regulatory or policy landscape, to address the issue of competing values (evidence-based versus value-based) within IEM. It was also important to establish to what extent the regulation and policy landscape made allowance for competing values within the IEM field or process and to determine the extent to which competing values has been taken up in the IEM process.

The provision of environmental rights within South Africa's legislation (i.e. most notably the Bill of Rights contained in the Constitution and NEMA) is augmented by international human rights instruments (De Wet and Du Plessis, 2010). Section 39(1)(b) of the Constitution obliges courts to consider international law when interpreting the Bill of Rights, while sections 239(1) and 233 of the Constitution oblige courts to interpret legislation in conformity with international law (De Wet and Du Plessis, 2010). Further to this, Section 39(1)(b) of the Constitution embraces both binding and non-binding instruments of international law (Dugard in De Wet and Du Plessis, 2010). Binding instruments include treaties to which South Africa is a party to (i.e. United Nations Security Council resolutions) and customary international law (De Wet and Du Plessis, 2010). Non-binding instruments include those which are not open to ratification to South Africa specifically (i.e. declarations of the United Nations General Assembly or the United Nations Human Rights Committee) (De Wet and Du Plessis, 2010).

Therefore, where the domestic legislation of South Africa does not provide sufficient clarity on its obligations for value-based knowledge, inference can be made to its substantive duties in terms of international instruments (Kotzé and Paterson in De Wet and Du Plessis, 2010).

South Africa's legislation and policies are largely influenced by international policies and treaties that make provision for the expression of competing values, and as a signatory to the United Nations Declaration on Human Rights, South Africa has committed to providing for the right to life, liberty and security of its citizens. Specific provision is made in Article 22 of the right to social security and the realization of the economic, social and cultural rights indispensable for his dignity and the free development of his personality. Article 25 provides for the right to a standard of living, adequate for the health and well-being of individuals and families, whereas Article 27 provides for rights to freely participate in the cultural life of the community.

According to the Human Rights Committee, General Comment 23, Article 27 (1994), it is acknowledged that culture manifests itself in many forms. It also makes provision for a particular way of life associated with the use of land resources, especially as it relates to indigenous peoples, which can take the form of traditional activities such as fishing or hunting and the right to live in reserves protected by law. This covenant stresses the basic rights of all people to have access to land and equal participation in decision-making.

De Wet and Du Plessis (2010) argues that while some international treaties are not legally binding on South Africa, the reasoning of international human rights bodies regarding the relationship between indigenous communities and the need for environmental protection is a valuable source of interpretation of section 24 of the Constitution.

The relationship between indigenous communities and the need for environmental protection is reinforced by a number of international instruments that protect the rights of indigenous people. The United Nations Declaration on the Rights of Indigenous People (UNDRIP, 2007:2), "recognises that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment". The Declaration makes it clear that indigenous people have the right to health, conservation and the protection of the environment. Further to this, the International Labour Organisation's Indigenous and Tribal Peoples Convention provides for the protection of the rights of peoples concerned with the natural resources pertaining to their lands, including the

right of indigenous and tribal peoples to participate in the use, management and conservation of natural resources. The protection of the natural habitat of indigenous peoples due to their particular dependence for their way of life on such an environment was recognised as early as 1983, with the publication of the Cobo Report (UNESC, 1983). The Botswana High Court (Sesana case, 2002: para H.1.5.b) relied on the Cobo Report observing that there is "a deeply spiritual relationship between indigenous peoples and their land".

Emerging from the fourth World Parks Congress in Caracas, 1992, the IUCN principles and guidelines on indigenous and traditional peoples and protected areas (Beltran, 2000) calls for policies to be developed for protected areas to ensure that the interests of indigenous people, taking into account customary resource practices and traditional land tenure systems are protected.

In terms of project specific applications, the International Finance Corporation (IFC) has been advancing the practise of stakeholder engagement into all other aspects of environmental and social performance. By requiring all IFC funded projects within South Africa to comply with their requirements for environmental and social performance, the South African EIA decision-making framework is augmented and improved. The implementation of IFC standards have highlighted the importance of moving away from a short term focus on regulatory requirements towards a longer, more strategic relationship-building approach have become more prominent in the past 20 years (Sequeira and Warner, 2007). Through the years, the IFC have noted the risk associated with poor stakeholder relations as well as the opportunities provided by constructive processes. By actively developing and sustaining relationships with affected communities and other stakeholders throughout the life of projects, the IFC has been able to achieve better outcomes on the ground (Sequeira and Warner, 2007). The IFC further noted that when consultation activities are primarily driven by legislative requirements, the engagement process tend to be a once-off dialogue in the form of a formal public meeting, whereas meaningful engagement can only take place by way of building constructive working relationships through a broader, more inclusive, and continuous process (Sequeira and Warner, 2007). Within the South African context, the obligation to align to the IFC standards of environmental and social performance is only enforced through the donor agreement,

however, from the author's own observations, the IFC standards has become known as a best practise standard within the IEM field.

Although many international instruments call for the integration of values into the decision-making process, the Millennium Ecosystem Assessment (MA, 2005), is of the opinion that the importance of cultural services and values is currently not recognised in landscape planning and management and that these fields could benefit from a better understanding of the way in which societies use land and how it relates back to cultural, spiritual and religious belief systems. There is overall recognition of the strong influence that ecosystem change can have on cultural identity and social stability (MA, 2005). In this respect, human cultures, knowledge systems, religions, heritage values, social interactions, and the linked amenity. The MA (2011:46) states that: "services such as aesthetic enjoyment, recreation, artistic and spiritual fulfilment, and intellectual development have always been influenced and shaped by the nature of the ecosystem and ecosystem conditions in which culture is based". The Millennium Ecosystem Assessment (2011) therefore calls for policy formulations to empower local people to participate in managing natural resources as part of a cultural landscape, integrating local knowledge and institutions.

Internationally, there are new approaches for addressing this gap, such as the Australia International Council on Monuments and Sites Burra Charter (2013), which is a model that has been developed to ensure a greater focus on value-based decision-making. A similar approach for a more contextual and integrated approaches to IEM is the four-step DIVE-analysis (Describe, Interpret, Valuate and Enable) which is based on the need to understand the entire landscape rather than separate fragments (Zancheti *et al.*, 2004). These approaches show that there are concrete ways of considering the drivers of change through time, the tangible and intangible cultural qualities of the site and the way this is experienced and managed by stakeholders (Zancheti *et al.*, 2004).

From a more localised perspective, the Constitution clearly highlights the underlying principle that all South Africans have the right to a healthy and well-conserved environment, but also

have the right to benefit from natural resources for economic and social development. Section 24 of the Constitution explicitly states that justifiable "economic and social development" must be recognised and promoted. Economic and social development is recognized as being essential to the well-being of human beings.

The Constitution also affirms this right as part of section 31(1(a)) which determines that persons belonging to a cultural, religious or linguistic community may not be denied the right, with other members of that community, to enjoy their culture, practise their religion and use their language. This provision is very much aligned to United Nations International Covenant on Civil and Political Rights (United Nations, 1966) Article 27, which states "In those States in which ethnic, religious or linguistic minorities exist, persons belonging to such minorities shall not be denied the right, in community with the other members of their group, to enjoy their own culture, to profess and practise their own religion, or to use their own language". When considering the provisions in the Constitution, the assumption is that it would then also provide for the protection of certain natural resources such as land, waters or forests that may have significant value to these communities way of life.

These rights are further protected by NEMA, which is the overarching piece of environmental legislation that promotes the sustainable use of natural resources and co-operative governance in environmental management in South Africa. It aims to promote equitable access to natural resources, as well as the fair and equitable sharing of the benefits arising out of the use of these resources. However, as Scholes *et al.*, (2016) noted, sense of place is not adequately protected in EIA process. While the principles of NEMA call for the consideration of cultural heritage sites the time-frames for EIA or other regulatory processes are too short to allow for communities to reach agreements on levels of acceptable change insofar as it related to sense of place. Scholes *et al.*, (2016) argue that while debates on acceptable change on senses of place can be more appropriately addressed in strategic planning frameworks such as Spatial Development Frameworks and Environmental Management Frameworks, the quality of participation and the resultant frameworks are not up to standard. Similarly other types of value based evidence, which like sense of place, cannot be empirically measured, or quantified are not explicitly dealt with in the legislation.

The South African legislation further makes provision for the protection of cultural heritage resources through the enactment of the NHRA, which defines a heritage resource as any place or object of cultural significance. Heritage resources may typically include landscapes and natural features of cultural significance such as rivers, mountains and forests. According to section 1 of the NHRA, heritage resources does not only include ancestral graves, royal graves and graves of traditional leaders, but also 'living heritage' or the intangible aspects of inherited culture such as indigenous knowledge systems. The NHRA further endorses the view that the cultural heritage of traditional communities and environmental protection go hand in hand. Section 5(7) of the NHRA provides that the identification, assessment and management of the heritage resources of South Africa must promote the use and enjoyment of and access to heritage resources (which may include natural resources) in a way consistent with their cultural significance and conservation needs. Also, in relation to section 2(4)(g) of NEMA provides that "decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge". Evidence (Owens, 1997; O'Neill, 1998; Flyvbjerg, 2001; Wilkins, 2003, Audouin, 2009) is however presented that this is currently not being considered and that there is a greater need for value rationality to reassert itself against instrumental rationality.

Similarly, the National Department of Trade and Industry's Policy Framework for the Protection of Indigenous Knowledge through the Intellectual Property System (Government Gazette, No, 31026) draws linkages between the protection of indigenous knowledge and the conservation of the environment, however from the author's own experience this is not widely implemented within the EIA decision-making framework. There are, however, other examples of legislation outside of the EIA framework that supports this inter-relationship, which includes the National Environmental Management: Biodiversity Act (10/2004), hereafter referred to as NEM:BA, which in section 82(1) that requires that the interests of indigenous communities must be protected, before a permit (environmental authorisation) for bio-prospecting may be issued, especially where the proposed bio-prospecting project will involve such community's traditional uses or knowledge of the indigenous biological resources. Within this legislation, the competent authority, at least have some leverage to ensure that these types of aspects are considered.

Within the ambit of NEMA, the EIA Regulations focuses primarily on creating a framework for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by state departments. Paradoxically, while the approach to environmental management embodied in NEMA has a very strong social focus in terms of equity, participation, and empowerment of disadvantaged communities, the EIA system is heavily weighted towards the biophysical environment in terms of regulations, guidance and practice (Aucamp *et al.*, 2011; Du Pisani and Sandham, 2006).

The National Department of Environmental Affairs (DEAT, 2002:11) published a series of guideline documents to guide EAPs in their approach to IEM. According to the Information Series 3 Documents on stakeholder engagement, the stakeholder engagement process can assist with developing content around potential impacts by obtaining "stakeholders' values, comments and input". This process can help the EAP to "establish project specific criteria, assign significance to potential impacts, and define maximum acceptable levels of change" (DEAT, 2002:11).

Acceptable levels of change is a method of assessing intangible values by assessing the vulnerability of existing cultural heritage and its capacity to absorb or benefit from various change scenarios (Zancheti *et al.*, 2004). These levels should be evaluated in relation to established goals for the particular resource (i.e. cultural heritage). According to Zancheti *et al.* (2004), the vulnerability of an intangible resource can be defined as:

> *"The probability for reduction or loss of defined heritage values as a result of proposed internal or external changes. The tolerance limits describe the robustness of the cultural heritage, i.e. the point than marks transition from one value level to the next. Exceeding this tolerance point will usually result in reducing the value of the heritage to a lower level".*

Capacity for change is therefore determined by a combination of the value of the object of study, its development potential and its vulnerability or tolerance level (Zancheti *et al.*, 2004). This method is therefore useful in terms of incorporating stakeholder values or preferences into the decision-making process to determine the limits for trade-offs (DEAT, 2002).

The need to include normative criteria when deciding on the level of engagement is further elaborated on in the guideline document, and can assist an EAP to determine whether or not there is support and demand for participatory, transparent decision-making, co-operative governance, equitable access to information or procedurally fair administrative action (Glavovic *et al.* in DEAT, 2002). Pieraccini (2015) further highlights that participation is not only encouraged on instrumental grounds, i.e. "… participation as a way to improve environmental decisions and environmental protection …" but also on socio-political ones, i.e. "… participation as a way to share power between different groups and as a way to democratise environmental decision-making and increase trust". According to Pieraccini (2015) this proceduralisation with deliberative democratic processes envisions the participatory process as a space for reaching consensus, rather than compromise. Pieraccini (2015) further contends that this process of collective reflection is necessary since it can lead to both legitimate and improved outcomes.

According to the Public Participation Guideline Document (Government Gazette 35769 of 10 October 2012), there are several other benefits to conducting a comprehensive public participation process. One of the key benefits is it "provides I&APs with an opportunity to voice their support, concerns and questions and to suggest ways for reducing or mitigating any negative impacts of the project and for enhancing its positive impacts. The process should furthermore enable stakeholders to provide input in terms of their needs, preferences and values. Although the guideline document provides the benefits to conducting a thorough consultation process, guidance, over and above the legislative requirements are not provided to ensure a more inclusive process.

Although Janse and Konijnendijk (2007) acknowledge that value-based interest should be incorporated into decision-making processes, and that they can inform decision-makers in a different manner than scientific information, they still view this as a main problem in terms of organising relevant public participation processes. The value therefore of incorporating public and scientific information into a decision-making process, although acknowledged, admittedly is not a simple task (Zandbergen and Petersen in Janse and Konijnendijk, 2007).

