Investigating barriers to and initiatives for agency participation in addressing the cumulative environmental effects of development for the Pietermaritzburg area of KwaZulu-Natal

by

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ABSTRACT

Cumulative Effects Assessment (CEA) is a more holistic assessment method that has emerged in the wake of experts recognising that the Environmental Impact Assessment (EIA) has a tendency to be a site –project specific process, which frequently lacks the capacity to assess multiple development actions within a region (Canter, 1997). Although CEA is part of environmental policy for many countries, including South Africa, research has revealed that CEA is often poorly applied and in many cases ignored (DEA, 2004;Canter and Ross, 2008).One possible solution to enhancing CEA, within the study area, is for the Department of Agriculture and Environmental Affairs KwaZulu Natal (DAEA), the agency ultimately responsible for assessing the effects of development, to adopt a participatory approach with the Department of Water Affairs (DWA). This study explores the potential for KwaZulu Natal DAEA, and the associated members responsible for assessing the effects of development, to enhance CEA by engaging with the multi stakeholder Integrated Water Resource Management (IWRM) processes, in the institutional engagement space provided by the Catchment Management Agency (CMA). The rational for the DAEA adopting such an approach to enhancing CEA, in addition to the linkages between land and water, the linkages between DAEA and DWA‟s responsibilities and the opportunity for engagement, is that the theses forums encompass all the major stakeholder groupings within the region. This in conjunction with the DAEA‟s participatory policy would provide the ideal opportunity for DAEA members, involved in CEA, to reap the benefits of participation in enhancing CEA.

The aim of this research is to investigate the potential to enhance CEA through participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space. In particular the research has the objectives of firstly gaining an understanding of the barriers to such an opportunity and secondly exploring what stakeholders perceived as potential initiatives that could be established to overcome the barriers. The methods of investigation were primarily semi structured interviews. These interviews were conducted with seven staff members from the local chapter of the DEA, The Department of Agriculture and

Environmental Affairs KwaZulu Natal (DAEA). Due to the limited number of DAEA members within Pietermaritzburg region staff from Ezemvelo KZN Wildlife, who deal with CEA under the auspices of the DAEA were also included. Further data sources included an extensive review of the relevant literature. Based on an analysis of the information gathered in the above mentioned manner, it was concluded that the current application of CEA is poor within the study area and participation between the DAEA and the DWA, although promoted in accordance with policy, was subject to barriers, many of them physiological, which severely hinder the process. It was also concluded that barriers to participation were preventing DAEA employees from recognising the full potential of the opportunity to engage with the established IWRM process in the CMA engagement space as a means to enhance CEA.

Despite the many apparent barriers the majority of stakeholders did recognise the linkages between land and water, the linkages between the DAEA and the DWA and the value of what effective participation could mean for enhancing CEA. DAEA and Ezemvelo KZN Wildlife employees did however not seem to acknowledge the true potential to enhance CEA by participating with the DWA as they were not taking advantage of the opportunity. Stakeholders did however suggested, that a dramatic change in attitude and mind set towards the way participation was approached was needed from all sectors and that the DAEA needs to acknowledge and take advantage of such opportunity to enhance CEA.

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DECLARATION

I **Daryl David De Kock** declare that

1. The research reported in this dissertation, except where otherwise indicated, is my original work.

2. This dissertation has not been submitted for any degree or examination at any other university.

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ABBREVIATIONS

CEA	Cumulative Effects Assessment
CEQ	Council for Environmental Quality
CIA	Cumulative Impact Assessment
CMA	Catchment Management Agency
DAEA	Department of Agriculture and Environmental Affairs
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
EIA	Environmental impact assessment
ICM	Integrated Catchment Management
IEM	Integrated Environmental Management
IWRM	Integrated Water Resource Management
KZN	KwaZulu- Natal
NEMA	National Environmental Management Act
NWA	National Water Act
PMB	Pietermaritzburg
SEA	Strategic Environmental Assessment
WMA	Water Management Areas

Chapter 1: Introduction

1.1 Introduction

In South Africa research by the CSIR in 1998 revealed that cumulative effects were seldom adequately addressed within EIA documents (CSIR, 1998). In 2004 the agency responsible for CEA, the DEA also readily admitted that CEA needs to be improved (DEAT, 2004). The poor application of Cumulative Effects Assessment (CEA) continues to be evident throughout the relevant literature and environmental impacts are usually assessed using project and site-specific based methods such as the EIA (Smith, 2004; Reed, 2008).Experts have agreed that frequently little or no attention is given to the cumulative effects that may result from multiple assessments within a region (Smith, 2004).

Throughout history, human activities have had negative impacts on the natural environment. An emerging consciousness towards environmental protection in the United States during the nineteen sixties culminated in the development of a legislative response, designed to address environmental issues that arose from human activities (Glasson et al., 1999). Initially in the form of responsible authorities reporting adverse effects on the environment, this legislative response evolved into the Environmental Impact Assessment (EIA) (Lawrence, 1997). The basic principles of EIA have become mandatory in more than a hundred countries world- wide (Lawrence,1997) and is the more commonly used response to assessing environmental impacts associated with development (Lawrence,1997).
The effectiveness of EIA has been the subject of many comprehensive reviews which have provided information relating to the benefits and limitations of the process (Lawrence, 2001).This information has been used to further enhance the process and since its development, EIA still remains one of the leading tools in the assessment of individual projects (Lawrence, 2001).

An important yet often inadequately addressed part of the assessment process is the cumulative effects of development (Canter, 1997).The term cumulative effects, originated in the early seventies when it was realised that many of the more

devastating environmental problems result, not from a single action(Smith, 2004), but from the combined impact of multiple actions. Cumulative impacts are described by (Hegmann et al., 1999, p. 3) as *"changes to the environment that are caused by an action in combination with other past, present, and future human actions"*
There has been an emerging consensus that EIA, although effective at project level (Canter, 1997), often lacks the capacity to effectively address the cumulative impacts associated with multiple development actions within a region (Rumrill and Canter, 1997).The realisation that a more holistic assessment approach is required has led to many countries, including South Africa, developing policy guidelines such as Cumulative Effects and synonymously Cumulative Impact Assessment, (Canter, 1997) as part of the Environmental management process. Conceptually, Cumulative Effects Assessment (CEA) adopts a more holistic approach that attempts to understand the relationships between resources by enhancing existing systems to include sustainable development considerations (Price, 2007). CEA provides direction in understanding what, according to DEAT (2004) "*cumulative environmental changes will result from the proposed action* "and how they will impact *future generations*" (DEAT, 2004, p9).From a development perspective Cumulative Effects Assessment is based on the philosophy that impacts from a single development action may seem immaterial when assessed in isolation, but may be a lot more noteworthy when assessed in the context of the combined effect of multiple development actions through spatial boundaries and time (Thomas and Elliot,2005). As stated by Renner (2007) **"***In the past, we managed the environmental impacts on a project-by-project basis. However, we need to move to a new approach that considers all the potential impacts within a region"* (Renner**,** 2007, p 1).To date the inadequate use of cumulative effects assessment remains a major shortcoming (Canter and Ross, 2008) within assessment processes world- wide.

Addressing the effects of multiple development actions, based on the principles of sustainability is a complex process (Reed, 2008) which, often transcends manmade boundaries and requires a diversity of knowledge and values from many organizations, both private and governmental (Reed,2008). Due to its diverse nature and the need for transparent decision making, many countries have, promoted a participatory approach as part of their policy for CEA (Reed, 2008). Assessing impacts associated with development is usually the responsibility of staff members

from a lead agency. CEA, however often presents an, inter –agency, multidisciplinary process (Reed, 2008) and many responsible authorities have conceded that CEA requires a more holistic approach that would benefit from agencies working in collaboration (Canter and Ross, 2008). Actually achieving effective participation however still remains one of the more predominant challenges facing the CEA process (Canter and Ross, 2008). In the paper on Integrated Environmental Management, delivered at the World Environmental Development conference in Australia, Thomas (1996) suggests that agency participation although mandatory is not often effectively practised because amongst other things agencies usually have multiple interests and conflicting goals (Thomas, 1996). Insufficient agency participation in addressing environmental management issues has been a topic that has spanned the decades with experts attributing the lack of successes to host of factors (Reed, 2008).

Whilst discussing mountain area research and management Price (2007) suggests that agencies tend to focus on the management of resources in isolation and often fail to identify the implications for other resources and their users. Such narrow focus in conjunction with a lack of participation often leads to an overlap of responsibilities, gaps in responsibilities, an excessive use of resources and agencies unconsciously undermining each other"s efforts due to overlapping agendas (Thomas, 1996). For example research on how to manage barriers to interagency participation conducted by the United States General Accounting Office found that program overlap and differing mission statements was a major cause for concern (General Accounting Office, 2000).

South Africa is affected by similar issues and as previous research has indicated cumulative effects are not often detected, discussed and addressed, which has led the DEA to acknowledge that "*Special consideration and attention needs to be focused on how developing countries deal with the issue of cumulative effects"* (DEAT, 2004, p11). In following the worldwide trend of a more integrated approach to environmental concerns, South Africa has adopted the emergent philosophy of Integrated Environmental Management (IEM). This approach to the management of natural resources is more holistic as it advocates the "cradle to the grave concept" (European Commission, 2007, p9) which ensures that environmental considerations

are addressed throughout the lifecycle of a process, project or policy (European Commission, 2007). In recognition of the need for a more holistic approach to assessment, the DEA developed a framework of guidelines for addressing the cumulative effects of development as part of their policy for Integrated Environmental Management (IEM). CEA is an emergent process that recognises the inability of the more traditional project based methods, like the EIA, to adequately address Cumulative effects. According to the DEA "*projects that need to be considered are from past, present and reasonably foreseeable future development" (DEAT, 2004, p3-4).*The DEA further suggests that "*There appears to be consensus that CEA should be integrated into existing EIA and Strategic Environmental Assessment (SEA) processes"(DEAT, 2004, p3-4).*Figure 1 below shows how the DEA suggest cumulative effects should be included at both regional and project levels.

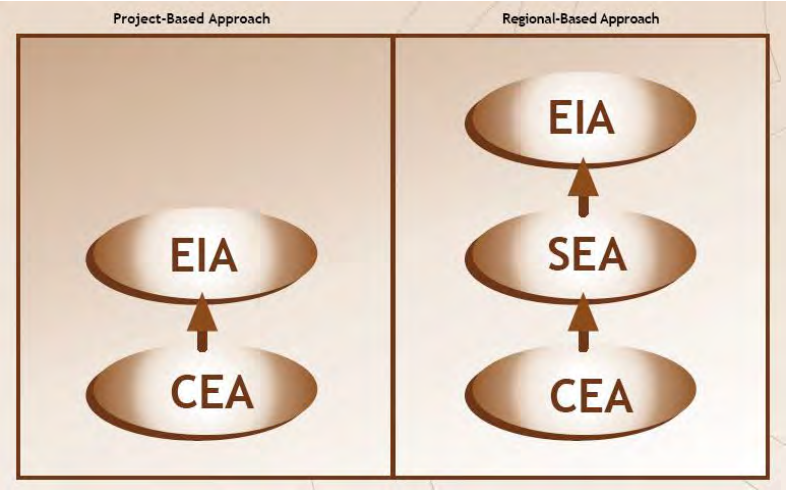

Figure 1 Different approaches for assessing cumulative effects in DEA 2004. (Adapted from DEAT, 2004)

The inclusion of CEA into existing assessment processes is a complicated task and the (DEAT, 2004, p3-4) has acknowledged that "*Data requirements, the lack of infrastructure and expertise and cost implications militate against the widespread application of CEA ".* The ineffective implementation of CEA is not a problem unique to the South African context and like many of the lead agencies world –wide the DEA has recognised that, due to its diverse nature, CEA often requires a participatory approach. The DEA has also suggested that initiatives should be established to enhance the CEA process through knowledge sharing, research and participation amongst the responsible agencies (DEAT, 2004).

1.2 Definitions

Before classifying the scope of this study it is necessary to explain certain key terms used in this dissertation.

Environmental Impact Assessment (EIA) is considered to be a planning system that endeavors to predict and analyzes impacts on the environment as a consequence of human actions and development (Glasson, et al 1999)

Cumulative effects in the case of this study refers to the incremental effects development actions have on the environment in relation to other past present and future developmental actions (NEPA, 1999).

Cumulative Effects Assessment (CEA) is a more holistic assessment tool that broadens the spatial and temporal focus of existing assessment approaches to include cumulative effects (DEAT, 2004).

Integrated Water Resource Management is the philosophy and practise of including all stakeholders with a vested interest in the management of water based amenities. The Global Water Partnership explains IWRM, as a "*process which promotes the co- ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*" (Global Water Partnership, 2000, p22).

Integrated Catchment Management (ICM) involves the management of a catchment area using an integrated approach that acknowledges all agencies and organisations associated with the management of natural resources within the area.

Catchment Management Agencies (CMA) are bodies that have been established in accordance with legislation to manage a catchment area conforming to the principles of IWRM and applying Integrated Catchment Management (ICM). These bodies, made up of all stakeholder sectors, have a major role in co-developing of options, co-reasoning and the co-consideration of consequences for all water related issues in the Water Management Area, of which there are 19 in South Africa.

Integrated Environmental Management is management involving an integrated and participatory approach in addressing environmental concerns (Sowman et al., 1995) In the context of this study Integrated Environmental Management refers to the underlying philosophy and practices associated with various principles and environmental management systems that consider an integrated approach, based on the principles of sustainability, when addressing environmental issues resulting from human activities (DEAT, 2004).

Participation refers to the act of "taking part". Within the context of this study participation refers to staff members from the DAEA and Ezemvelo KZN Wildlife participating within the existing CMA participatory forums to influence decisions with regards to enhancing the CEA process (Jennings, 2000).

A Stakeholder can be described as any party with a vested interest in a process or procedure. The term stakeholder also implies involvement through association (Van Den Hove, 2000). The term stakeholder for the purpose of this study refers to all members of the Pietermaritzburg DAEA and Ezemvelo KZN Wildlife who are responsible for assessing the cumulative effects of development within the region.

Barriers suggest a hindrance and or disruption to a process. In the case of this study however barriers primarily refer to those factors hindering participation in and implementation of CEA.

1.3 Regulatory framework and scope of the study

In South Africa the DEA is primarily responsible for upholding and administering all aspects of environmental protection legislation. The DEA"s mission is to "*create a prosperous and equitable society that lives in harmony with our environment "*(DEA, 2010, p4). The DEA and its subsidiary agencies are primarily responsible for implementing and enforcing the National Environmental Management Act (NEMA), "*which promotes integrated environmental management of activities that may have a significant effect (positive and negative) on the environment t*" (DEAT, 2004, p3). The DEA is also the agency responsible for assessing the impacts of development. It must however be acknowledged that in conjunction with NEMA, numerous acts, bills, policies and even NGO initiatives, are mandated to adopt an integrated approach through Integrated Environmental Management (IEM). These organisations also play a role in protecting the environment at both national and local level and thus to varying degrees fall under the DEA"s jurisdiction.

This study primarily focuses on the City of Pietermaritzburg and its surrounds, which is considered to be a local region and is predominantly governed by local authorities with environmental concerns being the responsibility of both national and local agencies. For example the Department of Water Affairs (DWA) is the regulatory agency responsible for implementing and administering the National Water Act (NWA) of 1998 atlocal level by ensuring that local municipalities adhere to the act when providing water based amenities. It is however worthy to note that the DWA have adopted an integrated approach to water management in the area by adhering to the principles of IWRM. Additionally CMA"s have been established, which are statutory bodies with the legal mandate to coordinate and manage all aspects of IWRM at catchment level.

The KwaZulu-Natal Department of Agriculture and Environmental Affairs (DAEA) under the auspices of the DEA is responsible for enforcing legislation with regards to development and any other activities that have the potential to negatively impact on the environment at local level. It is however necessary to note that multiple stakeholders associated with environmental protection, bound by various acts, bills and policies function within the area. While each set of stakeholders may have their

own set of agendas, being mandated to operate within the context of Integrated Environmental management (IEM), provides the foundation for stakeholders to adopt an integrated approach in addressing environmental concerns. The scope of this study focuses primarily on investigating the potential for addressing the cumulative effects of development through participation between DAEA and DWA. This would ideally be achieved through DAEA members, associated with CEA, adopting a participatory approach with DWA members and the multiple stakeholders involved in the IWRM processes within the CMA engagement space. The basic rationale for such an approach, aside from the obvious potential to benefit from stakeholder engagement, is the direct linkages between land and water based resources and the fact that many of DAEA"s activities tend to fall within catchment areas. For example according to Thomas, (1996, p 3) *"Various land uses can have significant implications for water quantity and quality and many benefits and disasters on the land are linked to water".* Despite the obvious links between land and water there are also numerous linkages between the DAEA and DWA activities ,which have been recently reinforced as both agencies now fall under the control of a single minister. A further advantage to this approach is that while the CMA engagement space may provide the platform for engagement the CMA"s are statutory bodies that have the legal mandate to adopt IWRM and thus have the power to provide the rationale and transparency to enable the DWA and the DAEA to more effectively enforce environmental decisions within the local context.

1.4 Need for the study

As previously mentioned multiple stakeholders influence the environmental management of resources within an area, this however does not necessarily ensure success. Despite being mandated by various acts and policies to adopt an integrated approach, countless documents within literature continue to depict the lack of participation in addressing environmental issues as a world –wide concern (General Accounting Office, 2000). Some of the more common issues emanating from a lack of participation tend to relate to program overlap, mission fragmentation, excessive use of resources and a lack of coordination (General Accounting Office 2000). As part of IEM this rings true for the cumulative effects of development as considerable documentation has been published on the need to enhance the process (Canter and

Ross 2008). In practise however the actual methodologies and guidelines to the process are often perceived by practitioners as non-specific and in many cases complicated. For example Thomas and Elliot (2005, p 49) suggest that "*these holistic methods are as yet not within the grasp of the majority of assessors".* According to the abundance of relevant literature, cumulative effects, in many documented assessments were often ignored or given very little attention(Smith, 2004).The general trend seems to be for countries to continue to focus on the EIA of each project, as the method for assessing environmental impacts, associated with development, within a region (Price, 2007).

South Africa, like most countries, also has a multi-agency approach with regards to natural resource management and protection. For example, while multiple agencies may influence environmental concerns within the study area, terrestrial concerns fall under the jurisdiction of the DAEA, while aquatic concerns are the responsibility of the DWA (Thomas, 1996). Despite various agencies dealing with different aspects of environmental resource management at both national and regional levels, participatory legislation enforcing processes such as IEM and IWRM has the potential to encourage agencies to engage as they are mandated to adhere to the legislation (DEAT, 2004). At local level the DWA"s area is divided into Water Management Areas (WMA) each comprising of a number of catchments which are managed by the CMA"s who have the legal mandate to enforce decisions made with regards to water management at catchment level. The CMA"s encompass multiple organisations and stakeholders who use this engagement space to make decisions relating to the management of water. This in conjunction with linkages between land and water would serve as a potential opportunity for a shift towards an integrated approach, between the DAEA and the DWA in addressing CEA within the region. This however, is not necessarily a given, as documentation on CEA suggests that the DAEA has to date failed to act on such a potential opportunity to enhance CEA by participating with the DWA (Thomas, 1996). The responsibility of assessing multiple development actions may fall to the DAEA however the management of one resource often influences and effects resources that are managed by other agencies and vice versa (Canter and Ross, 2008). Although each agency has a role in resource management (Thomas, 1996), the lack of interagency participation often prevents agencies from identifying opportunities to enhance their own system by

working in conjunction with existing integrated systems. Agencies often fail to recognise the correlations between their endeavours and those of other agencies within a region (Thomas, 1996) as they tend to focus on the management of a single resource. The DEA has, in the 2004 guidelines to IEM acknowledged that the interdependencies between agencies needs to be recognised (DEAT , 2004) .The IEM guidelines also suggested that initiatives should be established to enhance the CEA process through knowledge sharing, research and participation amongst the appropriate members within the responsible agencies (DEAT , 2004). As identified in the previous section, water and its management, not only has a direct link to DEA responsibilities but would, through engaging with the systems used to achieve IWRM and Integrated catchment Management (ICM), provide the DEA with a potential opportunity to address CEA through participation. It is however worthy to note that although IWRM is the overall philosophy adopted by the DWA, it is the Catchment Management Agencies (CMA) that, have the legal mandate to include all stakeholders in the management of water resources at catchment level (Pollard and Du Toit, 2005). Thus it would be beneficial for DAEA members to engage with the stakeholders involved in the IWRM processes in the CMA engagement space, as not only do the CMA‟s adopt the IWRM philosophy but they are the statutory bodies with jurisdiction over these water management areas (WMA) (Ashton,2001). Current developments in governance have further facilitated the potential to address CEA by engaging with these forums as one minister is now responsible for both DAE and DWA at national level. To Date however there is common consensus that participation between members of the DAEA and DWA, is at best strained and CEA is often ignored, with development actions being assessed using the more traditional project based methods (DEAT, 2004). There is a need to investigate the potential to enhance CEA through members of the DAEA, participating with and gaining the benefits from, participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space. This can be achieved by gaining an understanding of the barriers to such an opportunity and by exploring what stakeholders perceived as potential initiatives that could be established to overcome the barriers. This makes agency participation in addressing the cumulative effects of development a viable field of study as according to Canter and Ross (2008, p123) *it must be remembered that cumulative effects require cumulative solutions”*

1.5 Statement of the problem

This research stems from the problem that, although policy requires the cumulative effect of multiple development actions to be addressed, according to DEAT (2004, p3) "*South African research revealed that cumulative effects are not well addressed".* The agency responsible for CEA, the DEA, acknowledges that the process could be enhanced, by providing knowledge and expertise, through a participatory approach, between themselves and other agencies responsible for resource management (DEAT, 2004). Although agencies within the scope of the study have the mandate to adopt a participatory approach in accordance with various policies, to date however addressing the cumulative effects associated with developments still remains a problem and interagency participation as a means to enhance CEA, although promoted as part of policy, seems to be ineffective. A possible solution to the problem, as identified in previous sections, is for DAEA members to participate with the DWA and the multi-stakeholder IWRM processes in the CMA engagement space. In order to achieve this, the dynamics of participation between the DWA and the DAEA need to be understood, barriers to such an opportunity need to be identified and potential initiatives that could be established to overcome them need to be highlighted.

1.6 Aim and Objectives

The main aim of this research is to investigate the potential to enhance CEA through participation between the DAEA, and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space. This is to be achieved by gaining an understanding of the barriers to such an opportunity and exploring what DAEA employees perceived as potential initiatives that could be established to overcome them. The specific research objectives are as follows:

- Understand the DAEA employees views on participation, with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, as a means to enhance CEA

- Identify whether the DEA has recognized the potential to enhance CEA through a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements

- Identify any potential initiatives that could be used to overcome barriers to a participatory approach involving DAEA and DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA.

1.7 Research Methodology

To achieve the aim and subsequent objectives of this research, purposive sampling was used to select stakeholders in accordance with their role and experience in assessing the cumulative effects of development. Stakeholders were primarily chosen from the agency responsible for addressing CEA, namely the DAEA. In addition to gain a more complete perspective, staff from Ezemvelo KZN Wildlife who are also involved in addressing CEA, under the jurisdiction of the DEA, were also chosen. It must however be noted that due to the sensitive nature of the topic all the respondents wished to remain anonymous.

The research design employed a number of methods, which included documentation and interviews, to ensure that a range of data was collected. The main method of inquiry took the form of semi-structured interviews, presented in Appendix A. These interviews were conducted with a total of seven selected employees of the DAEA and Ezemvelo KZN Wildlife. Open ended questioning was adopted by the researcher, as this allowed for the clarification of issues through follow up questioning and the information gathered was used to generate a descriptive narrative. Emerging patterns were identified and use to enhance the researchers understanding of the potential for CEA to be addressed through participation between the DAEA and the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. Themes relating to perceptions of the stakeholders were identified. These were used to determine what they perceived as important issues relating to the participatory process and how initiatives would mitigate or marginalise barriers to a participatory approach between the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA.

1.8 Limitations of the study

This study was undertaken with the aim of investigating the potential to enhance CEA through participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space. In particular this research has the objectives of firstly gaining an understanding of the barriers to such an opportunity and secondly exploring what stakeholders perceived as potential initiatives that could

be established to overcome the barriers. While this may generate an understanding of the situation, this study made no attempt to address the actual issues associated CEA. Staff members from the agencies within the region whose responsibility it is to assess the cumulative effects of development, primarily the DAEA and some staff from Ezemvelo KZN Wildlife were mainly targeted which is a further limitation to a study of this nature as the number of subjects that were available was limited. In addition to the small number of research subjects another issue that poses a limitation to this study is the poor functionality of the CMAs. While this is an important factor to consider, it must be noted that the purpose of this study was purely to highlight the potential of such a participatory process as a means to enhance CEA.

