

# Participatory Rural Appraisal Approaches, to improve Public Participation in South African EIA

**JJ Chabalala**  
**22187936**

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Supervisor: Prof LA Sandham  
Co-supervisor: Prof HH Spaling

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## **Abstract**

The Public Participation (PP) process is an important part of Environmental Impact Assessment (EIA) nationally and internationally. PP provides a platform where everyone affected directly and or indirectly by a development proposal can have an impact in the decision-making process.

PP ought to involve all Interested and Affected Parties (I&APs) from the lower- to upper-class citizens in society. However, research suggests that the lower-class citizens in South Africa are not participating in PP meetings, although legislation, like the Constitution and National Environmental Management Act for example, is in place to facilitate and mandate their participation.

Rural Appraisals like Participatory Rural Appraisal (PRA), which originated in Africa and Asia, have been used in other research fields outside Environmental Management to reach the lower-class citizens. The aim of this research was to investigate to what extent the incorporation of a PRA approach, namely Participatory mapping, Focus Group Discussion, Case Study and Stories, into the current EIA system can lead to an increase in the quantity and quality of information that can be gathered during the PP processes. PRA conducted in the same communities (Koffiefontein and Theunissen) as PP, during this research, gathered significantly more information from lower-class citizens.

The aim and research objectives have been achieved and it was concluded that a PRA approach can play an important role particularly during the Scoping and Impact Assessment phases to improve public participation in EIA in South Africa, and possibly also in other countries where public participation is not optimal.

**Keywords:** Environmental Impact Assessment, Public Participation, Interested and Affected Parties, Rapid Rural Appraisal, Participatory Rural Appraisal, Lower-class Citizens.

## **Declaration**

I declare that this dissertation, apart from the contributions mentioned in the acknowledgements, is my own unaided work. It is submitted for the Degree *Magister Scientiae* in Geography and Environmental Management at the North West University, Potchefstroom Campus. I also declare that it has not been submitted before to this institution for another degree or any other institution in this country or abroad.

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# CHAPTER ONE.

## INTRODUCTION

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This chapter provides the background (section 1.1) and the problem statement to this research (section 1.2) after which the research objective and sub-research questions are introduced (section 1.3). To assist with the navigation of the text, the final section presents an outline of the dissertation, clearly linking the sub-research questions to the different chapters (section 1.4).

### 1. Background.

The relationship between human beings and the environment cannot be underestimated. Homo sapiens sapiens came to be around 200 000 to 100 000 years ago according to McCarthy and Rubidge (2005:293). Since then, human beings have been relying on the environment, thus the notion that human-environmental relationship, whether positive or negative, go beyond mere modern day and time and have formed a bond that cannot be overlooked or replaced.

Today around the world governments and non-governmental organisations (NGO's) alike, realise that this bond needs to be utilised in order to manage the world and the natural resources that we need. One of the processes used to manage natural resources is referred to as Environmental Management. One of the Environmental Management tools that are being used and implemented in many countries around the globe is the Environmental Impact Assessment system.

The Environmental Impact Assessment (EIA), system originated in 1969 when it was first introduced in the National Environmental Policy Act of 1969 (NEPA) in the United States of America (Baker and Wood, 1999:387). South Africa is one of the countries that adopted the EIA system as part of its environmental law. The EIA in South Africa was promulgated in 1997 with regards to Sections 21, 22 and 26 of the Environment Conservation Act 73 of 1989 (Sandham and Pretorius, 2008:230). The Constitution of the Republic of South Africa (108 of 1996) provides the mandate for environmental protection under Section 24 of the Constitution. Section 24 of the constitution dictates that *“Everyone has the right-*

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

*(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures...*” The South African government also implemented the National Environmental Management Act (107 of 1998), hereafter referred to as NEMA, with the purpose to enforce section 24 (b) of the constitution. There has been three phases of the NEMA regulations in South Africa: NEMA of 1998, NEMA of 2006, NEMA of 2010 and NEMA of 2014.

Furthermore, the EIA system in South Africa consists of a number of steps of which the following three are the main ones: a) Application or notification phase, which is mainly concerned with administrative processes, b) Scoping Phase, which aims to determine which environmental issues and alternatives need further investigation, and c) the Impact Assessment phase, which aims to assess all positive or negative impacts related to a proposed development (DEA, 2010). Under the EIA’s scoping phase the Public Participation (PP) component of the EIA can be utilized (IAIA, 2006:2). The core principle of PP is to allow and equip the general public to participate in the decision-making process that can potentially influence them and the environment in which they live (Andre *et al*, 2006:2 and DEAT, 2002:5).

The ideal would be to have the PP process include participants from all socio-economic backgrounds in order to ensure the best possible environmental decisions (IAIA, 2006:2). These decisions, in turn, will have a positive feedback into the environment as a whole and ensure better environmental management and thus a sustainable future. Throughout the three phases of the NEMA regulations, the Public Participation section has remained essentially the same, except for minor technical changes and regulation adjustment. PP is the only component of the EIA system for which no exemption can be given, as it is seen as one of the most important parts of the EIA system (DEA, 2012:6).

## **1.1. Problem Statement and substantiation.**

The question regarding the effectiveness of a system such as the PP cannot be overlooked. Some studies have been done that focus on the quality of Environmental Impact Reports, hereafter referred to as EIRs (Sandham *et al*, 2013:3). However, in these studies, little room is made for Public Participation in terms of how the general public experiences the process. These studies gave a top-down view regarding the EIRs. They focus on the quality and effectiveness of Environmental Impact Reports, which is an indication of the quality of the scoping phase, under which Public Participation process is included. These studies fail to

present the other side of the same story, in terms of how the public perceive and experience PP.

Furthermore, Scott and Oelofse (2007:459), Scott and Barnet (2009:15) and Nare *et al* (2011:1064) assert that the levels of public participation in South Africa are fairly low. Little to none responses and participation take place in PP processes. When participation does take place, it is seen in the form of comments made by individuals in middle and upper class in South Africa, thus the impression that lower class communities are not part of the public participation process. This is a global issue and requires an ongoing search for ways to enhance PP (Cent *et al*, 2013:93).

In addition, in the year 2013, a pilot study was conducted on the effectiveness of PP in EIA in a rural community in Ventersdorp, in the North West Province of South Africa, to determine how this community perceived PP (Chabalala and Sebetlele, 2013:16). A common trend was observed amongst the majority of the interviewees; regardless of the study's aim, the interviewees had issues outside (domestic and political dissatisfaction) the EIA to talk about. The study also showed that people are more open to talking after the establishment of some rapport. This study also confirmed that people in the lower class do not participate (Scott and Oelofse, 2007:457; Scott and Barnet, 2009:15). From this, the notion arises that some information is lost due to factors such as the absence of time spent with the 'public' involved in Public Participation processes.

A contributing factor to the loss of or failure to collect information during the PP process might be attributed to the fact that the prescribed method of doing a PP process is a top-down approach. Throughout the process, the focus is mainly on the literate percentage of the community (DEADP, 2011:16). For example (a) Identification and registration of Interested and Affected Parties, (b) Background information document, (c) press advertisement, (d) circulation of the final scoping report and (e) site notification (DEADP, 2011:9). All these processes are aimed at all sectors of the community, but are unsuccessful due to illiterate communities.

Besides the EIA, there are other fields of Natural Resource Management where Rural Appraisal methodologies like Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) in particular are used to achieve desired levels of public participation.

## **1.2. Participatory and Rapid Rural Appraisals.**

PRA and RRA are described as a combination of Participatory and Rapid Appraisals, which merged in the 1980's to form a collective Rapid Rural Appraisal (Chambers, 1994:5 and Khodamoradi & Abedi, 2011:74). Participatory research methodologies like PRA and or RRA are both bottom-up methods that focus primarily on the community in general. They are regarded as means to provide a better understanding of the human-environmental relationship (Blaney and Thibault, 2003:34). They are also seen as an approach to enhance the knowledge of local people to a point that they can be able to take control over their own lives and environmental relationships (Nare *et al*, 2011:1064). Given the perceived weakness of the common EIA PP approaches and methods, PRA offers an opportunity to defer and or omit literacy dependent sections of the EIA system and replace them with methods that will suit a wider range of people (literate and illiterate). In contrast with the prescribed PP methods, PRA and RRA rely strongly on visual representations in order to reach the whole community on an equal level (Diakite, 2002:27 and Chambers & Guijt (1995:5).

## **1.3. Research aims and objectives.**

The key aim of this research is to investigate to what extent the incorporation of a PRA approach into the current EIA system can lead to an increase in the quantity and quality of information that can be gathered during the PP processes.

To achieve the aim above, the following objectives were set:

1. To investigate the functioning of the Public Participation process in EIA in South Africa.
2. To examine different Rural Appraisal methodologies and investigate the effectiveness thereof in terms of community satisfaction and/ participation and compare these to PP approaches in the EIA system.
3. To conduct PRAs within communities affected by EIA processes for photovoltaic projects in Koffiefontein and Theunissen.
4. To analyse and compare the data gathered in PP processes of all eight photovoltaic projects and the PRA data from Koffiefontein and Theunissen.

5. Investigate to what extent a PRA approach can be implemented into the current EIA PP system.

## **1.4. Structure of this research: Chapter division**

For optimal clarity of the results this section aims to provide a clear connection between the sub-research questions, the different chapters and the key aim of this research -as illustrated in Table 1 and described below:

### **Chapter One: Introduction and background to the study**

This chapter is dedicated to the introduction and problem statement. It includes the aims and objectives, as well as the format of the study.

### **Chapter Two: Literature review**

This chapter deals with the critical review of the relevant literature regarding the EIA system on an international and national level. This chapter also cover the role of the Public Participation Process within the EIA and handle the PRA and RRA approaches. This chapter is also dedicated to the processes/methodologies used in EIA, PRA, and RRA. Lastly, this chapter seeks to provide answers to objectives 1 and 2.

### **Chapter Three: Research methodology**

This gives an outline of the design of the proposed research, the type of questionnaires to be used, the data collection and the survey methodologies and groups: seek to answer objective 3.

### **Chapter Four: Data analysis, Results, and Discussions:**

This chapter explains the relevant data and how it was analysed. This section is also dedicated to a brief discussion on the findings of this study: seek to answer objective 4.

### **Chapter Five: Conclusion and Recommendations:**

In the final chapter, a conclusion is drawn and recommendations for possible solutions and answers to the identified problems are made: seek to answer objective 5.

## KEY AIM OF RESEARCH

To investigate to what extent the incorporation of a PRA approach into the current EIA system can lead to an increase in the quantity and quality of information that can be gathered during the PP processes.

RESEARCH OBJECTIVES	CHAPTERS
To investigate the functioning of the public participation process in EIA in South Africa.	<b>Chapter two:</b> Literature review
To examine different rural appraisal methodologies and investigate the effectiveness thereof in terms of community satisfaction and/ participation and compare these to PP approaches in the EIA system.	<b>Chapter two:</b> Literature review
To conduct PRAs within communities affected by EIA processes for photovoltaic projects in Koffiefontein and Theunissen.	<b>Chapter three</b> Research methodology
To analyse and compare the data gathered in PP processes of all eight photovoltaic projects and the PRA data from Koffiefontein and Theunissen.	<b>Chapter four</b> Data analysis, results, and discussions
Investigate to what extent a PRA approach can be implemented into the current EIA PP system.	<b>Chapter five</b> Conclusion and recommendations

**Table 1: Structure of this dissertation.**

## CHAPTER TWO.

### LITERATURE REVIEW

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#### 2.1. Introduction

This chapter is presented in two sections. The first section is dedicated to the Environmental Impact Assessment (EIA) system and all its related components and the second section deals with Rapid Rural Appraisals (RRAs) and Participatory Rural Appraisals (PRAs). Furthermore, the aim of the first section is to give an overview regarding the Environmental Impact Assessment system from its origins in the United States to its spread over the world till it reached South Africa. The legal mandate of the EIA, aims, objectives, advantages and disadvantages will also be discussed. Moreover, this section also focuses on the components of the EIA, with special attention paid the Public Participation process within the EIA. Subsequently, the first section seeks to investigate the functioning of the Public Participation process in EIA in South Africa (the first objective of this research) and how the Public Participation process fits into EIA.