From a South African legislative perspective then, it appears as though there are sufficient international instruments to guide the interpretation of how to include values and value-based knowledge into the IEM process in order to ultimately ensure environmental justice for its citizens. Legal commentators (De Wet and Du Plessis, 2010) contend that South African law protects indigenous peoples' interests in the event of economic developments that may exploit their natural resources or otherwise impact on their natural habitat (i.e. NEM:BA, NHRA). However, ensuring the participation and environmental education of minority, vulnerable and indigenous cultures will determine the success to which these pieces of legislation are implemented.

Currently, South Africa does not have any instruments for ensuring the implementation of the international instruments nor its own domestic provisions. The closest South Africa can get to incorporating values into the EIA decision-making framework is to consider the method of acceptable levels of change. The restrictive nature of the EIA decision-making framework as highlighted in Chapter 1 is making it difficult for EAPs to incorporate different knowledge types into the assessment of impacts. Even though the Constitution makes provision for the inclusion of different knowledge types that are based on values (i.e. sense of place or indigenous knowledge), the EIA Regulations are specifically very restrictive and does not allow for different models of assessment.

Similarly, even when the NEMA principles and other legislation such as PAJA makes provision for the inclusion of stakeholders into the decision-making framework, the legislated timeframes provided for in the EIA Regulations stifles the ability of EAPs to incorporate valuable non-scientific information into the assessment process.

It can therefore be concluded that there are sufficient legal instruments, both within domestic and international law to support the incorporation of different types of knowledge, allowing for a value-based decision-making framework. However, within the South African environmental legislation, the EIA decision-making framework is not currently fluid or flexible enough to allow for the applications of these policies and guidelines.

The changes that were made to the EIA Regulations, first in 2010 and then again in 2014, were intended to encourage social and economic development within South Africa. However, as Kidd and Retief (in Bond *et al.*, 2014) commented, these refinements made the EIA process mechanistic and overly structured. Although the principle of allowing economic development to proceed in the interest of providing government infrastructure such as dams or roads is acknowledged and important, the shortening of the EIA decision-making timeframes poses a challenge to ensuring environmental justice. The shortening of regulated timeframes is seen as a mechanism by government to ensure high priority or strategic projects are approved, without truly understanding some of the impacts that it might have on environmental resources or environmental justice.

4.2 Thematic results from interviews

4.2.1 Understanding the Integrated Environmental Management field and the main challenged facing it

In order to obtain a holistic view on the IEM field, it was important to also understand some of the main challenges that have been experienced in the IEM field, and in specific within the EIA decision-making framework.

4.2.1.1 Background of persons interviewed

Experts were asked about their professional background and how they decided to enter the field of IEM. This was done in order to determine what the expert's personal interests were

and how it influenced their decision to enter the field of IEM. The experts can be grouped into two categories, i.e. natural scientists and social scientists. For ease of reference, the two SIA experts were labelled SIA (a) and SIA (b) respectively, similarly, the two senior EAPs were labelled EAP (a) and EAP (b) respectively. A total of seven EAPs were interviewed as part of a focus group meeting, these EAPs are referred to as EAP(1) to EAP(7) respectively.

The experts that were interviewed were as follow:

1. Public participation expert;
2. Social impact assessment expert (SIA (a), SIA (b));
3. EAPs with experience on large strategic projects (EAP (a), EAP (b));
4. Expert within the sustainable development planning and management field;
5. Environmental anthropologist; and
6. DEA representative.

The public participation expert had a background in psychology and public relations, first being exposed to the field of IEM through the public participation process of the EIA assessment tool. The statement made by Sowman *et al.* (1995), on how the apartheid system was designed to exclude the majority of South Africans from political participation, was echoed by this expert, who explained that the post-1994 government had a strong focus on ensuring the inclusion of South Africans into political participation, especially where the development of administrative, legal, and social structures would have a direct impact on their lives. It was during 1995, when the public participation expert recalls going through a phase where public participation was done very intensively, saying "[we were] doing public participation for every single thing, we still have to do a lot of that, but I think there is a lot of stakeholder fatigue these days". Because there was so much uncertainty on how to conduct the public participation process (the EIA process were only formalised in September 1997 through the enactment of the ECA), the expert started giving training in public participation and is now an internationally certified trainer.

SIA (a) started out her career in the field of social work, followed by a Masters Degree in Environmental Management. The expert was exposed to the field of IEM through one of their

parents and noted that there was a gap in the social management field, which spurred them on to complete a Masters Degree in Environmental Management. As part of the Masters Degree, the expert was exposed to the concept of SIA, and as a consultant, their focus was always on SIA. When the expert started out studying environmental management she realised that environmental management is very much a social science, saying for example: "you do not manage the environment, you manage people'. The expert also noticed that interaction with communities within IEM were missing, saying "you cannot talk about sustainability unless you have a strong social component".

One of the SIA experts (SIA(b) interviewed had over twenty years' experience and started out with a clear focus on the social sciences, completing a degree in social sciences and law, followed by Honours in Development Administration and a Master in Community Development.

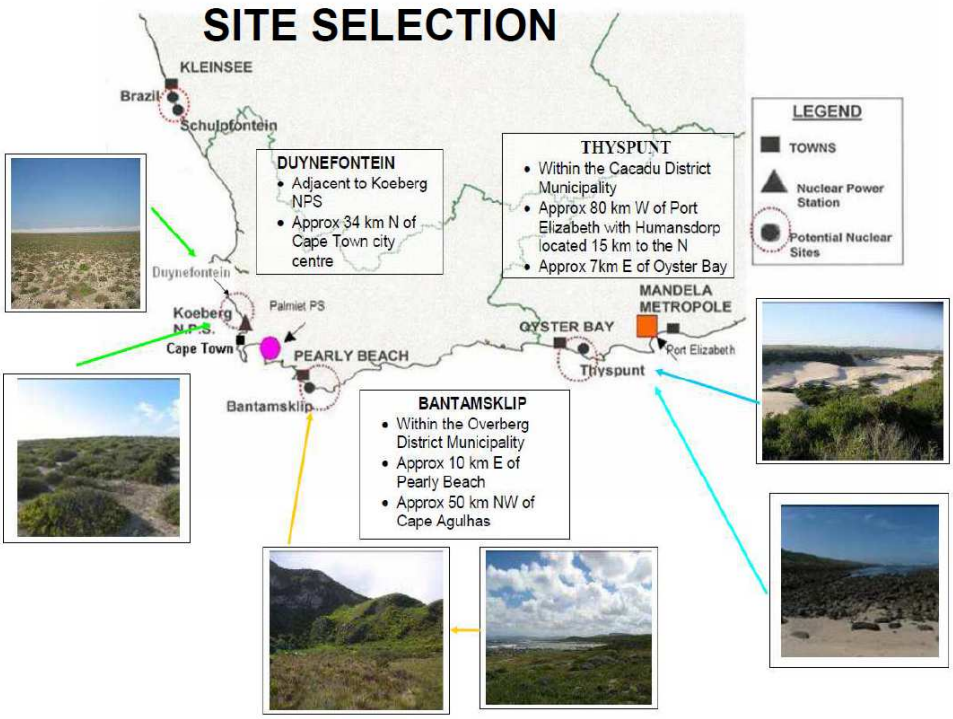
EAP (a) has experience working on large strategic projects such as the Pebble Bed Modular Reactor and the recently approved EIA for the Nuclear 1 Power Station, EAP (a) explained that he was a bit of a contradiction in terms, since, at the start of his career he absolutely hated the subject of human geography, he could not get his head around it at all, it was "all woolly and fuzzy". Instead he did, as he calls it "hard core meteorology, lots of physics and maths". The expert explained that he had entered the field of IEM completely by default, wanting to focus on the "hard core sciences" and doing his Masters Degree on thunder storms. However, due to circumstances the study field was cancelled and he ended up in the field of EIA, having had some exposure to it before. After working over 25 years in the field of IEM, the expert stated that: "What I have come to realise is that it's all about human beings and humanity."

Since quite a lot of reference is made to the Nuclear 1 EIA process, Additional Information Box 4-1 provides a brief summary and timeline of the Nuclear 1 EIA process. The Nuclear 1 EIA process is also quite relevant in terms of the cases study presented by Renn et al. (1991) who observed that the form of public participation should adapt to the level of conflict, as well as the level complexity of each project and the process should bring the I&APs into the decision-making process.

Additional Information Box 4-2: Controversial Nuclear 1 EIA contextualized

According to Herbst (2015), Eskom (SOC) Limited initiated the Nuclear 1 EIA in September 2006, however due to request for additional studies by NGOs and DEA, extended public participation processes the submission of the final EIA report delayed to February 2016.

The five alternative siting areas that were investigated at the scoping phase, according to Herbst (2015) were (1) Brazil and (2) Schulpfontein in the Northern Cape on the west coast between Kleinzee and Hondeklip Bay, (3) Bantamsklip in the Western Cape on the coast next to Pearly Beach, east of Hermanus, (4) Duynefontein, in the Western Cape next to the existing Koeberg power station and (5) Thyspunt in the Eastern Cape on the coast between Oyster Bay and St Francis Bay. These locations are summarized in the below graphic (Herbst, 2015).



According to Herbst (2015), the scoping phase commenced in September 2006 under the ECA. The Final Scoping Report dated November 2008, recommended that the Brazil and Schulpfontein sites be excluded from further specialist environmental studies (Herbst, 2015). The Draft EIA Report was prepared and provided for public comment during March 2010 until the end of June due to the comment period being extended twice (Herbst, 2015). The revised Draft EIA Report (version 1) was made available for public review from April 2011 to August 2011 while the revised Draft EIA Report (version 2) was released for public comment during September 2015 and available for review until November 2105 (Herbst, 2015). The Final EIA Report was made available during March 2016 to May 2016 and the Environmental Authorization was issued by DEA in October 2017.

EAP (b) also has experience working on large strategic projects such as the EIA for the Nuclear 1 Power Station, and she actually intended going into the field of medicine, however, by coincidence ended up taking up subjects such as Zoology, Chemistry, Mathematics, Physics, and as an elective, General Earth Science. After her first year, she enrolled for second year Geology and Zoology in order to still do Palaeontology and other related courses, eventually ending up doing an Honours degree in Environmental Geology. She took a long time to find a job that she envisaged for herself, as she realised she needed the experience, as she said "because you can't just walk out of university and start doing this work. It is not possible. You need the experience".

The expert within the sustainable development planning and management field revealed that she had a natural affinity or love for the natural environment, with an academic interest in geography and mathematics. She started out in the field of Town and Regional Planning completing her degree at the University of the Witwatersrand. The degree focussed on two components, the design of towns and also management of resources in regions, of which the second part became part of her focus. She was inspired by lecturer during the course on environmental aspects of planning, which again reminded her of her affinity to the environmental aspects of things. She started working at a municipal planning department but realised that she was not interested in doing rezoning and sub-divisions and she started an MPhil in Environmental Science. She returned to work for the municipality, however, this time in the environmental section of the planning department. Due to changing circumstances she started working in the Environmental Assessment and Management Section of a company focussing on research. Here she focussed on Strategic Environmental Assessment (SEA), assisting a colleague with the writing of a guideline document for South Africa around Strategic Environmental Assessment in partnership with the DEA. She started focussing more on the research component of SEA and not so much the implementation, attending conferences on the topic and completing her PhD, which focussed on some of the fundamental ways of thinking that were constraining the field of IEM.

In an effort to gain the viewpoint of a social scientist working within a mainly natural science environment, an interview was conducted with an environmental anthropologist. This expert

has a background in social cultural anthropology and currently works for a research company in a unit called Natural Resources and the Environment. The expert explained that her focus is not necessarily on the environment but rather people; therefore her focus has changed to environmental anthropology.

The last expert that was interviewed was a senior representative from the DEA. This expert was selected since she had 12 years' experience working as an environmental consultant in the consulting industry. Her interest lies in the field of humanities, and she started working as a social scientist doing SIA and public participation on projects such as the Berg River Dam EIA. The expert joined the DEA more than five years ago, noting the difference in terms of how IEM is approached from government's point of view versus that of the consulting industry.

While conducting the focus group interview with a group of seven EAPs[1], a variety of responses were provided, ranging from EAPs who said that they had always had an interest in environmental management or geography, to those who ended up in IEM not as first choice, but sometimes due to circumstances. Some EAPs for example responded to the question of how they ended up in the field of IEM, with EAP(7) saying "I have always been interested in … protecting the environment. To see what we can do to help… " and EAP(1) saying "… to make a difference… ". Other EAPs explained that they initially had other interests, such as climatology EAP(7) or becoming a marine biologist (EAP(4)) or veterinarian (EAP(2)), EAP(7) saying "With me it was a matter of default because when I applied to University of KZN I wanted to do Environmental Law. They did not offer that course".

From the interviews it became clear that the more senior EAPs were introduced to the field of IEM through a variety of different careers. Some of the younger EAPs indicated that they made a conscious decision to pursue studies within IEM. From what could be gleaned from discussions with EAPs, the formalisation of the IEM field, especially with regards to the EIA process have led to IEM gaining more prominence within the academic field. Previously,

[1] Environmental Assessment Practitioners (EAPs) that participated in the focus group meeting were randomly assigned numbers from 1 to 7 for ease of reference.

EAPs were introduced to IEM as a result of the overall interest in environmental conservation, however, with a younger generation of EAPs entering the field of IEM they are, presumably, better equipped with the knowledge and tools to work within the field of IEM.

Questions, however, remain over whether EAPs are in general equipped to understand all the complexities related to understanding all the interconnected factors that should be considered when making decisions. This is especially relevant with researchers (Connelly and Richardson, 2005) pointing to the limits to scientific knowledge. Carpenter (in Connelly and Richardson, 2005), among others, argues that many environmental problems are too complex and uncertain for traditional scientific knowledge to comprehend, which leaves it susceptible to subjectivity, or necessary ignorance (Connelly and Richardson, 2005). Or as Jones and Greig (in Connelly and Richardson, 2005) stated, "The more we learn about environmental systems the more we tend to be struck by our profound ignorance of the interactions and processes which govern their response to perturbations".