1.9 Structure of the study

This study was structured and presented in the form of five chapters. Chapter one to three have been summarised in the introduction. Chapters four and five are structured as follows:

Chapter 4 presents the finding from the interviews and other data sources and discusses them from the perspective of the research objectives. Firstly the problems associated with addressing the Cumulative effects of Development are discussed. Next the issues associated with interagency participation as a means to address CEA are discussed from the perspective of the DAEA and the DWA. Finally barriers to the process are discussed highlighting the potential initiatives that could be established to overcome them

Chapter 5 presents the conclusions drawn from the research findings. Initially a summary of the findings in chapter 4 are used to illustrate how this research addresses the various research objectives. This chapter also presents the conclusions drawn on how participation between the DAEA and the DWA and the ongoing IWRM processes involving CMA stakeholder engagements has the potential to enhance the CEA process. The conclusions relating to the barriers are also discussed and the potential initiatives that could be established to overcome the barriers to the DEA participating with the DWA in enhancing CEA are highlighted from the perspective of the stakeholders.

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Chapter 2: Literature Review

2.1 Introduction

Effectively assessing the combined impact of multiple development actions poses a universal problem. Responsible authorities world -wide have acknowledged, that Cumulative Effects Assessment (CEA), although being a vital part of the assessment process is often insufficiently addressed (Canter, 1997). This is especially the case in South Africa where even the agency responsible for assessing the effects of development, the DEA, has acknowledged that CEA is poorly applied (DEAT, 2004).

This chapter begins by presenting an overview of the literature on the assessment process with respect to cumulative environmental impacts. Current approaches and trends to the application of Cumulative effects assessment are then reviewed. Integrated Environmental Management (IEM), Integrated Water Resource Management (IWRM) and Catchment Management Agencies (CMA) are then discussed. The dynamics of interagency participation, which forms the foundation of this study, is then explored in general and in terms of environmental management .Literature, on potential initiatives and barriers, to interagency participation is then examined from the stakeholder‟s perspective.Finally participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space is explored as a means of creating mutually beneficial synergies that could have the potential to enhance CEA.

2.2 The assessment process

The need to avoid and reduce the negative environmental impacts associated with human development has long been recognized (Lawrence, 1997). In the late 1960s the United States, in recognition of human impacts on the environment, developed the National Environmental Policy Act (Canter, 1997). The objective of the act was to identify and eliminate environmental damage, stimulate human welfare and improve environmental quality (Canter, 1997). The Act contained legal procedures and guidelines for a detailed reporting, by responsible authorities, (Canter, 1997) on any

proposed project that would have an adverse effect on the environment. These reports under the act became known as Environmental Impact Assessments (EIA). Since the seventies the National Environmental Policy Act has provided guidelines and regulations for the preparation of an EIA. These basic principles, although broadly defined, have become mandatory in more than hundred countries world-wide (Lawrence, 1997; Lohani et al., 1997).This is also the case in South Africa with EIA becoming part of policy in environmental protection under the National Environmental Management Act (DEAT, 2004).EIA has, over the decades had many subtle differences in its definition and description. According to (Lawrence, 1997, p4) however Environmental Impact Assessment can be described as a "*prominent action forcing instrument for incorporating natural and social environmental concerns into public and private decision making*". Environmental Impact Assessment (EIA) is a planning system that endeavors to predict and analyzes impacts on the environment as a consequence of human actions and development (Glasson et al*.,* 1999).EIA focuses on the prevention and mitigation of actions, prior to a development that could be potentially harmful to the environment (Glasson et al., 1999). In South Africa EIA is the predominant tool used in the assessment of proposed development actions (DEAT, 2004). The EIA system has evolved since its development and still remains one of the leading tools in the assessment of individual projects (Lawrence, 2001). This however is considered to be the EIA"s downfall as the process lacks the capacity to assess the environmental aspects for anything more than a specific project. The DEA, along with many other leading agencies, has recognised this and has developed as part of policy additional methods such as CEA for assessing multiple development actions (DEAT, 2004).

2.3 The evolution of cumulative effects

Since the conception of environmental assessment, there has been growing concerns, within the scientific community, about the long term impacts that multiple development actions have on the environment (DEAT, 2004).Over the past three decades the concept of cumulative environmental effects has achieved widespread interest (Peterson et al., 1987), with vast amounts of literature being generated on the subject. In the field of contemporary environmental assessment, professionals have begun to realise that existing assessment methods are usually project based

and site specific (Blaser et al., 2004). They also agree that this approach often lacks the degree of holism required to assess the cumulative effects associated with multiple actions (Blaser et al., 2004).The notion of cumulative effects first emerged in the 1970s when it was realized that actions affecting the environment needed to be considered more holistically and from a temporal and spatial perspective in relation and proximity to other actions (Canter and Ross, 2008). The term Cumulative effects was first mentioned in guidelines of the Council on Environmental Quality (CEQ) in 1973 and despite being the topic of extensive literature, multiple definitions of the concept have emerged (Canter, 2000). For example: the CEQ describes cumulative effects as being " *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions"* (NEPA, 1999, p 1). In 1999 G. C. Hegmann from the Canadian Environmental Assessment Agency provided a simplified definition. According to (Hegmann, et al., 1999, p. 3) Cumulative effects are "*changes to the environment that are caused by an action in combination with other past, present, and future human actions."* Although definitions vary, they are based on the premise that impacts may be considered insignificant when assessed in isolation, but may be a lot more noteworthy when evaluated in the context of the combined effect of all past, present, and reasonably foreseeable future impacts (Thomas and Elliot, 2005).

Type	Characteristic	Example
Time crowding	Frequent and repetitive effects.	Forest harvesting rate exceeds regrowth.
Time lags	Delayed effects.	Bioaccumulation of mercury.
Space crowding	High spatial density of effects.	Pollution discharge into stream from non-point sources.
Cross-boundary	Effects occur away from the source.	Atmospheric pollution and acid rain.
Fragmentation	Change in landscape pattern.	Fragmentation of indigenous habitats.
Compounding effects.	Effects arising from multiple sources or pathways.	Synergism amongst pesticides.
Indirect effects	Secondary effects.	Developments following construction of new highway.
Triggers and thresholds	Fundamental changes in system functioning and structure.	Climatic change

Table1: Types and characteristics of cumulative effects in DEAT, 2004 (from the Council on Environmental Quality, 1999).

As shown in table 1above cumulative effects are said to be the result of an accumulation of two or more impacts that have a negatively additive or interactive

effect on a natural systems (Spaiing and Smit, 1993).Though many potential sources of cumulative effects exist, they tend to be predominantly associated with the effects generated by human activities (Somtag et al., 1987). Actions that generate Cumulative effects vary in scale, origin and nature which Somtag et al., (1987 p10) describes using four levels of increasing activities based on spatial and temporal categories:

- *"Single activity: a single project or event usually completed in a short time-period and spatially fairly well contained; e.g., constructing a hydro-electric dam; single point source release of effluent;"* (Somtag et al., 1987 p10)
- *"Multi-component activity: a single project or event with a number of components being developed in sequence or simultaneously; e.g., developing a hydro-electric project comprised of a dam, transmission corridor, and access roads; developing an oilfield with associated transportation facilities;" (Somtag* et al*.,* 1987 p10*)*
- *"Multiple activities: a regional development involving construction of several facility types of a varied nature over an extended period of time; e.g., developing an entire river basin; considering all forms of development (mining, transportation, hydro-electric, and oil and gas) over a large area; multiple point source emissions for region" (*Somtag et al., 1987 p10)
- *"Global activity: an activity that is dispersed over space and time with characteristics that make it of global concern; e.g., emissions of pollutants to the atmosphere from worldwide sources; changes in commodity prices" (*Somtag et al., 1987 p10)

Thus cumulative effects can be described as the combined and compounded impacts associated with, all human activities that could result in the environmental degradation of a region over time (NEPA, 1999).Generally referred to as cumulative effects or synonymously cumulative impacts within assessment documents, Cumulative Effects according to (Thomas and Elliot, 2005) are said to be the culmination of one or more of the following.

- The combined impact from past, present, and future actions.
- The total impact that all actions, both direct and indirect, have on a given resource, ecosystem, or human community

- Actions that need to be analyzed in terms of a specific resource, ecosystem, or human community
- Impacts from actions that transcend spatial, temporal, political and administrative boundaries
- The resulting impacts from actions of a similar nature and or the interaction of impacts from different actions
- Impacts that last indefinitely beyond the completion of the project and need to be analysed in terms of a specific resource

  *Points adapted from (*Thomas and Elliot, 2005, p 47)

The importance of addressing cumulative effects is the result of multiple theoretical studies (Canter and Ross, 2008).These have indicated that in many cases the environmental effects of primary concern tend to be of a cumulative nature resulting from multiple actions within specific region (Canter and Ross, 2008). This in conjunction with pragmatic reasons led the CEQ to develop in the early nineties revised legislation on addressing cumulative effects as part of the existing assessment processes (Canter and Ross, 2008).In addition to policy the CEQ developed formal Cumulative Effects Assessment guidelines in 1997which provided practitioners with guidance in assessing Cumulative Effects (Canter and Ross, 2008). Since it was first acknowledged, there has been widespread recognition of the need to consider cumulative effects within existing assessment methods (Canter and Ross, 2008).This according to (NEPA, 1997, p. 2)can be described "*as enhancing the traditional components of an environmental impact assessment"* to include cumulative impacts as part of the environmental management process (Thomas and Elliot, 2005). South Africa has also recognised this need and CEA has become part of the guidelines to achieving IEM (DEAT, 2004).

2.4 Cumulative Effects Assessment: The process

The intrinsic theme of this study relates to the potential to enhance CEA through participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space. Thus it is necessary to have an understanding of the Cumulative Effects Assessment process. CEA is a management tool (DEAT, 2004) that broadens the spatial and temporal focus of existing assessment approaches to include cumulative effects (DEAT, 2004).As indicated previously the concept of adopting an assessment approach, that addresses cumulative effects is by no means new, however actual guidelines as to how cumulative effects, should be addresses are fairly recent (Blaser et al., 2004).

Guidance on how to assess cumulative effects emerged in the late nineties with the release of CEA procedural guidelines by the US Environmental Protection Agency in 1997 (Hegmann et al., 1999). The guidelines were developed to provide assessment professionals and decision makers with a step by step procedure on how to consider cumulative effects (Kennett, 1997). This was done by broadening, both spatially and temporally the scope of existing assessment methods (Canter and Ross, 2008).This approach considers a proposed action both in isolation and when combined with other current and future actions. These basic guidelines have been promulgated worldwide with various adaptations, being developed by many countries, including South Africa, as part of their own assessment processes (Canter and Ross, 2008). Although processes may have slight variations, between countries, the fundamental approach remains constant (Blaser et al., 2004). In the paper by Canter and Ross, (2008) on the state of current practise within the field of Cumulative effects Assessment, the methodology used to consider cumulative effects has been condensed into six essential steps (Canter and Ross, 2008).

- The CEA process is initiated by defining Cumulative Effects and identifying the cumulative effects that a proposed action will have on selected natural systems within the proposed location. The natural systems are selected based on their

sensitivity to an intervention and information relating to anticipated degradation due to the proposed action, additional current actions and future actions.
Adapted from Canter and Ross (2008 p 5-6)

- The spatial and temporal boundaries of the assessment are established by identifying any past, present, and reasonably foreseeable future actions, within the environs of the proposed action that could contribute to the degradation of said natural systems through accumulated impacts. adapted from Canter and Ross (2008 p 5-6)
- Information pertaining to the selected systems is collected using indicators and their historical to current condition assessed. Any trends in the conditions of the systems, due to the proposed action and other actions within the study area, need to be identified. adapted from Canter and Ross (2008 p 5-6)
- The associated impacts from the proposed action, other actions and predicted future actions are examined and linked to the selected natural systems within the study area. Cumulative impacts from current actions are assessed and predicted impacts from future actions anticipated. *adapted from* Canter and Ross (2008 p 5-6)
- The implications associated with cumulative effects need to be considered for each of the selected natural systems within the time frame of the CEA study. Next the direct and indirect effects of the proposed action need to be considered and finally the effect that the proposed action has on Environmental sustainability needs to be highlighted. adapted from Canter and Ross (2008 p 5-6)
- For systems that will be subjected to negative impacts from the proposed action, and where cumulative effects pose a significant threat mitigation measures need to be established to prevent or minimise the associated Cumulative impacts. adapted from Canter and Ross (2008, p 5-6)

2.5 Current trends in the application of CEA

The importance of CEA has received greater attention in the last two decades. Decision makers have recognised the role that CEA plays in achieving environmental sustainability, by enhancing existing assessment methods to include cumulative impacts (Canter and Ross, 2008). CEA has become policy in many countries which often forces practitioners with varying degrees of understanding and

expertise, to include CEA (Canter and Ross, 2008). Consequently evidence relating to the actual practise of CEA has highlighted certain disturbing trends (Smith, 2004). To date the term cumulative effects remains broadly defined (Smith, 2004) and although guidelines to the process have been established, they are according to many practitioners, non -specific, provide limited information and in many cases difficult to understand(Thomas and Elliot, 2005). This in conjunction with a broadly defined process has created a source of confusion for many practitioners as they often fail to comprehend the degree of holism required for CEA (Smith, 2004).

The comprehensive assessment of cumulative effects by definition presents an assessment process that has a far greater degree of complexity and uncertainty, and research has revealed that it is often beyond the ability of many practitioners (Smith, 2004). This has culminated into the common view within literature, that one of the more disturbing trends, within existing assessment documents, is the ineffective application of CEA (Smith, 2004).This is also evident in South Africa as much of the literature from the DEA, on the assessment of cumulative effects refers, to how the process needs to be enhanced (DEAT,2004). Although the analysis of past and existing documentation has highlighted multiple reasons for the lack of success, according to (Smith, 2004, p1) some of the more common factors, include " *(1) lack of time and resources to effectively analyze the often large spatial and temporal scales needed to analyze past, present, and reasonably foreseeable future actions regardless of who is responsible for them; and (2) the lack of sufficient data or methods to analyze some of the impact questions that will arise in such an analysis – such as the lack of quality baseline data or information for a given project area."*

Due to its diverse nature, larger study areas, extended timeframe and uncertainties related to future actions CEA presents practitioners with a multi – disciplined process(Reed, 2008).Experts suggest that the effective application of CEA requires a collaboration of knowledge and resources from a range of organisations and agencies responsible for resource management(Reed, 2008).Whilst many factors have been considered to contribute to poor performance, according to (Canter and Ross, 2008, p 8-9) they can be summarised as *"a result of combinations of scientific uncertainties, inadequate institutional policies, and needs for collaboration"*. Continuing research, on application methodologies and appropriate tools, has

identified certain generic requirements as being relative to enhancing the process (Canter and Ross, 2008).

One of the more sought after approaches, which forms the cornerstone of this study, is to investigate the potential to enhance CEA through participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space (Canter and Ross, 2008).It is however therefore necessary to understand the philosophy of IEM which is the participatory mechanism that, through legislation, provides a platform for effective engagement between the DAEA and the DWA in addressing CEA.

2.6 Integrated environmental management

The inherent theme of this study revolves around exploring and understanding the issues surrounding participation between the DAEA, the DWA and the IWRM processes in the CMA engagement space as a potential means to enhance the CEA process. It is therefore necessary to understand IEM and how the philosophy could potentially advocate beneficial participation between the DAEA and the DWA in addressing CEA. Heralded from an increasing awareness "*of the global implications of unsustainable development on human well-being in both developed and developing countries"* (DEAT, 2004, p6), one of the more promising legislative shifts towards a participatory approach in addressing environmental concerns has been the emergence of Integrated Environmental Management (IEM) (Sowman et al., 1995). Research has indicated that sustainable development requires an integrated approach (European Commission, 2007; Dovers, 2005).IEM is basically the underlying philosophy associated with considering an integrated approach, based on the principles of sustainability, when addressing environmental issues resulting from human activities(DEAT, 2004).According to (European Commission, 2007,p7)" *Integrated approaches include long-term strategic visions and link different policies at different administrative levels to ensure coherency".* IEM provides this as it is considered to be *a "holistic framework that can be embraced by all sectors of society for the assessment and management of environmental impacts and aspects associated with an activity*"(DEAT, 2004, p7).IEM also *"takes into account each*

stage of the activity life cycle, taking into consideration a broad definition of environment, with the overall aim of promoting sustainable development management tools across the full activity life cycle and by all sectors of society"(DEAT, 2004, p7).For example IEM is considered to be more of a philosophical approach to environmental management and differs from the more traditional EIA in that impacts are considered from inception through to decommission(European Commission, 2007). The IEM procedure also considers the influence an action has on the surrounding regions and their corresponding agencies and other spheres of society (European Commission, 2007). As previously discussed South Africa like most countries has adopted Integrated Environmental Management (DEAT, 2004), which has become legislation and has been written into the National Environmental Management Act (No. 107 of 1998) as environmental management policy(DEAT, 2004).

In South Africa IEM was first considered in the eighties in recognition of the inability of the EIA to adequately integrate all aspects of environmental considerations during development planning (DEAT, 2004).While NEMA provides the necessary legislation, the philosophy associated with IEM recognises the need for integration by providing the necessary tools, forums and systems designed to advocate an integrated approach amongst agencies within the region (Nel and Du Plessis, 2003; Dunning, 2006). IEM has evolved to incorporate a broader perspective, whose underlying philosophy and systems can be influential in environmental decision making at all levels (DEAT, 2004).Comprehensive guidelines on how to apply IEM have been developed, making IEM a procedure that "*can either be used to underpin a stand-alone process (e.g. EIA) or be integrated into existing complementary processes (e.g. integrated development planning)"* (DEAT, 2004, p6-7). For example IEM principles have had some successes in the management of integrated initiatives in the fields of biodiversity, petroleum development resources, and integrated pollution and waste management (DEAT, 2004).

Despite the principles of IEM having influenced certain spheres, research has indicated that natural resource management in general continues, to a large extent, to be a fragmented process (Nel and Du Plessis, 2003).This often results in a lack of parity amongst the responsible agencies which further hinders an integrated

approach (Nel and Du Plessis, 2003).Although IEM may provide the legislative mechanism that mandates a participatory approach between the DAEA and the DWA research has revealed that said participation tends to be limited (DEAT, 2004). The main aim of this study is to look at the process of IWRM, an existing integrated philosophy to water resource management that may through participation, between the DAEA and the DWA in the CMA engagement space, have the potential to benefit CEA (DEAT, 2004). It is therefore necessary to understand the IWRM process and the functions of the CMA‟s

2.7 Integrated Water Resource Management (IWRM)

As previously discussed natural resources are mostly, not only connected by water but often depend on water for their very survival (Info-resources, 2003).Thus environmental problems not only affect land but also have repercussions for the aquatic systems within a region(Thomas, 1996).Water presents a complex system that affects multiple stakeholders and influences multiple resources (Info-resources, 2003). It is therefore necessary to understand IWRM which is the process of including all stakeholders in the management of water based amenities.

While there have been many definitions, in 2000 as a result of the Second World Water Forum, the Global Water Partnership defined IWRM as a "*process which promotes the co-ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*" (Global Water Partnership, 2000, p22).IWRM is considered to be the philosophical process that ensures the sustainable use of water resources by all stakeholders at all levels (UN-Water, 2008). It is often argued that an integrated approach to water resource management is not a new process however the current concept was thought to emanate from the Dublin principles which were presented at the International Conference on Water and the Environment in Dublin, 1992 (Global Water Partnership, 2000). Based on the following concepts the Dublin principles "*significantly contributed to the Agenda 21 recommendations (Chapter 18 on freshwater resources) adopted at the United Nations Conference on Environment*

and Development (UNCED) in Rio de Janeiro, 1992"(Global Water Partnership, 2000, p13).

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.
- Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.
- Women play a central part in the provision, management and safeguarding of water.
- Water is a public good and has a social and economic value in all its competing uses.

  Points adapted from the (Global Water Partnership, 2000, p13-14)

These principles were acknowledged at the Rio earth summit in 1992, with the resulting Agenda 21 devoting chapter 18 to the protection and integrated management of water resources (Agenda 21, 1992). Aside from the origins the processes associated with IWRM are considered to have emerged as a direct response to the more traditional fragmented approaches to water resource management (UN-Water, 2008). Considered more holistic, IWRM uses an approach to water resource management that supports both the economic and social sectors while considering all aspects of environmental protection(Anderson et al., 2008).The IWRM approach is supported by the United Nations World Water Development Report (2006) which states that "*IWRM represents a holistic, ecosystem-based approach which, at both strategic and local levels, is the best management approach to address growing water management challenges and is seen as the best approach for meeting the Millennium Development Goals"*(UNESCO-WWP, 2006, p. 526). This degree of holism is said to be achieved by acknowledging the linkages between all environmental sectors and including all stakeholders with a vested interest in the decision making process(Anderson, et al 2008).The IWRM approach has become ever more popular and been widely accepted and endorsed as a more holistic approach to water resource management (Biswas, 2004). This notion is however not exclusively supported as many experts feel that IWRM requires constant redefining in order to prevent stagnation (Biswas, 2004). Despite differing view- points there is

some consensus in that experts acknowledge IWRM as a more holistic alternative to the single sector approach used in the past (Pollard and Du Toit, 2008)

The growing awareness of the manner in which water resources were being exploited in conjunction with past fragmented approaches to its management prompted a change in South African Water policy (DWA, 1998). This transformation led to the development of the the National Water Policy (1997) and National Water Act (1998) both of which promote an integrated approach to water resource management (DWA, 1998).South Africa has become part of the Southern African Development Community (SADC) which promotes the practice of Integrated Water Resources Management among member states, in conjunction with initiatives by the Global Water Partnership (GWP) (Global Water Partnership. 2000). South Africa like many countries has recognised the value of adopting IWRM which has led to the development of extensive guidelines as part of policy on the various aspects of IWRM and how they should be applied (National Water Act, 1998). According to the DWA 2009, Integrated Water Resource Management (IWRM) can be considered a philosophy, a process, and a procedure. The IWRM approach acknowledges that all stakeholders should have access to, and sustainable use of, water resources in conjunction with the protection of all aspects of the environment (DWA, 2009).The National Water Act, in addition to recognising the need to adopt an integrated approach to water management, provides for the integrated management of water resources at catchment level (DWA, 2001). Local statutory bodies known as Catchment Management Agencies (CMA) are responsible for applying IWRM at catchment level and it is therefore necessary, to understand the potential role the CMA"s engagement space could play in enhancing the CEA process through participation (Pollard and Du Toit, 2005).

2.8 Catchment Management Agencies

It has been widely accepted that water resources should be managed within a naturally occurring catchment area (Ashton, 2001). According to Ashton, "*This catchment-based approach helps to achieve a balance between the interdependent roles of resource protection and resource utilization*" (Ashton, 2001, p3). In South Africa the National Water Act No. 36 of 1998 (NWA) recognises and makes provision

for the management of all aspects of water resource management using an integrated approach in the form of IWRM (DWAF, 2001). The act also makes provision for the integrated management of water resources at local levels known as Water Management Areas (WMA"s). South Africa is divided into nineteen WMA areas, each comprising of a number of catchments and it is the responsibility Catchment Management Agencies (CMA) to ensure that IWRM is applied at catchment level (DWAF, 2001). CMA"s are the statutory bodies, comprised of local level role-players, that have the legal mandate to consider all local stakeholders in the sustainable management of water at catchment level (DWAF, 2001). Local stakeholders participate and are informed through the CMA engagement space which is extensively used by the DWA to include all the role-players relevant to decisions made with regards to water resource management at local levels (DWAF 2001). The CMA engagement space comprises of multiple organisations and their policies, laws, plans and strategies which are used by the CMA"s in the integrated management of water. According to the DWA "*These forums have now become important bodies representing stakeholders in the establishment of CMAs, and are envisaged to play an active role in assisting these CMAs after their establishment*" (DWAF, 2001, p2).In support of the CMA"s and the CMA engagement arena, the DWA has developed guidelines, based on local input and a review of past experiences, for the establishment and management of theses forums. These guidelines are evolving and will, according to the DWA, need to be continually updated to ensure that they are based on the best information available (DWAF, 2001).

2.8.1 Current Status and functionality of the CMAs in South Africa

One of the main objectives of this study is to Identify whether the DEA has recognized the potential to enhance CEA through a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. The National Water Act No. 36 of 1998 (NWA) supports the idea of the establishment of Water Management Areas (WMA,s) and the establishment of CMA"s within the WMA"s (Ashton, 2001). As previously discussed the CMA approach to the management of water is according to Koppen, et. Al, (2002, p12) a move towards a "*change from a centralized management approach based on command*

and control from the nation‟s capital to a decentralized participatory model based on cooperative governance and coordination through CMAs". While The National Water Act No. 36 of 1998 (NWA) may have promoted and provided the legal framework for the establishment of the CMA‟s to date very little success has been achieved in their development as only Inkomati and the Breede-Overberg Catchment Management Agency‟s are considered to be functional (Koppen, et. al, 2002). This status is however rapidly changing as more focus from government is being given to the fast-tracking of the establishment of the CMA‟s. For example in March 2012 the Minister of Water and Environmental Affairs, Mrs Edna Molewa approved the establishment of a further nine Catchment Management Agencies (CMAs) in South Africa (DWAF, 2012).