There are numerous definitions for an Environmental Impact Assessment, therefore, before this dissertation can commence it is important that the EIA concept be defined as it is used in this research. According to the Longman Dictionary of Contemporary English (2008), the definitions of Environment, Impact, and Assessment are as follows:

The word Environment is described as *“the air, water, and land on Earth, which can be harmed by man's activities”*. Impact is defined as *“to have an important or noticeable effect on someone or something”*, where someone and something refers to the social, economic and cultural factors in a given community. Assessment refers to *“a process in which you make a judgment about a person or situation, or the judgment you make”*.

Michael (2012:2) describes EIA as an exercise carried out by a proponent to gather environmental related information. This exercise enables the proponent to understand all potential environmental effects that a project might have on the environment and he/she can decide if the project should continue or not. Also, Jones (2012:1) describes EIA as a means to weigh the environmental costs against the benefits of any development. According to Huttunen (1999:28) an EIA can be seen as a way to enable the general public to participate and influence projects and developments that might have an effect on their lives.

In conclusion, for the purpose of this research, an EIA is defined as a way to make environmental judgements based on the effects that a development might have on the environment, while taking the views and perceptions of the general public into consideration.

Moreover, the EIA system acts as a decision support tool to those that make the final decisions, i.e. EIA does not make development decisions but it informs those that do, for example the competent authorities in South Africa.

## **2.2. Origin of the Environmental Impact Assessment system**

In the twentyfirst-century development proposals aims to enhance and achieve sustainable development *i.e.* developments that satisfy the need of present generations without compromising the need for the generations to come. Environmental management is one of the tools used to achieve the desired sustainability from all development proposals.

The misuse and degradation of natural resources are not unique to the twenty-first century. It has been a part of human development over decades. As the human population growth increased around the world, it was accompanied by an increase in the need for natural resources to sustain human life. More resources and livable space are needed to satisfy human needs. Furthermore, the rapid industrialization and urbanization prior to World War One and past World War Two (Ogola, 2007:1), lead to a significant increase in the exploitation of the natural resources. This increase in natural resource depletion, lead in turn to environmental concerns from developers and investors (Ogola, 2007:1). The environmental concerns and fear for natural resource depletion fuelled the development of environmental management process such as the Environmental Impact Assessment (EIA) system.

The origins of the EIA system can be traced back to the 1960s when it was first promulgated in the United States under the National Environmental Policy Act of 1969, hereafter referred to as NEPA. The United States' Congress implemented the NEPA after the ongoing depletion of natural resources and concerns regarding environmental health lead to political and public activism (Jay *et al*, 2007:289). The purpose of NEPA is to: *"...To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man..."* (National Environmental Policy (Act of 1969). This purpose of NEPA became the foundation of EIA systems around the globe.

### 2.3. Spread of EIA from NEPA in 1969 to Africa in 1984.

Since its promulgation in the 1960s in the USA, the EIA system has spread over the world and is now being practiced in more than one hundred developed and developing countries (El-Fadl & El-Fadel, 2004:555, Jay *et al*, 2007:288). According to Sing (2007:15) the EIA system spread across the world in the order, as depicted in Table 2. Table 2 depicts the year that 24 different countries first introduced EIA legislation from 1969 in the USA up to 1997 in Hong Kong and Japan. The dates portrayed in Table 2 are not specifically related to EIA legislation per se, for example, Canada first adopted EIA as a federal policy in 1973 but only enacted the first EIA legislation around 1995. Table 2 depicts the dates that EIA as a concept first appeared in the form of legislation, policies and or generalised concepts in these 24 countries. The rise in public and governmental awareness regarding climate change and the impacts thereof the environment also helped to drive the spread and development of EIA legislation in other countries.

1969	USA
1970	California
1973	Canada
1974	Columbia, New Zealand, Commonwealth of Australia
1975	Thailand
1976	France, Republic of Ireland, Venezuela
1977	Philippines
1978	Luxemburg
1979	China
1981	South Korea
1982	Israel
1983	Pakistan, Tanzania
1984	Croatia, Japan, South Africa
1986	Congo, State of Western Australia
1987	Indonesia, Malaysia, Netherlands
1988	Mexico, UK
1990	Algeria, Denmark, Guatemala, Norway, Romania, West Germany
1991	Egypt, Luxemburg, Panama, Sweden, Tunisia, Ukraine
1992	Belarus, Belize, Bulgaria, El Salvador, Estonia, Nigeria, Swaziland, Zimbabwe
1993	Albania, Costa Rica, Honduras, Paraguay, Vietnam
1994	Finland, Ghana, Hungary, Namibia, Nicaragua, Russia, Slovakia, Uganda, Uruguay
1995	Armenia, Bolivia
1996	Guyana
1997	Hong Kong, Japan

**Table 2: EIA legislative action (Singh, 2007:15)**

EIA, in Africa, was prepared by donors from developed countries like Denmark, Britain, United States and the African Development Bank during the 1970s and 1980s (Kakonge, 1999:170). Kakonge (1999:170) and UNEP (2015) also asserts that the 1992 Rio de Janeiro Earth Summit, which focused on the sustainable manner in which global degradation could be addressed by means of a global framework, can be seen as the starting point of EIA conversations amongst African countries. After the Rio Earth Summit, some pan-African meetings followed that made specific recommendations regarding the use of EIAs (Kakonge 1999:170), including:

- African Ministerial Conference on the Environment (AMCEN) in Cairo 1985, which aimed for the provision of environmental advocacy, ensuring economic and social development and ensuring that food security in the region were met.
- United Nations Programme of Action for African Economic Recovery and Development (UNPAAERD) held between 1986-1990, which aimed at aiding the African continent in terms of economic recovery after the devastation caused by drought and famine.
- Regional Preparatory Conference for the United Nations Conference on the Environment and Development (UNCED) in Cairo 1991, which asserted that only a change in human behaviour and attitude would bring the environmental changes desired globally.
- The Ministerial Meeting 1995, in Durban, during this meeting EIA was accepted as a development planning tool and a way to help competent authorities with decision-making.

What can also be gathered from Table 2 is the fact that South Africa one of the first countries in Africa to introduce the EIA system. Consequently, South Africa is the country with the oldest EIA system on the African continent. The next section presents the development, in terms of the four phase development, of the EIA system in the South African context from its origins up to date.

## **2.4. Environmental Impact Assessment (EIA) in South Africa.**

The development of the EIA system in South Africa took place in four phases; Inception, Formation, Formalisation and Refined phase (Sowman *et al* 1995:47, Stordahl *et al* 2004:6-7 and Kidd & Retief, 2009:974). Tables 3-5 provide a timescale of the evolution of the EIA system since 1976 up to 2014 (Kidd & Retief, 2009:974, Walmsley & Patel, 2011:323 and National Environmental Management Laws Amendment Act 25 of 2014). A detailed

description of this table can be seen in Kidd and Retief (2009:974). Each of the developmental phases of the South African EIA system would be described in this section in order to highlight the development route of EIA in the country and how the current system came to be.

**Inception Phase.**

This phase came after the 1969 NEPA launch. It is also the inauguration period of the concept of Environmental Assessment in South Africa. During the inception phase, terms like sustainability had not yet been defined and had not gained prominence in the country. The definition of the environment during the inception phase were different from the definitions used today. The word Environment was largely referring to the biophysical and the natural environment. During this phase, the Integrated Environmental Management (IEM) policy framework was developed and it served as a holistic Environmental Management philosophy.

<b>Inception Phase</b>	
<b>Date</b>	<b>Legislation</b>
1976	SA Council for the Environment Report
1979	Symposium ‘Shaping our environment’
1980	White Paper on a National Policy Regarding Environmental Conservation
1982	Environmental Conservation Act 100 of 1982
1983	Council for the Environment and a subcommittee for EIA
1984	President’s Council
1985	National Workshop on the significance and necessity of EIA
1987	Working Group (consisting of the EIA Committee and members of the Council for the Environment)
1989	Environment Conservation Act 73 of 1989

**Table 3: EIA legislative Action in South Africa: Inception phase (Kidd & Retief, 2009:974; National Environmental Management Laws Amendment Act (25 of 2014).**

### **The Formation phase and Formalisation phase.**

The formation phase of the EIA system contained two main milestones, namely the promulgation of the Environment Conservation Act of 1989 and the release of the Council for the Environment's report on Integrated Environmental Management (IEM). The IEM made the provisions for the promulgation of an environmental policy and the implementation of Environmental Assessment in South Africa. During this phase, the 1992 IEM Guideline Series Reports were published. These reports later became the basis for voluntary Environmental Assessment applications. The definition of environment changed and included the biophysical as well as the socio-economic environments. The concept of sustainability was mentioned during this time, but no description was given (Walmsley & Patel, 2011:323).

The formalisation phase can be described as the birth of Environmental Assessment in South Africa in terms of EIA and Strategic Environmental Assessment (SEA). Furthermore, in 1997 the EIA system was formally introduced in terms of the ECA regulations. The EIA under ECA came just before the National Environmental Management Act 107 of 1998 (NEMA), but the EIA regulations in terms of NEMA only came in 2006. Thus we had EIA under ECA for 8-9 years, while NEMA was the main Environmental umbrella legislation. This phase can also be seen as the phase that strategic assessments gained momentum in South Africa in terms of the introduction and promotion of SEA.

<b>Formation phase</b>	
1989	Environment Conservation Act
1992	IEM Guideline Series reports
<b>Formalisation phase</b>	
1997	EIA regulations
1998	White Paper on an Environmental Management Policy for South Africa National Environmental Management Act 108 of 1998 (NEMA)
2000	SEA Guidelines For South Africa
2001	SEA Guidelines For water use in catchments
2002	Land Use Bill
2003	National Environmental Management Amendment Act of 2003
2004	National Environmental Management Second Amendment Act, No. 8 of 2004

**Table 4: EIA legislative Action in South Africa: Formation phase (Kidd & Retief, 2009:974; National Environmental Management Laws Amendment (Act 25 of 2014).**

**The Refinement phase:**

During this phase, both EIA and SEA were refined in terms of new regulations. New adjustments were made to the EIA regulations, for example, the refinement of the screening criteria, the refinement of the EIA process to include timeframes and the refinement of public participation requirements. Although the EIA process was refined, the SEA process stagnated.

<b>Refinement phase</b>	
2006	New EIA regulations(GNR 385, 386 and 387) New Guideline Series on EIA
2007	Amendment to New EIA Regulations New SEA Guidelines
2010	Revised EIA regulations NEMA: EIA Regulations 2010 (GNR 543, 544, 545 and 546)
2014	New EIA regulations

**Table 5: EIA legislative Action in South Africa: Refinement phase (Kidd & Refief, 2009:974; National Environmental Management Laws Amendment Act 25 of 2014).**

In 1982 the Environment Conservation Act (ECA) first contained a section (Sections 21, 22, 26) that required EIAs to be undertaken (Stardahl *et al*, 2004:6). The Council for the Environment, which acted as advisors to the Minister of Environmental Affairs, published the Integrated Environmental Management (IEM) document. The aim of this document was to ensure that all potential impacts that any development might have on the environment be investigated and considered during the planning to the decision-making processes (Sowman *et al* 1995:56). The EIA system in South Africa evolved from the pre-1997 voluntary era to the 1997-2006 ECA regime and currently the NEMA regime from 2006-present. The EIA system comprised of a series of components that is essential in making sure that the system works efficiently.