4.2.1.2 Process is too cumbersome and expensive

The accusation that the EIA process is becoming financially driven has been highlighted as a concern, where the DEA expert noted that "You see how consultants are stretching the process and invoicing their clients for work that is really not necessary in terms of the requirements of the legislative framework". The DEA expert anecdotally recalled how an EAP quoted an applicant R8 million to undertake a Basic Assessment Process with the second quote coming in at R5 million. The expert did, however, concede that if one had to compare the cost of the entire development against the consultancy fees, then it would be minimal, acknowledging that, "… they are operating a business at the end of day… ". The expert noted that the DEA is currently busy developing the section 24H regulations, which will attempt to regulate the EAPs. She did concede that the regulations was targeted at regulating EAPs in terms of their qualifications and would not necessarily be able to address the fees that EAPs charge the applicants. She added that, "Ultimately it is about keeping the business going. I

don't know if government is the right organisation to try and manage that process but I do feel that something needs to be done".

When asked to respond to questions of the EIA process being too expensive EAP (b) responded by saying that the price of an EIA was relative. According to EAP (b), the cost of the EIA also had to cover for time, years of experience as well as the knowledge of that person. In the case of more complicated studies you have to employ a range of specialists, keeping in mind that those specialists also studied for a number of years and have a number of years' experience, they need to be compensated fairly for their work. EAP (b) questioned why the expertise of an EAP should be valued less than their engineering colleagues who get paid much more for the same level of academic achievement and years of experience. EAP (b) acknowledge that when development is in the public interest, then there would probably merit in reducing the cost and the timeframes of an EIA, however, as far as private developers go, this should not necessarily be the case.

SIA (a) also noted that "It has become fashionable to do IEM … IEM has become a business. Sometimes the business values are stronger than the environmental values. In a value driven profession you have to be careful about that". This contention has implications for the way in which the EIA decision-making process has been conceptualised, instead of adding value to the decision-making process, the thinking around aspects of the environment has become linear and the complexities have been removed. Due to pressures from the applicant, as well as government to speed-up the decision-making process, the value of deliberative analysis is being eroded and EAPs fall into the trap of over simplifying the process considering time the constraints (i.e. time is money).

This sentiment was also echoed by SIA (b), who said that: "If you as social specialist regularly find fatal flaws in a project, you would be out of a business. In a true social assessment, I think our own livelihoods influence our ability to give a true unbiased and fair assessment". SIA (b) did, however, qualify his statement by saying that practitioners often get accused of being partisan if they do not find fatal flaws in projects. The reason for this is that projects that have inherent fatal flaws will seldom progress further than the Scoping Phase of the EIA process.

On the other hand, EAPs, in particular SIA (a), also felt that there is a perception that environmental management is for "greenies", and "… people often see social, but also environmental aspects as a grudge purchase. You have to spend all this money if you want to do your development". There is a general perception that there is not enough awareness around the need for IEM and the general public is only now, due to the increased reporting of environmental issues thanks to climate change and the related environmental disasters, becoming more aware of the need to implement IEM.

The contention that the EIA process, not to mention the SIA process is a grudge purchase is a reality, which has serious implications for the way in which decisions are being made about the environment. Where the EIA process is a regulatory process, structured in the form of a decision-making framework, little guidance is provided in terms of the incorporation of value-based knowledge. With the elementary scientific information being eroded due to time and budget constraints, non-scientific information stands a much greater chance of being ignored.

4.2.1.3 Over regulation and timeframes

There have been accusations of the EIA process delaying development, but as the DEA expert noted, "In my view if the process is followed effectively and efficiently it can add value to the process if it is applied properly". The DEA expert did concede that EIA is not necessarily the best tool to do an assessment; however, it is the only tool at their disposal, even while the government is investigating the possibility of getting other tools regulated. As the DEA expert noted, "at least we are moving forward and moving towards a process where you can have an integrated process and not only one tool".

This comment was with reference to the draft regulations (Government Gazette 987) for the adoption of environmental management instruments that was published in September 2017 for comment. In terms of these draft regulations, "environmental management instrument" means any tool or instrument developed and adopted for the purposes of sections 24(2)(c) and (e) of NEMA. The draft instrument regulations acknowledge the need for alternative instruments

towards achieving sustainable development. These environmental management instruments include amongst others, environmental management programmes; risk assessments; norms and standards; spatial development tools; or any other relevant environmental management instrument that may be developed in time. These draft regulations are taking a step in the right direction, allowing for different assessment tools, however, it will remain to be seen to what extent these new tools will allow for deliberative or reflexive analysis.

In this sense, SIA (a) felt that although the legislation regulating IEM was progressive, it was still not community friendly. The expert felt that the process was in some instances over legislated and it that it had become a tick box approach, "It has taken the creativity out of environmental management". SIA (a) added by saying that "Part of the problem is that it has become too formula based, we are not creative enough".

SIA (b) felt that the process allowed for too little time to really engage with communities, saying that: "You will have to have a longer term involvement over years, on the monitoring side, on the troubleshooting side, and we don't do that, the system doesn't allow for that. We are development tourists".

A similar sentiment was expressed by an EAP(1), saying that due to the legislated timeframes, "You don't necessarily have the luxury of having a very drawn out engagement to understand the full depth of the indigenous knowledge". EAP(1) did acknowledge that the process does allow for input from communities, however, in the shortened version of the EIA, the Basic Assessment Process, it only allows for one public review period. If there is any information that the EAP might have missed during that engagement, the EAP may have to restart the process. With regards to the importance of the public participation process, EAP(1) said that: "The value of it cannot be undermined but the time frame and opportunity to obtain the best or most amount of information is very limited".

With regards to the limited timeframes provided for in the latest EIA Regulations EAP (a) opined that the legislated timeframes shouldn't necessarily dictate the amount of time EAPs spend gathering information, as many applicants, such as Sasol do extensive baseline and

feasibility studies before they even apply for an Environmental Authorisation. In his opinion, the process of applying for an Environmental Authorisation is seen by some government departments as a hindrance to development, "They wait forever for a decision which incidentally is all a problem with the authorities not the practitioner". Further to this, the expert remarked that most EAPs were under the impression that you can't undertake an EIA unless they have very specific information, however in his opinion the overall sensitivity of the site should be developed. He did, however, acknowledge that certain government departments, such as the Department of Water and Sanitation (DWS) required very specific information before granting a Water Use License.

During the focus group discussion, several opinions about the legislated timeframes were shared, with EAP(2) noting that the new format of the EIA Regulations didn't give EAPs an opportunity to re-visit some aspects after submission. EAP(1) did, however, point out that legislation in fact did allow EAPs to engage with the public before officially starting the application process for Environmental Authorisation. However, EAP(1) did caution that: "It is fully determined by the client. Then he is paying you for two or three rounds of engagement when by law he only needs one". This again highlights some of the challenges highlighted in the previous theme, where EAPs feel that their ability to undertake a defendable process is limited due to the financial cost and the applicant's willingness to pay for it. When EAPs were requested to provide examples of where additional public engagement was called for, the response was that meetings, or even additional meetings called for, would be undertaken within the timeframes allowed for by the legislation. EAPs also pointed out that, public meetings were not a legislated requirement and that additional meetings would be over and above the requirements, as long as no new issues were being raised they would not have additional meetings.

EAP (b) commented on the additional request for public meetings, saying that sometimes "… you need to look at the spirit of the law and not the letter of the law". EAP (b) recalled the Nuclear 1 EIA where there was a request for an additional meeting in Port Elizabeth. This request came late in the process and no meetings had been held in Port Elizabeth before, with meetings already being held in the Western Cape (5) and the Eastern Cape (5). Meetings were

held in proximity to communities that would be directly affected by the project, and Port Elizabeth was the largest metropolitan area to the site, nearly 100km away. EAP (b)'s initial reaction was that at that stage, over 100 meetings had already been held as part of the process and by the end of the process more than 200 meetings were held, therefore there was no need for an additional meeting. EAP (b) asked "How many more meetings am I required to do in order to get the same comments that I get at every single meeting?"

EAP (a) who also had experience working on the Nuclear 1 EIA pointed out that timeframes are often more problematic if you work on a political project. On these projects there is a lot of political pressure on getting the EIA approved, but in EAP (a)'s opinion, you need to weigh up the urgent need to provide water, electricity, homes, bridges, roads, etc. versus taking the time to work through the application properly. EAP (a), however, points out that you also engage with stakeholders who, depending on their agenda, either wants the project progressing slower or quicker, for instance "… if it is Greenpeace or Earthlife Africa that don't want the project to proceed, then they will push the limits of the timeframe as far as they can. They are the guys that will submit comments on the very last day of a commenting period". EAP (a) did, however, add that should a stakeholder present valid information, it should be in the EAPs power to extend the timeframes without being penalised. EAP (b) also felt that the documents should be more succinct, whilst ensuring that all the relevant information is included, to make the process less cumbersome. However, EAP (b) added that "There are some projects that you need to spend time on to understand the receiving environment fully. If it's a golf estate or a small road somewhere yes by all means it should not take that long. If it is something that is of national importance you need to find the balance by doing it quick enough so that you can respond to the needs of the people but doing it slow enough so that you can put the right information in and make the right decisions".

According EAP (b), "Essentially what needs to happen is that public consultation, not participation, consultation, needs to happen prior to the EIA. It needs to happen in the planning phases of projects". By allowing the public an opportunity to engage doesn't mean that the applicant have to change their plans, but the EIA process would be much more

beneficial if the engagement happened before the EIA starts. Too many applicants leave the planning until it is too late and then the EIA process becomes the afterthought instead of being their first consideration. One of the first things you need to do is to start considering and talking to affected communities. The applicant must just rely on the EAP to stand up at a public participation meeting and explain things away. EAP (b) said that many practitioners will only do the minimum that is required, "They are fatigued. They will do only what the law requires them to do".

Opinions were presented on the limitations placed on EAPs in terms of conducting a proper stakeholder engagement process. However, it is clear that the challenge does not lie with time constraints, but rather with applicants not willing to undertake any feasibility studies or detailed stakeholder engagement. This can be attributed to the cost of these studies or perhaps due to a perceived risk that development concepts (especially in terms of mining development) may be stolen by competitors. Notwithstanding the reasons for this lack of prior engagement, the challenge remains that the EIA process is seen as a rubber stamp that is required at the end of a planning process that in most cases only considered the financial feasibility of a development concept. This type of thinking does not allow for a comprehensive and deliberative analytical process and there is a risk that critical information may be ignored.

4.2.1.4 Government policy on development

In a focus group meeting the public participation expert with experience on a range of projects in and outside of South Africa raised the issue of government's policy towards development. The expert said that "It would be interesting to understand, in countries where there is a very strong economic drive for a project to go ahead, they may support it more, without thinking through what the real impacts would be in the longer term". The expert questioned whether enough thought was given by governments as to what the consequences of development might be. The expert was concerned that the economic benefits of development didn't always filter through to people at grass roots level. The public participation expert also felt that government sometimes overplay the socio-economic benefits of a project (i.e. in the case of shale gas exploration), saying "They use the job card in order to sell or get the people's buy in". Also, "I

think, it's the same for Nuclear 1, they also overplayed the job card, because I don't think there will be job creation for as many people as it's being sold as". She said that when you consider projects relating to mining- or infrastructure development, power generation, oil and gas, etc., governments have to look beyond the triple bottom line, "… often decisions are made at the expense of the impacted communities, I think that is a challenge".

SIA (b) also added that sometimes policy development is constrained, because certain policies have to be implemented by government departments that did not originally develop that policy. For example, the National Water Act (36/1998) requires the protection of the ecological reserve, however, the DWS will grant a Water Use License in an area where they don't even know what the ecological reserves is.

EAP (b) independently verified this claim, by saying that different pieces of legislation are not talking to each other, both on a provincial and national level. EAP (b) was very frustrated saying that "It doesn't work. You can't do your job. There is no centralised data base of decisions…from that point of view it is a challenge". EAP (a) expressed his frustration over the fact that one approach, i.e. only presenting the sensitivity of the receiving environment, might be accepted by the DEA but not by the DWS as they require the information to be presented in a different format.

Broad statements were made around the challenges facing the IEM field, some blaming the competent authorities for not allowing enough flexibility or creativity, others blaming the way in which the legislation was written. These viewpoints correlate with feedback from EAPs that the overly legislated decision-making framework did not allow them to interrogate value-based information or non-scientific information.

The expert within the sustainable development planning and management field was weary of making any broad statements on government policy, but was of the opinion that government should lead the process of general development and shouldn't be denied the option to have a say in the direction the country's development takes. She said that "We are a democratic country so our government is to represent the priorities of the country and it is their job to

lead in its priorities". The expert felt that the country had very good policies regarding its development priorities, i.e. the NDP, and that South Africa needed to focus on the creation of job opportunities and livelihoods, saying that "This gap between the rich and poor is unacceptable. We need to create a situation where there is more equality in the country". She did, however, stress that development should happen in a way that would be supported by the country's eco systems and that development shouldn't degrade eco system services. Basically saying that "If we can do it in a way that supports our eco systems services then that would be the ideal situation". Naturally, when you have a country where you want to create jobs and livelihoods, it could sometimes be difficult to protect the environment; however, the expert felt that there needn't be a trade-off between the environment and development. The expert felt that the thinking should be around systems thinking, "When we look at the linkages between what people eat and how they make their livelihoods and ecosystem services, there can be win-win situations more often than there are".