The purpose of the CMA‟s, as previously mentioned, is to adopt a collaborative approach to water resource management that includes all sectors and stakeholders who are influenced by water and its usage at catchment level (Ashton, 2001). This study, as previously discussed, focuses on the participatory potential of the CMA‟s as a means to address CEA. While the majority of CMA‟s may be at various stages of development they are still a major part of the government‟s water management agenda and should once fully developed provide the necessary participatory potential to enhance CEA (DWAF, 2012).

2.9 Why participation with the DWA and the CMA engagement space

Agencies responsible for natural resource management within South Africa are bound, to work within the context of IEM, by the NEMA act. According to chapter five Section 2 of the NEMA act "*The general objective of integrated environmental management is to promote the integration of the principles of environ-mental management set out in section 2 into the making of all decisions which may have a significant effect on the environment*"(NEMA ,1998 , p35).The NEMA act in accordance with promoting co –operative governance requires every national departmentthat that has an influence on the environment to develop an environmental management plan (NEMA, 1998).The NEMA act also requires those organs of state submitting environmental management plans to consider the

implications of all plans submitted by other departments (NEMA, 1998). The onus for ensuring that cumulative effects are assessed falls under the DEA"s jurisdiction and is considered to be part of the IEM process (DEAT, 2004). It is therefore necessary to explore how participation between the DAEA and the DWA in the CMA engagement space could provide the potential to enhance CEA process within the region. As previously discussed the DWA applies an integrated approach to water resource management in the form of IWRM (DWAF, 2001). This is applied in accordance with policy at local level by the CMA"s whose forums provide the engagement platform to include all stakeholders in decisions relating to IWRM at catchment level.

The basic rationale for adopting a participatory approach with the DWA in the CMA engagement space is based on a number of key elements. Apart from maintaining the integrity and being an indicator as to the functioning of natural systems (UN-Water, 2008), water is generally considered to play a key role in both social and economic development (UN-Water, 2008). IWRM is a more holistic approach that not only supports both the economic and social sectors but also considers all aspects of environment (Anderson et al., 2008). Furthermore water is the common element in all environmental protection endeavours within a region due to the obvious linkages between land and water based amenities (Info-resources, 2003).

Aside from the more obvious reasons the CMA engagement arena provides the platform to facilitate an integrated approach to addressing the complex issues associated with water resource management and as such encompasses all the major stakeholder groupings within the region (Anderson et al., 2008). As shown in figure two below the CMA engagement arena, overseen by the DWA, encompasses the majority of sectors within the region in the management of water.

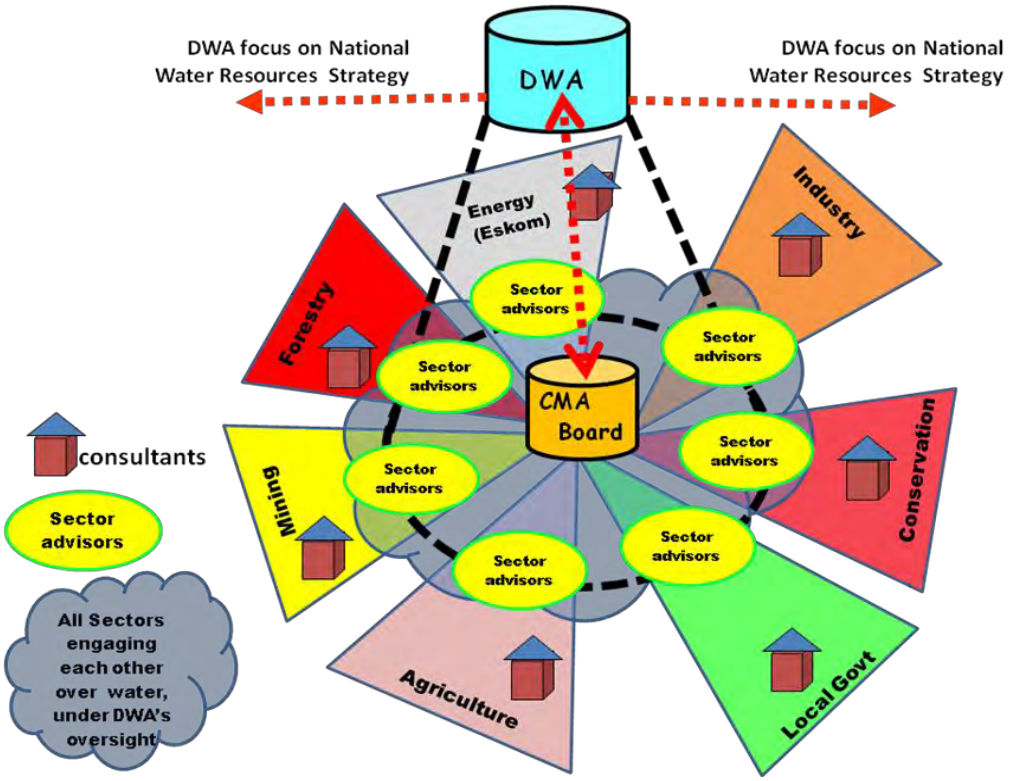

Figure: 2 The DWA overseeing the multi-sector CMA engagement arena
Source: (Dent, 2012, p 4)

While IWRM may provide the processes, the CMA"s are the statutory bodies that are obligated in accordance with the NWA to include all stakeholders in the application of IWRM at catchment level (National Water Act, 1998). The CMA engagement space further facilitates participation in addressing CEA as the majority of resource management sectors are, through their own mandated policies required to get involved in the management of water (DWAF, 2001). This provides the ideal opportunity for the DAEA to engage in assessing CEA, as not only do a large percentage of their responsibilities, such as biodiversity, overlap aquatic areas but many of these sectors land based activities fall under the jurisdiction of the DAEA. As suggested by Pollard and Du Toit, (2005, p1) *"it is important to recognize that a water resource includes not only the water but also the structural components (morphology, riparian and in stream habitat) and the biotic components of the aquatic ecosystem".*

This integrated approach to catchment management in conjunction with the links between land and water provides the ideal opportunity to enhance CEA through participation. Both the DAEA and the DWA are mandated to adopt an integrated approach within the context of IEM. Applying the IWRM processes in the CMA engagement arena would certainly have the potential to incorporate all stakeholders with a vested interest into a participatory process in enhancing CEA. For example as shown in table 2 below the CMA"s comprise of multiple sectors and organisations engaging in the management of water under the DWA"s jurisdiction.

Sector	Representative	Ministry to support this Sector	Civil Society & Business Groups to support this Sector
Commercial agriculture	Mr Cas du Preez	Agriculture	Agri-SA; Agricultural Unions; Co-ops
Tourism	Mr Edward Thwala	Tourism	Tourism industry has many collective NGO groupings
Conservation	Mr Francois Roux	Environment Affairs	WWF; WESSA; EWT; Wildlands Trust; SA Conservation Trust
Water by the poor	Ms Grace Mashele	Social Development	
Traditional leaders	Mr Inkosi Mkhathswa	Cooperative Governance and Traditional Affairs	Congress of *Traditional Leaders* **of** *South Africa (CONTRALESA)*
Provincial government	Dr G H Karim	Cooperative Governance and Traditional Affairs	
Productive water use	Mr Krisjan Mokoena		SA Association of Water User Associations
NGOs	Ms Lilian Masilela	Social Development	This whole column & more
Emerging farmers	Mr Moses Makhubela	Rural Development and Land Reform Agriculture	National African Farmers Union NAFU
Industry/ business	Mr Nandha Govender (ESKOM)	Trade and Industry Public Enterprises Energy Mineral Resources	Business Unity SA National Business Initiative(NBI) SA Chamber of Business Business Leadership SA Chamber of Mines
Local government	Ms Patience Nyakane-Maluka (chair)	Cooperative Governance and Traditional Affairs Human Settlements	SA Local Govt Assoc (SALGA) Local Chambers of Business in each city
Forestry	Ms Patricia Mothibi	Trade and Industry (Pulp & Paper industry) Agriculture	Forestry SA

Table 2: Composition of the Incomati CMA (ICMA) Board in 2005
Source: (Dent, 2005)

Participating in such an arena, as a means to enhance, CEA would enhance the DAEA"s capacity to make informed decisions as such engagement would give the DAEA access to a wealth of information, resources and perspectives of local level role-players. It is therefore necessary, in accordance with the scope of this study to understand how participation, with the DWA in the CMA engagement arena would

influence he DAEA‟s ability to address the cumulative effects of development. In addition the dynamics surrounding participation, which forms the cornerstone for addressing CEA, needs to be explored in more detail.

2.10 Stakeholder Participation

Addressing the Cumulative impacts associated with multiple human actions plays a major role in achieving environmental sustainability (Canter and Ross, 2008). A potential solution, as previously indicated, is for the DAEA to engage in and reap the benefits from ongoing and effective participation between themselves, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space (Canter and Ross, 2008). It is therefore necessary to investigate and understand the general dynamics associated with stakeholder participation.

2.10.1: The dynamics of participation

Limited successes within development fields, coupled with the influence of humanist movements, during the late 1960s and early 1970s, led to the endorsement by many organisations, of the people powered approach (Mohan, 2001).The basic philosophy of the people driven approach suggests that by participating people have the power to shape their own lives (Jennings, 2000). This philosophy has, since its conception, had an ever- increasing influence on many aspects of western culture (Jennings, 2000) and has been the driving force behind creating a platform for people to, through participating, express their needs (Mohan, 2001).

Initially, as part of the humanist movement, participation predominantly featured within social and community based agendas often in the form of self- help groups or social movements (Gaventa and Valderrama, 1999). More recently participation has been embraced as a means for stakeholders to influence decisions that affect their lives (Mohan, 2001).This philosophy has, over time filtered into political and other agendas in the form of good governance and or good practise (Mohan, 2001). A common tendency amongst authors is to describe participation in terms of its application to the different spheres of society (Sidorenko, 2006). The World Bank divides the different spheres of participation into household, economic, social-cultural

and political (Mohan and Giles, 2001). Gaventa and Valderrama, discuss participation from a social, project and political aspect (Gaventa and Valderrama, 1999). Aside from the many forms and application methodologies there is some agreement that participation is ultimately about the power that stakeholders achieve, through participating, to influence decisions which affect their lives (Appelstrand, 2000). Attempts to define participation can be fraught with ambiguity as the impact that participation achieves often depends on the associated applications (Jennings, 2000). The World Bank defines participation as, the" *process through which stakeholder"s influence and share control over Development initiatives and the decisions and resources which affect them*" (World Bank, 1995, p11).According to (Mohan, 2001)*the German agency GTZ, defined participation as "co-determination and power sharing throughout the...programme cycle*" (1991: 5, cited in Nelson and Wright, 1995: p4). Similarly Jennings (2000, p13) describes participation "*as the involvement by local populations in the creation, content and conduct of a program or policy designed to change their lives".* Despite the many definitions, participation is basically the *"process of taking part in different spheres of societal life: political, economic, social, cultural and others" (Sidorenko, 2006, p32).*

Although conceptually applauded as a means to include all stakeholders in the decision making processes, (Mohan, 2001) the evolving theory behind the participatory approach is often laden with social and political ideologies which has led to a myriad of interpretations (Lawrence, 2006). Thus participation can vary in degree, can be long or short term and range from all stakeholders playing a fundamental role in decision making to the gathering of local knowledge for design of projects off site (Jennings, 2000). Consequently the analysis and application of the participatory approach is often based on the understanding of the different interpretations and the contexts within which participation is used (Reed, 2008). This has led to a number of typologies being developed around different aspects of participation theory. Early typologies were based on the degree of participation in the form of a ladder or wheel metaphor (Reed, 2008).

In the paper "*A ladder of citizen participation*", by (Arnstein, 1969), participation is referred to as "*the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately*

included in the future" (Arnstein, 1969, p120). Arnstein"s research categorises participation based on the notion that, the more effective the degree of participation becomes the greater the power stakeholders have to influence decision making (Arnstein, 1969).

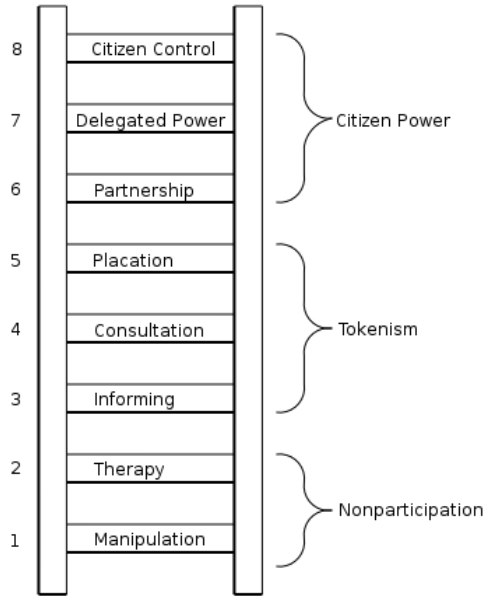

Figure 3 from "*A ladder of citizen participation*", by (Arnstein, 1969)

As shown in figure 3 above, Arnstein refers to eight levels of participation. The first two being Manipulation and Therapy, designed to give the illusion of involvement, but usually a means for power holders to gain acceptance from a public relations prospective (Beder, 1999).According to Arnstein the first two levels enable "*power holders to 'educate' or 'cure' the participants*"(Arnstein, 1969, p125). The next three levels, Informing, consultation and placation, deemed as tokenism, allows participants to "hear and be heard" without the power to effect lasting change (Arnstein, 1969). The last three levels Partnership, Delegated Power and Citizen Control, are defined by many authors as empowering rather than consultative (Lawrence, 2006). At these three levels participants have the power to actually influence decision making and effect lasting change (Arnstein, 1969). Even by modern standards, Arnstein"s ladder metaphor still remains a valid emphasis of the differing degrees of engagement (Reed, 2008).

While some typologies have focused on the degree, others have focused on other aspects of participation theory. For example Rowe and Frewer (2000) have focused on the nature of participation by analysing the communication flow between participants (Rowe and Frewer, 2000). According to this typology the sharing and gathering of information amongst participants is seen as two way communication which equates to negotiated participation (Rowe and Frewer, 2000). Others however would argue that this typology is merely the power holders recognising the value of local input (Jennings, 2000). Another approach is the normative verse the pragmatic, (Reed, 2008) normative, suggesting that participants have the right to participate, while pragmatic suggests that participation should be results based (Reed, 2008). The contrast between these two forms has often been according to Thomas1993 "*conceptualised as the need for "public acceptance" versus "decision quality", or "political" versus "technical" participation*" (Thomas, 1993; cited in Reed, 2008, p16)

Although a myriad of theoretical approaches encapsulate the concept of authentic participation there is however agreement in that the application requires effective facilitation and is ultimately according to (Jennings, 2000, p2) "*driven by a belief in the importance of entrusting citizens with the responsibility to shape their own future."* Even though differing typologies provide alternative approaches to stakeholder participation, there is some consensus that, aside from the chosen approach, participation should acknowledge "the *recognition and use of local capacities"* (Jennings, 2000, p 2).This "*increases the odds that a program will be on target and its results will more likely be sustainable*" (Jennings, 2000, p 2). Regardless of its popularity the notion of participation is deemed by many experts to be burdened with limitations and often criticised for its outcomes (Lawrence, 2006). A common thread amongst authors is that participation is often a rendition of stakeholder perception and as such, means different things to different people (Mohan, 2001).Some experts even suggest that participatory processes are usually so fraught with barriers that success is seldom achieved (Webler and Tuler, 2001). Others however view participation as a necessary mechanism that forces decision makers to consider alternative approaches based on democratic principles (Webler and Tuler, 2001).

Many authors tend to focus on the theoretical limitations of the process however, according to (Lawrence, 2006, p2) "*Those who attempt to assess participatory projects complain that it is difficult to compare such a diverse range of activities motivated by diverse objectives"*. This highlights an additional concept which relates to the issue of whether stakeholders are able to effectively participate (Mohan, 2001). In the development of a participatory diagnostic tool for achieving better participation in local government, Lowndes and Pratchett (2006), argue that participation is most effective when stake holders*" have the resources and knowledge to participate, have a sense of attachment that reinforces participation, are provided with the opportunity for participation, are mobilized through public agencies and civic channels and see evidence that their views have been considered"* (Lowndes and Pratchett, 2006, p1). Although there are numerous cases, highlighted within existing bodies of academic literature, that illustrate the limitations, participation(Lowndes and Pratchett, 2006) has achieved widespread acceptance and continues to influence decision making within many significant organisations (Kapoor, 2004). The challenge however according to many experts is to cement the gap between the theory and the actual application (Lawrence, 2006).

Though many factors play a role in the dynamics of effective participation, experts agree, that the long used top down approach to decision making often fails to provide the required degree of holism by excluding the significance of local knowledge and perspectives in the decision making process (Mohan, 2001). This has led to organisations adopting participation as part of their management policy as the advantages of adopting a participatory approach effectively outweigh the disadvantages (Lawrence, 2006). Although seen by many as a goal in its own right (Jennings, 2000), approaches to stakeholder participation have progressed through time and continue to be associated with harbouring trust, building capacity, creating mutual understanding and empowering people (Jennings, 2000).

2.10.2: Participation and Environmental Management

Having explored the dynamics of stakeholder participation in general it is now necessary to give a brief overview of stakeholder participation from an environmental

management perspective. The need for an interactive, collaborative approach to addressing environmental issues has become, over time, recognised as an integral part of sustainable natural resource management (Wenner, 2000).Having evolved, since its conception, there has been an ever increasing demand for stakeholder participation in decision making (Richards et al., 2004). Whilst often focusing on social issues, the concept of what participation can achieve, has increasingly been sought after and imbedded into all spheres of society (Richards et al., 2004).

Since it first gained currency in humanist movements the 1960s, participation (Jennings, 2000) has been lauded for its people first approach which has, over the last fifty years, underpinned the philosophies of many relief and development organizations (Jennings, 2000). Advocated in the 1970s as Participatory Action Research by many free radicals participation began to take root within the field of development (Mohan, 2001). Initially participation served as a means to acknowledging the value of local input into projects in the 1980s (Reed, 2008). Currently however participation is "*increasingly becoming regarded as a democratic right"*(Reed, 2008, p5)within the sustainable development agenda (Mohan, 2001).With growing concerns over environmental degradation, participation, often viewed by environmental and social pressure groups as the panacea to people empowerment, began playing a more influential role in environmental decision making (Reed, 2008). For example some experts suggest that decision making based on public reflection ensures more holistic thinking with regards to environmental complexities (Van den Hove, 2000; Reed, 2008). Problems associated with managing the environment tend to be complex, uncertain, and span both space and time (Richards et al., 2004). According to (Reed, 2008, p6) environmental management," *demands transparent decision-making that is flexible to changing circumstances, and embraces a diversity of knowledges and values*." This in many cases is the reasoning behind promoting participation, as the solutions to complex problems require a multifaceted approach rather than a one dimensional solution (De Marchi and Ravetz, 2000). Richards, et al (2004, p11) reinforces this idea by suggesting that "*often solutions to cross-cutting and complex environmental problems cannot be solved through technology or scientific expertise alone, but require the active cooperation of different stakeholders. From such a perspective, participation is central to environmental decision-making."* The many benefits derived

from stakeholder participation, although often shrouded in contention, have become synonymous with facilitating a more holistic approach (Renard and Krishnarayan, 2000).

Coupled with policy trends promoting sustainability, participation has gathered momentum over the last few decades achieving widespread acceptance especially within the field of environmental management (Richards et al., 2004).This is based on the belief that not only do stakeholders have a fundamental right to be included in decisions effecting their lives (Morse et al., 2010), but including multiple perspectives" *within a process of change can help make that change better"* (Morse et al., 2010, p60). Currently organisations either have, or are attempting to adopt a participatory approach as part of their policy (Kapoor, 2004).Undeniably there are limitations, and authors argue that the actual practise of participation is often laden with challenges (Kessler, 2004) which in many cases leads to disillusionment amongst participants (Reed, 2008).Experts also however argue that the benefits of what the participatory approach is capable of achieving has, in many instances, been the driving force behind countries including participation as part of policy in environmental management (Reed, 2008).

2.10.3 Relevant Participants

Understanding the dynamics surrounding participation is necessary in adopting participation between the DAEA, the DWA in the CMA engagement forums, as a potential approach to assessing the cumulative effects of development. It is however also necessary to have an insight into those doing the participating, namely the stakeholders, and their legitimacy to the role (Phillips, 2004). The term stakeholder was initially associated with the law and referred to a party or person who held an item of value while its owner was being determined (Weaver, 2009). Within the betting world a stakeholder referred to those with a stake in a wager (Weaver, 2009).The term also referred to literally claiming ownership, by demarcating boundaries with wooden stakes (Weaver, 2009). However described the term stakeholder implies involvement through association (Friedmen and Miles, 2006)

The idea of the modern stakeholder was thought to be associated with changing business environments which forced the development of management strategies, based on the argument that all relevant parties needed to be considered in organisational objectives (Hitt et al., 2001). Developed in the 1960s and becoming popular in the mid1980s, (Hitt et al., 2001) in the field of strategic management, the concept of stakeholders in the business context refers to "*any group or individual who can affect or is affected by the achievement of the organisations objectives"* (Freeman, 1984, p46). This interpretation, while, being widely accepted, (Morse et al., 2010) is seemingly broad as it implies that any individual and or organisation with concerns, despite their legitimacy, are considered a stakeholder (Morse et al., 2010). Arguably the inclusion of all parties affected by a process of change has raised some contentious issues concerning the legitimacy of stakeholders (Phillips, 2004). Some authors argue that minimally stakeholders should be those entities that the organisation has derived benefit from and thus incurred obligations to (Phillips, 2004). Others tend to view a broader perspective by referring to groups of like-minded people who have a common agenda influenced by organisational objectives (Morse et al., 2010).

Another historical issue of contention is representation (Phillips, 2004). Many experts agree that, the multitude of diverse perspectives presented by stakeholders is often impossible to include and they argue over how stakeholders should be prioritised (Morse et al., 2010). Some suggest that stakeholders to whom the organisation has obligations be considered a priority whilst others suggest that those with a legitimate influence take precedence (Phillips, 2004). Even if there is much debate about the question "of who is, and who is not, a stakeholder" (Phillips, 2004) and how they should be prioritised the inclusion of stakeholders has become regarded as desirable, and often forms part of organisational policy (Morse et al., 2010).

2.10.4 The nature of participation in South Africa

As the central theme of this study revolves around participation as a means to enhance CEA it is therefore necessary to explore the concept of participation in relation to the South African context, in particular local government. The concept of public participation has begun to receive ever increasing attention from all sectors

since the birth of the new South African democracy in 1994 (Buccus, 2011). There has also been an acknowledgement from a host of sectors that public participation in governance, although constitutionally advocated, tends to be poor (Buccus, 2011). There have been questions raised as to whether existing policies and processes, especially at local level, have made provision for effective public participation in governance (Buccus, 2011).

According to Narsiah, (2011, p91) "*There is a strong link between decentralisation as a form of institutional governance and community engagement and participation. The popular perception is that decentralisation increases public participation and by implication, accountability by bringing government closer to the people."* Currently South Africa tends towards a centralised techno-bureaucratic regime which seldom facilitates public participation at local level (Narsiah, 2011). This is especially evident in the field of development where local input is minimal and in most cases leans towards being consultative (Narsiah, 2011). According to Narsiah, (2011, p92) "*What becomes apparent is that the local citizenry have little control over developmental decisions and the development process as a whole".* While this may be the case local government has the potential, through adhering to the central governments participatory policies, to ensure participation by local communities is included in their development agenda (Narsiah, 2011). As discussed previously in this chapter it is more likely that the involvement of the local communities provides professionals with a greater degree of holism for the decision making process (Reed, 2008). For example (Fung and Wright, 2003 in Narsaih, 2011) "*suggest that local problems may be more effectively solved by local citizens living and experiencing local conditions than by experts narrowly trained in providing technical solutions to problems."* As, Narsaih also implies, local involvement in development projects also ensures immediate accountability and allows for decision making based on local knowledge and experience (Narsiah, 2011). The current status of public participation may be poor however, as previously discussed in this chapter; participation in development, especially at local level, definitely has the potential to enhance the decision making process (Buccus, 2011). Public participation in development, as is evident from a review of the literature, does have its fair share of problems and it is therefore necessary to understand the justification for adopting the participatory approach.