## 2.5. Components of the EIA system

Since its origin and adaptation around the world, the EIA system maintained some of its original generic components. The EIA systems vary from country to country. The following is a list and description of the components still contained in most EIAs today (Glasson *et al*, 2005:4 & Retief *et al* 2011:155 ). These components include:

- *Screening*: a process of elimination used to identify projects with a possible significant impacts and thus narrow the application of EIA to the identified projects.
- *Scoping*: seeks to identify the crucial and most significant issues that can arise from a proposed development.
- *Public Participation*: aim to ensure that the views of the public are taken into consideration in the decision-making process and also aim to ensure the quality and effectiveness of the EIA.
- *Consideration of alternatives and mitigation*: there are numerous alternatives that can be perused: alternatives might include different methodologies, technology, infrastructure and other tools that might help in mitigating the adverse effects of a proposed development. If need be, a separate location might also be taken into consideration if all other methods fail to mitigate the adverse effects of the proposed development. Mitigation refers to the process of introducing alternative measures to avoid and or reduce all possible impacts that a development might have.
- *Assessment of impact significance*: refers to the process where all the impacts are assessed in order to identify the most adverse impact and focus accordingly on these.
- *Authorisation and post-decision monitoring*: is the process where government and or other competent authority authorise a development to continue and also put plans in place to monitor the development after the authorisation process.

The EIA system can further be divided into five main phases. First, the Application or Notification phase, which is mainly concerned with administrative processes. Secondly, the Scoping phase, which aims to determine which environmental issues and alternatives needs further investigation. Thirdly, the Impact Assessment phase, which aims to assess all positive or negative impacts related to a proposed development. Fourthly, Authorisation phase, during this phase the competent authority decide if the proposed development can continue or not based on the Environmental Impact Report (EIR) submitted by the EAP

(DEA, 2010:5). Lastly, Post decision Follow-up phase, *“The term ‘follow-up’ is used as an umbrella term for various EIA activities such as: monitoring, auditing, ex-post evaluation and post-decision management.”* (Morrison-Saunders & Art, 2004:1) However, in this research, the focus will be placed on the Public Participation process of the EIA system, in a South African context, since this research aims to investigate the low levels of participation amongst rural communities in the country.

## **2.6. Legal Mandate for EIA in South Africa**

The legal mandate of the Environmental Impact Assessment in South Africa is anchored in the Constitution of South Africa. Section 24 of the Constitution is seen as the primary clause giving all South African citizens the environmentally legal insurance (right to clean and healthy environment for current and future generations) they need.

In 1997 the South African Department of Environmental Affairs and Tourism, published the Environmental Management Policy (EMP). The aim of the EMP was to set out the principles, goals, visions and implementation programs for the EMP and give effect to Section 24 of the constitution. This EMP also gave a definition of the environment which consisted of the cultural, economic, political, social and biophysical dimensions of society (Walmsley & Patel, 2012:323).

In line with the Constitution, the National Environmental Management Act 107 of 1998 (NEMA) was promulgated to give effect to its predecessors; the ECA of 1989 and Environmental Management Policy of 1997. NEMA replaced most of the Environmental Conservation Act 73 of 1989. Walmsley and Patel (2012:324) asserts that NEMA acts as a provision for joint environmental authority by means of established principles of decision-making, institutions that promotes cooperative governance and means for coordinating the functionality of organs of state. Moreover, NEMA forms the guide for other environmental acts and legislation like the Mineral and Petroleum Resources Development Act 28 of 2002, National Water Service Act, National Environmental Management Air Quality Act 39 of 2004, Nation Environmental Management: Waste Act 59 of 2008 and many other environmental acts in the country. These acts then govern the Provincial legislation, which in turn govern local municipal laws and bylaws.

Throughout the 26 years of the existence of the EIA, it has been refined and adapted to the system that exists today. However, the Public Participation process in South Africa is regarded as one of the most important aspects of the South African environmental law.

Public Participation is the only requirement for which no exemption can be given (DEA, 2012: 5). This is based on the notion that it is considered a human right in South Africa to be informed about decisions that might influence the environment humans to live in (Section 24 of the Constitution of South Africa, No. 108 of 1996). The next section will be dedicated to the Public Participation process.

## **2.7. Public Participation**

As stated in Chapter One of this dissertation, Public Participation (PP) is a key component of the EIA system (IAIA, 2006:2). The Public Participation process acts as a bridge between the development proponents and communities developments are intended for. The Public Participation process provides the means for the development proponent to reach the public and vice versa. This section is dedicated to the Public Participation process on a global and local (South African) scale.

### **2.7.1. Definition of Public Participation**

The process whereby the general public gets involved in development projects is referred to as Public Participation, citizen involvement and other generic terms are used in literature to describe the same process. There are numerous definitions for the word Public Participation and some definitions are related to participation processes outside the Environmental Management field. However, for the purpose of this dissertation focus is directed to those definitions related to EIA.

Ramphele (1990:8) defines Public Participation as a means for the general public to control social, political, economic and environmental factors that have an influence on their daily lives, through the gain of skills, knowledge, and organisational capacity. Subsequently, IAIA (2006:1) define Public Participation as a process of involving those individuals or groups that might be directly or indirectly influenced by a proposed development, in a positive or negative manner.

According to Arnstein (1969:216), Public Participation can be described as means to redistribute power and enable the lower-class citizens who have been left out of political and economic processes (for example Non-White people during the Apartheid era in South Africa), to be included in the future. And according to Greyling (1991:1), Public Participation

can be seen as a joint effort to enhance environmental decision, by a specialist, competent authorities, proponents and the general public working together towards a common goal.

Li *et al* (2013: 123) asserts that the origin of the word 'stakeholder' can be traced back to the 1960s where it was first developed at the Stanford Research Institute. Accordingly, the institute describes stakeholders as a group of people that support an organisation, in such a way that that organisation will cease to exist without their support. Li *et al* (2013: 124), also define 'stakeholders' as a group of people whose living environment can be influenced by any development in their immediate or general environment, and in return, they can influence any proposed processes and final outcomes of the development.

For clarification, the term "public" is slightly adjusted to give a distinct definition as pertaining to its use in this dissertation. According to DEAT (2002:6), the term public might be misinterpreted as a term, not including the private sector and non-decision-making authorities. Therefore DEAT uses the term 'Stakeholder engagement' instead of 'public participation'. DEAT (2002:6) further asserts, when describing 'stakeholders',

*"Stakeholders can be considered a sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term, therefore, includes the proponent, authorities (both the lead authority and other authorities) and all I&APs. The principle that environmental consultants and stakeholder engagement practitioners should be independent and objective excludes these groups from being considered stakeholders. However, they are role-players in the environmental decision-making process."*

The DEA (2012: 11) makes a clear distinction between (Interested and Affected Parties) I&AP and registered I&AP. I&AP refers to individuals, groups, NGOs, organs of state and anyone else who might be affected by a proposed development and or might just be interested in the development proposal. Registered I&AP refers to those whose names appear on the register (for each development application, the EAP must record the addresses, names and contact details of all I&AP and organs of state involved in the development) that is opened for the proposed development application.

For the purpose of this dissertation, the word "Public" is defined as in the South African Department of Water Affairs and Forestry's (DWAF) *Generic Public Participation Guidelines* booklet. (DWAF, 2001:IV), where the public are seen as an ever-changing heterogenous

group of affiliations and alliances. These affiliations and alliances group and regroup as their needs change and these regroupings are influenced by any issues in the community and how the community perceives these issues. The word 'Public' as used for the purpose of this study, will be used synonymous with the word 'Stakeholder engagement', to ensure all-inclusiveness and clarity. Accompanying the definition of the word Public Participation, is a list of objectives set to ensure best practice and application.

### **2.7.2. Aims and Objectives of the Public Participation process.**

Since Public Participation is a process open to interpretation by whoever is trying to implement it, it is important that it be standardised to ensure consistency on a global scale. The International Association for Impact Assessment and other authors, compiled a list of guidelines on ways to best implement Public Participation and the objectives it ought to achieve. These objectives are not cast in stone *per se*, but are acting as a basic guideline to all Environmental Assessment Practitioners. The objectives of the Public Participation process change in terms of their importance from situation to situation.

IAIA (2006:2) and Gluker *et al* (2013:106) assert that the objectives of the Public Participation Process are to:

- Ensure justice, collaboration, and equity by inviting I&AP to the decision-making process.
- Educate all stakeholders involved in a development proposal regarding the interventions planned and the consequences related to them.
- Gather information from the local people about their human environment e.g. culture, economic and political stance, their biophysical environment as well as their human-environmental relationships.
- Get inputs from I&AP regarding the impacts that the proposed development might have in the environment, in terms of the scale of the development, the time, mitigation measures related to the impacts, ways to enhance the development outcome and or to eliminate negative impacts.
- Empower formerly marginalised groups and thus resolve possible conflicts between proponents and I&APs.
- Ensure that the scope of any proposed participation process and the potential impacts it might have is aligned with the realities of the proposed development application (DEA, 2012:14). In conclusion, these aims and objectives of the

Public Participation process have certain advantages and these advantages will be discussed next.

These objectives not only ensure best practices, it also helps to ensure that the full potential of the PP process is achieved. They do this by ensuring that the advantages of the PP process is utilised. The next section presents the advantages of the PP process.

### **2.7.3. Advantages and Disadvantages of Public Participation (PP).**

When describing the benefits of the Public Participation process, O’Faircheallaigh (2010: 19), states that “...its benefits are assumed to be obvious and substantial, the specific rationale for seeking greater public participation is not always clearly articulated.” Because of this assumption, little effort is made to define the advantages that can be associated with the Public Participation process. The implementation of a PP process has a number of advantages besides keeping peace between proponents and the general public. According to Bisset (2000:149), Glasson\_ *et al* (2005:166) and Creighton (2005:18) PP has the following advantages:

- No costly delays during appraisal and implementation of projects if the public is involved at an early stage
- Better project designs can be achieved. Projects which involves the public are also more likely to achieve their objectives.
- Public participation is a way to convey information from the developer to the affected community. It can also aid in dissolving misunderstandings and help to clarify all possible controversies regarding the proposed project. Furthermore, local people can contribute valuable information and local knowledge that the developer could not acquire by any other means.
- If locals agree with a development, the development is more likely to succeed, thus less opposition and protest in the future, long-term consensus building takes place and a reduction in political controversies which gives legitimacy to the decisions being made.
- The inputs from locals and developers lead to more innovative and environmentally friendly decisions thus improving the quality of decisions
- If need be, and opposition does arise, having a participation process early in the development stage of a project can lead to cheaper modifications (if changes to the proposal are inevitable) since the project is in its infant stages. Consequently, once people get a sense of ownership, they are more likely to see the decisions

made in action. In conclusion, Public Participation in the EIA system leads to greater transparency in developments, thus building the credibility of environmental assessment in the long run. In turn, it also leads to more sustainable development.