From a more theoretical point of view, there was a viewpoint that the environmental legislation had to change in order to allow for a more strategic approach. One of the experts advocated for the introduction of Norms and Standards, which could substitute smaller scale, lower risk projects from needing an environmental assessment. The argument is that as long as your activity complies with the Norms and Standards you should be able to do it. More strategic tools are also being called for, such as doing an SEA on South Africa's energy policies. The feedback was that a debate on the national energy policy or the integrated resource plan cannot take place within the framework of an EIA, which is in a way what happened on the EIA on Nuclear 1.

Other EAPs felt that even though there was a lot of room for improvement, the EIA Regulations have come a long way compared to other countries where it is extremely vague and EAP(4) said "… allows people to do whatever they want, and not really take cognisance of the environmental and social impacts". However, in comparison to the EPA of the USA, EAP(4) felt that South Africa was still a long way from them. EAP(4) felt that although South Africa's legislation was by far the best in Africa, South Africa couldn't afford to stagnate. New ideas around climate change, for example will probably need to be incorporated into the EIA

Regulations as a greater understanding develops around how it impacts on development planning. EAP(4) said: "I think the way we have moved ahead in South Africa is quite impressive but I don't think that we should stop. Otherwise we go back".

The sustainability expert commented on the need to give the EIA process a more strategic direction, away from the tick box approach, saying that the process was legislated with very specific steps and requirements, making it an administrative process. There is a balance that needs to be maintained and once you turn an assessment tool into a legislative framework, the EIA will become an administrative tool and loose the essence of what you are trying to achieve by doing an EIA. She indicated that even though the essence of the tool may have been lost, the competent authorities could not be blamed, as they are only administering a process, a system that has been chosen by South Africa's government. She did, however conclude by saying that "If we have turned EIA simply into an administrative process and that is all it is, and we have lost the essence, we do need to look back and say we need a new solution".

From an outsider's perspective she also added that EAPs are known to work under stresses of time and budget and it is difficult to think creatively within these stresses. She was of the opinion that from the EAPs point of view "… it is not about willingness it is about the practical circumstances… " and from the competent authorities' point of view "… they have to compare apples with apples".

The DEA expert were able to provide a perspective from government's side and did agree that the process was quite rigid, but only because it is prescribed by law. She did however indicate that government is moving towards obtaining other tools to assist development in the country. There may be some competent authorities on a provincial level that could resist this approach, however she indicated that the decision will not be up to individuals and will be taken at a ministerial level. She said that "From what I can see it is definitely something that will be taken forward". She also added that developed countries across the world are using other tools such as SEA to obtain Environmental Authorisation to develop. She felt that the EIA process was indeed limiting because it doesn't make a distinct differentiation between green- and brown field development. In these instances there is more value in developing an Environmental

Management Plan, because as she said, "Ultimately our aim should be to mitigate impacts and to manage them". From her own point of view, she felt that the industry needed to move away from the EIA process, because "… everyone thinks they know how to do it and what is expected. We need to bring something new that adds value and that is an improvement on the EIA process". She did, however, feel that the impact of these new tools should be considered as far as public access and public views on development were concerned.

The DEA expert also spoke about the challenges that the competent authority faces, of which one was the interpretation of the law and how the legal requirements of all the government departments differ. Although there has been a move towards the one environmental system, it is still not working properly in her opinion because there is a lack of commitment from certain government departments. One of the main struggles is the fact that the DWS, who is responsible for authorising certain components of the EIA process, such as Water Use Licenses, doesn't have regulated timeframes. Even after DEA introduced integrated permitting system the process can take longer than a normal EIA process because of these challenges.

She also added that projects of a strategic nature will always be presented as a project that is for the benefit of the country and that is why it needs to be approved. According to her, "People will be blunt and say, how can you consider the importance of a frog over putting food on peoples' tables?" She added that when it comes to government there is almost an expectation that these projects should be granted an Environmental Authorisation. When pressurised to authorise projects in shorter timeframes they would always stand their ground and would highlight the risk of not following the process to their supervisor.

4.2.1.5 Stakeholder fatigue and new ways of participation

SIA (a) felt that stakeholder fatigue was definitely a challenge faced by the IEM field, saying "We want people to participate about everything". She felt that the general socio-political context of the country was important in this aspect, "… especially where things are quite tense, there are protests about everything all of the time, people don't feel safe anymore". She noted

that people were not only afraid of their physical safety, but they were also afraid of expressing their opinion and to participate in certain processes. People seem to be disillusioned by the public participation process, and according to SIA (a) they will ask "What is the point of participating, it is only going to be more of the same". In areas where you have development hubs, such as Lephalale or Emalahleni, stakeholders have been part of so many processes, and she asked herself, "Why should they speak to you again?" The feeling, although not expressed by all experts, was that stakeholder fatigue was very real. Mainly, people's trust in the process and trust in the outcome has changed. She felt that the current socio-political context of the country had an impact on how people view development and she felt that "… people don't have faith in government institution to act in their interest". Another reason for the stakeholder fatigue was attributed to the fact that the EIA timeframes were too short, and didn't allow EAPs to provide sufficient feedback or to really allow the EAP to investigate all the concerns raised. She summarised by saying that "People feel like they are throwing information into a black hole and at this stage they just don't have time for it anymore".

During one of the focus group discussions, other EAPs also felt that stakeholders were growing tired of going through too many EIA processes, EAP(1) saying "[The public] don't want to hear about how you are doing this in terms of this section or that, they know all of that and they do get annoyed, specifically the same type of development like power lines".

EAP(2) and EAP(7) added that the way in which the public react to the EIA process also depends on how previous developers have followed through on the commitments made. In many cases, certain things were committed to or indicated during the process and didn't materialise. EAP(2) felt that the public "… don't really care about being involved, they just want to carry on with their own lives".

EAP(3) felt that the area where the projects were based in also played a role, if the project happened to fall within a development hub such as the port of Durban, there is a good possibility that other EIAs have been conducted there. She said that "People get tired saying that this is what they are going through. You promised us this on that project and it never happened". On one of EAP(4)'s projects the political issues came through on the EIA project

and she said "You know those impacts are significant but it is not part of this project". She said that "eThekwini Municipality doesn't have a great name with I&APs in the south Durban basin so it makes it very difficult for us". According to EAP(4), the I&APs don't trust that the EAPs recommendations would not be put forward or they believe that the competent authority will only rubber stamp the projects.

4.2.1.6 Stakeholder abuse of process

It became apparent from the interviews that many of the EAPs have become disillusioned by the public participation process, and a lot has been said about stakeholder fatigue but not enough about the phenomena coined as "EAP fatigue" in this research. When EAP (b) was asked about this, she agreed that it was definitely happening, saying that "People are basically just sticking to what they are required to do. They have tried to go out of their way". As an example she made mention of an EIA project in Durban where the EAP said: "I thought it might be a good idea to meet with one of the key stakeholders beforehand and try to establish a relationship with that individual. Not to influence him, but to truly understand what the issues of the project would be. That individual turned around and invited 60 other people and turned that meeting into a public participation meeting which was supposed to be a one on one discussion. Attacking her personally, criticising her for not presenting in a form that you would in a public meeting. EAP (b) felt that in such a situation, the relationship of trust was broken and that any good intentions of understanding the needs and priorities of the stakeholder will be ignored the next time she has the same encounter.

The public participation expert, who facilitated public meetings as part of the Nuclear 1 EIA process, recalled an example where she facilitated a meeting in Cape St Francis, "… in the community hall, and people were vehemently opposed to nuclear power, and they said the Eastern Cape has been declared as a hotspot for green power development, so if there is renewable energy they will support it". The expert recalled going back to the same community, six months later, to facilitate a meeting about a wind farm project. She said that "I thought this is going to be a breeze because didn't they previously say that they prefer renewable energy?

What a story, they were as opposed to renewable energy as they were to nuclear, so it turns out that the reasons differed, the main reason why they didn't want nuclear as opposed to renewable, was because of the benefits to the farmers, in terms of having those wind turbines on their farms, so now there was not enough people benefitting financially, I think if there is financial incentive, then people's attitudes also change".

Many similar examples were provided by various EAPs, therefore, when asked whether EAPs got disillusioned with communities when they behaved like that, SIA (b) said that it was part of human nature, "… if you have no benefit, then why should your striving for benefit be a crime? This is how people think. By nature people who have a sense of common accountability, by nature, genetically is scarce, human nature is to look after yourself, survival, etc., so it is sad, but also to be expected".

SIA (b) continued by saying that in his opinion, people who are unemployed and looking for job opportunities will always want the project to go ahead, "… those with money, who can choose they complain about things like sense of place and right of view, because they chose to be there, so the level to which your choice is impacted (whether you have a choice or don't have a choice) must also be considered".

It became clear that many times community members use the EIA process to demand more service delivery from the local government, or in the case of mining or industry, communities demand that these companies address service delivery concerns from their side. EAP(1) noted that public participation meetings will quickly change from an EIA meeting to where they complain about issues outside of the scope of the EIA, saying that 'Sometimes it is difficult because the community doesn't necessarily have a voice. They use any kind of option to voice their opinions or concerns about something that is not relevant to your project but they use the forum because they don't get any other opportunity". In these cases EAP(1) would allow the community to raise the issues within limits, however, in more high profile EIA processes such as the Nuclear 1 EIA, it is easier for the conversation to be diverted away from the EIA with EAP(1) saying "… because of the nature of the … people who come to those meetings".

When the DEA expert was asked her opinion on the ability of stakeholders to divert the EIA process for their own interest, she felt that most role-players in the field of IEM were guilty of this practise. Stakeholders would for example, ask for email correspondence, letters, reports, etc., and raise issues that have already been addressed, "… frustrating the EAPs to a significant extent and making their job very difficult". She said that there was one specific individual from Cape Town who was being paid by competitive developers to intervene and delay certain applications. In her opinion the best way of addressing this is to engage with the stakeholders directly and go out of your way to accommodate and assist them to address the issues. She felt that "There is a very thin line between being real and wanting to make valuable input into the process and abusing the process. It's a value judgement".

From a government perspective, she has noted how the public has started to participate in more objective ways. In some cases, however, she has seen where disadvantaged communities are still being abused to their better knowledge. She said that "there is a lot that we need to do in terms of the vulnerable communities to educate them more in terms of what the process allows".

EAP (b) found that there were a group of stakeholders on the Nuclear 1 EIA who have educated themselves in terms of the requirements of the regulations and would prolong the period of the EIA by using the public participation process provided for in the EIA. She felt that some people resorted to this type of strategy "… simply [because] they don't want it there". Strategies that were employed included asking for additional specialist studies, or more review time, or they would complain that there wasn't enough advertisements, or that you did not consult enough people or wide enough. At the end, "… what is supposed to be a year process turns into 10 years". She believes that people, unable to comment on pieces of legislation or who have no influence in government use the public participation process to raise their frustrations and fears.

EAP (b) said that in certain projects, this strategy by stakeholders does pay off, especially in the case of a State Owned Entity. She felt that people's approach is that "Government cannot start without the environmental authorisation…the longer you stop the authorisation from

happening … the more expensive you make it for government". In EAP (b)'s opinion, this is wasting tax payer's money.

4.2.2 Competing values

The previous theme has provided background to the various role-players within the IEM field and the complex relationship between these role-players. This section will therefore try to highlight some of the discourse around the issue of competing values, specifically the measurement of values or intangible impacts, as well as the need to improve the way I&APs are included into the decision-making framework of the EIA.

The fact that there are competing values amongst various role-players in the IEM field has already been established. The role-players, starting with the applicant, the competent authority, the EAP and the I&AP each have different objectives and values the environment differently. Since the EAP is the independent and objective facilitator of the EIA process (NEMA, 1998), they are often the face of the project and the party to which I&APs can direct their initial opinions. EAPs provided numerous examples of where, in their viewpoint, I&APs used the EIA process to advance their own objectives. SIA (a) said: "There are people who like to hijack the process and have different agendas than the project. It isn't a general occurrence, but sometimes people like to promote their own agenda. It is a complex thing, because in each person's mind their impacts are the most important, so we cannot minimise them, you don't have the right to dismiss it. You must try to be objective and understand why they do things, what is behind the attitude". SIA (a) also felt that I&APs could be driven by self-interest, personal conviction or personal gain. SIA (a) added that "It is seldom aimed at just stopping the process, if they want to stop the process it means that there is something in it for them if the process doesn't work". SIA (a) felt that the stakeholder analysis tool was not being used enough, saying "It is important to show what people's views and interests are".

Some EAPs expressed that some of the antagonism they experience from I&APs have made them physically sick, "…because you take on every emotion". A distinct pattern of mistrust

was noted between the EAPs and I&APs, with EAP (b) noting: "… people are so on the defensive when they walk into that meeting … you as the EAP feel you are going to be personally attacked. You know it is coming because you have experienced it before". EAP (b) added "You are preparing yourself to be attacked and to defend not only your decision but yourself personally in those meetings. I try not to let that personal attack cloud my judgement". EAP (b) added that even though the public participation process is incredibly difficult to endure, there is still value in doing it.