2.10.5 Justification for adopting the participatory approach

In the context of addressing the cumulative effects of development it could be argued that a key step towards success is addressing the complexity of the process (DEAT, 2004). Thus one of the better arguments for the justification of including stakeholders in environmental decision making is portrayed in the quote "*With involvement comes understanding, with understanding comes public support and commitment"(*Kaza, 1988 cited in Kessler, 2004, p17).This statement in essence depicts the driving philosophy behind stakeholder involvement in environmental management which, over the decades, has become increasingly popular (Kessler, 2004). According to (De Marchi and Ravetz, 2000, p6),"*there are now international treaties, conventions and agreements that promote public participation in environmental decisions establishing principles and/or guidelines for their implementation".*
The practice of including stakeholders has generated a wealth of associated literature depicting the many benefits to both democracy and decision making (Ashford and Rest, 1999). Experts, endorsing the process, agree that including stakeholders is not only necessary in decision making but a common vein of thought is that stakeholder participation is essential to validating and maintaining democratic values (Ashford and Rest, 1999). According to Renn "*public participation is seen as both morally and functionally integral to such fundamental democratic values as political equality, legitimacy and accountability of government, and social responsibility among citizens* "(Renn et al., 1995, p12). In this context it is often accepted that participation by stakeholders has a beneficial influence to both decision making and democracy which frequently forms the theoretical basis for its inclusion. Ashford and Rest, 1999, for example, suggest that at the very least, stakeholder participation allows for effected parties to be included in the decision making process (Ashford and Rest, 1999). This increases the chances of organisational accountability, creates platforms for individual"s to acquire knowledge, influences decision making and provides democratic stability (Ashford and Rest, 1999). Reed 2008 elaborates from a normative and pragmatic perspective suggesting that normatively "*including stakeholders reduces the likelihood that those on the periphery of the decision-making context or society are marginalised. In this way, more relevant stakeholders can be included in decisions that affect them and*

active citizenship can be promoted, with benefits for wider society" (Reed, 2008, p11). From a pragmatic view point Reed 2008 suggests that "*participation enables interventions and technologies to be better adapted to local socio-cultural and environmental conditions. This may enhance their rate of adoption and diffusion among target groups, and their capacity to meet local needs and priorities*" (Reed, 2008, p11). There is some agreement amongst experts that, coupled with the many theoretical rationales for including stakeholders are certain functional traits (Ashford and Rest, 1999) which have been commended for, amongst other things, enhanced environmental decision making (Beierle and Cayford, 2002). Ashford and Rest for example suggest that, from a functional point of view stakeholder participation, among other things ensures the inclusion of local knowledge, creates public trust, acts as a peer review to government and ensures socially acceptable decision making (Ashford and Rest, 1999). From a similar perspective (Richards et al., 2004,p17).argues that "*stakeholder participation may increase the likelihood that environmental decisions are perceived to be holistic and fair, accounting for a diversity of values and needs and recognising the complexity of human-environmental interactions."* Reed 2008 elaborates by implying that one of the more important functional traits is the promotion of social learning which is where trust, knowledge sharing and understanding multiple viewpoints is a direct result of the lasting relationships forged amongst participants (Reed, 2008).

South Africa has also recognised the value of adopting a participatory approach to environmental management and adopted philosophies such as IEM (DEAT, 2004). In addition agencies responsible for specific resources, such as the DWA, have adopted, based on the attributes of participation, processes such as IWRM to ensure an integrated approach is applied (DWAF, 2001). South Africa has further endorsed the participatory approach to environmental management by developing extensive guidelines on how IEM and other participatory approaches should be applied (DEAT, 2004).There are many ensuing arguments, surrounding the theory and practise of including stakeholders. The majority of experts however concur that participation is ultimately the process" *that facilitates dialogue among all actors, mobilises and validates popular knowledge and skills, supports communities and their institutions to manage and control resources, and seeks to achieve sustainability, economic equity*

and social justice while maintaining cultural integrity "(Renard and Krishnarayan, 2000, p3). Clearly it is these benefits, accountable for the widespread acceptance, that have to a large extent been justification for stakeholder participation becoming entrenched into environmental policy at all levels (Reed, 2008).

2.11 Barriers to participation

According to the United Nations Development Programme(UNDP) "*People today have an urge - an impatient urge - to participate in the events and processes that shape their lives, and that impatience brings many dangers and opportunities*" (UNDP, 1993,p1). Illustrating the urge people have to be included in processes that affect them, this statement acknowledges that, although sought after, stakeholder participation arguably is a process that can be encumbered with dilemmas and issues (Gaventa and Valderrama, 1999).

Participation as a process is subject to the many social and institutional processes and practises, which in their own right have limitations that influence the many expectations associated with what participation is deemed to be capable of achieving (Wenner, 2000). Countless bodies of literature have irrefutably recognized the potential benefits of including stakeholders, (Bartlett and Craig,2002) however despite the current enthusiasm for participation, experts agree that issues, preventing effective engagement amongst participants, arise during actual practice (Reed, 2008). Experts also agree that including stakeholders does not necessarily ensure success (Kessler, 2004). Some attempts at evaluating participatory methods have been made however theses were fraught with their own dilemmas (Rowe and Frewer, 2000) as the process rather than its influence tended to be evaluated (De Marchi and Ravetz, 2000). This was further complicated by limited criteria upon which to base such evaluations. De Marchi and Ravetz (2000:p5) for example suggest that" *in general, theoretical systematisation is still in its infancy and criteria for evaluation of performance are poorly developed*."There has however been a leaning towards improving performance evaluation by including stakeholders and allowing them to take part in the development of the framework upon which such evaluations are based (Rice and Franceschini, 2007).

Issues pertaining to effective engagement are often described using the barrier metaphor (Gorard and Smith, 2006). A barrier is a hindrance and or disruption to the process of participation which lessens stakeholder representation, thus diminishing the democratic validity of the process (Kessler, 2004). For example if participating is costly than it is more likely that stakeholders from the lower income groups will have lower rates of participation, hence making cost a barrier (Gorard and Smith, 2006). The barrier metaphor does however provide its own solution (Gorard and Smith, 2006) as removing or marginalising the barriers, deemed vital by experts, would in theory lead to more effective engagement (Gaventa and Valderrama, 1999).

Although any number of factors and or circumstances, could constitute a barrier to the individual stakeholder, (Gorard and Smith, 2006) there are some key elements, emphasised in existing literature, that can hinder stakeholder participation (Reed, 2008). One of the more sought after outcomes of participation is stakeholder empowerment (Reed, 2008; Gaventa and Valderrama, 1999; Kessler, 2004). Gaventa and Valderrama (1999: p5) argue that barriers to empowerment are predominantly political in nature as *"the control of the structure and processes for participation - defining spaces, actors, agendas, procedures - is usually in the hands governmental institutions ." W*enner (2000:p9) suggests that politically orientated barriers may also arise due to the "*limits related to the cultural or institutional - including regulative and ownership - context which may or may not be favourable to participatory approaches."*

There has been some consensus over political barriers however other experts suggest that many of the more influential barriers to participation arise from more social concerns such as cost, lack of information and motivating participants to engage (Wenner, 2000). Richards et al., 2004 for example suggests that barriers are regularly linked to the participant's ability to participate. In a similar vein Reed, 2008 elaborates by highlighting a number of key areas that have the potential to cultivate barriers when applying stakeholder participation. Reed suggests that, maintaining the underpinning philosophy of empowerment, the financial and resource implications, institutional and governmental procedures and the capability of the participants to engage need to be considered (Reed, 2008). Although expressed

differently other experts follow a similar trend by implying that barriers, preventing empowerment through participation, often arise due to political, economic and social issues (Gaventa and Valderrama, 1999; Reed, 2008; Long and Beierle, 1999). Barriers to participation are depicted in countless documents across a broad spectrum of disciplines and there seems to be a general agreement that each situation presents its own uniqueness. The South African situation is no different as participatory processes are frequently hindered by generic and unique sets of barriers that need to be addressed to ensure successful participation (Reed, 2008). This study however revolves around participation within the context of environmental management, namely participation of the DAEA, in the CMA engagement space and it is therefore necessary to scrutinise the relevant barriers in more detail.

2.11.1 Barriers to participation in environmental management

Irrespective of the wealth of relevant literature ,methodologies and guidelines on participatory processes, (Richards et al., 2004) there seems to be a certain amount of scepticism amongst practitioners and stakeholders alike as to the successes attributed to current approaches (Richards et al., 2004; Reed 2008). As previously discussed environmental decisions, especially those associated with the cumulative effects of development can be complex and governments worldwide have acknowledged that achieving results frequently requires a collaborative effort form numerous private and public entities (Richards et al., 2004; Reed 2008). In South Africa the agency primarily responsible for assessing the effects of development, the DEA has acknowledged this by adopting IEM with regards to natural resource management (DEAT, 2004). Recognising the need for participation has, in many instances, led to participation becoming embedded into all environmental policies and procedures as a mandatory part of the process (Kessler, 2004). Including stakeholders in environmental decision making may be beneficial, however experts agree that this is not a given as barriers to participation often arise when theory is translated into practise (Richards et al., 2004; Reed, 2008; Thomas and Seth, 2001).

Barriers to participation may be complex, stemming from key, political, economic and social issues (Gaventa and Valderrama, 1999; Reed, 2008; Long and Beierle, 1999*)*

or they may be as basic as inconvenient timing. While almost any negative influence may be deemed a barrier experts have however implied that many of the more prominent barriers to participation in environmental management, frequently relate to agency control, (Gaventa and Valderrama; Richards et al., 2004; Long and Beierle, 1999). Stakeholders are regularly faced with insurmountable barriers relating to policy and procedural requirements, despite agencies advocating participation (Long and Beierle, 1999). This is especially the case in South Africa where procedural requirements tend to hinder the more informal approach required at local levels, thus diminishing participation as stakeholders adopt a nonchalant attitude (Long and Beierle, 1999). This can and often does result in experts failing to acquire and incorporate sufficient local knowledge into the decision making process (De Marchi and Ravetz, 2000). Added to this is the dilemma of ethical obligation to the environment verses the democratic right to participate. Experts argue that participation does not necessarily empower but can serve as a means to support previously made decisions under the facade of democracy (Cooke and Kothari, 2001). Thus effective participation may not be achieved (Richards et al., 2004) as the reluctance of government agencies to relinquish control, (Long and Beierle, 1999) often results in tokenism, where participants are given no real power to effect lasting change (Arnstein, 1969).Experts support both arguments. For example Phillips 2004 argues for the principles of democracy in that organisations are morally obligated to include stakeholders as participation is a democratic right, (Phillips, 2004). According to (Richards, et al, 2004:p8) however environmental problems are usually, "*complex, large scale and irreversible*, *it may not be possible to give free rein to participants to determine environmental decisions".* Another point of significant concern is the uncertainties relating to the spatial and temporal scale of environmental problems, which frequently results in insufficient resources being assigned to the participatory process (Gaventa and Valderrama, Richards et al., 2004; Long and Beierle, 1999; Reed, 2008). Authors agree that failure can and often is attributed to a lack of resources which (Richards et al., 2004:p9) reinforces by suggesting that "*It is often difficult to determine a budget fully in advance, as the iterative and potentially open-ended nature of a process requires sufficient time and support until a natural end-point is reached*." Participation is further complicated by conflict, which some experts argue is not always possible to solve as environmental protection policy has certain non negotiable statutory requirements which may

conflict with the ideals of other relevant parties (Richards et al., 2004). Kessler (2004: p6) however suggests that unresolved conflict amongst stakeholders should be managed as it has a direct influence on "*delays in decision making, increased expenses, tension among stakeholder groups, and lack of consensus."*

Another important aspect to consider is the attitude and mindset of participants towards the participatory process. In many cases stakeholders fail to identify with the many benefits of participation as they have a poor mental attitude towards the process which can act as a significant barrier (Reed, 2008). This may stem from some of the many political issues, such as agencies being unwilling to relinquish control, or from experience with previously unsuccessful attempts at participation (Gaventa and Valderrama, 1999; Richards et al., 2004; Long and Beierle, 1999; Reed, 2008). A poor mental outlook towards participation is especially evident in South Africa, as being a new democracy, the issue of trust plays a significant role (DEAT, 2004).There are many factors that influence stakeholder"s attitude towards participation and experts concur that theses need to be considered to ensure a positive attitude is maintained during the process (Long and Beierle, 1999, Reed, 2008). Despite a host of influential factors being deemed as barriers, practitioners have conceded that many of the more prominent concerns arise from issues affecting the controlling agency"s ability to facilitate participation between themselves and other relevant parties (Gaventa and Valderrama, 1999; Richards, et al., 2004; Long and Beierle, 1999; Reed, 2008). As the inherent theme of this study revolves around participation as a means to address the cumulative effects of development it is necessary to explore the associated barriers in more detail.

2.11.2 Barriers to Interagency participation

Engagement between responsible agencies has become increasingly sought after as a means to achieve results in environmental decision making (Reed, 2008). The onus of initiating and maintaining effective engagement amongst the relevant agencies does however have a tendency to rest with controlling agency (Richards et al., 2004). Irrespective of the best intentions and being mandated by policy to adopt a participatory approach, participation does not necessarily run a smooth course and success is far from guaranteed (Richards et al., 2004). In many instances barriers to

interagency participation are attributed to financial constraints (Richards et al., 2004) emerging from a lack of adequate financial resources being assigned to the participatory process (Richards et al., 2004). Participatory approaches to environmental decisions can be costly, time consuming and open-ended (Reed, 2008). A lack of sufficient budgetary requirements to facilitate the process in terms of money, time and sufficient staffing does have a tendency to poses a significant threat(Richards et al., 2004).This is especially the case in developing countries, like South Africa, where the availability of resources is limited and (Reed, 2008) it may, for example, be less costly for the controlling agency to make an informed decision rather than to engage in a drawn out resource consuming process(Long and Beierle, 1999).This is one of the more common concerns in South Africa as the limited successes associated with participation in environmental management are often attributed to a lack of resources and funding (DEAT, 2004). In first world countries financial barriers do not always take the forefront as other factors are deemed more important in lieu of adequate resources being assigned to the process. For example in the research on barriers to interagency participation, conducted by United States General Accounting Office and sanctioned by Committee on Governmental Affairs, researchers found conflicting mission statements and overlapping programs to be a common cause for concern in attempts at interagency participation (General Accounting Office, 2000).

Natural resource management has many components managed by different agencies each with their own agendas bounded by various laws (General Accounting Office, 2000). Those in power are usually reluctant to relinquish control, (Long and Beierle, 1999) which can be a noteworthy hurdle, if the less influential stakeholders are coerced into validating decisions predetermined by the controlling agency (Renard and Krishnarayan 2000).This is quite common in South Africa where agencies tend to be extremely protective over their own interests and are reluctant to relinquish control or share information and resources. Conflict tends to arise among some agencies (Long and Beierle, 1999) while others, in an attempt to avoiding conflict, may adopt a nonchalant attitude thus reinforcing the lead agencies status quo (Long and Beierle, 1999).

Internal organisational culture may also pose as a threat to participation as according to (Richards et al., 2004:p14)" *while the individual may be committed to delivering its outcomes, key senior-level decision-makers within the organisation may not be."*Other areas of concern relate to the differences in organisational structure and operational procedures amongst the various responsible agencies (General Accounting Office, 2000). For example interaction amongst agencies may be hindered by barriers that tend to arise as agencies attempt to adopt a participatory approach in the face of conflicting objectives, overlapping responsibilities and an unclear chain of command (General Accounting Office, 2000). Incompatibility is a further constraint as the lack of parity amongst operational processes and procedures, computer programs and data collection systems, presents interagency participation as a complex and often daunting task (General Accounting Office, 2000). For example the United States General Accounting Office, (2000:p22) found that "*different annual operating cycles for planning processes hampered the ability of program administrators to jointly plan program efforts.*"

2.11.3 Operational factors limiting interagency participation in South Africa

In South Africa operational factors also play a significant role in limiting interagency participation. While in each participatory process their might be isolated factors, certain key areas are considered to limit the participatory processes amongst agencies. This is especially the case between the DEA and the DWA given the long history of interaction. Role demarcation during participatory processes are often poorly defined, frequently resulting in a lack of equal representation, power struggles, a blurring of professional boundaries and in some cases a poor distribution of specialist skills. Poor commitment, a lack of mutual respect and ignorance of others mandates are a very real problem during participation between the DEA and the DWA. This often leads to failure as participatory processes are poorly attended and the lack of mutual trust frequently forces agencies to promote their own agendas without considering the mandate of other agencies (Atkinson et al, 2007). Poor planning in conjunction with poor interagency communication also contributes to the failure of participatory processes between the DWA and the DEA. (Atkinson et al, 2007). Limited budgets and a lack of parity in operating processes and procedures also have a tendency to limit participation between the DWA and the

DEA (Richards et al., 2004). In addition agencies in South Africa tend to be extremely protective over their own interests and are reluctant to relinquish control or share information and resources (DEAT, 2004). This is especially the case for participation as a means to enhance CEA as the DEA are often reluctant to relinquish their role as the controlling agency (Atkinson et al, 2007).This has resulted in a history of conflict between the DEA and the DWA which further hinders participatory processes. Having discussed certain scenarios relating to hindering interagency participation, it must however be acknowledged that despite the many barriers, practitioners do agree that the benefits of what participation may achieve effectively outweighs the barriers to the process (Gaventa and Valderrama, 1999; Richards et al., 2004; Long and Beierle, 1999; Reed, 2008; Renard and Krishnarayan, 2000).

2.12 Initiatives

Having explored barriers to effective participation it is now necessary to have an understanding of the potential initiatives that may be applied to enhance the participatory process in addressing the cumulative effects of development by overcoming or marginalising the barriers (Baker et al., 2006). The term initiative can loosely be described as the action of starting and energetically promoting a process (Baker et al., 2006). Initiatives can also describe as plans, responses, or proposals formulated to mitigate problems or improve the functioning of existing systems (Kennedy and Greene, 1996). Initiatives are also referred to as established mechanisms designed to have an influence through action (Baker et al., 2006). Initiatives are generally designed to have a positive influence and while they can be almost any influential action, voluntary or mandated it should however be noted that stemming from different origins, with different purposes, they have varying degrees of influence (Kennedy and Greene, 1996). For the purpose of this study initiatives refer to the potential innovative initiated actions designed to overcome the barriers to the DAEA participating with the DWA in the CMA engagement space as a means to assess CEA.

2.12.1 Initiatives for Participation

It has been well documented throughout the literature that participation in decision making has become accepted and promoted as good operational practise (Baker et al., 2006). This sentiment is echoed in many fields of expertise with the participatory approach becoming part of governmental policy (Gaventa and Valderrama, 1999) and being mandated by copious governmental and private organisations(Reed, 2008). An abundance of theory illustrating models and methods for adopting participation are prevalent within the existing literature (Richards et al., 2004). One of the better known being Arnstein"s ladder of participation. It is however important to acknowledge that despite decades of experience with engagement and the availability of numerous approaches and methods (Arnstein, 1969) practitioners are still face with a series of barriers when translating the theoretical into practise (Reed, 2008).

Studies of participatory literature in the recent past have revealed some attempts at innovation, however for the most part innovation seems to be scarce (Baker et al., 2006) as practitioners continually embrace existing theoretical approaches with varying degrees of success (Baker et al., 2006). The ensuing disillusionment (Reed, 2008) has largely been responsible for underpinning the drive towards more innovative and creative approaches, in the form of initiatives being developed, as a means to overcome barriers to participatory process, albeit in some cases using less than formal techniques (Baker et al., 2006). Experts have acknowledged that while any endeavour at improving participation may be considered an initiative, participation is ongoing and continually evolving and as such initiatives aimed at improving the effectiveness of the process need to be capable of evolving at the same pace (De Marchi and Ravetz, 2000).

Some experts suggest that initiatives should be objective based, taking cognisance of good participatory practise, while relating to the circumstances in which they are applied (Reed, 2008; Baker et al., 2006; Kennedy and Greene, 1996). Baker et al.,(2006: p4) for example suggests that "*One of the most crucial considerations in achieving more successful participation is the choice of methods to be employed. The starting point for such a consideration needs to be recognition of the overall*

objectives of the participatory process". Current trends have seen a paradigm shift in participatory initiatives as many experts, rather than adopting existing approaches, base their methodologies on principles of best practise derived from lessons learned from previous failures (Reed, 2008). For example in developing initiatives for participatory evaluation Rice and Franceschini, 2007 found that focusing on continuous learning and understanding local contexts rather than judging the successes of the interventions led to evaluation becoming part of the participatory process. This resulted in stakeholders being involved in all phases of the process including the evaluation (Rice and Franceschini 2007). Reed (2008: p9) suggests that in addition to including stakeholders and learning from passed experiences, initiatives at better participation "*needs to be underpinned by an appropriate philosophy, and consider how to engage the relevant stakeholders, at the most appropriate time and in a manner that will enable them to fairly and effectively shape environmental decisions."* Another common view is that initiatives at better participation be the consequence of using a combination of the best features from multiple techniques to ensure that the desired objectives are achieved (De Marchi and Ravetz, 2000). It must however be noted that whichever method is chosen, "*defining a shared problem and seeking a collective solution provides scope for creative thinking, and the identification of alternative solutions".* (De Marchi and Ravetz 2000: p21)

2.12.2 Initiatives for participation in environmental management

A main objective of this study is to identify any potential initiatives that could be used to overcome barriers to a participatory approach involving DAEA and DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA. It is therefore necessary to explore the methods and approaches used to develop initiatives for better participation from an environmental management perspective. One of the more valuable initiatives at encouraging participation in environmental decision making over the decades has been its inclusion into environmental policy (Richards et al., 2004). Based on the philosophy that environmental decisions cannot be effectively evaluated by a one dimensional approach, participation has become imbedded into environmental policy and been advocated as an extension of the democratic process (De Marchi and Ravetz, 2000).

Despite being mandated by policy, evidence suggests that participatory experiences over the decades have been far from flawless (Reed, 2008) and a current premise running through the literature is that participatory endeavours need to be improved (Richards et al., 2004). As discussed South Africa has also acknowledged this need with the DEA implying, in the 2004 series guidelines to IEM, that participation in environmental decision making needs to be improved and promoted amongst the relevant agencies (DEAT, 2004). In the environmental arena participation has evolved over the decades resulting in the development of a wide range of participatory methods and approaches that may be employed, (Richards, et al, 2004). As previously discussed, although many options may be available, experts and practitioners alike are often faced with a myriad of barriers limiting effectiveness (Kessler, 2004).

Participation may have limitations however experts agree that it is ultimately about the importance of the role that participatory approaches can play in achieving higher quality environmental decisions (Reed, 2008). It is therefore necessary to understand how potential initiatives at improving participation may provide the opportunity to overcome barriers hindering the process (Reed, 2008). Experts have acknowledged that there is no one approach or method that may be applied, rather there are numerous methods and techniques that may be adopted to strengthen participation (Gaventa andValderrama, 1999).There is some agreement however that the very scope of what participation is endeavouring to achieve lends itself to creativity and adaptability (Richards et al., 2004). For example De Marchi and Ravetz, (2000) argue that participation allows for creativity and the evaluation and re-evaluation of solutions from broader perspectives while enhancing both the decision making and the democratic process (De Marchi and Ravetz, 2000). Many initiatives at better participation, sanctioning various principles, have been developed over the decades (Gaventa andValderrama, 1999). Experts however concur that, despite the many approaches and methods to participation outlined in literature, initiatives at better participation cannot be grounded to a simple solution (Rice and Franceschini, 2007, Richards et al., 2004, Reed, 2008).

In the wake of varying degrees of success, initiatives at participation have to a large extent resulted in disillusionment as the benefits associated with what participation

should achieve frequently fail to materialise (Rice and Franceschini, 2007; Richards et al., 2004; Reed, 2008). In light of this experts have acknowledged that there is room for enhancement and a review of the relevant literature has uncovered a number of noteworthy attempts at initiatives for better participation, each with their own strengths and weaknesses (Gaventa and Valderrama, 1999; Richards et al., 2004; Reed, 2008). Some experts for example have suggested that initiatives be based on the outcomes of process goals (De Marchi and Ravetz, 2000). Richards (2004: p6) however argues "*If goals include resolving conflict and building trust, then utilizing information sharing mechanisms alone may not be sufficient".* Another approach is that the chosen techniques be based on an underpinning philosophy that emphasises amongst other things empowerment, respect, trust and capacity building (Richards et al., 2004; Reed, 2008). Gaventa and Valderrama (1999) add to this by suggesting that in conjunction with underpinning philosophies initiatives at improving participation need to be sensitive to the context in which they are applied (Gaventa and Valderrama, 1999). For example some experts suggest that significant factors such as the skill of the facilitator, the availability of resources, and the aims of the process be considered when designing initiatives (Reed, 2008; Baker et al., 2006; De Marchi and Ravetz, 2000). In addition to this Richards,et al, (2004 :p11) "*suggests that methods should be tailored to the specific context, especially the level of engagement required"*. Kessler (2004) reinforces this by implying that participation in decision making takes place along a continuum with varying degrees of involvement and initiatives need to be suitably adaptable(Kessler,2004).

A recent trend has seen a shift towards developing participatory initiatives around key elements of good practise that have emerged from participatory processes and lessons learnt from past failures (Reed, 2008). This approach has generated some contention over what constitutes good practise however according to Reed, (2008: p19) "a *review of the literature shows that a broad consensus over key features of best practice is emerging from "post-participation" disillusionment."*
Some disagreement still exists over which factors to consider, however there is a general consensus running through the literature that initiatives be based on the principles of best practise (Reed, 2008, Kessler, 2004; Baker et al., 2006; De Marchi and Ravetz, 2000). Experts also imply that participatory endeavours continually

evolve and initiatives at improving participation should have the capacity to adapt (Reed, 2008; Kessler, 2004; Baker et al., 2006; De Marchi and Ravetz, 2000).