However, these advantages of the Public Participation process are not always acknowledged. According to DEAT (2002:5), past experience has shown that poorly executed participation processes have led to distrust by the public, authorities, environmental consultants, proponents, and I&APs alike. DEAT (2002:5) further asserts that proponents often saw participation processes as possible political flaunting by Interested and Affected Parties, which in turn can lead to costly delays. Another reason why proponents are sometimes reluctant to enter PP processes are the unrealistic demands by I&APs for the release of sensitive information. There is a possibility that the public can see the PP process as nothing more than a token, which had no intention of implementing their opinions into the decisions being made. In short, there are numerous advantages to the use and implementation of the Public Participation process. However, there are also some disadvantages to the Public Participation process.

Wouters *et al* (2008:17) asserts that the Public Participation process can be time-consuming and costly at times. Moreover, the proponents have to put extra time and effort into capacity building processes and staff training. It can also be difficult to attain constructive debate from a community that is fixed in their own views (PWCNT, 2002:4).

Moreover, Botes and Van Rensburg (2000:55) states that PP processes often gets romanticized as practitioners often assume that the community as a whole has a common purpose of participating. The majority's (participant's and author's) views regarding the PP process puts the process in a positive light: the benefits outweighs the disadvantages (Irvin & Stansbury, 2004:65-60, O'Faircheallaigh 2009:17 and Wouters *et al*, 2008:17 ). Finally, in order to minimize the disadvantages to the PP process, a set of core values are set. These are aimed at enhancing the best practice approaches and objectives of the PP process.

#### **2.7.4. Core values of the PP process.**

According to Creighton (2005:7) and IAP2 (2016), there are a few core values that every Public Participation process should follow, in order to be as effective as possible. These values are :

- The public should be allowed to have a say in all proposed developments that might influence their lives either positive or negative.
- Public Participation processes, needs to assure the public that their views would be taken into consideration during decision-making.
- The Public Participation processes needs to cater for the needs of all Interested and Affected Parties (I&APs) and it must be aimed at identifying and facilitating those who might be affected the most.
- The Public Participation Process must provide all participants with the necessary information in order to participate to their full potential, also, the Public Participation process should state how the involvement and contributions of the public would affect the final decision. These values aims to assist in better decision making, decisions that reflects the views of those deemed most vulnerable to proposed developments and or legislative amendments.

### **2.7.5. Public Participation fits into the EIA system**

The use of Public Participation within the EIA system (during which stage it is implemented) changes from development to development. According to Glasson *et al* (1999:160) and DEA (2012:6) the use of Public Participation (used here as seen in the South African context) is not limited to one specific section of the EIA system, but can be used:

- During the scoping phase.
- During the specialist section (to provide specialist views regarding a native area).
- To help in identification and evaluation of the significance of an impact on an area.
- In the identification and proposition of mitigation measures.

According to DEA (2012:6), EIA regulations in South Africa states that PP must be done after the submission of a BA (Basic Assessment) of S&EIR (Scoping and Environmental Impact Report) application. The concept of Public Participation is defined by law and legislation in a South African context. The next section presents the legal mandate of this process in the South African context.

## 2.7.6. Legal mandate for Public Participation in South African law context.

Public Participation is well defined in the South African Environmental laws context. It is included in a numerous laws and regulations. These laws and regulations oblige government, stakeholders, developers and other competent authorities to engage in Public Participation. Public Participation is considered a basic human right as it is included in the Constitution of South Africa. The following is a list of laws and regulations that outline the process of public participation.

Act	Elaboration
Constitution of the Republic of South Africa (Act No. 108 of 1996)	The Constitution of South Africa outlines the role of the general public in the three spheres of government, local, provincial and national government, in Sections 59, 72, 118, 152 and 154. Furthermore, Section 159 outlines the basic value of the Public Administration sector, in terms of the fact that they should encourage Public Participation in policy making processes and respond to the need of the public.
The National Environmental Management Act (NEMA) (Act No.107 of 1998) and the Environment Conservation Act (Act No. 73 of 1989)	Section 2 (4) f, of this Act outlines the principle of the encouragement and promotion of Public Participation amongst all interested and affected parties in environmental governance by organs of state. Chapter five of NEMA is dedicated to Integrated Environmental Management (IEM) policy framework: Section 23 (d) of the IEM asserts that the objective of the IEM policy is to ensure that ample opportunities exist for Public Participation process regarding decisions that might affect the environment.
The National Water Act (Act No. 36 of 1998) and the White Paper on Water Policy (30 April 1997)	Under the NEWA, Public Participation is required under Sections 5, 8, 13, 16, 35, 38, 41, 56, 67, 69, 78, 88, 92 and 96. Furthermore, Section 1.3 of the White Paper on Water Policy, describe the Public Participation process that were followed in order to draft the new law on water. Section 8.1 of the same paper require a Public Participation process to be implemented with the general public, interested and affected parties and all other stakeholders.
The Water Services Act (Act No. 108 of 1997) and the White Paper on Water Supply and Sanitation (November 1994)	Section 72 of this Act, requires the minister to consult with the general public and to take any written comments into account before the minister can act in any manner in terms of the Water service Act. This Act also asserts that Public Participation is needed in order to ensure a sustainable construction, maintenance and water supply process. The White Paper on Water Supply and Sanitation further asserts that public input is essential in terms of provision and supply of sanitation and water services especially in poor communities.
The National Forests Act (Act No. 84 of 1998)	Section 1 of the National Forests Act asserts that the purpose of the Act is to encourage Public Participation in the forestry industry amongst

	previously disadvantaged communities. Section 54 of this Act, requires the minister to consult the public before any regulatory changes can be made.
National Veld and Forest Fire Act (Act No. 101 of 1998)	Section 21 requires the minister to take all public concerns into account before policy changes can be made: Section 4 requires the minister to be fair in respect to all the people who have concerns regarding policies
Batho Pele - White Paper on Transforming Service Delivery (September 1997)	One of the principles of this paper is the consultation of the general public regarding the provision of services.
Promotion of Access to Information Act (Act No. 2 of 2000)	This Act reinforces the Constitutional right of every citizen in the country to the access of information held by the State and or person, given this information is needed in the execution of projects and individual rights. Section 9 (e) of this Act is dedication to the empowerment and education of the general public in terms of their rights, with the aim to ensure effective governance in all private and public bodies.

From this, it appears that the issue of low PP amongst the lower classes in South Africa is not legal (for example an inadequacy and or ill-defined legislation) and or procedural in nature. There are a number of laws and regulations and Constitutional insurance in place, for example as listed in section 2.7.7 above. The process of PP is well defined in governmental guidelines and the rules of public engagement are defined in these laws and guidelines. There are also a number of ways to execute a Public Participation process, although they ought to have the same aims and objectives, this is not always the case. With all this being said, it would appear that environmental legislation in South Africa has one shortcoming as it does not distinguish between literate and illiterate members of the community/ poor and rich. Overall, the environmental legislation states that the public should be notified in written form, thus excluding the illiterate members of society and most often the poor falls under the illiterate statistics in the country. For example, black people have the highest number illiteracy in South Africa although they make up 80% of the country's population (Statistics South Africa, 2014:3). By excluding the illiterate, the people with the highest levels of illiteracy gets affected the most.

In short, by law the EIA system in South Africa is on par. However, in reality, the illiterate can get excluded due to the setup of the recommended EIA guidelines and legislation. For example, a new development is being planned in a black community. The EAP responsible for the EIA application follow the respective guidelines and notify the community accordingly in written form. Statistically black communities in South Africa have higher illiteracy rates. By following the recommended methods of notification, there is a chance that a percentage of the community will be excluded by default base on their illiteracy alone. This notion gets discussed in more detail under section 2.17 of this dissertation. As the participation process

differs from country to country, EAP to EAP and different laws and regulations, its core principles and ultimate aims get obscured sometimes and different agendas are pursued.

In order to get a broader view of the word ‘participation’ the following section provides a review of the different typologies of participation as presented by the Arnstein (1969), Pretty *at el* (1995), Bisset (2000), and the International Association of Public Participation (2000).

## 2.8. Different typologies of Participation.

Public Participation has been classified under different typologies in terms of its functionality and levels of participation intensities. By looking at these typologies, one can derive a joined description of what an ideal participation process should look like. Each of these typologies is a depiction of an idealizing gradation of participation. Four types of typologies are discussed and the South African EIA system is evaluated in terms of these typologies.

### 2.8.1. Typology of participation by Sherry Arnstein (1969).

Sherry Arnstein (1969: 2) compiled a ladder of eight levels of participation categories. Arnstein (1969:216) asserts that Citizen Participation, as used in this ladder refers to a process of power redistribution. This redistribution of power is aimed at enabling those without power (have-nots) to take part in all economic, political and other decision-making processes. Levels of participation in this ladder are arranged as two levels of non-participation, three levels of tokenism and three levels of citizen empowerment as portrayed in Table 7 (Arnstein, 1969:217 and Connor, 1988:249-250):

<ul style="list-style-type: none"> <li>A. Citizen control</li> <li>B. Delegated power</li> <li>C. Partnership</li> </ul>	Levels of citizen power
<ul style="list-style-type: none"> <li>D. Placation</li> <li>E. Consultation</li> <li>F. Informing</li> </ul>	Levels of tokenism
<ul style="list-style-type: none"> <li>G. Therapy</li> <li>H. Manipulation</li> </ul>	Levels of Non-participation

**Table 6: Ladder of Citizen Participation, adapted from Arnstein (1969: 217).**

According to Zocher (2010:26), real participation only starts taking place during the Partnership step of this ladder. During this stage, participants gained some power and are able to make an impact on the development process. A partnership can only exist as a result of negotiation between the citizens and authorities. These negotiations entail the redistribution of power to the citizens and agreement amongst all the proponents, I&APs, governmental authorities and all another participants to share the planning and decision-making responsibilities. Zocher (2010:26) further asserts that, once the citizens have regained power, they can continue negotiating to the point where they can dominate development processes in the Delegated power and Citizen control levels of the ladder of citizen participation.

## 2.8.2. Typology of participation by Pretty *at el* (1995)

This typology of participation as presented by Pretty *at el* (1995:61) consists of seven different levels of participation. These are arranged from Passive Participation, Participation in Information giving, Participation by Consultation, Participation for Material Incentives, Functional Participation, Interactive Participation, and Self-mobilisation. Passive Participation is seen as the lowest level of non-participation and Self-Mobilisation as the optimal level of participation. Table 7 gives a description of each of these participation levels.

Typology	Characteristics of each type
1. Passive Participation	This is a one-way type of participation: information is provided by the EAP and other competent authority to the I&APs. No public insight is taken into consideration.
2. Participation in Information Giving	This type of participation take on a question-and-answer approach: through means of questionnaires, researchers gather information, but do not allow I&APS to influence any of the proceedings.
3. Participation by Consultation	This type of participation entails a two-way communication system: EAPs and I&AP talk to one another. The proposed problems and solutions associated with the development are defined by the EAP. During this participation the I&APS do not have a say in decision-making and the EAP is not obliged to consider their views.
4. Participation for Material Incentives	Participation gets exchanged for incentives: participation in the form of labour gets exchanged for money or food. Although it is seen as participation, I&APs do not influence decisions being made.
5. Functional Participation	This type of participation takes place in group form: participants group together (groupings are usually initiated from an external initiator) to reach predetermined objective. This type of participation tends to take place after major decisions have

	been made.
6. Interactive Participation	This is an interactive form of participation between I&APs and EAPs. Participation is interdisciplinary and multi-perspective in nature and provides a structural learning experience. New local institutions are formed during this participation process or existing ones get strengthened, these groups also control decision-making processes.
7. Self-mobilisation	Intra-community participation: participation take place in an independent fashion i.e. the community takes the initiative to change the system/ decision-making processes. I&AP acquire the needed expert help from outsiders but retain control of the local situation.