Notwithstanding this antagonistic relationship, EAPs still see the benefit in conducting a thorough public participation process as they rely on the process to provide local knowledge of the area. EAP(2) felt that "… not everyone enjoys engaging with the community and working around certain options but [public participation] is definitely very important…" because "… that is the first time you get with them and tap into the local knowledge which gives you information that you can't necessarily obtain via desktop [studies]". EAP(1) noted that the nature of comments received from I&APs did sometimes change the way in which they initially assessed an impact, saying that "[I&AP's comments] does have a weighting on your impacts and recommendations". EAP (b) indicated that due to the perceptions of I&APs, the inherent risk or the probability of certain impact to occur were increased in significance to address the perceptions around an issue. By doing this, the EAP could ensure that stricter enforcement of mitigation measures will take place. EAP(1), however, said that he would not just simply increase the significance of a rating just because an I&AP felt it should be higher, it depended on the specific circumstances of the project and the comment raised. The EAP added that in some instances, when comments were interrogated, they found that there was no basis for the comment, only "a perception". In this regard, EAP (a) remarked that I&AP comments must have an influence on the EAPs assessment of impacts, however, also adding that "It is important to convey to the decision makers what the perception is … then you must offer a scientific assessment of that perception… ". EAP (a) further argued that the perception, as well as reasons for the perceptions should be presented to the competent authority.

Similarly, the need to remain independent as an EAP sometimes posed challenges to the incorporation of public opinion or perception into the assessment process, with EAP(1) saying "You can hear advice and people can provide input but they should not be able to sway your assessment. Then you are not independent". By sympathising with the viewpoint of the I&AP, EAP(1) felt that he would make an emotional connection, and said: "If I change my assessment because of that emotional connection then I am not independent". In this context, EAP(1) might have referred to the need to be value neutral, which is an important consideration where objectivity is required. As SIA (b) said: "When you do an assessment, you need to be value neutral, and you need to be moral". EAP(4) had a contrary view, saying that "Yes the law is the law but I think in terms of what we do and what we leave behind it would also be nice if it is possible to actually do something that comes up with a bit of a compromise".

These viewpoints holds strong correlation with the rational planning tradition of EIA (Nelson and Serafin; Munn; Weston; in Connelly and Richardson, 2005), within which quality is predicated on the objectivity of the process, ensured by confining its scope to scientific knowledge, collected and assessed by neutral experts. Typical of this "will to objectivity" as described by Connelly and Richardson (2005) are attempts to transform subjective values into terms which can be dealt with in a rational analytical framework.

From the perspective of SIA (a), "The influence of stakeholders are very important, but the practitioner must remain neutral, just because they think that they will be impacted severely, doesn't mean that in the greater scheme of things it is going to be a severe impact". SIA (a) reiterated the need for a thorough stakeholder analysis at the beginning of the process, as "… some impacts may be positive for one group, negative or neutral for other groups".

4.2.2.1 Quantification of intangible aspects

One of the experts who focussed on the strategic nature of the IEM field focussed on recurring issues, such as the inability to effectively include public participation problems in predicting impacts. She asserted that this was due to the philosophical way of thinking which was based in modernism. This approach came out of the ecology domain where thinking was linear and "… their assumptions of predictability were not entirely accurate". Even though the scientists were continually trying to improve the way of trying to predict impacts, things like values, were considered uncertainties and were seen as "other forms of information". According to her, other types of knowledge and information were classified as an uncertainty and the tools and the conceptual framework of the EIA process did not accommodate this type of thinking.

This contention was illustrated in one of the responses received during the focus group meeting. The discussion centred on the importance of including climate change aspects into the EIA process. EAP(1) acknowledged that climate change is often overlooked, "… because it is so difficult to put into an assessment table with numbers to come up with the rating that you can put into a category, medium, high or low". EAP(1) continued by saying: "That difficulty forces you to tend to overlook [climate change] and generically talk about it and brush it aside. We need to change what we are doing but we haven't yet". Similarly with the integration of sustainable development as an assessment criterion, although the concept formed part of considerations around mitigation measures and ways to respond to impacts, EAPs felt that "… to quantify it is a very difficult thing to do".

This pattern was tested by posing it to an outsider to the EIA process and someone who understood the philosophy behind decision-making processes. The sustainability expert felt that EAPs didn't intentionally exclude information and asserted that the conceptual framework within which EAPs were operating was a modernist framework not designed for incorporating different types of information.

The environmental anthropologist felt she understood the need for EAPs to rely on tangible impacts, saying that it was based on the requirement of the EIA process to provide evidence. She said: "There are lots of debates around what is evidence, unfortunately, people in the western world, from which EIA originated like this idea that evidence is based on numbers and if we can measure it we can control it, that's why when people question the EAP they want evidence, show me the numbers. One plus one is two, I understand that language. It speaks to my educational, theoretical heritage". The challenge with this worldview, however, is that you cannot measures intangible impacts. She pointed out that certain things also didn't need to be measured, but rather understood in terms of, for example, how useful it was. She was more interested in the different ways in which we can look at things without using a metric system, saying that evidence can be presented in different ways.

When this pattern was tested by asking EAP (b) why EAPs had difficulty in quantifying certain, more intangible aspects, she felt that certain types of information was perhaps not considered by other EAPs because, "You can't measure it or because you don't understand the measurement". EAP (b) felt that aspects such as a person's faith or superstitious connection to land was not something that could be measured, it can be considered, and written about, but not measured. EAP (b) felt that intangible information had to be acknowledged and incorporated into the EIA, "It can't just be ignored". She added that, "Just because it is a feeling and a belief and faith *etc.* it doesn't make it any less important than a wetland". EAP (b) admitted that it would be much easier if things could be measured in a binary way, then you can turn the EIA into a scientific report. In her mind, if you wanted to create a purely scientific report, you had to go as far as removing the human element and variables and the metaphysical and things that cannot be measured, however she reiterated that this was not possible since an EIA was not a scientific report. EAP (b) said that in many instances, people reading the report, whether it is I&APs or the competent authority don't feel comfortable with aspects that can't be measured, they believe "… if they can't measure it can't be understood". In her experience, people are scared on making decisions based on things they can't measure, and yet, our everyday lives revolve around those decisions, things that are based in law, or morality. People want scientific logic, "… decisions based on morals, value, beliefs, *etc.* … people don't want to touch it … they don't want to go there".

When EAPs were asked whether they incorporate intangible impacts such religious or spiritual importance of the environment into the EIA process, EAP(5) responded by saying "I never consider something like that when writing a report. I also haven't seen it in any reports in other companies either". EAP(1) added that "we would not make that decision based on our ability or our assessment" indicating that "Heritage specialists would consider that and weigh that up and say there is no way we can make a trade off with this type of aspect because of the value of it".

When other EAPs were asked whether the Heritage Impact Assessment (HIA) would address issues around the spiritual connection of people to land, the response was that most HIAs will report on the history of a place and its historical artefacts. The HIA would assist the EAP in determining certain areas that should be avoided by development and this would be included as part of the mitigation measures contained in the Environmental Management Programme. Protecting physical artefacts is often easier than protecting the cultural landscape, as explained by the EAP, "There is nothing you can do. You can try to make the pain of it less by putting measures in place in terms of landscaping … and making it feel as close as possible as to what it felt like before. But you can't really mitigate it".

The environmental anthropologist felt that HIAs were "… generally driven by archaeologist, and they are all about the tangible, and about things you can measure, in terms of age, it can be touched, the physicality of it". She said that "We are not spending enough time addressing the intangibles … things that are beyond the senses and beyond measurements".

EAP (b) acknowledged that most HIA specialist had a background in archaeology and the EAP felt that HIA specialists also needed a background in anthropology or a person who combined both fields of study. However, EAP (b) noted that the HIA on the Nuclear 1 EIA addressed issues around space, place, culture and the landscape. EAP (b) said that, "Together with what we got from our visual impact assessment gave us a very good indication of the level of change we might be expecting".

The sustainability expert noted that a novel study, named "Impacts on Sense of Place Values" was conducted as part of a Scientific Assessment of the Positive and Negative Consequences of the Shale Gas Development in the Central Karoo (Scholes *et al.*, 2016). In her mind, this study took an important step towards what the ideal should be. She felt that the study went beyond sense of place to looking at the different people that live in the Karoo and what do they value about the Karoo. She liked that the study considered how different groups of people assigned different values in terms of the place, resources associated with it, *etc.*

Talking about the future of EIA, she felt that an integrated systems based approach would be the best way forward. She said that the current legislative framework did not allow for value-based information to be incorporated, saying "It doesn't fit into that tick box style of high, medium and low impacts … values are more nuanced". She reiterated the need for a more qualitative description of values and called for similar reports to the (Scholes *et al.*, 2016) study which focussed to some degree on values. She also referred to the research done by Flyvbjerg (2001) on value deliberation, which as Audouin (2009) explains, centres on the argument that approaches within the IEM field cannot continue using a predominantly scientific rationality, but had to balance such rationality with value-deliberation. She concluded by saying "I think bringing more value deliberation is a good idea but you can't fit that into a tick box", once again expressing the difficulty of moving away from the legal framework of an EIA.

4.2.2.2 Perception

In some instances, EAPs may have experienced the behaviour from I&APs as antagonistic, however, there is also the possibility that the perceptions of I&APs are being dismissed by EAPs as attempts to delay the process. The public participation expert, for example, noted that I&APs perceptions about potential impacts sometimes caused delays to projects, "… because they insist that there are studies that will prove [it]". In response to this, one of the SIA experts noted that "It does not mean that the impact is not relevant… ", saying that there may be many factors at play. The public participation expert added that "People's perceptions drive their level of outrage, it depends on the project, sometimes you would not expect that

something fairly straight forward would cause any outrage or intense debate, but it does, and it really depends on what people's value sets are in a specific area". She also attributed false or dis-information for people's perceptions, saying "The pitfall is obtaining fragmented information, because you get these people doing Google research and they pull articles from the internet, put the info together out of context and then quote that".

When asked whether EAPs in general considered the perceptions of I&APs, the public participation expert said she had noted in the wider industry that not just consultants, but also applicants found it very difficult to take the people issues into consideration. She couldn't explain why this occurred, however felt that it could be attributed to the fact that the issues were not as straight forward, or black and white as other impacts, saying "…to them its fluff, and their way to deal with fluff is to ignore it and hope it will go away". EAP (b) also noted, "For somebody that is maybe not as experienced or doesn't have the same level of empathy it is easier to compromise on [one] side because it is just those people's perceptions".

When EAP(3) was questioned on how she addressed the perception of I&APs on a project, she explained that "The big breakthrough for us on that project was recommending that we set up a community forum that would have people from the community so that we ensure transparency". She said that to the I&APs, it was important for them to be involved in the project.

EAP (a) felt that there was scope for improvement in the way that public comments were currently being incorporated into the EIA process, he said: "I think it's incumbent on us to reflect those issues in the EIA report" EAP (a) said that the EIA report must highlight what people are concerned about, saying "[Although] it is a perception it is very real for them", therefore there is a need to highlight this to the competent authority.

Testing the concept of perceptions, the environmental anthropologist was asked to present a viewpoint. She felt that there should be a shift away from a rationalist world view that said, "We want to proof that someone is right and someone is wrong". She argued that "There will always be multiple perspectives; regardless of whether they are based in any form of

quantitative, verifiable empirical data". In her view the field of IEM "… should not be about proving someone is right or wrong but understanding why they are thinking the way they are and how can we make it work, how can I come to some kind of consensus, what are the elements behind what they are telling me, what are their fears, work with the underlying issues".

4.3 Emerging themes

Due to the nature of the focus group meetings and expert interviews, which allowed for a free discussion of topics, several emerging themes were noted. Some of the most significant themes are discussed below.

4.3.1 Role of the public participation process

It was apparent that that role of the public participation process within the EIA process was acknowledged as an essential component of the process. The public participation expert highlighted the importance of conducting a public participation process, saying understanding the stakeholder's issues are one of the most important things, and that the process should be pro-actively planned around this because there is a direct connection between planning and delays, "… if your process is not water tight then you will have delays". EAP (a) also highlighted this, saying that you can't truly quantify the benefit of doing public participation, until you don't do it, then your project could be completely flawed. EAP(4) who had more years of experience added that in the days when the ECA was still used, they didn't do enough public participation, and it showed, because there were a lot of problems with developments and every project was appealed. Only during the appeal process did the public get an opportunity to better understand the project and what it entailed. EAP(4) added that the process had value, "I think that if you remove it you will feel the detriment of that a lot more than the so called perceived streamlining that you think you might have".

SIA (a) said the value of a public participation process depends on how well it is conducted, "… it has the potential to add tremendous value, it can assist to decrease project related costs by looking at different alternatives, it speaks to the spirit of our democracy". She also felt that the risk in not doing public participation was that you would not get the buy-in from the public. She said that relationships were also very important, in longer term projects, because you had the social license to operate; issues were dealt with before parties decided to take the route of litigation, because a proper grievance mechanism was available.

When the DEA expert was asked whether the public participation process added value, she felt that it was limited, it was a tick box exercise for most and that the process is often not adjusted and applied to a specific community. She said that: "Although the regulations say you have to make efforts to involve vulnerable communities you hardly ever see that [EAPs say] they had to consider safety issues or they can't speak the language". Although this is a generalised view, the DEA expert felt that too many EAPs were conducting public participation process from behind their desks and not within the affected communities. EAP (a), however, had a different perspective and said that he always tried different techniques, for example on one project they made use of the open house format. In his mind, this was a far better way of sharing and obtaining information. However, the public's response was to demand a public meeting "… where we can shout at you with other people witnessing that". EAP (b) that attended public meetings as part of the Nuclear 1 EIA process said that at some stage she felt that she was being personally attacked, saying: "I don't think people realise what it does to the EAP to have to go through the process of public participation because it becomes so massively personal". Even though this type of behaviour was taken out on the EAP as the face of the project, she felt that it did allow her to see the anger and frustration of the public, you could see that they were upset with the government.