2.12.3 Initiatives for interagency participation

Having looked at general trends for initiatives towards improving participation from an environmental management perspective it is now necessary to explore initiatives at participation amongst agencies as this forms the bases upon which CEA may be enhanced. As discussed, participation in environmental protection has long been deemed a social entity advocated by NGO"s and other private organisations (Mohan, 2001). This, view however is rapidly changing as governments and agencies recognise the value associated with adopting a participatory approach (Mohan, 2001). The World Bank (2005: p53) for example "*recognizes that reaching out to civil society is necessary for the design and delivery of more legitimate, effective and pro-poor policies and projects".* In recognition of the need to adopt participation as an operational mandate, one of the more promising moves towards agencies engaging in solving environmental problems, in South Africa, has been the inclusion of participation as part of policy (DEAT, 2004).This seems to be a world- wide trend with numerous governmental agencies adopting participatory philosophies in management of natural resources (Reed, 2008).

Past approaches and practises are considered to be fraught with barriers leading, in many cases, to a less than successful process (Kennedy and Greene, 1996). This has been a longstanding concern, especially in South Africa, which has played a pivotal role in the emergence of philosophies such as IWRM and IEM, which in addition to being the basis of this study mandates the DAEA and the DWA to adopt an integrated approach (DEAT, 2004). As discussed in the previous chapter while there is no one approach or initiative that will guarantee success there are methods and guidelines that have been developed in the wake of participatory endeavours, that agencies may adopt in order to enhance the process (Gaventa and Valderrama, 1999). For example, Baker et al., (2006: p14) suggests that" *rather than picking a method or technique „off the peg", successful participation is likely to combine and build upon several different techniques."* Despite the many options it is necessary to acknowledge that one of the objectives of this study is to identify potential initiatives

that could be used to overcome barriers to a participatory approach between the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA.

2.13 Summary

This chapter has presented an overview of the literature relating to Cumulative Effects Assessment and its poor application. The dynamics of participation in general and from an environmental management perspective were then discussed outlining barriers and initiatives that influence the participatory process. The processes linked to IEM, IWRM and CMA‟s were also explored as potential mechanisms to enhancing the participatory process between the DAEA and DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA.
The relevance of this literature is that it creates the theoretical background to the research design which will be described in the subsequent chapter.

Chapter 3 : Research Design and Methodology

3.1.1 Introduction

The purpose of this chapter is to present the selected research approach and strategy used to ensure that the objectives of the research are met and that the techniques applied, conform to traditionally accepted research methods. A Qualitative approach was adopted which is essentially investigating and providing a descriptive narrative of a phenomenon, within the social context, from the researchers understanding and perspective (Schuurman, 1993)

The research design and methodology described in this chapter adopts a number of techniques to ensure that the various objectives of this study are achieved (Welman and Kruger, 1999). A deeper understanding of the current status of CEA and insight into the potential that participation could provide in improving the process was done by doing a critical examination of existing bodies of literature. Existing documentation in conjunction with accounts from DAEA employees was used to determine the current status of participation between the DAEA and the DWA in assessing CEA. The main measuring strategy however took the form of semi structured interviews which were conducted with employees from the local chapter of the DEA namely the DAEA. Due to the limited number of stakeholders in the area it was necessary to include the perspectives of staff from Emvelo KwaZulu Natal Wildlife, who deal with CEA under the auspices of the DAEA. A total of seven staff members from both organisations were interviewed, which although small in number, accurately reflects the number of research subjects involved in assessing the cumulative effects of development. The purpose of the interviews was to give the researcher an insight into the interviewee‟s views on participation with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA. Part of this was to understand the barriers to the process and identify any potential initiatives that could be established to overcome the barriers. The data was coded to

accurately record and generate descriptions of the phenomenon being studied while acknowledging the importance of validity and reliability.

3.1.2 The study area

This study focuses on the City of Pietermaritzburg and its surrounding areas. The area covers approximately 9000 square kilometres with the population of about one million who live in dwellings ranging from traditional farmland communities, informal rural settlements to upper income urban dwellings. The area has a rich and diverse natural environment with an abundance of natural resources (DEA, 2012). Known, as the uMgungundlovu Municipal District, the study area is considered to be a local region and is predominantly governed by local authorities. Assessing the effects of development is the responsibility of the local chapter of the DEA the DAEA who‟s staff members form the bulk of the sample population for this study. In addition to the DAEA the area has a very active chapter of Ezemvelo KZN Wildlife who in their daily operations considers the effects of development and thus form part of the sample population for this study.

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3.2Research Design

To ensure the objectives of this research were met qualitative research methods were used to gain an understanding of participation and the associated issues from the perspective of staff from the DAEA and Ezemvelo KZN Wildlife. This was necessary to understand how potential initiatives, at enhancing participation could overcome the barriers to a participatory approach between the DEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing the cumulative effects of development.

Qualitative research is a mode of inquiry that seeks to build a holistically descriptive narrative based on a researcher‟s interpretation of a social phenomenon, thus allowing the researcher to gain understanding of the said phenomenon (Myers, 1997). Qualitative methods were chosen as, in addition to being based on the

philosophy that meaning can be derived by people‟s actions (Myers, 1997), they allowed the researcher to decipher and understand a social phenomenon at a certain point in time within a particular context (Merriam, 2002). This type of approach was necessary as it facilitated the researcher‟s ability to explore and gain an understanding of the issues associated with the social act of participation, namely the DAEA participating with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing the cumulative effects of development. The purpose being, that by enlightening and understanding these issues from the DAEA and Ezemvelo KZN Wildlife perspective, better participation in addressing CEA can be facilitated.

Another common trait of qualitative enquiry, which made it suitable for this study, is that the process is inductive and data is used to build a theory about a said phenomenon, through a richly descriptive unbiased account from the researcher‟s perspective (Merriam, 2002). In this case understanding the many issues associated with participation as a means to enhance the assessment of CEA was a continuous process that started at the onset of the study and increased as the study progressed. Knowledge of the situation was gradually attained by the researcher during the course of the study. Understanding was achieved as the researcher assimilated the collected knowledge, which provided the researcher with a more holistic view of the many issues associated with participation between the between the DEA and the DWA

Qualitative research is said to be based on certain underlying philosophies, (Wiersma, 1995) which can relate to the positivist, interpretive or critical traditions or methods (Myers, 1997). Qualitative research methods may adopt a variety of approaches and adhere to any one of these traditions. The underlying philosophies of this study however primarily conform to the interpretive tradition, which exemplifies many of the qualitative characteristics previously discussed in this chapter. This approach was chosen as it allowed the researcher to gain an understanding of the social phenomenon of participation from the stakeholders perspective (Walsham, 1995), rather than making use of data to validated a predetermined hypothesis (Myers, 1997). This type of qualitative approach was thought to have originated from the concepts of the German philosopher, Edmund Husserlain (Groenewald, 2004).

Husserlain‟s approach has been described by a multitude of authors. This approach was chosen as it contains common themes which mimic the aim of this study in that the researcher is primarily concerned with understanding a social phenomenon from the perspectives of those involved in the process (Kruger, 1998).

Epistemologically, the interpretive approach implies that knowledge obtained from reality is a result of "*social constructions such as language, consciousness and shared meanings"* (Myers, 1997, p2). "*Thus, to understand a particular social action (e.g., friendship, voting, marrying, teaching), the inquirer must grasp the meanings that constitute the action"* (Schwandt, 2000, p191). An interpretive approach was chosen as the aim of the researcher was to gain an understanding, through interpretation, of how those, involved in the social act of participation, assign meaning to the situation (Fouche, 1993). Another prominent reason for adhering to this type of research design is that Interpretivists suggest that because humans have the ability to think and reflect, they have the ability to change their behavioural patterns under scrutiny (Abbott, 2010).This would, render the more scientific approaches inappropriate as the nature of this research required the researcher to study the social act of participating under natural conditions.

Despite being accepted as legitimate, the interpretative approach has received its fair share of criticism with regards to scientific techniques, generalisation and being biased (Merriam, 2002). While these issues were the cause of some concern, it is generally accepted amongst experts, that some of them are unavoidable and should be acknowledged during the research process, and the subsequent reporting of findings (Merriam, 2002; Williams, 2000). Issues associated with the chosen approach were acknowledged by the researcher and mitigated where possible. Although the chosen approach may not conform to the more traditionally accepted research procedures and techniques, it is shrouded in acceptable scholarly disciplines that are associated with generating valid research and was chosen as it was best suited to achieving the objectives of this study (Benner et al., 1994).
It should however be noted that the interpretative approach, as with most qualitative designs, is often a construct of the researchers own philosophical viewpoints and subject to being biased (Merriam, 2002). Some arguments have ensued, however for the most part it has been generally accepted that qualitative research is often a

product of the effectiveness of the chosen methodology and techniques employed. The issue of being biased was considered and the researcher ensured that the techniques employed were best suited to presenting an unbiased account of the situation.

To ensure the research objectives were achieved, research techniques, for the purpose of this study, were based on an extensive review of the available options while acknowledging any negative connotations associated with the chosen approach. The basic approach may have conformed to the interpretive tradition, however it was decided that the chosen techniques be suited to achieving the various research objectives and relate to the purpose of what the study aimed to achieve rather than adopting a set procedure. As Patton (2002, p10) for example argues "*one can't judge the appropriateness of the methods used in any study or the quality of the resulting findings without knowing the study's purpose, agreed-on uses, and attended audiences."* The Interpretive approach uses a combination of techniques and methods that are chosen for their associated qualitative characteristics (Benner et al., 1994). In the case of this study it was necessary for the researcher to understand how stakeholders made meaning of the act of participating and provide an unbiased account from the stakeholder's perspective (Merriam, 2002). The interpretative approach was chosen as the research design, as understanding was based on the researcher's interpretation and was gained as the study progressed. Evaluation of the data was based on the purpose of the study and qualitative data collection techniques such as interviews, documentation and discussions were used to collect data. Patterns were then identify within the data and used to provide a descriptive account of participation as a means to enhance CEA from the researcher's perspective.

3.3 Research Methodology

The preliminary focus of this research was to derive meaning and attain understanding with regards to participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space as a means to enhance CEA. As with many studies of this nature a variety of research designs or strategies may have been chosen (Merriam, 2002), however as previously discussed

it was necessary to adopt a research paradigm which tended towards the interpretive tradition (Brandon, 2008). While common perspectives and themes are evident in many of the qualitative methodologies, (Merriam, 2002; Leedy et al., 1997) it was necessary to choose a methodology most suited to achieving the research objectives of this study. It was deemed that an interpretive approach coupled with the associated methods was most suited. This type of research approach facilitated the collection of data, by the researcher, through methods such as interviews, and documentation with the aim of offering insight into the particular situation from the perspective of those experiencing it (Merriam, 2002; Guba and Lincoln, 1994).

It should however be acknowledged that the research was conducted by the researcher, not the research subjects, with the view that by highlighting the issues surrounding participation between the DAEA and the DWA, stakeholders could benefit from a greater understanding of participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space as a means to address CEA. This in a sense subtly conforms to some elements of the participatory research approach in that the research was conducted with the aim empowering the research subjects through gaining an understanding of the issues they experienced in participating (Cornwall and Jewkes, 1995). Stakeholder empowerment may be a consequence of this study. However the main aim of this research is to investigate the potential to enhance CEA through participation between the DAEA, and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space. This is to be achieved by gaining an understanding of the barriers to such an opportunity and exploring what DAEA employees perceived as potential initiatives that could be established to overcome them. Thus the main components of this research approach conformed to interpretive tradition and the associated methodologies.

3.4 The Research Population and Sampling

The primary measuring instrument used in this study was a series of semi structured interviews that followed the Interview Guide presented in Appendix A. The interviews were primarily conducted with employees from DAEA a local subsidiary of the DEA

within Pietermaritzburg and surrounding areas. Due to the limited number of DAEA interviewees it was also necessary to include the perspectives of staff from Ezemvelo KZN Wildlife, who deal with CEA under the auspices of the DEA.

The interview candidates were selected using purposive sampling which is a form of non probability sampling and one of the more common sampling techniques, employed in Qualitative research (Denzin, and Lincoln, 2005). In purposive sampling the researcher is less concerned with the number of candidates but rather focuses on the quality of information that can be gleaned from them (Denzin, and Lincoln, 2005). As Merriam (2002, p11) for example suggests "*it is important to select a sample from which the most can be learned."* Another important aspect of sampling that was considered was the criterion upon which selection was based. While it was not possible to include all criteria, the criteria chosen were considered important in relation to addressing the various research objectives (Denzin, and Lincoln, 2005).

To ensure that the selected sample population reflected the characteristics needed to address the research goals, employees from the controlling agency, the Department of Agriculture and Environmental Affairs (DAEA) and other stakeholders involved in assessing CEA, such as Ezemvelo KZN Wildlife employees were chosen. Due to the limited number of staff involved in assessing the effects of development in the Pietermaritzburg area and the generic nature of the study, it was necessary to expand the selection of interviewees to include DAEA staff from some of the surrounding areas. A total of seven candidates were chosen from the respective agencies involved in assessing the cumulative effects of development. Two employees from the Pietermaritzburg branch of both the DAEA and Ezemvelo KZN Wildlife were chosen as these were the only employees involved in assessing the effects of development. Three additional DAEA employees from the surrounding areas were also interviewed. Sampling was done focusing on achieving a legitimate representation relating to the research objectives. Selection was based, in conjunction with a review of the current literature, on individual characteristics such as job title and the degree of experience and level of involvement in assessing the cumulative effects of development.

3.5 Data collection techniques

Once the primary research approach had been decided on and the population and sampling method determined it was necessary to adopt techniques for the collection of data. Based on the fundamental research objectives a variety of techniques were used to ensure that the appropriate data was collected. Data was collected using a number of the accepted qualitative methods which according to James et al., (2008, p 69) "*can help us understand people"s reactions, beliefs, and behaviour more clearly".* Given that the study of a phenomenon such as participation often presents complexity it was necessary to attain data using techniques, which would ensure that the most holistic view of the situation was achieved (Glaser and Strauss, 1967). Multiple techniques such as documentation and interviews were used which according to (Denzin, and Lincoln, 2005) provides a study with more depth. Adopting multiple techniques also generated greater levels of understanding on the researcher"s part and reduces the likelihood of the research being biased, which, according to James et al., (2008) is one of the more common criticisms of qualitative enquiry.

Data from the interviews was reinforced by doing a comprehensive literature review to determine the current status of CEA, highlight past attempts at participation and gain an understanding of current policies and procedures that could facilitate participation in addressing CEA. Participatory processes such as IWRM and the statutory bodies responsible for their implementation such as the CMA"s were reviewed to determine the potential to enhance CEA through participation between the DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space.

3.6 Designing the Interview

From the chosen qualitative perspective it was necessary, for the purpose of this study, to gain an insight into the views, perceptions, attitudes and past interactions of all the relevant stakeholders. The aim being to generate an understanding from their perspective of the issues associated with participation in addressing the cumulative effects of development. The semi structured interview was chosen for its ability to

adhere to a central theme as in a structured interview, but allow for a greater degree of flexibility in questioning as in an unstructured interview (Patton, 2002). The disadvantage associated with the flexibility provided by this type of interview is that it can lend itself to being biased as a result of questioning being manipulated to elicit a specific response (Patton, 2002). This potential for bias was acknowledged by the researcher, as discussed previously in this chapter, and mitigated.

In general semi structured interview questioning tends to be less formal and according to (James et al., 2008, p71) "*allow researchers to question subjects and probe responses with further questions"*. This was valuable in gleaning information from the relevant stakeholders as on a number of occasions additional probing in the form of ad-hoc questions was required. The interviews provided the researcher with a means to collect data and gain knowledge through conversation (Patton, 2002).The semi structured nature of the interviews allowed for intermittent conversation around the central themes which proved valuable in gaining an understanding of the situation (Kvale,1996). Interviews were chosen as, in addition to gleaning information by deeply probing respondent"s perspectives, feelings and experiences, through conversation, they enabled the researcher to obtain information that could not be directly observed (Patton, 2002).This proved to be valuable as the researcher"s prior exposure to the research subjects was limited allowing for only a marginal degree of observation. Face to face interviews have their drawbacks in that they can be time consuming and biased in terms of being based on the researchers own perceptions (Patton, 2002; James et al., 2008). In conducting the interviews for this study time was not a significant factor due to the limited number of stakeholders within the area. To ensure that the collected data was unbiased every effort was made, by the researcher, during the interview process to remain neutral. Conducting face to face interviews gave the researcher a greater degree of flexibility as the process was synchronous (Opdenakker, 2006). This not only allowed the researcher to probe more deeply through additional questioning during the interview, but facilitated the gathering of additional information through the use of social cues such as body language and attitude (Opdenakker, 2006).

Using the face to face Interviews also gave the researcher a certain advantage over other interview data collection methods in that responses tended to be more

spontaneous as there was minimal time for the interviewees to reflect between questions (Opdenakker, 2006). The face to face approach proved to be ideal for a study of this nature as the limited number of interviewee enabled the researcher, through the use of various interview techniques and responses, to extensively probe each of the research subjects. This ensured a greater level of understanding of the stakeholder"s perspectives relating to the research objectives. In adopting the semi structured, face to face interview as the main measuring instrument, one of the more important factors that needed to be considered was the design of the research questions to ensure that the research objectives were met.

3.6.1 Developing the interview questions

As described in previous sections a semi- structured interview was chosen as it has a certain degree of flexibility and does not have the same predetermined rigorous questioning regime as with a structured interview. It was however still necessary to have a guide as to the types of questioning that was needed (Guion, 2006). Having done an extensive literature review pertinent questions were developed covering the main topics relating to the research objectives, with the intention of allowing for the flexibility of further probing in the form of sub questioning (King, and Horrocks, 2010).These questions are listed in Appendix A.

Questions were open ended and worded to elicit more than a yes or no response from the respondents (Guion, 2006). In addition to allowing the researcher to respond to issues that arose during the interview, this enabled deeper probing and interpretation with the intention of gaining an understanding of the situation from the perspective of those involved (King and Horrocks, 2010).This type of questioning was chosen as it enabled the researcher to gain an understanding of the whole rather than parts of the whole. Morgan in his paper on systems thinking implies that human systems are continually changing and redefining themselves and that "*understanding comes from synthesis and a* systems *approach*" Morgan (2005, p12). Morgan further suggests that it is pertinent to gain an understanding of a system as a whole rather than understanding the emerging individual components (Morgan, 2005).Senge et al., (2005: 9.) suggests that "*Deeper levels of learning create increasing awareness of the larger whole*" Thus as shown in Figure4 by probing

more deeply through specific questioning the researcher was able to increase his levels of learning which led to a greater awareness and understanding of the whole and this in turn lead to more insightful questioning (Senge et al., 2005;Morgan, 2005).

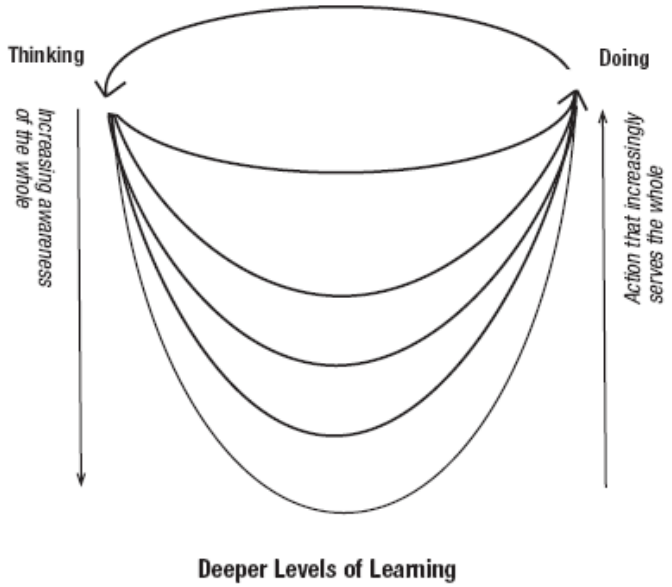

Figure 4 Deeper Levels of Learning (create increasing awareness of the larger whole Source: (Senge et al, 2005: 9)

The research Questions were designed by the researcher with the intention of probing, interpreting, understanding and collecting information. An extensive review of the suggested methods for designing interview questions was done and it was discovered that there were a number of differing question types that may have been employed (Kvale, 1996; Patton, 2002). In the case of this study although different questioning types were used more emphasis was placed on designing the interview guide around collecting data relating to the research objectives.

Introductory questions were designed to make respondents feel more comfortable and create a positive rapport (Kvale, 1996). This was followed by the design of probing questions to glean information relating to the respondents opinions, values, judgements and knowledge. This rigorous questioning approach was aimed at exploring, understanding and interpreting the stakeholders experience (Patton, 2002).In addition to the more structured questions the researcher allowed for follow up and in some cases indirect questioning which was used to create deeper levels of

understanding (Kvale, 1996). While some of the questioning may have conformed to the various types as depicted in the relevant literature it is necessary to note that the bulk of the questions and follow up questions were aimed at collecting data relating to the study. Questions were designed around collecting data relating to the various research objectives with follow up questioning generating deeper levels of understanding of the situation. The data was used to enhance the researchers understanding of the stakeholder"s views on addressing cumulative effects through participation between DAEA, the DWA and the multi-stakeholder IWRM processes in the CMA engagement space. In addition it was necessary, in accordance with the research goals, to use the collected data to highlight the stakeholder"s perceptions on potential initiatives that could be established to overcome the barriers to the process.

3.6.2 Conducting the Interview

Having designed the interview guide the next step was to ensure that the interview process was successfully conducted. Before the designing the main interview some of the respondents were contacted telephonically and informed of the nature of the research. They were asked to help in a preliminary information gathering exercise by answering a number of informal questions and clarifying a number of terms and concepts. This not only helped in the development of the research questions but allowed the researcher to become familiar with the respondents and their protocols. Conducting the interviews was carefully planned by the researcher in accordance with accepted methods to ensure that the data collected was relevant to the various research objectives. As many authors have indicated that successfully collecting data using the interview process frequently depends on how the interview is conducted (Manson, 2002; Kvale, 1996; King and Horrocks, 2010).In conducting the interviews for this study the researcher ensured that a sound knowledge of the accepted methods was achieved and the best possible techniques were chosen to ensure success (Manson, 2002).

Interviews were conducted at the interviewee"s places of employment and while interruptions, were in some cases unavoidable the researcher endeavoured to find a quiet comfortable setting. This was done to make the interviewee"s feel more

physically and physiologically at ease which according to (King and Horrocks, 2010) makes them more respondent as they are in a familiar setting. Next respondents were briefed in a friendly non threatening manner as to the nature of the study, how long it would take, the role they were required to play and how the data would be used. This was important in establishing a positive rapport and gaining the respondents trust (King and Horrocks, 2010).The interviewees were also informed of their right to anonymity, that participation was voluntary and that they could retract from the process at any time. This was done so that stakeholders did not feel obliged to divulge information. It was hoped that if participants felt that they were not obligated to offer information they would be more likely to do so (Kvale, 1996).
To ensure a positive rapport was maintained questioning was conducted in a friendly casual manner with the introductory and the less sensitive questions being asked first. This type of approach to questioning was used to prevent interviewees from feeling threatened in the face of sensitive questions being asked to abruptly (Patton, 2002).

The Interviewer maintained a relaxed composure, listened attentively and ensured that questions were carefully worded. Many authors indicate that the way in which the researcher presents himself, listens to respondents and how questions are worded often influences the how interviewees will respond (Patton, 2002; King and Horrocks, 2010).While it was necessary to ensure that the respondents were relaxed and opened up to the researcher it was also necessary from the researcher"s perspective to maintain control and guide the process. Once the questioning was completed it was necessary for the researcher to steer the interview to a close by reverting to casual conversation, thanking the respondents for their time and explaining that if any further information was required they would be contacted (Patton, 2002).

3.7 How the study unfolded

In doing a review of the current literature on the EIA and CEA processes the researcher was able to identify an area of interest which led to the development of the research topic. Additional reading gave the researcher a better understanding of the research topic and the knowledge to develop a research proposal. The research

proposal, in addition to outlining the research problem highlighted the objectives of what the researcher aimed to achieve by conducting the research.

Once the proposal had been approved a more extensive literature review was conducted to gain an insight in to the many issue surrounding the research topic. In conjunction with the literature review the researcher then identified how data would be collected and began developing an in- depth semi structured interview guide based on the research objectives. During this time as a requirement of the University, the researcher designed a consent form which was to be given to the interview subjects and submitted an ethical clearance form. Next the researcher began to identify the research subjects and contacted them either by email or telephone, informed them of the nature of the research and asked permission for a face to face meeting so that an interview could be conducted. While it took some time to get responses from the representatives of the DAEA due to full schedules, none of the respondents contacted declined an interview. Interviews were conducted between August and October 2010, at the respondent‟s place of employment at a time and in a setting which most suited each individual interview candidate. Prior to the commencement of the interview each respondent was given an introductory letter explaining the research and a consent form asking permission for the interview to be conducted and if they could be recorded for transcription purposes. The researcher then answered any questions that the respondents had and gave additional information if a respondent was unclear on any issues. Interviewees were assured of anonymity and that they could retract form the process at any time. Once the relevant data had been collected the process of analysis began acknowledging both validity and reliability.