**Table 7: Typology of Participation from Pretty at el (1995:61).**

### **2.8.3. Typology of participation by Ron Bisset (2000).**

According to Bisset (2000:151), there are four distinguishable levels of Public Participation. These types of participation include Information Dissemination, Consultation, Collaboration and Partnerships, and Empowerment and Local Control. A short description of each of these will be given below;

#### **Information Dissemination**

This type of Public Participation refers to the process where information is provided to the public once or more. This is, however, a one-way stream of information sharing, thus no opportunities for comments by the public or NGOs who are affected by the development.

#### **Consultation**

In this type of participation, there is a two-way exchange of information. This also gives the public the opportunity to make any comments they might have. This participation process is time-bound and might occur at any time during the EIA. The proponent does not have to take the views expressed by the public into account during the decision-making process.

#### **Collaboration and Partnerships**

In this type of participation, the public is seen as associates in the development. The proponent works close to the public with regards to the decision-making processes and the results thereof.

#### **Empowerment and Local Control**

Control is given to the communities, and they take control of the form, content and the scope of the EIA process. This happens by means of community representatives.

## 2.8.4. Typology of participation by DEAT (2002) adapted from IAP2 (2000).

This same statement as Bisset (2000) is held by DEAT (2002:7) however, they adjusted the levels of Public Participation slightly and added an extra level to the South African context. These newly adopted levels of participation thus include Protest, Informed, Consulted, Involved, and Collaboration with decision-makers and Empowerment. Table 9 summarizes the whole spectrum of participation processes.

Level of Stakeholder Engagement	Objective
<b>Inform</b>	Information is provided to the I&APs in order to ensure that they understand the issues at hand, the alternatives to these issues and their solutions too.
<b>Consult</b>	Proponent/ EAP obtain feedback from all stakeholders regarding a possible alternative to the proposed development, analysis of data and the final decision.
<b>Involve</b>	Proponents and stakeholders work together throughout the development to ensure that all the issues and concerns that arise are understood and taken into consideration.
<b>Collaborate</b>	Proponents and stakeholders work together on all aspects of the development and possible alternatives.
<b>Empower</b>	Stakeholders gets to make the final decision.

**Table 9: Spectrum of Participation, adapted from DEAT (2002:7).**

Each of these levels of participation have a specific objective. From this, one can see that the optimal participation would fall under the Involve to Empower sections of this table. Although 'Protest' is not regarded as an integral part of the participation spectrum, it does carry some weight and worth looking into. Protest can be seen as an indication of a broken system or governing body (e.g. proponent, leading authority, and other decision-makers), in the sense that people protest to display levels of dissatisfaction. The fact that I&APs do protest can be seen as a way that they try to influence the decision making process by means of challenges and other forms of expressions. Protest refers to processes such as marches, strikes, boycotts, and vandalism. With this discussion of typologies in mind, the South African EIA system will be evaluated in terms of these typologies, in relation to the type of participation that exist in the South African context.

Overall, the Public Participation process in South Africa can be categorized under the top levels of participation as described in the typologies of participation (interactive participation, collaboration and partnership, empowerment and local control and consult). When it comes to international standards, environmental legislation in the country is on par. This adds to the notion that the lack of participation as observed in the country cannot be attributed to legislative inadequacies, as all the necessary provisions are made for ideal participation processes. There seem to be issues besides legislation that hinder middle to lower class South Africans from partaking in participation processes which are aimed at environmental issues. For example, in the eight photo-voltaic projects used in this research, no lower-class citizens were involved during PP meetings, as further discussed in Chapter Four. Hence, the next section will be dedicated to issues that hinder participation attempts on a global scale.

## **2.9. Challenges facing Public Participation as part of EIA.**

With all the regulatory and other provisions in South Africa, there are still generic obstacles that tend to hinder effective and or full participation. These factors are not exclusive to one country; they can influence any public participation process irrespective of nationality. These challenges can influence the outcome and experience of any public participation attempt for both the proponent and affected communities. Since 1994 when South Africa became a democratic state, governmental and developmental processes have increasingly been positive. With this being said, this includes public participation as an essential component in environmental processes and strategies in the EIA as a whole. According to Khan (1998:73), Selman (2004:1277) and McEwan (2003:475) some of these challenges are:

- *Participation Rights:* Some South African citizens are uninformed of the rights that they have to participate in environmental assessment procedures. This challenges the individuality and reliability of environmental assessments, as well as the public participation process.
- *Political Interference:* There has been a high level of political interference with the involvement of high-level politicians in environmental assessment procedures before they are finalized. This often influences the transparency of the development process, which in turn causes people to distrust new developments and hinder further and or future participation attempts.

- *Lack of experience:* Participation procedures are new in many places in South Africa, and people lack experience and confidence in them. In some cases, the public is not aware of existing participation platforms.
- *Marginalised groups:* The implementation of PP in environmental decision-making is complicated by the minimal involvement of mainly poor communities, women, the youth as well as the disabled.
- *Literacy levels:* South Africa has fairly low literacy levels amongst its citizens. This means that citizens who volunteer to partake in environmental assessment procedures do not have the aids to reading the most straightforward documents created. Furthermore, the public is not always educated in the technical nature of development proposals, and this can hinder effective participation.
- *Communication and communication technology:* There are huge language gaps as advertisements and site notices are mainly in English, and some indigenous or black communities can only read ethnic languages. There is also a wide disproportion in the accessibility of information and communication technology in South Africa. Rural areas do not have access to phones, the internet, and electronic media as the urban areas do. Furthermore, the technological methods used to communicate, e.g. cell phones and the internet, are not always available to the public as a whole. For example; proponents in the Gautrain proposal claimed that they created a two-way stream of information exchange (between proponent and I&APs), however, the I&APs deny this statement. The reason for this difference in opinion lies in the fact that the proponents made use of the internet and or cell phone messages which some I&APs had no access to (Aregbeshola *et al*, 2011:1284).
- *Undermining of goals:* if the goals of a participation process are not incorporated into the decision-making process, the whole process can be rejected and the final decision denied and in turn futuristic developments could also be rejected by communities.
- *Language barriers:* as a country with eleven official languages, it can be problematic to communicate effectively to everybody in a language they would understand and be comfortable with. These languages also represent different cultural groups in most cases, which in turn can make intercultural communication difficult due to the old cultural rivalry.
  - *Autocracy of participation:* the prescribed methods of the PP process in itself has the potential to inhibit certain portion of the community from participating in participation processes, for example the illiterate people in a given community

that cannot read newspapers, site notices and other written methods of notifications: the overall statement in the Public Participation guidelines and legislation gives the impression that all notifications need to be in written form (DEA, 2012:6-9). In conclusion, if these challenges can be eliminated or minimized during each PP process, the success rate of each participation process ought to increase: a definition of successful Public Participation will be discussed next.

## **2.10. Defining successful Public Participation.**

In order to define, in theory, an ideal participation process, one can combine the different typologies of participation and the challenges to the participation process. In other words, an ideal participation process will fall under the top ranks of the participation typologies and would be a process that implemented methods to overcome the challenges to the participation processes. In conclusion, an effective participation process ought to be.

Collaborating in nature and encourage partnership and self-mobilisation between proponents and the public. It should also empower local communities about their rights to the point that they are able to participate in a meaningful way and assure that they have some local control over the development process. Furthermore, PP should enhance the redistribution of power back to communities. It should also include representatives from lower- to the upper-classes (who are freestanding from any political interference) in every community and cater for the disabled and the young. PP should also communicate in a way that would be accessible to all the members of a community, for example; advertisements on the radio instead of newspapers and cell phone messages. And lastly, PP should be incorporating the goals of each PP process into the final decision.

The aim of this dissertation is to investigate to what extent research methodologies like Participatory Rural Appraisals can be utilised to enhance the current Participation Process in the South African EIA context. Furthermore, the 2012 guidelines to the Public Participation process asserts that PRA is one of the methods to be used as an enhancement mechanism to the Public Participation process in communities where levels of illiteracy and other disadvantages hinder inhabitants from participating effectively (DEA, 2012: 245). Also, “*The principles underlying the PRA/PLA approach (i.e. capacity-building, use of more effective communication techniques and two-way learning) should form the cornerstone of any stakeholder engagement process*” (DEAT, 2002:16). The next section will focus on

Participatory Rural and Rapid Rural Appraisals. These are research methodologies used in rural and or urban research processes.

## **2.11. Origins of Participatory Rural Appraisal.**

According to Uddin and Anjuman (2013:72) Participatory Rural Appraisal drew its origins from principles found in activist participatory research, agroecosystem analysis, applied anthropology, field research in farming systems and Rapid Rural Appraisals which existed in the early 1990s. The International Institute for Environment and Development (IIED), Ford Foundation (FF), and Swedish International Development Cooperation Agency (SIDA), were involved in promoting PRAs in the 1990s.

Chambers (1994:953) states that PRA originated from a family of approaches commonly referred to as Rapid Rural Appraisals (RRA). RRA later split into separate entities and formed a second entity Participatory Rural Appraisal in the 1990s. Furthermore, the origin of RRA came in response to biased perceptions regarding rural development. For example, a researcher would make a brief visit in a rural community, going in and out as fast as possible. A second factor that drove the origins of RRA is the discomfort and or timely processes of questionnaire surveys (long and time-consuming questions) and associated results (technical terminology and difficult to understand by the general public). Lastly, the origins of PRA were driven by the need for “... *cost-effective methods of learning...*” (Chambers, 1994:953) i.e. researchers realized that the general public (especially focusing on the rural poor) possesses the basic knowledge regarding issues affecting their communities. Moreover, this lead to the development and popularity of ITK (Indigenous Technical Knowledge): this was discovered to have rich value for practical applications.

Robinson (2002:46) asserts that PRA originated amongst NGOs in South Asia and East Africa. Some of the methods included in PRA were derived from the anthropological work and participatory research done by Manchester University in southern Africa in the 1940s. Khodamoradi and Abedi (2011:74) assert that the origin of PRA can be traced back to Ethiopia, India, Kenya and Sudan. Later in the 1990s it also spread to Bangladesh, Indonesia, Nepal, Nigeria, francophone West Africa, Pakistan, Botswana, the Philippines, Sri Lanka, Uganda Vietnam and Zimbabwe. Furthermore, it also spread to other countries in Latin America, Africa, and Asia. NGOs, government departments, as well as students and other academics also adopted PRA.

PRA originated due to a search for practical research and planning approaches. These planning and research approaches were to support decentralized planning and democratic decision-making, work towards sustainable development, and enhance public participation and empowerment, according to Chambers and Guijt (1995:5). In addition, although he (Robert Chambers) is seen as the main author of the PRA and RRA approaches, Chambers considers the Brazilian educationalist Freire's *Pedagogy of the Oppressed* as his inspiration for PRA. The main idea in *Pedagogy of the Oppressed* (written by Freire) is the fact that the poor have the right to conduct their own analysis on their daily lives and act accordingly. This lead to a point where the final development proposal is more acceptable to the community (Tedford, 2011:27). According to Bevan (2000:752) PRA had two main goals during its origin state, namely: a personal change in attitude amongst research professionals as well as a change in mindset amongst researchers regarding the empowerment of the poor whom they work with.

Lastly, the lack of similarities between what researchers and the affected community consider being important issues in a given area is, in essence, the main driving force behind the development of PRA. Von Maltzahn and Van der Riet (2006:114), states that the origin of PRA was driven by a revolution against top-down research approaches that was prominent in rural development. The three main factors that added fuel to the revolutionary fire were: The realisation that rural communities possess knowledge that can be vital in development proposals, the realisation that the interaction between economic, social and the environmental/ ecological spheres are very complex as well as the disappointment in the way that research would consume the time and resources of poor communities.