EAP (b) said that when the public resort to this type of approach to public participation, there is a risk that an I&AP who had a legitimate interest in the project, that their concern will be side-lined while the EAP and the environmental activist argue over a point. EAP (b) felt that the process as it is currently being implemented did not allow enough representation for the vulnerable or disenfranchised, many activist NGOs would claim that they are representing

their interest, but this was not always the case. She admitted that language barriers and literacy levels did play a role, however, said that this could be overcome by using other methods of engagement. EAP (b) felt that there were a lot more room to plan the approach to your public participation before embarking on the EIA process, i.e. establishing who the legitimate and recognised leader of a community was. EAP (b) said, "… so often the EIA is seen as just another tick in the process instead of involving not just the practitioners but also some of the specialists in the planning phases".

EAP(2) felt that the public participation process allowed for EAPs to tap into the local knowledge, saying that the local community often point things out that they have not necessarily been able to pick up. For example, context and cultural specific details like burial grounds, or areas that are historically known like old war sites would not be discernible if the EAP had to rely on their own knowledge of the area. EAP(2) felt the public participation process was very undervalued in the EIA processes, saying that "Not everyone enjoys engaging with the community and working around certain options but it is definitely very important". Another view was that, although there was value in conducting the public participation process, there also comes a time where the extra time and effort does not necessarily pay off. The public participation expert, added by saying that: "You can have meetings and still not get value". In her opinion, the true value of a good public participation process was how well their concerns were carried over into the Environmental Management Plan and addressed. If the public participation can add value over and above the EIA process, by bringing people together beyond the decision-making process, for her, that makes it worth the wile. She also highlighted the need to maintain a balanced approach, "Sometimes people abuse the concept of public participation. They need to understand what their mandate is in the EIA process ... they expect everything from the EAP and applicant without realising that they themselves also have a responsibility".

Other responses related to improving the public participation process were around the use of more creative tools such as social media platforms. The EAPs felt that these types of tools were not necessarily acknowledged as legitimate forms of communication within the legislation. The DEA expert did also mention that in terms of considering other tools, they

should ensure that it creates more opportunities for communities to "… actually be part of the process and not just to have a say in terms of the process".

Even though all the respondents felt that the public participation process was essential to the EIA process, it appeared as though the majority recognised it for the role it plays in giving a project legitimacy. The true value of engaging with communities ahead of the EIA process in order to better contextualise the area in which the project will take place are not sufficiently recognised. In all the feedback received, only one person recognised the need for this. EAP (b) described the need to understand the place (not the site) and to contextualise the place in order to get a better understanding of what the place is about, what people value about that place. The exercise should not be to do a qualitative assessment of the place in terms of the number of trees or schools, but to get a better understanding of exactly those things that cannot be measured.

4.3.2 Towards increased integration

When interviewing SIA (b), it was observed that the expert, given his social science background, was leading a team of natural scientists. When questioned about this, the expert explained that the EAPs working for the organisation are very well integrated. He felt that this approach didn't really work that well elsewhere in the industry, since the EAPs will often think that their technocratic approach is superior to other approaches being introduced. The need to incorporate non-technical information provided by non-scientists into the decision-making process was confirmed by SIA (b) who compared exposure to social sciences to the experience of learning to speak a new language, "…you need to learn the language of engineering to speak to civil engineers, and you also have to learn how to speak science because they don't learn to speak any other language". There does, however, seem to be resistance from technical experts to acknowledge the value of non-technical information and how it can be incorporated into the decision-making process. SIA (b) admitted that there is still the perception that social sciences are this "… amorphous ad-on that is costing money… ", but he felt that over the past 25 years it has become apparent to everybody that your biggest risk in any form of project is in

your social relations or your social aspects. There is therefore a need for technical experts such as engineers or natural scientists to realise the benefit of including value-based information into their process, not just for ensuring the legitimacy of the process, but also to understand what a technically feasible solution would be.

SIA (b) continued by saying that the EAP team at his organisation were very open to integration, and SIA was recognised by almost everyone. When asked what else could be done to increase the integration of the social and biophysical environment, SIA (b) indicated that it was all about awareness, also, the EIA process doesn't consist of a separate public participation and social process, it's an integrated process, "… we don't have that separation, it's an integrated process". This approach is definitely beneficial, as it will allow for an iterative process of communication to takes place, and according to Glicken's (2000) theory, it will allow the EAP to apply their scientific competency to complex situations requiring conflict resolution.

SIA (b) explained that within his organisation, the social and biophysical processes use similar mechanisms- and approaches, they only differ in terms of the outputs of information that each produce, and in his opinion, that's partly the reason why the social awareness has grown significantly. Comparing his organisation to smaller consulting firms, SIA (b) noted that there won't be the same opportunity to build and share relationships. Most EAPs are not avoiding issues, or not reporting on them because they don't think it is important, in his mind, social issues are simply just not part of their frame of reference. This further highlights the importance of using the correct balance of stakeholder engagement methods to ensure that all the relevant stakeholders are included in the process (Glicken, 2000).

The public participation expert who works for the same organisation, felt that integration was taking place because they were willing to listen to different perspectives before making their own conclusions on a matter. SIA (b) agreed, saying that EAPs also need to spend effort and time trying to understand the information, "… knowing the issue is quite easy, understanding why these are issues is difficult". SIA (b) explained by saying, "If you don't understand the why, then your ability to mitigate is quite limited". SIA (b) added that speaking about things

allows you to get an opportunity to get an alternative view "… you get the opportunity to get a multi-perspective view on an issue". SIA (b) felt that discussions had value, because on your own, it would have been an isolated viewpoint. These viewpoints again confirm the approach taken by Glicken (2000), motivating for different types of knowledge to be incorporated into the decision-making framework.

From an outsider's perspective, the sustainability expert noted that a well-functioning IEM field relied on getting the connections between the ecological and the social, "… we think they are separate but they are not separate" to her technical experts had created an artificial separation, however, they are very much interlinked. Similar to Glicken (2000), she felt that even though you will always have specialist fields, these specialists should have an awareness of some of the linkages, "… we don't need to turn everyone into generalist, we need to have enough people that can work between the disciplines and that can make linkages". She recalled that Mark Swilling used the word interstitial scientists, "… i.e. people that can work in between the different disciplines, who can select different tools, natural and social sciences, which can draw on information from different specialists and do integrations". According to her, we didn't need to turn everyone into social scientists but they must have good awareness of the connections of their work to social issues.

In practise, the environmental anthropologist noted that both in her field of research and in the IEM sphere there has been a shift in the notion that a rationalist natural scientist perspective was the only acceptable approach. She said that a lot of scientists are now crossing into the spheres of other fields of disciplines, and their perspectives, the way they understand complex problems, are changing. Although this mental shift had started to take place, she noted that it was more difficult in practise, "… when you bring a team together and look at a problem from a multi-disciplinary perspective … then people still become defensive about their little area in which they are so-called experts".

Considering the different perspectives from EAPs, it appears as though the integration of different types of knowledge (evidence- versus value-based knowledge) has had mixed levels of success within different organisations. From the evidence collected there seems to be a strong

link between the particular EAPs background and experience/education, as well as number of years in the field of IEM that determines their willingness to integrate other forms of knowledge into the EIA decision-making framework. This relates back to the earlier observation about the background of EAPs and those with experience outside of the environmental management consulting industry showed a greater appreciation for the value of cross-disciplinary integration. The assumption, therefore, that younger EAPs, with a background of formal academic instruction, are better equipped than those that evolved as part of the IEM process should be tested. It appears as though the more senior EAPs, either from experience on working on challenging EIA projects, or by virtue of working within other industries or research fields, managed to integrate their knowledge far more successfully with other forms of knowledge.

Chapter 5 will provide a more detailed discussion of the thematic analysis, focussing on the assessment and inclusion of value-based evidence, specifically focussing on the role of perceptions as non-scientific knowledge within the decision-making process. Chapter 5 concludes with ideas that can move the IEM field closer to value rationality and a more balanced application of decision-making processes.

5 Discussion

In order to address the research question, the themes were analysed to better understand the dynamics between evidence versus value-based decision-making and how different role players interact with the decision-making framework of the EIA process. This research adopted a critical realism research philosophy which allowed the researcher to interpret the data within the context of the different power dynamics of actors within the IEM field. This philosophy also helped the researcher in acknowledging that social phenomena such as the behaviour of each actor, the legislative frameworks that had been established, as well as the institutions that implemented them are concept dependent. Therefore, as a researcher there was an obligation to go beyond just noting the existence of certain phenomena and practises within the IEM field, but to also interpret what they mean, especially in terms of achieving environmental justice. Norman Long's actors perspective approach (Long and Long, 1992) also informed the research, assisting the researcher to understand and highlight the individual role of each of the role-players within IEM.

This section in main will consider how the increased inclusion of value-based evidence into the EIA decision-making process can be encouraged.

5.1 Assessment and inclusion of value-based evidence

By using the content obtained during the data collection and thematic analysis process, it became apparent that there is a need for decision-making processes within the EIA framework to be more aware of the value of intangible aspects of the environment, or differently stated the non-scientific information or different forms of knowledge. There is a need to provide a framework that would make provision for the assessment of aspects such as sense of place or attachment to a landscape or place, heritage (physical or intangible), aesthetics, indigenous knowledge, religious or spiritual importance to name a few examples. It is argued that a greater emphasis should be placed on experiential and value-based knowledge which is aimed at

understanding an individual's' sense of "appropriateness" or "goodness" is defined by Glicken (1999).

The argument for further inclusion of intangible information into the decision-making process is linked to the way in which humans form identity markers, or attachment to place. Heritage or religion is often used as identity markers (Graham and Howard, 2008; Viljoen and Van der Merwe, 2004) and provides a view of who they are and how they may behave when faced with change to, for example their cultural landscape. Zia *et al.* (2014) for example describe sense of place as an attachment that is created from an emotional connection to a place; an identification that makes it part of the person or community. These emotional connections are often dismissed as perceptions or non-scientific evidence, something that cannot be measured, and therefore not assessed as part of the EIA decision-making process. There is a need for EAPs to acknowledge the value-add of different types of knowledge to the EIA decision-making process, for example, although sense of place is an intangible value, a personal perspective or perception, it can depict different ways of valuing a particular physical context (Scholes *et al.*, 2016).

Even though the EIA decision-making process, which formed the primary focus of this research have shown small, if not limited steps towards more integrated approaches of decision-making and knowledge sharing, Tengberg *et al.* (2012) note that within ecosystem service management the field of heritage preservation has started to develop more integrated approaches that provide clearer guidance for decisions related to physical planning and the sustainable development of landscapes. This is encouraging and lessons should be taken from these approaches as far as stakeholder engagement within the EIA process is concerned. Positive evidence has already been provided showing that a values-based approach, which uses systematic analysis of the values and significance attributed to cultural resources, are favoured and that approach allows technical experts to place a greater focus on the consultation of stakeholders (Tengberg *et al.*, 2012).

The following sub-section will explore in more detail how non-scientific information or value-based evidence can be incorporated into the decision-making process.

5.1.1 Addressing perceptions as part of the decision-making process

A sub-theme that relates to non-scientific knowledge or value-based evidence is that of perceptions and ways to address it as part of the decision-making process. During the thematic analysis, many examples were provided of where stakeholders raised issues that was of concern to them without stating out right what their real concern was. One respondent remarked: "When we talk of people's perspectives, [scientists], will see perspectives as something that is not real, it is not reality, it's not a real thing". However, people's perceptions can't be seen in a binary form, i.e. categorised as right or wrong, true or false, but rather, as we have seen in the previous section, there is a need for scientist to understand what these perceptions implicitly state.

Based on the thematic analysis, EAPs in general choose to only include certain types of evidence (i.e. scientific evidence) that can be measured, ignoring political, cultural or anecdotal evidence that are in most instances not tactile. This inability or even deliberate avoidance of EAPs to understand and incorporate the inherent contradictions of different evidence system is seen as a mechanism used by EAPs to influence the outcome of the decision-making process, or at the very least to streamline the process. EAPs tend to avoid incorporating issues of social and environmental justice by instead saying that the issues fall outside the scope of the assessment, or moving the obligation for addressing the issues to the applicant. For example, when EAP(1) remarked how additional stakeholder engagement would be dependent on the applicant's budget, since additional rounds of engagement is not required by the EIA Regulations, the EAP used the legislation as an excuse for not engaging at a deeper level with I&APs. This assertion is further based on the case where EAP (b) questioned the need for additional meetings as part of the Nuclear 1 EIA, but in the end were advised that additional meetings would be in the best interest of administrative justice and continued based on those recommendations.

Similarly to the EAPs, the stakeholder engagement specialist felt that I&APs perceptions or non-scientific knowledge caused delays on projects because I&APs insisted that studies be carried out to prove their claims. The stakeholder engagement specialist felt that having scientific proof of these claims would not necessarily sway the opinion of the I&AP, therefore it is deemed as a waste of time and resources. She felt that it was very difficult to persuade a person of a different viewpoint once a person had made up their mind about a certain assertion. This once again shows an unwillingness to understand the non-scientific information and an unwillingness to augment the scientific information with other types of knowledge. The aim should not necessarily be to persuade the I&AP of a different viewpoint, but to rather understand how the I&APs perception may alter the scientific evidence and the way it is being applied within the decision-making process.

Conversely, activist groups and I&APs have fallen into the trap of thinking that only scientific evidence would be accepted when contributing towards the EIA decision-making process. Through the thematic analysis, a main observation was that there seemed to be a belief among stakeholders (i.e. activist groups and I&APs) that their concern would only be seen as a legitimate concern if they could back it up with some type of environmental related (cognitive) evidence. In this respect, even I&APs are relying on evidence-based decision-making processes to advance their interest. Instead of insisting that other types of non-scientific knowledge, such as sense of place, should also be seen as valid forms of evidence, the stakeholders themselves have been straight-jacketed into the legalistic approach of evidence-based decision-making. That being said, by insisting that EAPs provide an exhaustive list of specialist studies, or that the timeframe for comments be extended time and time again without adding value to the process, I&APs are also using the legalistic format of the EIA decision-making framework to further their own interests.