3.8 Analysing and interpreting the Data

The analysis and interpretation of the data was conducted by the researcher and conformed to accepted qualitative methods. The analysis of the data was carefully planned and followed a repeatable procedure (Patton, 1987). A carefully planned and meticulous procedure, that included continually sifting through the collected

data, to ensure emerging patterns and themes relating to the various research objectives were identified, was followed. Data analysis according to Patton (1987, p144) " *is the process of bringing order to data, organising what is there into patterns, categories, and basic descriptive units."* In this case the data was continually probed and re-probed by the researcher in order to uncover regularities, patterns and themes relating to potential initiatives that could be used to overcome barriers to a participatory approach involving the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA. It must however be acknowledged that although the data was primarily probed with the intention of gleaning information relating to the research objectives, the researcher also took cognisance of other themes that emerged from the collected data.

The collected data was in the form of text and it was important to choose an approach to analysis that was able to correctly identify, describe, code and link emerging themes from the collected data *(*Bernard and Ryan, 2010*)*. There are a number of methods and approaches, depicted in the literature, which may be used to identify themes within collected data (Bernard and Ryan, 2010; Richards, 2005*)*. In the case of this study the researcher focused on how the individual interviewees responded to each of the research questions by looking for consistencies and differences in the answering of the subsequent sets of questions (Powell and Renner, 2003). Referred to by (Glaser and Strauss, 1967, p101-116) as the *"constant comparative method"*, by identifying differences and consistencies in how each question was answered the researcher was able to make comparisons and identify common themes relating to the specific research objectives *(*Bernard and Ryan, 2010*)*. The data was then summarised and categorised according to specific responses and assigned codes that grouped similar descriptive data sets which aided the researcher in assigning meaning to qualitative data (Powell and Renner, 2003).

Data in this case was primarily categorised in accordance with answering the research objectives. Initiatives and barriers were further divided into spatial, political, financial, and resource categories which, as discussed in the literature review tended to be the predominant factors influencing effective interagency participation. Although certain pre- determined categories were established the researcher also

considered any themes that naturally emerged from the data which was important in creating a holistic interpretation of a situation (Powell and Renner, 2003).

Another aspect considered by the researcher during the analysis of the data was the issue of biases, being that the researcher was the soul instrument of collection and analysis of the data. As discussed previously however the researcher was continually aware of being biased which was also acknowledged in the analysis and interpretation of the data. In this case, to ensure success, the researcher adopted an approach to data analysis that continually took cognisance of the research objectives, acknowledged the issue of being biased and minimally provided those involved with some insight and understanding of the research topic. This was achieved as the coded data was examined for repeatedly occurring themes and patters which aided in assigning meaning to the data relating to the research objectives (Coffey and Atkinson, 1996).

3.9 Quality and Validity

To ensure the value of this study in generating sound knowledge the researcher had to acknowledge quality and validity. This was necessary as qualitative research is often criticised for being a product of the researchers own perceptions and biases (Merriam, 2002). The literature depicts many arguments surrounding these and similar topics, however there is a common consensus in that quality and validity are often a product of how the research methodology was designed and undertaken (Patton, 2001; Rolfe, 2006*).*To ensure the quality of this research, the researcher firstly conducted a comprehensive literature review to ensue an extensive knowledge of the subject matter. In addition to this the researcher developed an interview guide designed to deeply probe and re-probe the issues surrounding the research objectives. The researcher then ensured a thorough analysis of the data, through continually relating the data to the specific research objectives to ensure the successful identification of themes and patterns within the collected data. This rigorous approach was designed and adopted by the researcher as there is some

agreement among experts that rigor in a qualitative study is often the key to success and is solely the responsibility of the researcher (Rolfe, 2006).

While many approaches to addressing the issues of quality and validity are depicted within the literature there is some agreement that quality and validity are achieved when a researcher uses multiple data sources and verification strategies to ensure quality data (Morse et al., 2002). Quality and validity in the case of this study were addressed by adopting a sound research design and rigor in the analysis and interpretation of the emerging data. In addition many of the findings within the study area were reinforced with documented accounts depicted in the literature. The purpose of the study and the intended audience were also considered as this is often important in addressing the issues of quality and validity (Patton, 2001).

As previously discussed one of the more prominent causes for concern in validating qualitative studies is the issue of researcher subjectivity (Patton, 2001). This may be to a certain degree unavoidable however during the interview process every effort was made to ensure that the researcher remained a neutral figure without any preconceived notions (Patton, 2001). Although a semi- structured interview was the primary measurement method, data was also collected by doing an extensive literature review which was necessary in reinforcing the findings collected from the interviews (Merriam, 2002). In the case of many studies the quality of the collected data is often questionable (Rolfe, 2006). In this case however the researcher was primarily dealing with a limited number of professionals and was able to validate evidence through the use of existing documentation and a strategy of additional probing in the form of cross questioning to verify the answers received from the various respondents.

3.10 Summary

This chapter began with a discussion of the philosophies behind the research methodology and design, which conformed to the interpretive tradition. The population, sampling and data collection techniques were then discussed elaborating on the open-ended interview as the primary data collection method. Next developing and designing the interview guide was addressed looking at how the questions were developed, how the interview would be conducted and how the study would unfold. Finally the data analysis methods were discussed explaining how the issues of quality and validity would be addressed. In the next Chapter the data collected will be discussed in detail with respect to the research objectives.

Chapter 4: Analysis of Findings

4.1Introduction

The main aim of this research is to investigate the potential to enhance CEA through participation between the DAEA, and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space. This is to be achieved by gaining an understanding of the barriers to such an opportunity and exploring what DAEA employees perceived as potential initiatives that could be established to overcome them.To achieve this it was necessary to gain an understanding of the issues surrounding the DAEA adopting a participatory approach with the DWA and the ongoing IWRM processes in the CMA engagement space. As previously discussed in addition to an extensive literature review, interviews were used to gain an understanding of how staff from the DAEA perceived participation, between the DAEA and the DWA, as a means to address the cumulative effects of development. In analysing the data relating to this study it was necessary to sift through said data and assign meaning to common emergent themes. This was a continuous process that began at the onset of the study and gave the researcher an advantage in that understanding was gained as the study progressed. This also allowed the researcher to continually re-probe any unclear issues to ensure clarification (Patton, 1987; Merriam, 2002).

This Chapter begins by discussing the current status of CEA, as depicted in the literature and as perceived by the interviewees. Next the data relating to participation, within the study area, and barriers to the process are examined. Determining whether the DAEA has recognised the potential to enhance CEA by participating with the DWA and the ongoing processes of IWRM in the CMA engagement space is analysed. Finally potential initiatives as a means to overcome barriers to a participatory process between the DEA, the DWA and the ongoing processes of IWRM in the CMA engagement space are examined from the perspective of those involved namely the interviewees from the DAEA and Ezemvelo KZN Wildlife.

4.2 The current status of CEA

In examining the data relating to the various research objectives of this study it was first necessary to examine the current status of CEA both abroad and within the study area. Numerous accounts within the literature, from experts and agencies alike, refer to the inadequate application of Cumulative Effects Assessment and the need to improve the process (DEAT, 2004; NEPA, 1999;, Canter, 2000; Canter and Ross, 2008).Existing documentation further suggests that, although acknowledged in previous decades the inadequate application of cumulative effects assessment remains a major shortcoming within assessment processes world- wide (Canter and Ross, 2008).

There has been considerable documentation generated over the years on attempts that have been made to improve the application of cumulative effects. Methods such as incorporating CEA into existing assessment processes such as EIA and SEA (DEAT, 2004; NEPA, 1999) and providing comprehensive guidelines on how the process should be conducted have been considered. These efforts however, have frequently met with limited successes and CEA for the most part continues to be considered an extremely complex process (Smith, 2004). Experts agree that CEA requires a degree of holism which often eludes many practitioners (Reed, 2008). In many cases those assessing CEA often lack the information required to assess larger areas, consider past, present and future actions and assess activities in conjunction with other actions within a region (DEAT, 2006). Many practitioners also feel bound by the terms of reference of the EIA which is currently the preferred method for assessing the effects of development (DEAT, 2006). Although many issues may play a role, the poor application of CEA is usually attributed to the large spatial and temporal scales needed to analyze past, present, and future actions. A lack of resources, insufficient information and data and time constraints are also considered to play a role in poor performance when a mammoth task such as CEA is tackled (Smith, 2004; DEAT, 2006).

As this study revolved around participation amongst responsible agencies as a means to enhance CEA one of the more promising underlying themes that was discovered, from expert accounts within literature and from the perception of

interviewees, on how to improve the current status of CEA, has been the acknowledgment of the need for participation (Reed, 2008; Smith, 2004; Canter and Ross, 2008). Experts agreed that many of the issues facing CEA could be marginalised and or mitigated by participation (Reed, 2008) as CEA is a multifaceted approach that would benefit from agencies working, together rather than in isolation (NEPA, 1999; Canter, 2000; Canter and Ross, 2008).

In South Africa research by the CSIR in 1998 revealed that cumulative effects were seldom adequately addressed within EIA documents (CSIR, 1998). In 2004 the agency responsible for CEA, the DEA also readily admitted that CEA needs to be improved (DEAT, 2004). It is now 2012 and not much has changed as accounts from the various interviewees, within the study area continue to depict CEA as being poorly conducted. For example an employee of the Pietermaritzburg DAEA simply said "*Our methods for dealing with CEA are weak" (*DAEA employee). When questioned further it was found that the staff from Pietermaritzburg DAEA primarily assess the effects of development using the EIA which they readily admitted was not conducive to considering cumulative effects. As a staff member from the Pietermaritzburg DAEA stated. "*The EIA is not the best tool to assess CEA and, EIA has until recently been the only available tool for assessment" (DAEA employee).* Staff from the Pietermaritzburg DAEA also admitted that CEA was poorly applied and that developments were often assessed in isolation. As stated by a Pietermaritzburg DAEA employee. "E*ach EIA is looked at on its merit and each development is looked at in isolation. We do try to consider cumulative effects although it is difficult during the EIA process as we look at each case on a site by site basis without a broader plan (DAEA employee).*The above are just some of the opinions expressed by those involved in the assessment process with regards to assessing the cumulative effects of development. Clearly these accounts express some of the frustrations experienced by practitioners, within the study area, in addressing the cumulative effects of development. In addition these statements have a propensity to reinforce the general trend within the literature that CEA is often poorly conducted and assessment frequently continues to be carried out using the site specific EIA process (DEAT, 2006)

Although it was discovered that the current application of CEA within the study area was poor, which staff form the responsible agency, the Pietermaritzburg DAEA, readily admitted. It was also discovered that staff from the Pietermaritzburg DAEA recognized the value of participation as a means to enhance CEA. Thus it was necessary, as one of the objectives of this study, to understand the Pietermaritzburg DAEA employee"s views on participation with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA

4.3 The dynamics of participation in addressing CEA

One of the main objectives of this study was to gain an understanding of the DAEA employee"s views on participation, with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, as a means to enhance CEA. This was necessary as the main aim of this research revolved around investigating the potential to enhance CEA through participation between the DAEA, and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space. The agency responsible, the DAEA acknowledges that greater levels of engagement are needed and that CEA could benefit through a participatory approach between themselves and other agencies responsible for resource management (DEAT, 2004). In understanding how a participatory process would improve CEA, from the interviewees perspective it was necessary to gain an insight into the current status and dynamics of participation between the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA.

When questioned about participation as a means to enhance CEA, employees, from the Pietermaritzburg DAEA, in general acknowledged that they were, through IEM and other similar policies, required to adopt a participatory approach with other authorities in assessing the Cumulative effects of development. As stated by a DAEA employee. "*Yes we do have linkages with other authorities. With regards to CEA there are certain key role players and authorising authorities, we will not move forward unless we have their consent. We try and maintain a working relationship with other role players when assessing cumulative effects" (Employees from the* Pietermaritzburg DAEA*).* These comments from the interviewees warranted further

investigation and it was found that the general feeling amongst employees from the DAEA was that participation in CEA took place as it was part of policy. "*We get involved as we are required to do so. In terms of CEA we have to participate in accordance with IEM, we try not to make any decisions concerning CEA in isolation"* (DAEA Employee). While interviewees stated that they got involved, further probing found that, although participation in CEA was, to a degree, practised and promoted by the Pietermaritzburg DAEA employees, this was purely because they were mandated to do so. This can be considered a form of consultation as mandated participation is not necessarily effective (Arnstein, 1969). Although interviewees inferred that participation was taking place and being promoted when looking at the cumulative effects of development, they were inclined to express certain degrees of dissatisfaction with the outcomes. For example a respondent from the Hilton DAEA office, who wished to remain anonymous, said "*we do sit on other forums when looking at CEA however these process, are not too successful" (DAEA employee).*

When questioned about the success of participation in addressing CEA, Pietermaritzburg DAEA and Ezemvelo KZN Wildlife employees seemed reluctant to comment and implied that although they participated in accordance with policy they were seldom satisfied with the outcome. For example one of the employees from the Pietermaritzburg DAEA said. *"In adhering to the NEMA act, a provincial environmental co- ordination committee has been established by the DAEA although at this stage its success in addressing CEA is limited" (*Pietermaritzburg *DAEA, and* Ezemvelo KZN Wildlife *employees)*. Although participation was promoted with regards to CEA, further questioning found that the type of participation within the study area was not truly beneficial to those involved but rather, in terms of Arnsteins ladder of participation, a form of tokenism as a result of adhering to policy (Arnstein, 1969). Further questioning of, the Pietermaritzburg DAEA, and Ezemvelo KZN Wildlife employees confirmed that although participation between themselves and other relevant authorities was promoted, successful participation in assessing CEA within the region was limited. The lack of success achieved with participatory processes in assessing CEA seemed to be a general trend and some respondents readily admitted this. Others however were less than forthcoming in acknowledging

unsatisfactory outcomes and rather emphatically implied that they took part as they were mandated to do so.

Having established that participation between the DAEA and other authorities in assessing CEA was far from successful, it was then necessary for the purpose of this research to focus on understanding how interviewees viewed the current status of participation with the DWA. This was done to gain an insight into their perspectives, on participation with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a potential solution to addressing the cumulative effects of development. When, asked about participation with the DWA as a means to assess CEA interviewees had a tendency to mirror how they felt about participation in general. A representative of the Pietermaritzburg DAEA said "*we have had certain successes with participatory processes with DWA however as far as CEA is concerned our successes are limited"(DEA employee).* Employees from the Pietermaritzburg Ezemvelo KZN Wildlife also implied that participation with the DWA was to a degree taking place but was severely limited with regards to assessing CEA. They did however suggest that participation with the DWA in general was often dependant on the enthusiasm of DWA representatives. For example a Pietermaritzburg Ezemvelo KZN Wildlife interviewee said "w*e do have good relationships with certain DWA members others not so much"(* Ezemvelo KZN Wildlife employee).

The general feeling amongst the Pietermaritzburg DAEA, and Ezemvelo KZN Wildlife employees seemed to be that while interaction with the DWA was to a certain degree taking place, with regards to assessing CEA, the process was far from successful. As cited by a DAEA employee "*As far as CEA is concerned the DWA just comment on each development in isolation, from a water pollution perspective" (DAEA employee)*. The more common response from interviewees was that participation with the DWA tented to be a frustrating process as the DWA predominantly focused on their own agendas. For example a DAEA employee from the Hilton office, when referring to past participatory experiences with the DWA, said*" I can draw on the Environmental Management Framework of which DWA was part of however they tended to focus on their own issues".* Another common trend amongst interviewees was that participation with the DWA in assessing CEA was perceived

as a process fraught with issues that limited its effectiveness. As expressed by an employee from the Pietermaritzburg DAEA. ”*We try to get the DWA involved in all our processes including assessing CEA however we often face obstacles when trying to include them and it is often easier to do the work ourselves” (DAEA employee).* In general it was found that the current status of participation with the DWA, although functional, tended to be limited in assessing CEA. Interviewees also perceived participation with the DWA in assessing CEA as a process fraught with barriers that were frequently responsible for the poor outcome. Many of these obstacles to participation with the DWA as a means to assess CEA , as perceived by Ezemvelo KZN Wildlife and DAEA employees, matched the generic issues associated with participation uncovered during the review of the literature. It was therefore necessary to gain an understanding of the barriers to the DAEA participating with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to assess CEA.

4.3.1Barriers to participation

To gain an understanding of how potential initiatives at participation could be used to overcome the barriers to the DAEA participating with the DWA. It was necessary to understand what interviewees viewed as barriers to the DAEA participating with the the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA. Based on what was uncovered in the literature it seems that, while almost any negative influence may constitute a barrier (Gaventa and Valderrama 1999), many of the barriers, in the case of this study, tended to emanate from the stakeholders attitude and mindset towards participation in general. As stated by an employee from the Pietermaritzburg DAEA. “*There seems to be a poor attitude towards participation when dealing with the cumulative effects of development. This is especially evident within the local areas as each organisation tends to focus on their own issues without even acknowledging the potential that other participatory forums could provide in enhancing their own systems*”(DAEA employee). Although both the, DEA and the DWA fall under one minister at national level, employees from both the Hilton and Pietermaritzburg offices of the DAEA for the most part seemed to have a poor outlook and seemed extremely wary when it came to participation, especially between the DAEA and the DWA. Further probing found that the way in

which participation with the DWA was perceived was often directly proportional to the success of the participatory process. As stated by a Pietermaritzburg DAEA employee "*we judge what we know and so far we have had little success in addressing CEA through participation*" (DAEA employee). Additional questioning also found that the manner in which DAEA employees participated with the DWA tended to contribute to the unsatisfactory outcomes and ultimately the way participation was perceived. DAEA employees on the whole viewed participation with the DWA as attending a series of meeting rather than a mutually beneficial process based on co operation, sharing and the continuous interactions amongst the organisations as a means to enhance CEA. As stated by a DAEA employee from the Hilton office" *we attend the meetings and get involved where we are required to. Attending these meetings however has done little to improve CEA* (DAEA employees). Although many of the issues associated with participation between the DAEA and the DWA seemed to be attributed to the way participation was perceived, interviewees also voiced concerns over other pertinent issues. Initial responses from respondents suggested that the sheer size of what participation in addressing CEA represents poses a major barrier. As cited by a staff member of the DAEA "*a participatory forum that considers all aspects would be impossible to manage. We almost have to look at smaller areas of interest"*(DAEA employee). It was evident from these and similar responses that DAEA employees may have considered, but were not taking advantage of sharing the responsibility, and mitigating the issue of size by participating with existing participatory processes such as the CMA engagement space which encompass large areas and include many organisations and policies. This lack of insight into the true potential that the CMA engagement space has for enhancing CEA through participation was also evident from a political perspective. One of the more common barriers to participation in addressing CEA, as perceived by employees from the Pietermaritzburg Ezemvelo KZN Wildlife and the DAEA, seems to relate to jurisdictional boundaries. As supported by evidence within the literature, practitioners as a whole are reluctant to infringe on the domain of other agencies and breech jurisdictional boundaries (Reed, 2008). This attitude also seemed to be evident within the study area because when interviewees were questioned about participation with the DWA one respondent, from the Pietermaritzburg Ezemvelo KZN Wildlife actually said "*The limitations with participatory forums are that you cross jurisdictional boundaries in participating*

*(*Ezemvelo KZN Wildlife *employee).* Again Pietermaritzburg Ezemvelo KZN Wildlife and DAEA respondents are failing to acknowledge the full potential of the CMA engagements as a means to enhance CEA through participation. As previously discussed the CMA forums include multiple agencies and organisations responsible for the management of water resources. This would through the linkages between land and water and the fact that, the management of water by its very nature crosses jurisdictional boundaries provide the Pietermaritzburg DAEA with an ideal opportunity to enhance CEA. Participating in the CMA engagement space as a means to enhance CEA has a further advantage for the Pietermaritzburg DAEA in that, many of DAEA"s activities, such as the management of biodiversity, fall within and are directly linked to the management of water resources.

Another common political barrier that emerged was the issue of control. For example one respondent form the Hilton DAEA said "*Interaction would improve CEA however, there seems to be a case of each agency protecting their, own turf. This is a major problem at participatory forums as each organisation tends to only see the issues from their own perspective (DAEA employee).*This statement reinforces how DAEA employees, also approach participation with their own goals and objectives at the forefront rather than acknowledging the full potential of what participation with the CMA multi-sector engagement space could mean for CEA. Pietermaritzburg DAEA employees also expressed reluctance to relinquish control of their own authority in favour of the participatory process even though they are mandated through IEM to participate (Wenner, 2000). As cited by a Pietermaritzburg DAEA employee "*We as an authority agency are caught in the middle. We juggle both the development imperative and the biophysical perspective and we often have to relinquish the authoritative role if we want information to be shared. We can"t take sides as the decision making body we can only use the participatory forums for information gathering"* (DAEA employee).A quote from a DAEA employee expressing the perceived dilemmas associated with being a controlling agency and further reinforcing that DAEA employees fail to identify the true potential and take advantage of the benefits of effective participation, with the CMA engagement space as a means to enhance CEA.

Another political issue appears to be the issue of responsibility. Respondents suggested that, while value could be gained from participating, those with the authority to make the decisions on the outcomes seldom attended. As cited by a DAEA employee *"a major barrier for us and the problem with interagency forums is that representatives seldom have the final say in the decision making process" (DAEA employee).*DAEA respondents have not considered the overlap of organisations, policies, laws, plans, strategies and decision making capacity of the CMA forums when dealing with water. It is this type of engagement platform that the DAEA should be engaging with in assessing CEA as this type of forum would have the necessary decision making capacity.It seems participation between the DAEA and DWA is frequently hindered by aspects of a political nature as each agency, reluctant to accept sole responsibility or relinquish control, tends to have their own set of agendas. Further questioning found that these political barriers, can in most cases be attributed to the poor mental attitude employees from the Pietermaritzburg DAEA and Ezemvelo KZN Wildlife have towards participation with DWA as they fail embrace the opportunity to participate due to the perceived political barriers. While barriers of a political nature posed a threat, further probing uncovered other issues, which also seemed to play a significant role in preventing effective participation, between the DAEA, and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space.

In many cases barriers to interagency participation are attributed a lack of resources being assigned to participatory endeavours (Richards, et al, 2004). According to the literature this is especially the case in developing countries where a lack of funding, staffing and time constraints tends to hinder participatory processes (Reed, 2008). Though many experts suggest that financial constraints pose the majority of threats (Richards, et al, 2004, Reed, 2008), this however did not seem to be the principal cause for concern within the study area. "*Funding is not too bad and has increased dramatically since the conception of environmental management in South Africa. We are underfunded to a small degree however this is not our major problem area" (DAEA employee).* While a lack of funding was acknowledged, the main area of concern in addressing CEA through participation with the DWA and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space seemed to revolve around staffing. "*We don't even have 75% of our staff*

*quota which makes us a reactionary agency rather than a proactive agency and this is vital in addressing CEA through participation" (*Pietermaritzburg *DAEA employee). We are stretched as is DWA, there are not enough bodies to do the work, even do the critical aspects, not to mention everything else (*Pietermaritzburg Ezemvelo KZN Wildlife employee*). We have limited capacity in terms of staff. We tend to have a high turnover of staff as we tend to lose them to the private sector which does not help our capacity (Hilton DAEA employee)".* As is evident from these citations DAEA and Ezemvelo KZN employees suggested that a lack of staff poses a major threat, not just to, promoting participatory processes in addressing CEA, but also in terms of an agencies capacity to participate efficiently. Another aspect which appeared to be linked to the lack of adequate staffing, was the issue of time constraints. Employees from the Pietermaritzburg DAEA and Ezemvelo KZN Wildlife continually complained about having insufficient time when it came to the engagement process. For example an employee of the Pietermaritzburg Ezemvelo KZN Wildlife that wished to remain anonymous said. "*We mostly battle to finish our own work let alone get involved with major participatory processes involving the DWA and other agencies" (Ezemvelo KZN Wildlife employee).* This was reinforced by a Hilton based DAEA employee who simply said "*I feel we don't even have the time to conduct EIA's to the required level let alone CEA's"* (DAEA employee)*.* It seems that employees from both the DAEA and Ezemvelo KZN Wildlife are looking at the issues of time and staffing form an isolated perspective, without considering the additional capacity that participation with the CMA forums, could generate for both.

Though insufficient resources in terms of time and a lack of staffing was perceived as a threat, another apparent barrier to the DAEA participating with the DWA in enhancing CEA seemed to be levels of commitment to the process. Although issues of this nature seem to be universal in participatory processes (Reed, 2008) it was especially evident among the interviewees as many of those interviewed seemed to suggest that past participatory processes with the DWA often failed to acknowledge the potential that participation could have for enhancing CEA. "*I think the IWRM forums are good for participatory processes and information sharing. There is however often a problem of keeping momentum. For example when problems are evident everybody wants to have their say however once the problems are over, attendance is poor and role players need to be motivated to attend" (DAEA*

employee). In probing further about the issue of commitment, it was discovered that in many cases the level of commitment to participation at local level was dependant on the commitment of higher level decision makers. Many of those questioned seemed reluctant to take on the responsibility of initiating and controlling participatory endeavours with the DWA. For example an employee from the Pietermaritzburg DAEA said *"we do need motivated people to drive the processes and to look at a big as possible picture when engaging in participatory processes with the DWA however it may be beyond our scope of authority"* (DAEA employee).