### **2.11.1. Definition of Participatory Rural Appraisal.**

According to Ling (2011:392), PRA was used as a policy-making tool: a tool used to help policy makers with the gathering of information from the public and simultaneously the public could present policy makers with their needs and desires.

The word *Participatory*, as used here, refers to a bottom-up approach whereby the community is involved in the research process: a process that requires the researcher to have good communication skills and a change in attitude. The word *Rural* does not per se imply that these techniques are bound to the rural communities, as used in this definition, it refers to a process that can be used in a rural, urban, suburban and with any community irrespective of their socio-economic status. *Appraisal* refers to the process of information

gathering in a proposed community, whereby the needs, problems and potential in the community are established (Cavestro, 2003:3).

Furthermore, Alam and Ihsan (2012:27), describe PRA as a binary process of doing research (learning from and with communities), consisting of both community members and research professionals. It is also seen as a way of investigating, questioning constraints and opportunities and making of timely decisions regarding development projects. Alam and Ihsan (2012:27) further assert that information can be gathered quicker and in a systematical fashion, for the purpose of analyzing certain topics, problems, and questions. For example; “*Need assessments, Feasibility Studies, Identifying and prioritizing projects and Project or program evaluations*” i.e. PRA aim to understand complex issues and situations instead of gathering accurate information about these complex issues and situations.

PRA is also a growing family of approaches which aims to enable and empower local communities to share, analyse and augment their knowledge regarding the area they live in, with the aim to be able to plan and take actions accordingly, asserts Chambers (1994:953). Lastly, Webber and Ison (1995:108) define PRA as a semi-structured, yet intensive and systematic learning experience, being carried out in rural communities by a multifaceted team of researchers and community members.

In short, PRA can be described as a binary policy making and research tool, with a semi-structured (yet intensive) design, which aims to empower local people in communities to share, analyse and augment their knowledge as quickly and systematically as possible.

### **2.11.2. Aim and objectives of Participatory Rural Appraisal.**

After defining what PRA is, attention now turns to what it aims to achieve. According to Gharffari and Emami (2011:899), PRA has six main objectives as portrayed below PRA is aimed at assisting local people with organising their own knowledge, sharing their experiences, gathering all information regarding their needs and resources, and understanding rural communities in terms of their social and economic enthusiasm. It also helps with enabling local people to understand their own problems, the causes thereof and the solutions to it as well as assisting and supervising the development of a community action plan which will help in resolving the identified problems.

PRA is also aimed at understanding all the socio-economic conditions in rural communities. Furthermore, the levels of unemployment, poverty and in some cases environmental degradation (especially in the rural communities) in South Africa are pretty high. This kind of situation coupled with the inability/ lack of effective intervention by the government creates the opportunity for researchers to become involved in the development of the rural poor. There is a need for a research approach that can contribute to the development of socio-economic conditions in rural areas. One of the research approaches deemed appropriate for these situations is the PRA approach, thus PRA aims to achieve socio-economic development. It also aims to enable the key stakeholders (government, local communities, private sectors or NGOs) in working together to plan programs for the communities.

### **2.11.3. Basic principles of Rapid Rural Appraisal and Participatory Rural Appraisal.**

According to Chamber and Guijt (1995:5) and Emami and Ghorbani (2013:97), there are basic principles of RRA and PRA that can be used as guidelines by all who uses RRA and PRA. One of the main principles of RRA and PRA is the visualisation of research results by means of local symbols. Moreover, Chambers and Guijt (1995:5) and Emami & Ghorbani (2013:97) asserts that;

*PRA tries to offset biases, especially focus on spatial, project, seasonal and other related biases. It also tries to encourage rapid progressive learning by making learning programmes and processes with communities more flexible, exploratory, interactive and inventive. Furthermore, PRA reverses traditional roles of researcher and the researched: the researcher discovers learns with the community and try to make primary use of methods within the community. For example, asking community members to draw a map on the ground by using sticks and stones. The researcher also tries to understand and appreciate the knowledge that local people possess on the issues they face.*

PRA further encourages optimal ignorance and appropriate imprecision: the researcher willingly does research only on what is really needed and try not to measure if he/she can get the same result by comparing different data sets. And it makes use of triangulation: the researcher makes use of more than one method of doing research and cross-checking in order to get as close as possible to the truth.

Moreover, the researcher learns directly with and from the local people and tries to seek diversity and differences i.e. the researcher tries to include a diverse group of interviewees

and participants in his/her research process. The researcher also tries to research as efficient and cost-effective as possible: taking up minimum time from community members and in the most cost-effective way as possible. Lastly, the observations during research form part of the valuable information in the research, as a whole, and visual representations are made of the results: researchers aim to present the research results in a visual representation by making use of images and other visual aids.

#### **2.11.4. What is Participatory Rural Appraisal good for?**

According to Emami and Ghorbani (2013:98), PRA is good for a number of purposes. PRA can help to gather baseline information in areas where little is known and can also help to assess and identify problems within the area of research. PRA can also be used to evaluate, design, implement and monitor a project's life cycles. Furthermore, it can also help in terms of needs assessment within an organisation, as well as the organisation's ability to meet their needs. Lastly PRA can also help to highlight or interpret the context of information obtained through other means.

Because PRA focuses on the social, environmental and economic spheres of society, it plays an important role in terms of sustainability. Its bottom-up approach makes PRA one of the most effective methods of participation. More so, it's well defined objectives, basic principles and practical solutions also help to advance its role within public engagement attempts.

#### **2.11.5. ~~Disadvantages.~~ Disadvantages of Participatory Rural Appraisals.**

Like the Public Participation process, the PRA process is not without its limitations. According to Abdullah *et al* (2012:17-18) the disadvantages of PRA are:

- PRA can be a lengthy process and can cause delays in developments.
- PRA processes are prone to influence from dominating forces within a community, e.g. literate members in community can dominate the PRA processes and influence discussions.
- The views of communities cannot always be followed, due to politics, socio-economic situations and other factors within the community.
- Since PRA encourages researchers to act only as facilitators, the role of the researcher is impeded in some way. For example, if the community decides to

disregard the views of the marginalised groups within the community itself, the researcher will have a difficult time intervening.

- There is the possibility that community members might exaggerate the information that they provide.
- Because of the difficulty of assuring the accuracy of data, PRA researchers have to make use of triangulation techniques.

Although there are disadvantages to the use of PRA methodologies, research suggest that the pros outweigh the cons of PRA, in short, what PRA is good for, its basic principles, as well as its aims and objectives needs to be incorporated in every PRA attempt in order to ensure best application and results. Special attention is needed when incorporating these to minimize or mitigate the disadvantages of PRA during a research process.

## **2.12. Participatory Rural Appraisal tools.**

Alam and Ihsan (2012:27) assert that PRA tools aim to gather accurate information at low cost and thus saving money and time. PRA also aims to enhance field relations i.e. produce rapid, yet precise data gathering processes. For the purpose of this research three PRA tools will be used, i.e. Focus Group Discussion (FGD), Case Studies and Stories and Participatory Mapping. These tools were chosen for their potential of gathering quantitative data in relatively short periods of time. Also, Spaling and Vroom (2007:45) assert that Participatory mapping and Focus Group Discussion (informal interviews) are some of the PRA tools that can be used to congregate traditional environmental knowledge. The aim of this research is not to add extra time constraints on the already lengthy EIA process in South Africa, but to optimise the information gathering processes during the PP process. CIDA (2005:18) asserts the term participatory appraisals can be seen as an umbrella term for techniques that are aimed at sharing and defining the knowledge, perceptions, and concerns of citizens. CIDA (2005:18) also asserts that PRA techniques can be used during environmental assessment in conjunction with local people. Also, practitioners tend to mix and match techniques and produce different variants for different research situations. In conclusion, there are two issues that stand predominantly out, and will be used in this research, when it comes to the tools being used in PRA:

*Handing over the stick:* the roles of researcher and researched are reversed. PRA tries to facilitate local people in doing their own research and planning activities. The responsibility of gathering data and analysing it is shifted to the community.

*Visualisation:* community members present their ideas visually. For example, community members would be asked to draw a map in a way that they feel comfortable with. The researcher facilitates the map drawing process but does not take part in it.

### **2.12.1. Focus Group Discussion (FGD).**

Ling (2011:397) asserts that Focus Group Discussions (FGD) are being used in the fields of urban and regional planning and government policy making processes which include public participation, for qualitative research processes. FGDs can be held in a casual nature, in order to ensure rapport and keep people at ease. The aim of FGD is to identify community problems and aspirations. FGD also helped to identify members in the community who can shed more light on threatening environmental issues in the community, for example, teachers, farmers, university students, and marginalized groups such as women, children and the disabled. During the FGD information that would otherwise not be voiced in community meetings, can be obtained i.e. information about the history of environmental issues and social problems can be gathered (Binns *et al*, 1997:4 & Ling, 2011:397). Insight can be gained in terms of how a group of people think in an FGD. For example, during an FGD, arguments/ grievances can indicate different opinions as well as the variations that might exist in terms of a group's experience around certain issues (ODI, 2009). Also, during an FGD local environmental values and beliefs can be gathered which can be used to assess impact significance later.

### **2.12.2. Participatory Mapping.**

The use of maps by rural communities and native tribes are not something new to the modern era. As far back as 1837 an Iowa chief, named NonChi Ning Ga, transformed his Local Spatial Knowledge (LSK) into a community map and the map was used in a land claim in Washington (Panek, 2013:231 & Chambers, 2006:2).

Participatory Mapping is being used in PRA approaches as a means of visual aid. Today, technologies like Google Earth can be used for mapping purposes i.e. getting a general overview/bird's-eye view of the community. By allowing community members to explore their environment from a different point of view, one can attain a community's curiosity not only in technology but also in terms of spatial information in and around their living environment.

Participatory mapping can also provide an insight into ways that land is allocated to a community, identification of important landmarks and socio-economic settings.

However, Google Earth does not always cover rural areas to the full extent. For example, the Mathare Valley in Nairobi is one of the largest slums in Kenya (Warner, 2013), although it is home to up to 200,000 people it is not visible on Google maps. However, in 2012 a group called the *Spatial Collective* used hand-held GPS devices to map landmarks in the slum. The *Spatial Collective* worked with local residents to map the slum. Warner (2013) asserts, “*Their maps includes things like informal schools, storefront churches, and day care centres, but also dark corners with no streetlights, illegal dumping grounds, and broken manholes. They bring the most urgent problems to the attention of the authorities*”. Thus, by working with residents from the slum itself, researchers gain access to areas that would otherwise be out of their reach.

Google Earth can be used as a means to get a visual tour with the help of community members before field work can commence. This virtual tour acts as a learning experience for the researcher i.e. getting a visual representation (for example the location of a river in relation to the community) prior to the field visit This can provide an overview of what community members like to portray within their community. Tools like Google Earth can also be used as an ‘ice breaker’ / conversation starter (Chambers, 1994:960 & Goodarzi *et al*, 2011:2982). Furthermore, because maps can be drawn with simple symbols, literacy levels are negligible, i.e. symbols are self-explanatory and can be easier understood in relation to technical terminology.

Participatory Mapping’s focus is not solely on the map as such, but the discussion during the map drawing process form an important part of the process as a whole. Participants have to decide what to include in the map, thus discussing the importance or relevance of some features and developing a common picture of the community to be portrayed. CIDA (2005:21) asserts that Participatory Mapping does not necessarily produce perfect cartographic maps (it is not designed as such), but the map drawing process acts as “...a chance to gain further understanding of the community and the context of the initiative” (initiative referrers to the proposed development).