In order to address subjective dimensions (i.e. perceptions) of all aspects of IEM, Audouin (2009) argues that researchers should not view them as 'uncertainties' to be 'managed away' through some 'objective' tool. Rather, Audouin (2009) suggests that they be viewed as

normative choices that need to be made explicit within IEM and addressed in a way that is appropriate to their subjective and often emotive nature. Luhmann (in Renn *et al.*, 1991) made a similar argument, implying that the different parties should employ methods to better communicate the contradictions found between the different evidence systems at play.

As EAPs, SIA and public participation experts the perceptions of I&APs should be interrogated in order to understand what is driving that behaviour. Experts should ask themselves whether the I&AP is driven out of fear of losing their livelihood perhaps, or losing the value of their land. The public often don't think that their real and valid concerns around their family heritage, or sense of place would be a legitimate reason to object to a project. It is not difficult to understand why they might feel like that, seeing that very little of these issues are actually seen as legitimate (i.e. scientific) impacts by many EAPs in the industry.

In order to engender a constructive environment for the effective incorporation of value-based information, the following section reflects on the need for a greater inclusion of social sciences within the field of IEM.

5.1.2 Towards value rationality

Flyvbjerg (2001) argues that the social sciences are far better suited to reflexive analysis of goals and values as opposed to the natural sciences. Audouin and Hattingh (2008) argues that, from an environmental assessment and management perspective, the ability of the social sciences to help define goals and extracting values, can assist in moving the field of IEM to a less technocratic approach. According to Audouin and Hattingh (2008), the process driven technocratic approach followed within IEM corresponds with the modern emphasis on instrumental rationality (as opposed to value-rationality). Flyvbjerg (2001) also argues that society's ability for value-deliberation is being eroded by the strong emphasis on instrumental-rationality and instead argues that the role of social sciences should not focus on prediction, but rather on developing practical value-rationality to determine the direction of goals

according to a range of diverse values. A greater focus on SIA and HIA within the EIA decision-making framework can therefore contribute immensely towards including a more reflexive analysis of information, leading to a more integrated decision-making process, considering the whole suite of environmental factors.

The over-reliance on scientific knowledge as evidence is seen as a result of the EAPs' need to remain neutral and objective. However, as has become clear through many debates (Owens *et al.*, 2004) is that environmental assessment can never be a neutral or objective exercise, which raises the question of how subjectivity should be handled. Owens *et al.* (2004) point out that subjectivity must be viewed as an essential component of practical rationality, in which intuition and appreciation of context is regarded as intellectual virtues. A number of other commentators (Flyvbjerg, 2001; O'Neill, 1998; Owens, 1997; Wilkins, 2003) are also calling for value rationality to reassert itself against instrumental rationality.

To elaborate, Wilkins (2003:401), asserts that "… the values of the people engaged in an EIA play a significant role in its results due to the considerable subjective decision-making upon which EIA is based". Moreover, Wilkins (2003:401) argues "the central role of prediction in EIA makes subjectivity unavoidable due to politicized evaluations, narrow boundaries setting, data gaps and simplified assumptions". In his opinion, attitudes and values are actually critical to the process of producing knowledge, and the EIA should not only be seen as a means to make informed planning decisions, but also as a source of directing the development of social values (Wilkins, 2003).

It is in this sense that Flyvbjerg (2001, 1992) calls for a revival of practical knowledge or wisdom, especially in the sphere of ethics. According to Flyvbjerg (2001, 1992), there should be an emphasis on practical, context-dependent knowledge and ethics over theoretical formulae and universal truths. One method described by Flyvbjerg (2001, 1992) that can be used to return to this type of research is to focus on values.

6 Conclusions and recommendations

This section is aimed at providing a summary of the main findings and to develop and propose methods and recommendations to expose and manage competing values in a balanced way that still complies to the regulations and guidelines within the IEM process.

6.1 Conclusions

Findings from the thematic analysis are supported by Endter-Wada *et al.* (1998) who argued that EAPs are trained predominantly in the natural sciences, and social scientists are underrepresented. The evidence presented in the thematic analysis concurred with Ives and Kendal (2014), who found that EAPs are generally not well versed in methods and literature related to assessing social values and incorporating them into ecological decisions. As the preceding sections have shown, EAPs are also generally anxious about applying values to environmental management, which correlates to the findings of Norton and Noonan (2007) which stated that ecologist did not consider the role of values as they were worried that they would not be viewed as sufficiently "objective" or "scientific".

From the data analysis it was clear that the rationalist and modernist view of evidence have skewed the decision-making process and policy framework towards a technocratic approach that only rely on verifiable scientific information. An over-reliance on a evidence-based and cognitive approach to knowledge has led to a situation where stakeholder's views are ignored instead of incorporated into the decision-making framework as valid forms of information.

6.2 Recommendations

In order to ensure a more balanced integration of competing values within the IEM field, it is recommended that a systems thinking approach be incorporated into the EIA decision-making framework. The systems thinking approach has been defined as an approach to problem solving, by viewing aspects of the environment as parts of an overall system, rather than

reacting to specific part, outcomes or events and potentially contributing to further development of unintended consequences (Environment and Ecology, 2017). This approach is also supported within NEMA section 2(4)(b), emphasising the interconnected aspects of the environment, not just the biophysical aspects, but also social and economic aspects.

Similarly, systems thinking is based on the belief that the context within which component parts of a system operate is important and should not be considered in isolation (Environment and Ecology, 2017). Therefore, to fully understand elements of the system you need to understand the parts in relation to the whole (Capra, 1997). Incorporating systems thinking into the way that EAPs approach an EIA will assist in understanding the benefits of an integrated approach, one where experiential knowledge or normative knowledge enjoy as much credibility as technocratic forms of knowledge. In this sense, a pluralist approach, as suggested by Glicken (2000) would be the most practical way of achieving outcomes to the EIA decision-making process that is in the interest of environmental justice.

In order to encourage a systems thinking approach, platforms such as the International Association of Impact Assessment can be used to discuss the incorporation of different values into the EIA framework. Exploring ways of including different values into the EIA framework will enable EAPs to start considering intangible aspects of the environment, stimulating discussion and the integration of ideas amongst different disciplines. Acknowledging the fluidity between different fields of study, communication between the fields of study will be promoted and avoid the current scenario where disciplines work in isolation to each other.

There is a need for role-players in the field of IEM to acknowledge the importance of different types of values, and not only scientific, measurable values of natural resources. The incorporation of intangible aspects of the environment or normative information into the EIA process is absolutely critical and something that has sadly not enjoyed a lot of attention. In addition, the incorporation of different types of knowledge and value systems are currently not being incorporated into the decision-making process, which can be seen as a serious risk in terms of ensuring environmental justice for the citizens of South Africa.

In order to ensure a greater integration of value-based knowledge into the decision-making process, the use of alternative assessment methods such as those described in the Burra Charter and the DIVE-analysis can be used to describe, understand and evaluate intangible aspects of the environment and assist in including different perspectives on evidence. Additional tools, such as measuring the levels of acceptable change should be incorporated into the EIA process as far as possible, taking lessons from the approaches followed in strategic planning frameworks such as Spatial Development Frameworks and Environmental Management Frameworks.

From the thematic analysis it became apparent that almost all EAPs recognised the need for a different approach to conducting an EIA, suggesting that a more strategic approach be followed to IEM. Over the past 10 years, the regulatory framework have been amended to respond to the changing requirements of IEM, however, these changes have been taking place at a very slow pace. Although strategic planning frameworks and sustainability assessments have generally been regarded as the answer to overcome the over regulation of environmental management and other challenges such as stakeholder fatigue, there are no guarantees that these decision-making frameworks will address all the challenges faced by IEM. As Audouin (2009) remarked, the environmental assessment process as a whole, the tasks within it and the problems that are currently being experienced in their implementation can no longer be addressed using predominantly scientific rationality. There is a need to balance scientific rationality with value-deliberation.

The document analysis (United Nations, 1966, UNESC, 1983; Beltrán, 2000, Glavovic *et al.* in DEAT, 2002; UNDRIP, 2007) and thematic analysis have shown a wide recognition of the need to incorporate varying competing values into IEM process and the benefit of increased value-based decision-making in the context of the IEM process. The challenge will be to develop value-based decision-making processes within the field of IEM to promote environmental justice and the protection of the environment for the benefit of the people that live in it.

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APPENDIX A – INTERVIEW SCHEDULE

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities

Date _____

"COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING"

My name is Jessica de Beer, I am a Masters Student at the University of Pretoria (student number 21013510), and I am from the Faculty of Humanities. As part of my Masters degree, I am conducting research regarding competing values in the Integrated Environmental Management (IEM) process.

The research titled the same "*COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING*"

I have drafted an interview schedule to give you a better understanding of what the interview will entail. Kindly study the questions carefully before deciding whether you would be interested to participate in this research study. Should you be willing to participate, kindly contact me then we can schedule a convenient time and venue for the interview. I would also like to ask for permission to make an audio recording of our conversations.

Should you have any questions, please feel free to contact either of the following persons:

Ms Jessica de Beer
MA Environment and Society Student
Faculty of Humanities

Mobile: 083 458 4848
Email: jessdebeer@gmail.com

Dr. Nerhene Davis
Principle Investigator
Department of Geography, Geoinformatics and Metereology
Faculty of Natural and Agricultural Sciences

Email: nerhene.davis@up.ac.za

Section A: Demographic (for record purposes only)

1. Academic qualification (highest) _____
2. Number of years in the IEM field _____
3. Current position or affiliation _____

Section B: IEM Process

4. How did you decide to enter the IEM field?

5. Have you perceived a change in the way the IEM process has been conducted when you started as a professional in the field until now?

☐ **No** ☐ **Yes**

Please elaborate:

6. What do you think are the main challenges facing the IEM process today?

Prompt for:

- ☐ Government Policy
- ☐ Stakeholder fatigue
- ☐ Over reliance on a formulaic approach (i.e. Basic Assessment Process)
- ☐ Over regulation and long timeframes
- ☐ Process are too cumbersome and expensive
- ☐ Lack of proper stakeholder consultation
- ☐ Other (please elaborate below)

7. Which role-players in the IEM field do you most often encounter?

Prompt for:

- ☐ Competent Authority
- ☐ Applicant
- ☐ Stakeholders (i.e. land owners, community members, NGO's, etc)
- ☐ EAP
- ☐ Specialists
- ☐ Other Government Departments (i.e. Department of Mineral Resources, Department of Water and Sanitation, SANBI, etc).

8. What type of projects do you have most experience with? (Examples are large infrastructure projects, mines, linear projects, private developments, etc.).

9. Which approach or methodology do you use when conducting an EIA? (Explain per step)

10. When you conduct an EIA, which of the following do you rate as the most important factors to consider (choose between a) will never consider, b) unlikely to consider, c) will sometimes consider, d) will always consider):
    - ☐ Affordability (i.e. engineering or construction related cost)
    - ☐ Economic or employment opportunities
    - ☐ Risk to human or animal health
    - ☐ Risk of biophysical degradation
    - ☐ Religious or spiritual importance
    - ☐ Overall contribution to climate change
    - ☐ Overall contribution to sustainable development
    - ☐ Local knowledge of community members
    - ☐ Perceptions of community members
    - ☐ Historic or superstitious knowledge

11. Do you think there is value in the current EIA rating system for impacts? Please explain:

12. How much value do you think the public participation process adds to the IEM process?

13. How much do you rely on the rating system, or do you allow for personal intuition to play a role in your assessment?

14. To what degree will the input of stakeholders affect your assessment of impacts?

15. Do you sometimes think that the public participation process is being abused by stakeholders? Please explain:

16. Have you ever encountered a project where a specific role-player in the IEM field tried to encourage the outcome of a project or policy for their own advantage?

☐ **No** ☐ **Yes**

If yes, please explain what happened and how you dealt with the situation:

17. Do you have any final remarks or questions?

Thank you for your cooperation.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities

Date _____

"COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING"

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I have drafted an interview schedule to give you a better understanding of what the interview will entail. Kindly study the questions carefully before deciding whether you would be interested to participate in this research study. Should you be willing to participate, kindly contact me then we can schedule a convenient time and venue for the interview. I would also like to ask for permission to make an audio recording of our conversations.

Should you have any questions, please feel free to contact either of the following persons:

Ms Jessica de Beer
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Mobile: 083 458 4848
Email: jessdebeer@gmail.com

Dr. Nerhene Davis
Principle Investigator
Department of Geography, Geoinformatics and Metereology
Faculty of Natural and Agricultural Sciences

Email: nerhene.davis@up.ac.za

16. Do you have any final remarks or questions?

Thank you for your cooperation.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities

Date _____

"COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING"

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I have drafted an interview schedule to give you a better understanding of what the interview will entail. Kindly study the questions carefully before deciding whether you would be interested to participate in this research study. Should you be willing to participate, kindly contact me then we can schedule a convenient time and venue for the interview. I would also like to ask for permission to make an audio recording of our conversations.

Should you have any questions, please feel free to contact either of the following persons:

Ms Jessica de Beer
MA Environment and Society Student
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Mobile: 083 458 4848
Email: jessdebeer@gmail.com

Dr. Nerhene Davis
Principle Investigator
Department of Geography, Geoinformatics and Metereology
Faculty of Natural and Agricultural Sciences

Email: nerhene.davis@up.ac.za

Section A: Demographic (for record purposes only)

1. Academic qualification (highest) _____
2. Number of years in the IEM field _____
3. Current position or affiliation _____

Section B: IEM Process

4. How did you decide to enter the IEM field?

5. Have you perceived a change in the way the IEM process has been conducted when you started as a professional in the field until now?