Though the question of having the authority seemed to influence levels of commitment there also seemed to be a lack of motivation to get involved in participatory processes. In spite of the very real issues that were raised, interviewees in general seemed to have a poor attitude towards participation between the DAEA and the DWA. An important aspect of this seemed to be the stakeholder"s mindset and attitude towards participatory processes. In general respondents had a poor outlook towards the way they viewed participatory processes and many of them seemed unsure of how participation could benefit their own processes. When questioned about this respondents seemed to suggest that they needed to be encouraged to attend participatory processes, especially those with the DWA, as past experiences have indicated that DWA representatives tend to focus on their own issues rather than forego their own agendas in favour of the overall process. One interviewee from the Hilton office of the DAEA actually said "*there seems to be a sense of apathy amongst DAEA staff when it comes to participating with the DWA as they tend to focus exclusively on the issues relating to water and seem reluctant to acknowledge anything else" (anonymous).* For the most part it seems that respondents felt that the advantages of participating with the DWA in addressing CEA needed to be emphasised so that they could clearly see the benefits they could derive from participating. When questioned further it was uncovered, as expected, that respondents looked to see what could be gained from participating with the DWA rather than viewing the process as a means to improve their own decision making capacity through increased consultation and knowledge sharing (Richards, et al, 2004). This lack of insight and vision was common within the study area as those interviewed often failed to acknowledge, the potential, that participating with the CMA engagement space had to mitigate many of the perceived barriers.

In general it seems that the most significant barriers to participation between the DAEA and the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to assess CEA relate to the attitude and mindset of stakeholders towards the process. Although political issues, the levels of stakeholder commitment and a lack of resources, especially in terms of staff, were also deemed to have an impact. It was found having delved into how interviewees perceived theses barriers that many of them were often a result of respondents failing to acknowledge the full potential of what participation with the CMA engagement space held for CEA.

4.4 The potential to enhance CEA through engagement with the CMA's

One of the main objectives of this study was to identify whether the DAEA has recognized the potential to enhance CEA through a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. As previously discussed in chapter two the management of water and land based resources are directly linked. The CMA"s engagement space is comprised of multiple organisations and their policies, laws, plans and strategies who engage within the CMA engagement arena in the management of water at catchment level.

This type of engagement would provide the DAEA with the ideal opportunity to enhance the CEA process as many of these sectors land based activities fall under the DAEA"s jurisdiction. In addition to the sharing of knowledge, geographical location and resources, engaging with the CMA engagement platform would greatly increase the DAEA"s own decision making capacity as multiple perspectives would lead to informed and co-operative decision making based on the best possible options. It was therefore necessary to delve in to the perceptions of DAEA and Ezemvelo KZN Wildlife employees to comprehend whether they had recognised and acknowledged the potential to enhance CEA through participation with the CMA engagement space.

DAEA employees on the whole seemed to be aware of the value of participation as a means to enhance the CEA process by engaging with the DWA and the IWRM processes in the CMA engagement arena. "*Participation with the DWA would*

definitely help us do our job; I think this type of interaction with a multi participatory process would go a long way in improving the CEA process" (Pietermaritzburg DAEA member). Further probing found that while respondents recognised the value of participating with the CMA engagement space as a means to enhance CEA, they were not embracing the opportunity as they perceived participation with the DWA as a process fraught with barriers. Interviewees did recognise the linkages between land and water, how their efforts were often duplicated, as they also formed part of the DWA"s responsibilities. They also acknowledged how participation between the DAEA, the DWA and the IWRM processes in the CMA engagement space could increase their own capacity to enhance CEA. For example a DAEA employee from the Hilton office said. "*There is a definite linkage between land and water and this potential, although it may not be able to address all our CEA functions would certainly improve our capacity if we took part in the IWRM and CMA forums" (DAEA employee).*

It was however necessary to probe further to understand how employees from the DAEA and Ezemvelo KZN Wildlife viewed the potential to enhance CEA through participation with the CMA engagement. This was necessary in determining why they were not taking advantage of such an opportunity. When questioned about participation with the CMA engagement space as a means to enhance CEA responses varied. There was however some common overarching themes that emerged. Pietermaritzburg DAEA and Ezemvelo KZN Wildlife employees in general felt that participation with the CMA engagement space would at the very least have the potential to increase the level of consultation in decision making as theses forums encompass all the major stakeholder groupings within the region. They were however concerned about the barriers to participating with the CMA"s. As stated by an employee from the Hilton office of the DEA" *In spite of the many associated issues, engagement with this type of participatory forum would minimally give us access to the views and knowledge of other sectors involved in resource management as many of them attend theses forums (DEA employee)*.Interviewees also acknowledge that participation with the CMA engagement space could, through the linkages between land and water and the potential accesses to a wealth of information from multiple organisations, give value to CEA. When questioned further respondents felt that such a participatory approach could lead to more informed

decision making as the CMA engagement space encompassed the majority of major stakeholder groupings within the region. DAEA and Ezemvelo KZN Wildlife employees also felt that participating with the CMA engagement space could help to address some of the issues relating to poor application of the CEA process. First and foremost interviewees felt that participation with the DWA in the CMA engagement space had the potential to alleviate the issue of size. Respondents readily admitted that local agencies working in isolation are often incapable of dealing with such a mammoth task. As cited by a DAEA employee said "*We have a small enclave in Pietermaritzburg and with the knock on effects we battle look at anything more than a microcosm" (Pietermaritzburg DAEA employee).*There was an overall consensus amongst DAEA and Ezemvelo KZN Wildlife employees that engaging with the IWRM processes in the CMA engagement space would greatly increase their own ability to deal with larger areas. For example as cited by Pietermaritzburg DAEA a staff member."*We must have a framework that enables us to look at the bigger picture otherwise we take small bites out of an area until there is nothing left". Engaging with these forums would definitely give us greater coverage if we used them to their full potential (DEAE staff).*The general feeling seemed to be that participation with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements would help alleviate this lack of capacity. For example a stakeholder from the Pietermaritzburg DAEA said "*We tend to look at isolated pockets of development, and we need to look at the bigger picture. Engaging with the CMA forums would allow us to share information relating to the environmental status of each of the catchments within our area and this would definitely provide us with a bigger picture" (DAEA).*

Expert accounts also often refer to "*the lack of sufficient data"* (Smith, 2004, p1) and the need for a collaboration of knowledge and resources (Reed, 2008) as a major problem in *C*EA. Interviewees considered the lack of pertinent information to be a problem that could potentially be solved by engaging with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements.Respondents viewed participation between the DAEA and the DWA as a means to achieve better levels of consultation with the relevant role-players which in turn would lead to the sharing of information. For example an environmental manager from the Pietermaritzburg DAEA who wished to remain anonymous said "*The better the consultation, the*

better the decision making process. The IWRM and CMA forums would provide us with platform to ensure all the various role players come to the table and the consultation and information sharing would improve the decision making process"(Pietermaritzburg DAEA*).* When questioned about this many of the respondents implied that the lack of pertinent information, especially from a historical context, was inclined to severely hamper their efforts at addressing the effects of development. As cited by an employee of the DAEA. *"An important point, we can only assess what we know."Unless the same staff work, on the same projects, there is no historical context upon which to base the assessment of cumulative effects"(DAEA employee).* According to many of the respondents engaging with the IWRM processes in the CMA engagement space had the potential to remedy this by creating a platform for the sharing of knowledge and information. DAEA and Ezemvelo KZN Wildlife employees also felt that engaging with these forums would have the potential to mitigate the issue of duplicate assessments in the area as the DAEA, working in collaboration with the DWA"s CMA engagement space, would result in the sharing of information, both relevant and from a historical context, about the environmental status of the areas covered by both the DAEA and the DWA. As stated by a Pietermaritzburg DAEA employee "*The lack of availability of information is a problem, as often we face duplication of assessments in an area as we are unable to accesses historical information" (DAEA employee).*

Another common area of concern, which stakeholders felt could be addressed by engaging, was the lack of available resources (Smith, 2004). "*Resources do pose a problem. We, battle to run the models and do large scale projects." Agencies pooling their resources would greatly increase the resource base for all concerned"*(DAEA staff). While some interviewees merely acknowledged that a pooling of resources would be beneficial others actually admitted that the lack of resources was often a by product of agencies working in isolation. For example as cited" *We would all have access to a lot more resources if we didn't waste them by working in independently in the same areas" (*Pietermaritzburg *DAEA employee)* .Respondents, when questioned, did view participation between the DAEA, the DWA and the IWRM processes in the CMA engagement space as having value in assessing the cumulative effects of development. While, Pietermaritzburg DAEA and Ezemvelo KZN Wildlife employees readily acknowledged the many benefits associated with

participating with the CMA"s as a means to enhance CEA they were not taking advantage of the opportunity. It was discovered that the majority of interviewees although admitting the value, perceived participation with the DWA and the CMA"s as a process plagued with issues that needed to be thoroughly addressed in order to ensure the best possible chance at a mutually beneficial process. This suggests that the, Pietermaritzburg DAEA and Ezemvelo KZN Wildlife employees may acknowledge the benefits of participation between the DAEA and the CMA engagement space as a means to enhance CEA. They are however not recognising the full potential of such an opportunity as they are not taking advantage of it.

Despite not recognising the true potential and not taking advantage of the opportunity due to the perceived barriers, Pietermaritzburg DAEA and Ezemvelo KZN Wildlife employees felt that promoting participation between the DAEA, the DWA and IWRM processes in the CMA engagement arena, would at the very least contribute to decision making for CEA as many of the relevant role players would be part of the process. As stated by an employee from the Hilton DEA" *Effective engagement with these type of participatory forums would minimally give us access to the views and knowledge of other sectors involved in resource management as many of them attend theses forums (DEA employee)*

4.5 Initiatives to participate in addressing CEA

Another of the main objectives of this research was to identify any potential initiatives that could be used to overcome barriers to a participatory approach involving the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA. As discussed, DAEA and Ezemvelo KZN Wildlife employees for the most part seem to have recognised or are at least be aware of the of the value of engaging with the on-going IWRM processes involving CMA stakeholder engagements as a means to enhance CEA. They do however seem to be wary of engagement with the DWA and these forums as the majority of them viewed participation with the DWA as being fraught with barriers. It was therefore necessary to understand what DAEA and Ezemvelo KZN Wildlife employees viewed as potential initiatives that could be established to overcome the barriers to the

DAEA participating with the DWA and the IWRM processes in the CMA engagement space as a means to enhance CEA.

As suggested in the literature, one of the more promising initiatives towards better participation between agencies, that has emerged, is the inclusion of participation as part of policy in addressing environmental management issues (DEAT, 2004, Reed, 2008). Although this may, in many instances be an extremely powerful initiative for stakeholders to get involved, it does not however necessarily ensure participation is effective (DEAT, 2004). As was evident from a review of the literature, while stakeholders being mandated to participate may provide the platform for promoting participation, there is no assurance that they will engage effectively as this type of participation my just be a facade to ensure the appearance of adhering to policy (Reed, 2008). Respondents agreed with this by implying that mandated participation was not necessarily the recipe that ensured success. As cited by a DAEA employee" *we try and engage with other agencies in accordance with IEM. This does not however mean that us participating with other agencies is necessarily a success"(DAEA employee).* The general view among stakeholders seemed to be that, although being mandated to participate may not lead to success, it definitely created the potential for the DAEA and the DWA get involved. As cited by a Pietermaritzburg DAEA employee "*we all have to promote and get involved in participatory processes as it is part of the IEM policy within which we are all mandated to work*. *At the very least IEM provides us all with the ideal platform to initiate the engagement process* (DAEA employee)".

Much of the literature refers to no one approach that will ensure success, but rather a host of initiatives at improving the participatory process, that may be adopted in the wake of lessons learned from past experiences (Richards, et al, 2004, DEAT, 2004).For example, many of the respondents within the study area, in line with accounts in the literature, suggested that initiatives at better participation are often dependant on the context of what is trying to be achieved (Reed, 2008). While this may be the case certain generic themes emerged from respondents with regards to potential initiatives that could be established to overcome the barriers to the DAEA participating with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements

Apart from a number of specific barriers that needed to be overcome, stakeholders in general felt that a change in mindset and attitude towards participation would act as an extremely important initiative. For example one of the respondents from the Hilton DAEA said". *At this stage however we need, as I have said to see a mind change towards participation from all sectors" (DAEA employee).* The general consensus was that a change in attitude was needed with regards to the way ongoing participation between the DEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to assess CEA was perceived and conducted. For example one of the respondents from the Pietermaritzburg Ezemvelo KZN Wildlife said." *We should view participation with the DWA as a potential opportunity to enhance CEA. We should be initiating participation with the DWA as minimally participation would drastically increase our own decision making capacity through the sharing of information and increased consultation"* (Ezemvelo KZN Wildlife employee).The general feeling was that the perceptions of what participation represented needed to be changed. DAEA and Ezemvelo KZN Wildlife employees from the region felt that this was necessary as participation with the DWA was currently viewed as a process fraught with barriers limiting its effectiveness. Interviewees also implied that this perception coupled with participation, based on mandated policy, often generated further issues. As cited by a Pietermaritzburg DAEA employee "*we should be getting involved with the IWRM and CMA forums because we see the opportunities to address many of the issues associated with CEA, not because we are mandated to do so*"(DAEA employee). In expressing the need for a change in attitude towards participatory endeavours stakeholders implied that, viewing participation as a beneficial process and embracing its full potential was a key component in ensuring a change in attitude towards engagement.

In conjunction with changing the way in which participation was perceived members of the Pietermaritzburg DAEA also suggested that the manner in which participation was practised also needed to be looked at. As cited by a Pietermaritzburg DAEA staff member "*perhaps we need to look at participation more holistically rather than getting involved only when meetings are scheduled"* (DAEA employee). DAEA and Ezemvelo KZN Wildlife employees also suggested that the benefits of participating with the IWRM processes in the CMA engagement space as a means to enhance

CEA be highlighted, as this would act as a powerful initiative for all parties to get involved. Respondents also felt very strongly about the issue of commitment to participation. As previously discussed, other barriers aside, many stakeholders attributed the failure of participatory processes to a lack of commitment from the relevant role players. For example one stakeholder from the Hilton DAEA said "*It is often considered a schlep by participants in getting to the meetings and participating" (*DAEA employee). When questioned, the general feeling amongst respondents was that commitment to participation between the DAEA and the DWA needed to be improved and stakeholders needed to be motivated to participate. Some stakeholders suggested that commitment to participation would arise from enforcing existing participatory policy. The majority of stakeholders again however referred to a change in mindset towards participatory processes and implied that a better outlook towards participation should increase commitment levels. For example one of the respondents said" *commitment is about recognising the value of engaging, and remaining loyal to a process that has the ability to benefit all sectors" (DAEA employee).*

The common feeling amongst stakeholders was that initiatives at better participation, especially those between the DAEA and the DWA required facilitation from committed parties. Pietermaritzburg DAEA and Ezemvelo KZN Wildlife employees suggested that a change in attitude in conjunction with acknowledging the full potential of the CMA engagement space as a means to enhance CEA through participation should encourage commitment. As with the documented accounts in the literature, it seems that stakeholders within the study area have recognised that an important initiative for agencies to participate is improving the way in which participation is perceived and being committed to the process.

The sheer size of what participation in addressing CEA represents was also considered to be an issue amongst stakeholders. In creating an environment conducive to participation DAEA and Ezemvelo KZN Wildlife employees felt that, while the size of such a process was an issue, the mere act of engaging with the IWRM processes in the CMA engagement space would act as an potential initiative, as the CMA engagement space encompasses the majority of local stakeholders. For example a DAEA employee from the Hilton office said "*said we all work in*

isolation with respect to CEA. We never know what other agencies are up to in our areas. We should rather concentrate on pooling our efforts when tackling CEA. Engaging with the IWRM and CMA forums should increase our capacity to deal with larger areas as we would be engaging with local role players and have access to local information "(DAEA employee)

In considering potential initiatives to overcome the political barriers to participation respondents suggested that planning was key aspect to consider. DAEA and Ezemvelo KZN Wildlife employees also felt that participatory initiatives should acknowledge issues such as jurisdictional boundaries, who would drive the process from a decision making aspect and who would accept responsibility for the decisions made. For example an employee from the Pietermaritzburg Ezemvelo KZN Wildlife said "*We need to consider, in more detail, the size, nature and linkages, engaging with the IWRM and CMA forums in addressing CEA represents and move forward from there" (*Ezemvelo KZN Wildlife*)* and in a similar vein an employee from the DAEA said *"In establishing initiatives at participation there needs to be communication protocols. Who are the identified stake holders? Who can represent an organisation? "*Again DAEA and Ezemvelo KZN Wildlife employees are not recognising the true potential of participating with the CMA engagement space as many of these perceived issues would be addressed mealy by engaging.

Respondents tended to place a considerable amount of emphasis on receiving support from the relevant decision makers and suggested that participating with the CMA"s who have the power to make decisions and apply IWRM at catchment level would act as a powerful initiative for the DEA to get involved in addressing CEA."*I think we need to focus on forward planning and influencing other role players and decision makers to engage in what we are doing and vice versa. I feel that engaging with bodies like the CMA"s would act as a powerful initiative for us to participate as they have the power to make and enforce decisions that would influence us"* (Pietermaritzburg *DAEA employee).*There seemed to be a common feeling amongst stakeholders that if participation between the DAEA and the DWA in addressing CEA was seen to be backed by those with the power to make decisions more stakeholders would get involved. As one of the respondents from the Hilton DAEA said "*We would need to see all stakeholders in a participatory process willing to*

share information and this type of mind set can only by driven from with the authority to do so" (DAEA employee).

While stakeholders readily acknowledged that initiatives at better participation needed to conquer issues of a political nature, they also agreed that other issues needed consideration. Stakeholders also felt that in addition to issues of a political nature the issue of resources, assigned to participatory processes, also needed to be considered from both a staffing and economic aspect. The majority of interviewees did however acknowledged, that in this case that the act of participation would act as an initiative as participation between the DAEA and the CMA engagement space, would provide additional resources, both economically and in terms of staffing for CEA. For example one respondent said "*we would require half the staff and our lives would be so much less complicated if we could share the information obtained by the DWA in our area rather than use our own staff to gather similar data sets" (DAEA employee).*This view seemed for the most part to be shared however there were some respondents who suggested that, participatory initiatives between the DAEA and the DWA in addressing CEA receive additional funding and staffing to ensure success. For example a stakeholder from the DAEA simply said "*if we are to initiate participation with the DWA and the IWRM and CMA forums to address CEA we will need additional staff and perhaps additional budgetary requirements to ensure the process is initiated successfully and does not flop"(* Pietermaritzburg DAEA employee*).* Despite the varying views on whether sufficient resources would be made available through act of participating or by being assigned, respondents tended to agree that providing sufficient resources would act as a participatory initiative and was necessary to ensure success. A common trend amongst respondents with regards to potential initiatives at participation between the DAEA, the DWA and the ongoing IWRM processes involving the CMA stakeholder engagements in addressing CEA was to identify ways of dealing with case specific issues that they perceived as barriers. Further probing however found that despite this, DAEA and Ezemvelo KZN Wildlife employees, in general did recognise that many of these specific issues were often a result of a lack of participation. DAEA and Ezemvelo KZN Wildlife employees also implied that one of the more important initiatives that could be established to enhance participation was for those involved

to acknowledge the true potential of what engaging with the CMA meant for CEA and engage with a positive outlook.

4.6 Summary

In this chapter, findings relating to the current status of CEA in the study are discussed, from the perspective of the Interviewees. Data relating to each of the research objectives was then examined starting with the dynamics of participation and the DAEA participating with CMA engagement space as a means to assess CEA. Interviewee‟s views on barriers to participation between the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA were then outlined. The potential for enhancing CEA through engaging with the CMA engagement space was then discussed. Finally the findings on potential initiatives to overcoming the barriers to the DEA participating with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA were analysed from the stakeholder‟s perspective.

Chapter 5: Discussion and Conclusions

5.1 Introduction

The overall aim of this research was to investigate the potential to enhance CEA through participation between the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. This aim was to be achieved by addressing three specific objectives. The first was to understand the DAEA employee‟s views on participation, with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, as a means to enhance CEA. The second was to identify whether the DAEA has recognized the potential to enhance CEA through a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. The third and final objective was to identify any potential initiatives that could be used to overcome barriers to a participatory approach involving the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, as a means to enhance CEA.

In answering each of the research objectives, the implications of what the analysed information represents is discussed in greater detail and conclusions are drawn. It must however be acknowledged that as this study was qualitative in nature the researcher had certain preconceived ideas relating to the subject matter, which were expected to be confirmed during the course of the study. The researcher did however make every attempt to remain neutral and any partiality on the researcher‟s part was considered when conclusions were drawn. In this chapter a summary of what was found during the analysis of the interviews is discussed from the perspective of each of the research objectives. Thereafter conclusions are drawn in order to answer the specific research objectives. Recommendations are made and finally areas for further research are briefly discussed.

5.2 Participation with the DWA as a means to address CEA

The first objective of this study was to understand the DAEA employee‟s views on participation, with the DWA and the ongoing IWRM processes involving CMA

stakeholder engagements, as a means to enhance CEA. There seemed to be a consensus amongst the DAEA employees interviewed that participation between themselves and the DWA, within the study area, was taking place and was being promoted. The general impression however was that this seemed to be largely because agencies were mandated to do so in adherence with policy. Employees interviewed from the DAEA, in general, were reluctant to comment on the degree and effectiveness of participation between themselves and the DWA with regards to CEA and they seemed to be dissatisfied with the outcomes. It was discovered that although the DAEA was obligated by policy to engage, effective participation with the DWA in addressing CEA appeared for the most part to be limited.

DAEA and Ezemvelo KZN Wildlife employees did however seem to acknowledge the potential value of participation and seemed enthusiastic about a participatory process between the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagementsas a means to enhance CEA. Despite participation between the DAEA and the DWA being mandated by policy, it was discovered that participation within the study area, as a means to enhance CEA tended to be ineffective and burdened with, predominantly perceived barriers which frequently led to poor performance. DAEA and Ezemvelo KZN Wildlife employees were inclined to view participation with the DWA as a frustrating process that was frequently laden with limitations. DAEA employees did however readily admit that, the DAEA engaging with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements had value and could be a beneficial to enhancing CEA. DAEA and Ezemvelo KZN Wildlife employees did however not recognise the full potential that such an opportunity represented as they were not engaging and continued to voice concerns over the many barriers they perceived would hinder the process.

5.3 The potential to address CEA through participation

The second objective of this study was to identify whether the DAEA has recognized the potential to enhance CEA through a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. In general

interviewees from the DAEA and Ezemvelo KZN Wildlife recognised the value of participation with the CMA engagement space as a means to enhance CEA. Employees from the DAEA and Ezemvelo KZN Wildlife did acknowledged the linkages between land and water and how engaging with the ongoing IWRM processes involving CMA stakeholder engagements, as discussed in chapter two, could have the potential to increase their own capacity in dealing with CEA. They also recognised how engaging with the CMA"s could open up the potential for addressing many of the issues associated with the poor application of CEA. Despite recognising the value it was found that DAEA and Ezemvelo KZN Wildlife employees express concerns, based on past experiences, about the many barriers, highlighted in the next section, relating to such a participatory process. It was discovered that DAEA and Ezemvelo KZN Wildlife employees have not recognised the true potential of engaging with these forums as interviewee"s were reluctant to take advantage of such an opportunity as they perceived the process to be fraught with barriers. While DAEA and Ezemvelo KZN Wildlife employees may not have recognised the full potential, they were definitely open to the idea of enhancing CEA by engaging in the CMA engagement space as discussed in chapter two.

5.4 Factors limiting participation with the DWA in addressing CEA

It was determined that barriers to the DAEA participating with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing the cumulative effects of development arose from certain key areas of concern. The most prominent barriers to such a participatory process seemed to be psychological in nature relating to the attitude and mindset of DAEA and Ezemvelo KZN Wildlife employees towards participatory processes. Employees from the DAEA perceived participation between themselves and the DWA as a process fraught with barriers, as highlighted in chapter four that needed to be addressed. DAEA and Ezemvelo KZN Wildlife employees, based on past unsatisfactory outcomes, seemed to have a poor mental outlook when it came to participation with the DWA in addressing CEA. It was however found that this poor perception and the lack of success with participatory processes could frequently be related to the manner in which DAEA and Ezemvelo KZN Wildlife employees participated. As discussed in chapter four DAEA and Ezemvelo KZN Wildlife employees often viewed participation with the

DWA as attending a series of meeting rather than an ongoing mutually beneficial process. DAEA employees also failed to acknowledge that many of the issues they perceived as barriers could be mitigated simply through the act of participating in a different manner. Although no interviewees actually expressed the need to change the way in which they participated, it was evident from their dissatisfaction with the outcomes of participation with the DWA that a change in approach was needed. The poor attitude towards participation and the perceived barriers tended to prevent DAEA and Ezemvelo KZN Wildlife employees from taking full advantage of participation with the CMA engagement space as a means to enhance CEA. DAEA and Ezemvelo KZN Wildlife employees did not seem to recognise the true potential, as discussed in chapter two, of what participating in the CMA engagement space could mean for CEA.