Lastly, Participatory Mapping is described as an empowerment tool. The map drawing process allows participants to think spatially about their environment and enables them to put their community on a map in the literal sense. Data gathering and map creation processes awaken a sense of belonging within the community and being in charge/ownership of the process (Panek, 2013:239). For example, UNICEF launched a programme in a slum in India where children make use of old-school topographic materials

like paper and markers to draw maps of their slums. With the help of facilitators, young mappers spend about 45 days to map the slum they live in (Sturgis, 2015). Sturgis (2015) further asserts that the children use the opportunity to point out what is needed in the community for example a playground.

Furthermore, Sturgis (2015) describe the maps drawn by the children as, *“Their ideal neighbourhood is drawn and detailed onto the map. Then, after it's complete, leaders from the child clubs present their work to local officials”*. There are about 325 groups of children mappers across India. These children might not be accepted as worthy citizens at their age, but they are the future citizens of their communities. Their views do carry some weight in terms of the development of the community into the future. To conclude, Sturgis (2015) states that Dharitri Patnaik from the Barnard van Leer Foundation, a foundation in support of child development programs, asserts that, *“By coming to the table with a surrogate development proposal the map children demonstrate analytical capabilities. In turn, government officials have to take them more seriously”*. Even at a young age, children think spatially about their environment and gained a sense of belonging.

### **2.12.3. Case studies and Stories.**

Case Studies and Stories as used in this dissertation refer to the process of conveying technical information by means of storytelling. For example, to explain the meaning of sustainability of natural resources, a story that includes elements of sustainability can be told (Binns *et al*, 1997:4). As part of the case studies and stories approach, the Present and Future technique are incorporated for the purpose of this research (CIDA, 2005:28).

The aim of the Present and Future tool, also known as force field analysis, (CIDA, 2005:28) is to enable community members to share their recollection of what the environment around their community look like in the present and where they would like to see it in the future. Furthermore, members of the community also depict ways in which they will achieve the futuristic environment that they envisioned. Also, the Present and Future tool, can be used as a means to (a) establish a common community vision, (b) identify the issues that need investigation to realise that vision, and (c) the means to resolve the identified issues and all the resources needed to realise the identified vision.

Research showed that the PRA approach is not new to South Africa, there has been a couple of PRA research process conducted in the past in and around the country. The following section will be dedicated to some of these researches that have been done and

produced successful results in the field of environmental resource management and other fields of study.

In conclusion, these PRA tools were chosen based on the ability to be used in conjunction with any community irrespective of their literacy levels. These tools are also dynamic and thus can be adapted as may be demanded by any situation. Furthermore, a few case studies will be discussed where PRA tools have been used in and around South Africa in the past.

## **2.13. PRA case studies in Africa and South Africa.**

There are numerous examples of PRAs conducted in and around South Africa that resulted in successful levels of participation both in and around the environmental sector. The section focus on the description of one PRA case studies conducted in Kenya and around several in South Africa. Each case study is presented in terms of what the study was about and what results were achieved / ~~conclusion were~~ conclusion was derived.

### **2.13.1. Somali nomads in Kenya.**

Healthcare services are one of the fields where research is needed in third world countries. One of such instances where research was needed was amongst a community of nomadic Somali inhabitants in Kenya. Due to their lifestyle, little research has been done regarding the health needs and perspectives of this particular nomadic tribe. Maalim (2006:178) asserts that the best way of data acquisitions was to make use of native information from within the nomadic hamlet. The word hamlet refers to a nomadic village. In the 1900s, research has been done by means of a variety of PRA techniques within Somali hamlets in Kenya.

By implementing PRA techniques, researchers could gather valuable information from the nomadic group, despite the fact that the levels of literacy within the group were very low (Maalim, 2006:181). Maalim (2006:181) further asserts that the issues of illiteracy were overcome by improvisation. The nomads made use of twigs, pebbles, and threads to express themselves. Although the biggest percentage of these nomads in each researched hamlet was illiterate, enough information could be gathered to make an informed and scientific decision regarding their health situations.

In conclusion, the researchers found that the nomads were able to describe and decipher their own shortcomings and strengths. By means of diagrammatical descriptions, these nomads were able to portray their seasonal movements and how these could be used and

incorporated into their health system. This study also concluded that healthcare personnel needed to establish some rapport and get accustomed to nomadic socio-cultural practices and thus ensure effective healthcare services (Maalim, 2006:188). Maalim (2006:188) states that *"We are happy to report that since this study was carried out, the Garissa District Health Management Team has incorporated some of its recommendations, and as a result, the health services provision to this community has been greatly improved."*

### **2.13.2. Lepelfontein (Northern Cape Province)**

Water inadequacy in South Africa can lead to social, economic and environmental problems. One community that struggled with water inadequacy is Lepelfontein in the Northern Cape Province of South Africa (Rush *et al*, 2000:550). In 2000, a study was conducted by Sandham and Van der Walt in Lepelfontein. The aim of this study was to conduct a social survey in order to determine the social conditions within the community. This study by Sandham and Van der Walt (2000) followed a preliminary study that was done in Lepelfontein during the 1990s. The preliminary study was conducted by using fog-harvesting system to capture and store water for domestic use. The fog harvesting yielded about 10 000 litres of water per year (Sandham & Van der Walt, 2004:68-9 and Rautenbach & Olivier, 2001:243). The success of the harvesting initiated the idea of using fog harvesting for additional water supply purposes: gardening and other uses besides domestic water use (Sandham & Van de Walt, 2004:69).

Sandham and Van der Walt (2004:70), asserts that *"The survey took the form of a rapid rural appraisal (RRA) but were not overtly structured as such."* The study by Sandham and Van der Walt was conducted in two phases. Phase one took place in September 2000 and phase two in September 2001.

It was concluded, from this study that the community needed electricity, water, and community leadership the most. This study also proved that shortages in life-skills training regarding the fog harvesting, lack of community cooperation, the need to use native community knowledge in the development initiative and deviant behaviour spawning from the pilot study, are all factors that could influence the sustainability of the project. Sandham and Van der Walt (2004:86), also assert that the research offered information that would suggest that rural sustainability can be achieved if it is well planned and takes all social, economic and environmental factors into consideration in an integrated participatory approach.

### **2.13.3. Kat River Valley (Eastern Cape)**

Another area in South Africa that was influenced by water related issues is the Kat River Valley in the Eastern Cape Province. The river valley from Hertzog to Fairbairn, is home to several hundred people, of which most gather water from the Kat River. The Kat River Valley was the study area for Hill *et al* (2001:3).

This study entailed the use of PRA methodologies which led to the improvement of domestic water quality in the Kat River Valley Hill *et al* (2001:1). The whole process of gathering and use of water from the Kat River resulted in direct and indirect environmental issues. Walking to and from the river, a process mostly done by children and women, resulted in the erosion of the riverbanks which lead in turn to an increase in siltation (Hill *et al*, 2001:3).

The researchers made use of numerous PRA techniques in order to obtain the needed data. Some of the techniques included: mental mapping, transect walks, life histories, role plays, focus group discussions and the use of puppet shows for children (Hill *et al*, 2001:4).

Furthermore, because the quality of water is scientific in nature, expert inputs and laboratory test were done by outside experts in water quality. The results of these tests were reported back to the community leaders. The leaders then reported back to the community and took it upon themselves to ensure the recommendations from the researchers were enforced. The water collectors, in particular the children, were educated in the use of the *Catchment Action Starter Kit* and the *E.coli Water Test Kit* (Hill *et al*, 2001:5-6). In conclusion, Hill *et al* (2001:6), asserts that their study stands as proof that the combination of expert and community knowledge can lead to the empowering of communities, to the point that they can take the lead in their own development.

### **2.13.4. Hertzog (Eastern Cape Province)**

Researchers failed to integrate indigenous knowledge into environmental management attempts in the past and these lead to negative effects on the social and natural environments (Motteux *et al*, 1999:261). One such community that was affected was Herzog in the Eastern Cape.

In 1999 a PRA study was conducted with the aim of enabling the community (with help from researchers) to identify and evaluate the perception they had regarding their people-environmental relationship. As asserted by Motteux *et al* (1999:265), "*These objectives were: ...To raise awareness of the degree of environmental degradation and to determine*

*the extent to which the community is concerned with managing and improving the condition of the river both for their immediate use and for future generations*". This research also aimed to use the data gathered to propose a community action plan to improve the environmental conditions as well as the welfare of the community.

This research started off with a questionnaire survey to determine the inhabitant's relationship to their environment. There was a constant feedback loop, where researchers would keep community members up to date regarding the progress of the research. There were ten PRA workshops held between 1996 and 1997 after an initial standard questionnaire survey amongst 55 households.

From the PRA process and questionnaire data, it was clear that the community was well aware of the importance of environmental management. However, they did not manage the environment in a sustainable manner, due to the former Apartheid's exclusion legislation, i.e. the privation of education and social upheaval. After the results were presented to the community, they recognized the fact that they had an environmental crisis at hand and were eager to resolve the proposed crisis with help from the researchers. Six months after the initial research process a follow-up session was conducted. It was observed that a long-term empowerment had occurred within the community. This is what one of the community members had to say about the whole research process:

*"We have gained a lot from the project and there were things which we did not know at first. Things like soil erosion. We have learnt now about it and what caused it. And we were also taught to plant trees near the dongas (erosion-induced ditches) and also taught which tree to cut and which tree not to cut. And we are very excited and glad about it and how to catch fish. We thank you people for that, and now we can see the difference between the clean and the bad water. We also thank you, ever since you came here there has been a decrease in sickness, for instance, stomach-ache. Because we also, as a community, discuss what you are teaching us. We are trying to improve, but it is difficult because some people are lazy"* Motteux et al (1999:270).

### **2.13.5. Koffiekraal (North West Province).**

The Geography Department at the University of South Africa (UNISA) and the Greater Rustenburg Community Foundation (GRCF) conducted participatory mapping research (Community Assets Mapping Programme or CAMP) in the Koffiekraal community in the North West Province. According to Panek (2014:8), Koffiekraal is a small village situated in the Bojanala Platinum District Municipality in the North West Province: a community consisting of about 13 000 people. Moreover, Panek (2014:1) asserts that participatory mapping is increasingly being used as a development discourse tool, aimed at allowing communities to become partners in development proposals. Communities can decide what they would like to map.

This research aimed to assist local people in creating a spatial representation of the Koffiekraal village by using an OpenStreetMap (OSM) platform. Furthermore, this research also aimed to produce a means for using the spatial data that the community gathered for their own benefit (Panek, 2014:2). The study was conducted by dividing participants into different groups. Each group assigned a name to themselves. Stationary supplies were provided to each group for the purpose of drawing maps. Data gathering took place in the form of transect walks. Participants were asked to take a transect walk and gather as much as possible/ all the necessary information that they want to put on their group maps. Information regarding social, economic and environmental features were gathered. The route of each group's transect walk was recorded on a GPS device by a facilitator. Furthermore, the participants also had to make use of 1:10 000 aerial photographs and 1:50 000 topographical maps of their community and gather information to redraw or add to their maps in the group.

For quality and accuracy control purposes, the researchers made use of a GIS system to redraw the features mapped by the community members on a map of their own. They made use of GPS coordinates and photographs of all features that the individual groups mapped as well as the features they thought were overlooked by the community and created a map to compare the maps drawn by the community.