☐ **No** ☐ **Yes**

Please elaborate:

6. What do you think are the main challenges facing the IEM process today?

Prompt for:

- ☐ Government Policy
- ☐ Stakeholder fatigue
- ☐ Over reliance on a formulaic approach (i.e. Basic Assessment Process)
- ☐ Over regulation and long timeframes
- ☐ Process are too cumbersome and expensive
- ☐ Lack of proper stakeholder consultation
- ☐ Other (please elaborate below)

7. Which role-players in the IEM field do you most often encounter?

Prompt for:

- ☐ Competent Authority
- ☐ Applicant
- ☐ Stakeholders (i.e. land owners, community members, NGO's, etc)
- ☐ EAP
- ☐ Specialists
- ☐ Other Government Departments (i.e. Department of Mineral Resources, Department of Water and Sanitation, SANBI, etc).

8. What type of projects do you have most experience with? (Examples are large infrastructure projects, mines, linear projects, private developments, etc.).

9. Which approach or methodology do you use when conducting an SIA? (Explain per step)

When you conduct a SIA, which of the following do you rate as the most important factors to consider (choose between a) will never consider, b) unlikely to consider, c) will sometimes consider, d) will always consider):

- ☐ Affordability (i.e. engineering or construction related cost)
- ☐ Economic or employment opportunities
- ☐ Risk to human or animal health
- ☐ Risk of biophysical degradation
- ☐ Religious or spiritual importance
- ☐ Overall contribution to climate change
- ☐ Overall contribution to sustainable development
- ☐ Local knowledge of community members
- ☐ Perceptions of community members
- ☐ Historic or superstitious knowledge

10. Which approach or methodology do you use when developing a public participation process? (Explain per step)

11. Do you think there is value in the way we are currently doing public participation as part of the EIA process? Please explain:

12. How much value do you think the public participation process adds to the IEM process overall?

13. How do you think the impact of the public participation process can be increased?

14. Do you sometimes think that the public participation process is being abused by stakeholders? Please explain:

15. Have you ever encountered a project where a specific role-player in the IEM field tried to encourage the outcome of a project or policy for their own advantage?

☐ **No** ☐ **Yes**

If yes, please explain what happened and how you dealt with the situation:

16. Do you have any final remarks or questions?

Thank you for your cooperation.

1. Why did you decide to enter the IEM field?

2. When you conduct an EIA, which of the following do you rate as the most important factors to consider (choose between a) will never consider, b) unlikely to consider, c) will sometimes consider, d) will always consider):

   - ☐ Affordability (i.e. engineering or construction related cost)
   - ☐ Economic or employment opportunities
   - ☐ Risk to human or animal health
   - ☐ Risk of biophysical degradation
   - ☐ Religious or spiritual importance
   - ☐ Overall contribution to climate change
   - ☐ Overall contribution to sustainable development
   - ☐ Local knowledge of community members
   - ☐ Perceptions of community members
   - ☐ Historic or superstitious knowledge

3. Do you think there is value in the current EIA rating system for impacts? Please explain:

4. How much value do you think the public participation process adds to the IEM process?

5. To what degree will the input of stakeholders affect your assessment of impacts?

6. Do you sometimes think that the public participation process is being abused by stakeholders? Please explain:

Thank you for your cooperation.

APPENDIX B – COVER LETTER

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities

Date _____

INFORMED CONSENT TO POTENTIAL PARTICIPANTS

My name is Jessica de Beer, I am a Masters Student at the University of Pretoria (student number 21013510), and I am from the Faculty of Humanities. As part of my Masters degree, I am conducting research regarding competing values in the Integrated Environmental Management (IEM) process.

The research titled the same "*COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING*"

I am interested in establishing to which degree legislation, policy and regulations make provision for value based decision-making, and the research further aims to establish how competing values can influence the IEM process in order to benefit particular role players. I would like to uncover the mechanisms/strategies used by certain stakeholders to influence the IEM process in order to give priority to their values over the values of others and lastly, I would like to develop and propose methods and recommendations to expose and manage competing values in a balanced way that still complies to the regulations and guidelines within the IEM process.

I would like to ask permission for your participation in an interview discussion planned for this research study. I have identified you as a knowledgeable individual in the IEM field and I would really value your personal perspectives and insights. I have attached a draft interview schedule to give you a better understanding of what the interview will entail. Kindly study the questions carefully before deciding whether you would be interested to participate in this research study. Should you be willing to participate, kindly contact me then we can schedule a convenient time and venue for the interview. I would also like to ask for permission to make an audio recording of our conversations.

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 reporting only grouped data on the study findings and will be used to inform the research and any further recommendations made from the findings.

Data will be captured through the taking of notes and by recording the conversations digitally (audio). I will also provide with a copy of the recorded conversation or a transcription of the audio file upon request. If any of the participants would like to edit the information obtained in the interview they are free to do so in a timely fashion. Once the audio files have been transcribed, the interviews will be deleted and only a transcribed version of the interview will remain.

The Principal investigator of the study will be responsible for storing all of the research data and documents referring to the above-mentioned study at a secure location. Data will be stored at the University of Pretoria for a minimum period of 15 years in an electronic version (CD) and written format (Book) under the supervision of the project supervisor. The data may be reused for further research.

Results of this research will be published in peer reviewed journals and popular media. Neither your name nor that of your organisation will be mentioned in such publications.

Participants names, details and organisational affiliations, as well as names, details and any proprietary information of the organisations themselves, will not be disclosed in any research outputs and will at all times be held as confidential. The intention of the research is to gain an understanding of the trends within the IEM field and not to investigate the performance or behaviour of individual companies.

RESEARCH PROCEDURE

Please kindly read the information provided below before making a knowledgeable decision regarding your participation in this study.

1. **Title**: *"COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING"*

2. **Purpose of Study**: The purpose of this study is to understand how evidence based decision-making in the IEM process is currently being prioritised, whilst value based decision making is perceived to be undervalued or ignored as a valid form of participation.

3. **Procedures**: For this quantitative study, semi-structured interviews with open-ended questions will be conducted. During this process, you are allowed to

withdraw from participating in the study at any time you wish to do so. You are under no obligation to participate in this study, and should you choose to defer from participating, you will not be penalised in any way. All information provided in this study will remain confidential and your identity will not be revealed to other participants or in any other publication resulting from this study. Furthermore, with your approval, the interview discussions will be recorded.

4. **Benefits**: This study does not have any apparent risk or explicit benefit for the respondents. However, findings of this study will be useful to the government, policy makers and society at large as they will provide the basis for policy reform and implementation. Information provided here could also contribute to the broader debate on the IEM process and assist decision makers in formulating effective and supporting regulations that will result in a more inclusive and robust IEM process.

5. **Identification of investigators:** If you have any questions or concerns about the research, please feel free to contact the Principle Investigator Dr Nerhene Davis (nerhene.davis@up.ac.za).

6. **Rights of research subjects:** You, and your organisation may withdraw your consent at any time and discontinue participation without penalty. Responses provided will be removed from the data upon withdrawal. 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, contact Principal Investigator – details below.

Approval of research participant

I hereby consent voluntarily to participate in this study. I understand that I have the right to withdraw myself from participation in the study at any time. I understand that my personal information and identity will be kept confidential and it will not be disclosed without my authority. I have been given a copy of this form.

YES		**NO**	

If you selected YES, kindly contact Jessica de Beer at the below contact details so we can arrange a date and venue for the interview.

Contact Details and signature of Masters Student and Principle Investigator

Ms Jessica de Beer
MA Environment and Society Student
Faculty of Humanities

University of Pretoria
0002
South Africa
Mobile: 083 458 4848
Email: jessdebeer@gmail.com

Signature _____

Dr. Nerhene Davis
Principle Investigator
Department of Geography, Geoinformatics and Metereology
Faculty of Natural and Agricultural Sciences

University of Pretoria
0002
South Africa

Email: nerhene.davis@up.ac.za

Signature _____

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities

Date _____

INFORMED CONSENT TO POTENTIAL PARTICIPANTS – FOCUS GROUP

My name is Jessica de Beer, I am a Masters Student at the University of Pretoria (student number 21013510), and I am from the Faculty of Humanities. As part of my Masters degree, I am conducting research regarding competing values in the Integrated Environmental Management (IEM) process.

The research titled the same "*COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING*"

I am interested in establishing to which degree legislation, policy and regulations make provision for value based decision-making, and the research further aims to establish how competing values can influence the IEM process in order to benefit particular role players. I would like to uncover the mechanisms/strategies used by certain stakeholders to influence the IEM process in order to give priority to their values over the values of others and lastly, I would like to develop and propose methods and recommendations to expose and manage competing values in a balanced way that still complies to the regulations and guidelines within the IEM process.

I would like to ask permission for your participation in a focus group discussion planned for this research study.

I have attached a draft interview schedule to give you a better understanding of what the focus group discussion will entail. Kindly study the questions carefully before deciding whether you would be interested to participate in this research study. Should you be willing to participate, kindly contact me then we can schedule a convenient time and venue for the focus group discussion. I would also like to ask for permission to make an audio recording of our conversations.

Please be assured that the proposed focus group discussion is to be conducted at the times all parties agree to and would not disturb anyone's normal routine.

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 reporting only grouped data on the study findings and will be used to inform the research and any further recommendations made from the findings.

Data will be captured through the taking of notes and by recording the conversations digitally (audio). I will also provide with a copy of the recorded conversation or a transcription of the audio file upon request. If any of the participants would like to edit the information obtained in the interview they are free to do so in a timely fashion. Once the audio files have been transcribed, the interviews will be deleted and only a transcribed version of the interview will remain.

The Principal investigator of the study will be responsible for storing all of the research data and documents referring to the above-mentioned study at a secure location. Data will be stored at the University of Pretoria for a minimum period of 15 years in an electronic version (CD) and written format (Book) under the supervision of the project supervisor. The data may be reused for further research.

Results of this research will be published in peer reviewed journals and popular media. Neither your name nor that of your organisation will be mentioned in such publications.

Participants names, details and organisational affiliations, as well as names, details and any proprietary information of the organisations themselves, will not be disclosed in any research outputs and will at all times be held as confidential. The intention of the research is to gain an understanding of the trends within the IEM field and not to investigate the performance or behaviour of individual companies.

RESEARCH PROCEDURE

Please kindly read the information provided below before making a knowledgeable decision regarding your participation in this study.

1. **Title**: *"COMPETING VALUES IN THE INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS ~ UNDERSTANDING THE DYNAMICS BETWEEN EVIDENCE VERSUS VALUE BASED DECISION MAKING"*

2. **Purpose of Study**: The purpose of this study is to understand how evidence based decision-making in the IEM process is currently being prioritised, whilst value based decision making is perceived to be undervalued or ignored as a valid form of participation.

3. **Procedures**: For this quantitative study, focus group meetings with open-ended questions will be conducted within a group of between 5 and 15 participants. During this process, you are allowed to withdraw from participating in the study at any time you wish to do so. You are under no obligation to participate in this study, and should you choose to defer from participating, you will not be penalised in any way. All information provided in this study will remain confidential and your identity will not be revealed to other participants or in any other publication resulting from this study. Furthermore, with your approval, the interview discussions will be recorded.

4. **Benefits**: This study does not have any apparent risk or explicit benefit for the respondents. However, findings of this study will be useful to the government, policy makers and society at large as they will provide the basis for policy reform and implementation. Information provided here could also contribute to the broader debate on the IEM process and assist decision makers in formulating effective and supporting regulations that will result in a more inclusive and robust IEM process.

5. **Identification of investigators:** If you have any questions or concerns about the research, please feel free to contact the Principle Investigator Dr Nerhene Davis (nerhene.davis@up.ac.za).

6. **Rights of research subjects:** You, and your organisation may withdraw your consent at any time and discontinue participation without penalty. Responses provided will be removed from the data upon withdrawal. 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, contact Principal Investigator – details below.

Approval of research participant

I hereby consent voluntarily to participate in this study. I understand that I have the right to withdraw myself from participation in the study at any time. I understand that my personal information and identity will be kept confidential and it will not be disclosed without my authority. I have been given a copy of this form.

YES		NO	

If you selected YES, kindly contact Jessica de Beer at the below contact details so we can arrange a date and venue for the focus group discussion.

Contact Details and signature of Masters Student and Principle Investigator

Ms Jessica de Beer
MA Environment and Society Student
Faculty of Humanities

University of Pretoria
0002
South Africa
Mobile: 083 458 4848
Email: jessdebeer@gmail.com

Signature _____

Dr. Nerhene Davis
Principle Investigator
Department of Geography, Geoinformatics and Metereology
Faculty of Natural and Agricultural Sciences

University of Pretoria
0002
South Africa

Email: nerhene.davis@up.ac.za

Signature _____

APPENDIX C – ETHICAL CLEARANCE

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

8 August 2017

Dear Ms de Beer

Project:	**Competing values in the integrated environment management process – understanding the dynamics between evidence versus value based decision making**
Researcher:	**J De Beer**
Supervisor:	**Dr N Davis**
Department:	**Geography, Geo-Informatics and Meteorology**
Reference number:	**21013510 (GW20170613HS)**

Thank you for the application that was submitted for ethics review.

I have pleasure in informing you that the Research Ethics Committee formally **approved** the above study at an *ad hoc* meeting held on 8 August 2017. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should your actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

We wish you success with the project.

Sincerely

Prof Maxi Schoeman
Deputy Dean: Postgraduate and Research Ethics
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: tracey.andrew@up.ac.za

cc: Dr N Davis (Supervisor)