In addition to the poor outlook interviewees had towards participation other very real issues were also considered to pose formidable barriers to participation between the DAEA and the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA. DAEA employees viewed the size, of what participation in addressing CEA represented, as a major barrier. DAEA employees did not seem to recognise that it was not necessary for them to initiate such a process as the existing CMA engagement arena already incorporated the majority of sectors in a participatory process in the management of water and all that was necessary was for them to engage appropriately. Associated with this, those interviewed were concerned about infringing on each other"s boundaries during the participatory process. DAEA and Ezemvelo KZN Wildlife employees, as previously discussed, have failed to acknowledge the full potential of engaging with the CMA engagement space as a means to address CEA. DAEA and Ezemvelo KZN Wildlife employees have not considered that the interactions that take place amongst the multiple sectors within the CMA engagement arena, is already a process that, considers and crosses boundaries, in the management of water resources.

Another area of concern, which employees from the DAEA and Ezemvelo KZN Wildlife considered important, tended to revolve around barriers of a political nature, especially the issues of authority, control and accepting responsibility. It was found during the interviews that both the DAEA and the DWA tended to be extremely

protective over what they perceived as their own interests and seemed reluctant to relinquish control, during participatory processes. This appeared to pose a major barrier, especially to the DAEA who adopts an authoritative role, as they implied that engaging in genuine participation with the DWA in addressing CEA would required them to relinquish their authoritative position. This is a limiting view, unfortunately, because all sectors involved in resource management, including the DAEA are mandated through policy to participate. Although being mandated, those DAEA employees interviewed were reluctant to engage and expressed concerns over relinquishing the authoritative role. This further reinforces that DAEA employees have failed to recognise the true potential, as described in chapter two, of participating in the CMA engagement arena as a means to enhance CEA. Participating in the CMA arena in enhancing CEA would not require them to relinquish control but rather increase their ability to deal with CEA due to the multi-faceted perspective and sharing of knowledge and resources they would gain through participating. DAEA employees also expressed concerns over the reluctance of the DAEA and the DWA to accept responsibility for decisions made during participatory processes and were concerned about how such a participatory process should be managed. Again this shows that DAEA employees have not recognised the true potential of engaging in the CMA arena. Engaging in the existing CMA arena would allow the DAEA to make decisions concerning CEA based on consensual and sound options generated by all sectors with a vested interest. DAEA employees have also not recognised that the members of the CMA board have continuous and strong opportunities to influence decisions, by DWA, relating to water, which is directly linked to the management of many of the DAEA‟s activities within the region. This would give the DAEA, through participation with the CMA engagement arena, the opportunity to formulate well informed and co- operative decisions relating to CEA.

Insufficient resources assigned to participatory processes, was also considered a barrier and although financial implications were mentioned, stakeholders seemed to place more emphasis on the lack of staff. DAEA employees have not taken into consideration that participating in the CMA engagement arena would, through sharing, increase the resource base to deal with CEA both from a financial and staffing perspective. As discussed in chapter two ongoing engagements in the CMA

engagement space by all government, business and civil society stakeholder sectors would lead to the sharing of knowledge and information as well as physical resources such as monitoring facilities, computer servers and data bases, which would improve the DAEA‟s ability to enhance the CEA process. Levels of commitment also posed a threat and there were underlying hints from employees of both the DAEA and Ezemvelo KZN Wildlife that levels of commitment were usually directionally proportional to the benefits they perceived they could derive from the process. It was also found that commitment to participation with the DWA was often proportional to the way in which participation was perceived by the respondents. As discussed previously in this chapter DAEA employees tended to have a poor mental outlook towards participation with the DWA which seemed to play a significant role in the levels of commitment to participatory processes. DAEA employees did not recognise that commitment to participation in enhancing CEA was not merely about attending the occasional meeting but about being committed to open, transparent and ongoing sharing and engagement to build joint information systems and synthesised understandings.

5.5 Initiatives to participate with the DWA in addressing CEA

The third objective of this study was to identify any potential initiatives that could be used to overcome barriers to a participatory approach involving the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA. As discussed in chapter two, participation as a means to address CEA is mandated as part of policy under the NEMA Act (DEAT, 2004; Reed, 2008; NEMA, 1998). The NEMA Act mandates a co-operative approach to governance which requires all sectors to participate, in the management of natural resources, in accordance with policies such as IEM, IWRM and IDP. While mandated participation provides the necessary platform, employees from both the DAEA and Ezemvelo KZN Wildlife acknowledged that mandated participation was not necessarily effective participation. DAEA and Ezemvelo KZN Wildlife employees did however considered certain potential initiatives as extremely important in creating an environment conducive to participation, in the CMA engagement arena, as a means to enhance CEA. DAEA employees, as discussed in chapter four, tended to place a lot of

emphasis on a change in attitude and mindset towards participation. There was a common consensus that the way in which participation was perceived and the manner in which it was carried out needed to be changed. It was also felt, by DAEA employees that the benefits of what effective participation represented, needed to be highlighted as this would act as a powerful initiative for the DAEA to engage in the CMA engagement arena as a means to enhance CEA. The majority of DAEA and Ezemvelo KZN Wildlife employees interviewed felt that, a change in perception in conjunction with the DAEA recognising the full potential, discussed in chapter two of what participating within the CMA arena could mean for CEA should in its own right act as a potential mechanism for engagement. The issue of commitment also seemed to be an important aspect and while some interviewees suggested that, commitment should be an enforced process in accordance with policy. Others suggested that commitment should be enhanced by highlighting and acknowledging the benefits of effective participation. DAEA employees also implied that if the way in which participation was perceived and the manner in which it was conducted was changed commitment would become a by- product of reaping the benefits of effective engagement.

DAEA employees also felt that, in addition to increasing the levels of commitment, initiatives at participation between the DAEA and CMA engagement space in enhancing CEA be planned better. This they implied would mean considering, the many political issues such as control, responsibility and who would drive the process. The general view seemed to be that if the process was planned better, this would act as an initiative for employees to get involved. These issues were considered important and again it seems to be that DAEA and Ezemvelo KZN Wildlifehave not acknowledged the full potential of the CMA engagement arena as a means to enhance CEA. If they had they would realise that the CMA engagement space is an existing participatory platform that represents a coming together of all the relevant sectors, in the management of water and as such is overseen by the DWA. In addition the CMA engagement arena has the capacity to provide the DAEA with informed options, based on the input of all the relevant sectors, in assessing the cumulative effects of development. If the DAEA acknowledged the full potential of such an opportunity this would be a powerful initiative for them to engage as many of the perceived barriers would be mitigated through engaging with the CMA

engagement arena. For example responsibility and control would not necessarily be an issue in a participatory arena based on co- operative approach to decision making with common goals, objectives and resources. While DAEA and Ezemvelo KZN Wildlife employees may not have acknowledged the full potential they did however suggest that the CMA;s authority to make decisions and enforce an integrated approach at catchment level would act as a strong initiative for the DAEA to become involved with the ongoing IWRM processes involving CMA stakeholder engagements. DAEA Ezemvelo KZN Wildlife employees also suggested that having sufficient resources in terms of staffing and finances, to ensure participatory processes were successful would act as an initiative for them to engage with the CMA"s as a means to address CEA. Again DAEA and Ezemvelo KZN Wildlife employees have failed to recognise that the multi- sector IWRM approach to water recourse management adopted by the CMA" s would provide ample resources through the sharing of knowledge, geographical location information and other necessary resources.

5.6 Conclusions

In order to gain an understanding of the potential to enhance CEA through participation between the DEA, the DWA, data was collected in the form of a literature review and semi structured interviews conducted with employees from the DAEA and Ezemvelo KZN Wildlife. Prior to the analysis of the data certain predictions, discussed in chapter four, were made by the researcher and the subsequent findings, confirmed that the current application of CEA within the study area is limited. It can be concluded, based on the analysis of the collected data, that participation between the DAEA and the DWA in addressing CEA, although promoted in accordance with policy, seemed to be ineffective and was perceived by DAEA and Ezemvelo KZN Wildlife employees to be hindered by barriers. It was also evident, that the DAEA had not recognised the full potential of what engagement with the CMA engagement space, as discussed in chapter two, could mean for CEA. This in conjunction with the many perceived psychological barriers and the manner in which participation was conducted, resulted in the DAEA not taking full advantage of participating with the existing IWRM process in the CMA engagement space as a means to enhance CEA.

As shown figure 6 below perceived barriers, discussed in chapter 4, are preventing the DAEA from recognising the true potential and taking full advantage of engaging with the CMA engagement space which is overseen by the DWA and used in the decision making process for the integrated management of water resources at catchment level. These perceived barriers are also preventing the DAEA from reaping the benefits of what effective participation with a multi- sector engagement arena such as the CMA could mean for CEA even though a large portion of their responsibilities are directly linked to the management of water.

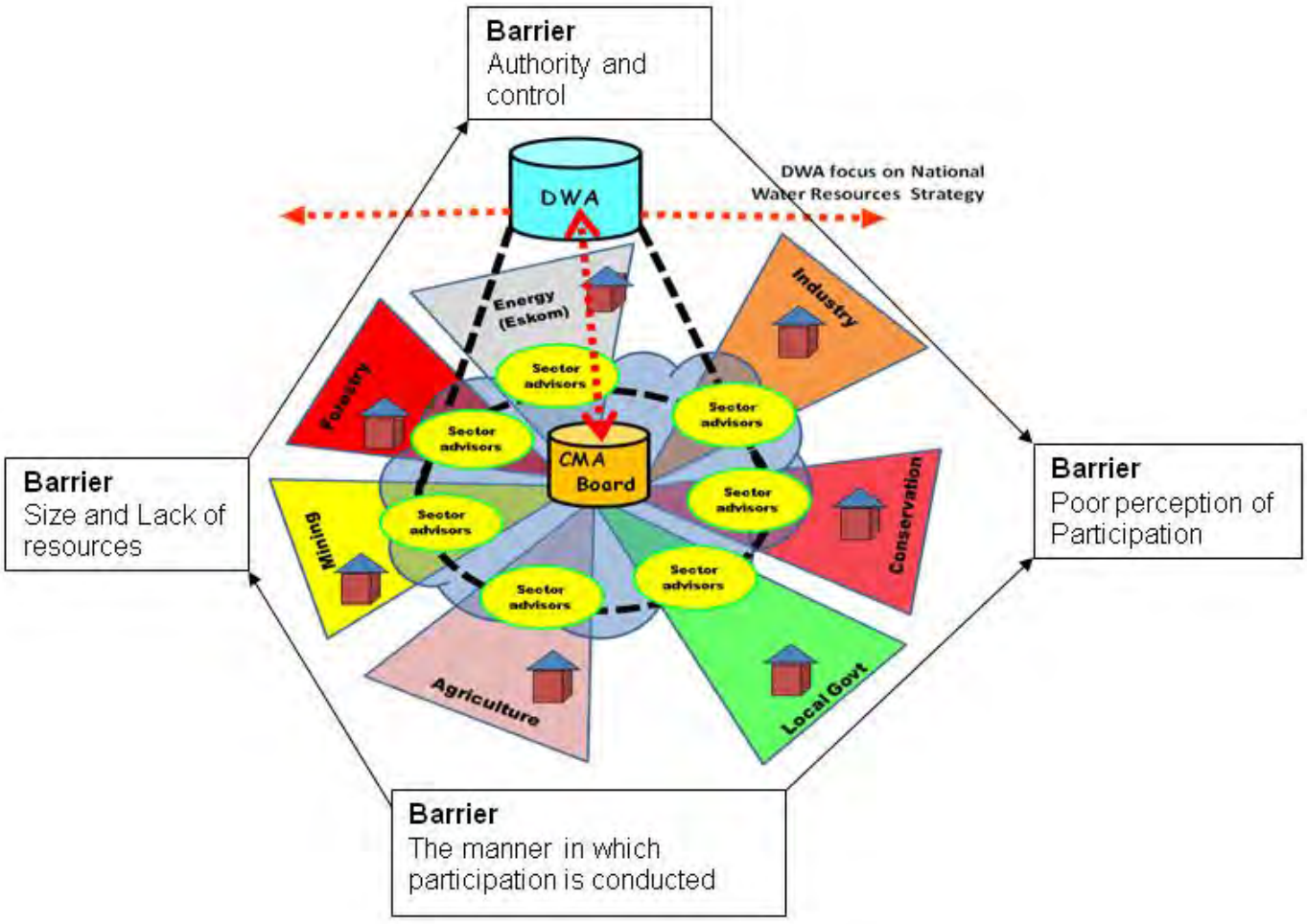

Figure 5 Perceived barriers preventing the DAEA from engaging in the CMA engagement space. Source: Adapted from (after Dent, 2012, p 4)

The main aim of this research was to investigate the potential to enhance CEA through participation between the DAEA, and the processes that the DWA uses to achieve IWRM within the multi-stakeholder CMA engagement space.Based on the on the relevant findings it can be concluded from an overall perspective that overcoming the barriers to such an opportunity by establishing initiatives at participation between the DEA ,the DWA and the ongoing IWRM processes involving CMA stakeholder engagements would indeed have the potential to enhance the CEA process.

Sector	Representative	Ministry to support this Sector	Civil Society & Business Groups to support this Sector
Commercial agriculture	Mr Cas du Preez	Agriculture	Agri-SA; Agricultural Unions; Co-ops
Tourism	Mr Edward Thwala	Tourism	Tourism industry has many collective NGO groupings
Conservation	Mr Francois Roux	Environment Affairs	WWF; WESSA; EWT; Wildlands Trust; SA Conservation Trust
Water by the poor	Ms Grace Mashele	Social Development	
Traditional leaders	Mr Inkosi Mkhathswa	Cooperative Governance and Traditional Affairs	Congress of *Traditional Leaders* **of** *South Africa (CONTRALESA)*
Provincial government	Dr G H Karim	Cooperative Governance and Traditional Affairs	
Productive water use	Mr Krisjan Mokoena		SA Association of Water User Associations
NGOs	Ms Lilian Masilela	Social Development	This whole column & more
Emerging farmers	Mr Moses Makhubela	Rural Development and Land Reform Agriculture	National African Farmers Union NAFU
Industry/ business	Mr Nandha Govender (ESKOM)	Trade and Industry Public Enterprises Energy Mineral Resources	Business Unity SA National Business Initiative(NBI) SA Chamber of Business Business Leadership SA Chamber of Mines
Local government	Ms Patience Nyakane-Maluka (chair)	Cooperative Governance and Traditional Affairs Human Settlements	SA Local Govt Assoc (SALGA) Local Chambers of Business in each city
Forestry	Ms Patricia Mothibi	Trade and Industry (Pulp & Paper industry) Agriculture	Forestry SA

Table 2 Composition of the Incomati CMA (ICMA) Board in 2005
Source: (Dent, 2005)

Referring again to table 2 from chapter 2, the CMA"s overseen by the DWA include the majority of sectors within the region in a participatory process in the management of water at catchment level. Engaging with the DWA would open up the potential for

the DAEA of what participation with the CMA"s, which encompass multiple sectors policies, strategies and organisations could do for the DAEA in addressing CEA. Participating within the CMA engagement arena would provide the DAEA with greater capacity in assessing CEA through the sharing of resources, knowledge and geographical location, this type of participatory approach would also, based on the relationship between land and water, give employees from the DAEA and Ezemvelo KZN Wildlife a more holistic understanding of their own areas. In addition, engaging with the CMA"s would enhance the DAEA"s capacity to make informed decisions based on the best possible options as the majority of the sectors involved in the CMA engagement arena also have a direct link to land based activities which fall under the DAEA"s jurisdiction. Engaging with the CMA"s as a means to enhance CEA would also give the DAEA access to a wealth of information and the perspectives of local level role-players in assessing CEA.As one of the employees from the DAEA put it "*The IWRM and CMA forums are definitely some of the participatory platforms that we would look to engage with in addressing CEA. The wealth of information and resources that could be shared at these sessions would definitely help us do our job"(DAEA employee).*Thus the CMA engagement arena would certainly have the potential to incorporate all sectors with a mutually vested interest into a participatory process with the DAEA as a means to enhance CEA.

Following a comprehensive analysis of the collected data conclusions relating to each of the various research objectives were also drawn. One of the main objectives of this research was to understand the DAEA"s views on participation by determining what the DAEA perceives as factors relating to a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA. It was concluded that while participation between the DAEA and the DWA in accessing CEA, is a process that is mandated and promoted in accordance with policy, it is also a process that is considered by stakeholders to be less than successful. It was found that the lack of success was largely due to perceived barriers and the manner in which participation between the DAEA and the DWA was conducted. It can therefore be concluded that participation between the DAEA the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA is a process that is perceived to be fraught with barriers, as discussed as factors limiting participation in the previous section. It was

also apparent that while very real logistical issues were evident the majority of barriers to such a process were psychological in nature and DAEA and Ezemvelo KZN Wildlife employees felt that the manner in which participation was perceived needed to change. DAEA and Ezemvelo KZN Wildlife employees recognised that in order to successfully enhance CEA through participation a dramatic change in the way participation was conducted was also necessary.

Another objective of this study was to Identify whether the DAEA has recognized the potential to enhance CEA through a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements. It was found, based on DAEA employee‟s enthusiasm for the concept, that employees from the DAEA have recognised the value such an opportunity could present. In addition to the obvious benefits that participation can bring to enhancing the CEA process DAEA employees seem to have recognised the link between land and water and how their own process often overlap those of the DWA. While those involved did seem to recognise the value, they were however concerned about barriers to such a process and expressed the need for these to be mitigated and or marginalised. As mentioned DAEA and Ezemvelo KZN employees were reluctant to take advantage of participation with the CMA‟s as a means to assess CEA as they perceived the process to be fraught with barriers. Employees from the DAEA and Ezemvelo KZN Wildlife have not recognised the full potential of such an opportunity as they would recognise that engagement in the multi sector CMA engagement arena would definitely have the potential to enhance CEA. As discussed in chapter 2 engaging with the CMA‟s would give the DAEA access to an existing engagement arena, overseen by the DWA, which includes the majority of sectors involved in the management of resources within the region. As discussed previously in this chapter engaging in such an arena would not only increase the DAEA‟s decision making capacity for CEA but would also have the potential to mitigate many of the perceived barriers through the sharing of knowledge, systems, geographical location and resources. It can therefore be concluded that DAEA and Ezemvelo KZN Wildlife employees have not recognised the full potential of addressing CEA by participating with the DWA and the ongoing IWRM processes involving CMA stakeholder

engagements as they are not taking advantage of the potential that such an opportunity represents for CEA.

The final objective of this study was to identify any potential initiatives that could be used to overcome the barriers to a participatory approach involving the DAEA, the DWA and the ongoing IWRM processes involving CMA stakeholder engagements, in addressing CEA. As previously discussed any number of strategies that promote participation can be considered as initiatives (Reed, 2008) however in conducting this study it was concluded that one of the more important initiatives that could be established to encourage participation was for stakeholders to change the manner in which they participate and their attitude and mindset towards the DAEA engaging with the DWA and and the ongoing IWRM processes involving CMA stakeholder engagements as a means to enhance CEA. As cited by a stakeholder from the DAEA "*what we all really need is to approach participation with an open mind as only then would we begin to see and understand the possibilities of what effective participation with the IWRM and CMA forums could do for CEA*"(DAEA employee)

While the attitude towards and the way in which participation was perceived and conducted, was considered to be an extremely important initiative towards engagement other potential initiatives were also considered. One of the more obvious reasons for the DAEA to engage with the DWA in addressing the effects of development is that both agencies are required through various policies to engage with one another. This, based on a review of previous attempts at participation between the DAEA and the DWA indicated minimal successes. It was concluded that mandated participation is often burdened with political issues relating to, among other things, jurisdictional boundaries and the issue of facilitation and control, which tend to hinder the process. It was however also concluded that, in the wake of minimising such issues through a change in attitude and approach, participation as part of policy is certainly a step towards creating a platform for the DAEA to engage with the DWA and the and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA. Highlighting, the potential, and taking advantage of, what participation between the DEA, the DWA and and the ongoing IWRM processes involving CMA stakeholder engagements could bring to the CEA process was considered extremely important. Employees from both the DAEA and Ezemvelo

KZN Wildlife felt that if they could identify with the benefits of such participation in terms of greater capacity through pooled resources, information sharing, better decision making and increased understanding, this would act as a powerful initiative for them to get involved. It was concluded that this in conjunction with policy and a change in attitude would certainly contribute towards the DAEA engaging in ongoing participation with the DWA and and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA. It can therefore be concluded that in order for DEA to transcend the perceived barriers to participation with the DWA and and the ongoing IWRM processes involving CMA stakeholder engagements, stakeholders from all sectors need to change their perceptions of effective participation, embrace the full potential of what such an opportunity represents and take advantage of it.

5.7 Recommendations

Based on the on what was discovered during the course of this study and the conclusions drawn, recommendations relating to the opportunities for the DAEA to work towards a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA have been suggested by the researcher. Documentation and accounts from the interviewees suggests that although mandated and promoted the DAEA does not seem to be taking full advantage of the potential, engagement with the DWA and the ongoing IWRM processes involving CMA stakeholder engagementshas to enhance the CEA process. It does however seem that there are a number of avenues that may be explored as possible solutions to enhancing CEA through participation between the DAEA and the DWA. One option would be to ensure the DAEA participates with the DWA and and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA by enforcing existing participatory legislation. This however as discussed may be a some- what of a flawed solution, as past experiences have indicated that enforced participation is not necessarily effective participation (Reed, 2008).Participation between the DEA and the DWA, in addressing CEA, should rather be a more natural process where stakeholders participate because they recognise the potential of what participation within the CMA has to offer CEA, by participating, not because they are forced to do so. It may also

be necessary through initiatives, to put in place mechanisms that ensure the DAEA are able to overcome the perceived barriers and acknowledge the true potential of participating with the CMA‟s in enhancing CEA.

In instances where resources are scarce, in CEA, it is recommended that in addition to pooling resources by participating with the CMA‟s, the DAEA makes attempts to involve industry and other relevant role players to ensure that participation in addressing CEA succeeds. DAEA employees also need to find ways to change their attitude and increases levels of commitment to participation with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA. While this should be a direct result of DAEA representatives perceiving the true potential of what participation of this nature can bring to CEA it may be necessary to establish some form of incentive scheme to ensure commitment amongst DAEA employees.

5.8 Areas for further research

This study may have enlightened certain features with regards to the DAEA adopting a participatory approach with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements in addressing CEA. It is hoped that by highlighting the situation better participation can be facilitated, however it can also be considered as the starting point for areas of further research. Any number of avenues relating to the research topic may have the potential to be explored in greater detail, as further research. It must however be acknowledged that it may be difficult to pinpoint one particular topic. One particular area of interest that would warrant further research is to explore the challenges faced by the CEA process and the development of the CMA‟s to This would ascertain what how these challenges would influence the participatory potential highlighted in this study. It seems that the issue of how stakeholders perceive participation warrants further exploration and it would be informative to look at mechanisms designed to influence the way participation is perceived. The issue of the DAEA‟s commitment to participation with the DWA and the ongoing IWRM processes involving CMA stakeholder engagements should be explored in more detail and it would be interesting to understand how procedures

cold be developed to enhance said commitment. Another area that warrants deeper exploration is current participatory policy and its application. It would be of interest to investigate whether policies such as IWRM and IEM are sufficient in terms of legislation to ensure effective participation, or whether a change in approach to participatory policy is needed.

5.9 Summary

In this chapter a summary of the key findings was presented. Thereafter conclusions are drawn and discussed with regards to each of the specific research goals and objectives. Recommendations are made and discussed with regards to agencies adopting a participatory approach with the DWA and the IWRN forums in addressing CEA. Finally areas for further research are suggested based on the researcher"s points of interest

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Appendix A: Interview Question Guide:

Research Interview Questions

Introduction

1. Tell me about how the Cumulative effects of development?
2. What is your role / involvement in addressing the Cumulative effects of development?
3. Do you deal with other stakeholders when performing your role?
4. Can you give me a brief description of your duties in this role?
5. What challenges do face in this role?

Perceiving the problem

1. What do you perceive as major problems in addressing the cumulative effects of development?
2. How do these problems affect you in your current role?
3. How do you think these problems could be solved?
4. Do you think other agencies are experiencing similar problems?

Perceptions about participation based on the objectives of the research

1. Do you think a multi agency participatory approach would aid in addressing the CEA (if so why)?

2. Which agencies do you consider to be responsible and think should participate in addressing the problem?

3. Have you considered participating with the DWA and the existing multi stakeholder IWRM and CMA forums a potential solution to addressing the Cumulative effects of Development?

4. Do you think that participating with the DWA and these forums used to achieve IWRM would benefit your agency

5. Have you participated with the DWA and other agencies in the past? How successful was the process?

6. What should potentially motivate your agency to want to participate with the DWA and the IWRM and CMA forums (or not)?

7. What do you think would prevent your agency from participating?

8. How do you think your agency could contribute to the participatory process?

9. Do you think CEA could be enhanced through engaging with the DWA and the multi stakeholder IWRM and CMA forums?

10. What initiatives do you think could be established to ensure effective on going participation between you and theses forums ?

11. Who do you think would need to establish and control these initiatives at participation?

12. What factors do you think are important to consider when establishing initiatives at participation

13. If you had limitless resources how would you solve the problems associated with addressing the cumulative effects of assessment