It was found that the community managed to map 80% of the features that the researchers mapped. Forty percent of the participants had some knowledge regarding maps, i.e. they gained exposure and experiences in school. Thus, the community was perceived as being well capable of drawing maps and are familiar with a process that might be perceived to be something that well educated cartographers might be able to do.

## 2.13.6. An example of PRA in South Africa today.

There are still PRA-like processes being practice/implemented in South Africa. For example the “*miniSASS*” initiative. MiniSASS (Mini Stream Assessment Scoring System) refers to a tool used to measure the health of rivers. The health of a river is measured over five categories from natural to very poor. Measurements are made by a species counting process, i.e. macroinvertebrates from a river in question are gathered and the river’s health is determined by the organisms found. An example of such test can be seen in Figure 1. All measurements and collections are done by community members, students and or primary school children. On 2 July 2015, a group of various water works experts (aquatics scientists, academics, students, consultants and people working in the water and sanitation industry) tested the miniSASS tool in the Sterkpruit River. Their tests provided feedback in terms of how the tool can be improved (miniSASS, 2015:3). MiniSaSS is underwritten by organisations like the Department of Water and Sanitation, Water Research Commission, Ground Truth and WESSA (Wildlife and Environment Society of South Africa).

Site Details		Groups	Present
River name:	Vaal	Flat worms	No
Site name:	Gatsien Rapid	Worms	Yes
Site description:	At the first reeds, river left and below Gatsien Rapid. Next to Eucalyptus trees. The riverbed is a slab of granite, with loose rocks and pebbles in holes, and some sand on edges and depressions.	Leeches	No
Latitude (S):	-26.90077	Crabs/Shimps	Yes
Longitude (E):	27.38461	Stoneflies	No
River category:	rocky	Minnnow mayflies	Yes
Observation Details		Other mayflies	No
Date:	08 Nov 2014	Damselflies	No
Username:	trivaters	Dragonflies	No
Organisation type:	NGO	Bugs/beetles	Yes
Organisation name:	Trivaters Tour	Caddisflies	No
Comments/notes:		True flies	No
Measured Parameters		Snails	Yes
Water clarity:	cm	Average score:	4.40
Water temperature:	°C		Very Poor

Figure 1: Section of the Vaal River evaluated by means of a miniSASS (Water Research Commission. 2015).

In conclusion, these are some of the examples of PRA research that had been done in and around South Africa. Resulting solutions that were constructed with the help of seemingly uneducated and inexperienced people in terms of the integrated fields of environmental management was also explained. Although PRA is not as well defined as EIA in terms of

environmental legislation in South Africa, these case studies show that PRA did add value to the field of environmental management. People were educated about environmental issues and proved that they are well capable of defining their own problems and the solutions to it. They also proved that they possess the skills to convey their environmental knowledge i.e. they might not do it in conventional written forms but they can make use of maps and other non-literacy requiring methods. Therefore this dissertation does not aim to introduce a foreign subject into the current EIA system, it merely seeks to investigate to what extent the use of a system, that had been used in the past i.e. PRA, can be reintroduced to improve participation of middle- and lower-class citizens in the South African EIA system.

## 2.14. Difference in notification methods: Participatory Rural Appraisal vs Public Participation.

The one distinct difference between Public Participation and Participatory Rural Appraisal is the method of notifying the I&APs. For example, according to EIA legislation in South Africa, EAPs are obliged to notify the public by means of written notices. In comparison, the Participatory Rural Appraisal approach takes a hands-on approach. These differences will be discussed and how they might influence the levels of participation. Table 11 list the different recommended methods of notifying the public about proposed Public Participation and Participatory Rural Appraisal processes.

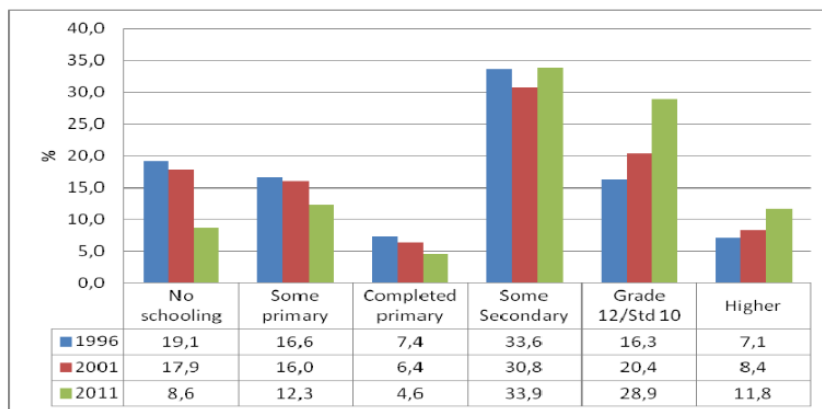
PRA	EIA
FGD Transect walks Word of mouth (e.g. information transfer from village chief to villagers)	Letter drops Advertisement in newspaper Site notification Unofficial word of mouth

**Table 11: Difference in methods of notification between PRA and EIA.**

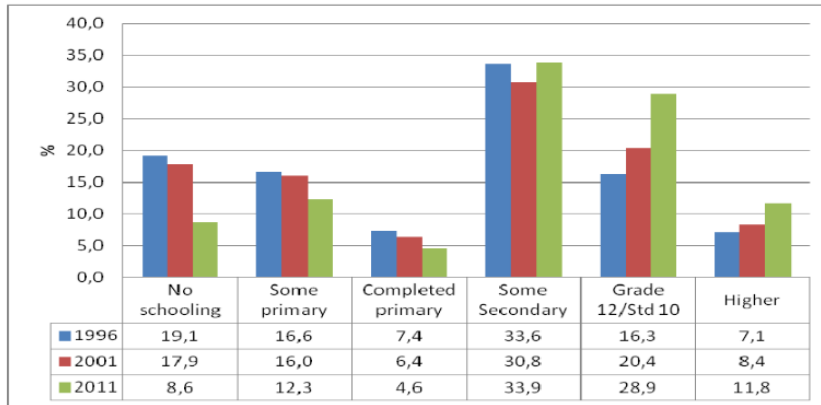
In addition, the 2012 NEMA Public Participation Guideline states that the EAP is responsible for notifying all I&APs about any planned Public Participation processes. For example by means of a notice board on-site, written notice to landowner in question/adjacent land and property owners/ occupiers, municipal councillors, organs of state and all other competent authorities. Furthermore, the EAP should also place advertisements in local/provincial newspaper(s) and, if need be, the EAP is obliged to use alternative methods to accommodate those people who are not able to participate due to illiteracy and other disadvantages (NEMA, 2012:6-7). Based on this premise, it would appear that the

successes of the notification process depend somewhat on the literacy of the communities affected by a proposed development. All the prescribed methods of notification are in written form. The first step to a participation process is the ability to reach the desired community/ I&AP by the means available. For example spreading the word about a proposed Public Participation process through the prescribed notification methods. If these methods fail to achieve their goal, for example, a community with a high illiteracy level have a low chance of hearing about the process through means of reading, the possibility of a participation process decreases considerably. Although the provisions for alternative methods are in place, it becomes a question of whether every EAP will determine the need for extra/alternative notification methods or just stick to the conventional methods.

Census data from 2011 (Statistics South Africa, 2012:33) suggest that about 33.9% of the South African population, 20 years and older, attained some secondary schooling. Only 28.9% of the population attained grade 12 or equivalent. Furthermore, 11.8% of the South African population attained higher education, as seen in Figure 2. Moreover, the census data also suggest that black people have the highest percentage of people over the age of 20 with no schooling as portrayed in Figure 3.



**Figure 2: Levels of education attained amongst SA population 20 years and older (Statistics South Africa, 2012:33).**



**Figure 3: Levels of education attained amongst SA population 20 years and older (Statistics South Africa, 2012:33).**

From this, it would appear that the people who are most likely to be excluded or missed by traditional methods of EIA notification (e.g. newspaper articles, notice boards, letter drops) are amongst the majority of South Africa's population: 80% of the South African population are black (Statistics South Africa, 2014:3). Thus, illiteracy is more likely to be higher in a black community, and if the EAP were to stick to the conventional method of notifying all I&AP, the chances of the success of the Public Participation process decreases.

In comparison, PRA is based on the premise that the community is illiterate/ PRA methods cater for the illiterate section in the community from its initial stage. For example processes like transect walks, participatory mapping and or storytelling do not require literacy levels nor do they exclude the literate. From the four PRA case studies in section 2.13 of this research, the successes PRA had in communities with little to no literacy levels can be seen. Other factors like the competency of the researcher that lead the PRA process might also have played a role in the success of each PRA case study, however, it is not the aim of this research to judge individual competencies but rather the PRA process in itself.

## 2.14. Conclusion.

The main intention of this chapter was to introduce the EIA process with special focus on the PP component thereof. This chapter also introduced PRAs and the influence they have on rural and urban communities alike and showed the potential of PRA to improve PP in EIA. The next chapter gives an outline of how this research was conducted to investigate the possibility of incorporating PRA approaches into the current EIA system.

## CHAPTER THREE.

### RESEARCH METHODOLOGY

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#### 3.1. Introduction

This chapter seeks to answer objective three of this research: to conduct Participatory Rural Appraisals (PRAs) within communities (Koffiefontein and Theunissen) affected by EIA processes for photovoltaic projects. This chapter also provides background information (geographical location, the socio-economic state, economic activities within the communities) to the respective study areas: Koffiefontein (section 3.3.1) and Theunissen (section 3.3.2). Section 3.4 depicts all communication and logistical arrangements preceding the PRAs in both communities. Section 3.3 and 3.4 focus on the selection of the research location, 3.5 focus on the description of the methodologies used to answer all the sub-questions as introduced in Chapter One. Lastly, this chapter concludes in section 3.6 with a discussion of all the challenges that were experienced during the conduction of this research.

#### 3.2. Research Design.

Due to the lack of research on the use of PRA methods in Public Participation within the EIA, the selection of the practical PRA methods suited for the Public Participation processes proved to be challenging. The PRA approaches presented in this section were selected based on their potential to be used in conjunction with an existing EIA system/ in context with natural resource management (DEA, 2002:15, Dinsho, 2009:4 and Ayele & Tefera, 1999:1). The basis of this research process anchors on the PRA premise that the researcher should *hand over the stick* to the community, i.e. allow the interviewees to lead the research process, where applicable, while the researcher acts as a facilitator. For example, the researcher tried not to command the flow of the research, and tried to adhere to what the community (Koffiefontein and Theunissen) felt was comfortable. Case in point, the research team aimed to hand every interviewee a questionnaire, however the interviewees felt it was better to nominate one person per household to answer all questions on behalf of the group.

Furthermore, questionnaires were used as guiding points in terms of the information needed to answer the research question, while leaving room for any additional information that could be added. The aim of these questionnaires were to determine how much the public knew about the EIA process. They were also designed to determine how much the people knew about the notification of community members regarding proposed developments and the

opportunity for all Interested and Affected Parties (I&APs) to make comments and to get their voices heard. These questionnaires were used in the same manner that an EAP would use for example, a slideshow presentation during a PP meeting, thus it is not foreign to the PP process. Although the questionnaires were the backbone of the information gathering process, they were not the only source as seen in Figure 4. These questions were also designed to refrain from the biases (Chapter two) that drove development of PRA in the first place, i.e. they were designed to be short and contain minimal technical information in order to make it accessible to the general public. The research team also relied on observation in and around the communities, inquisitive questioning with locals, focus group discussions, participatory mapping, case studies and stories, and transect like walks around the communities to get a better understanding of the communities as a whole. Furthermore, the questionnaire was divided into seven sections;

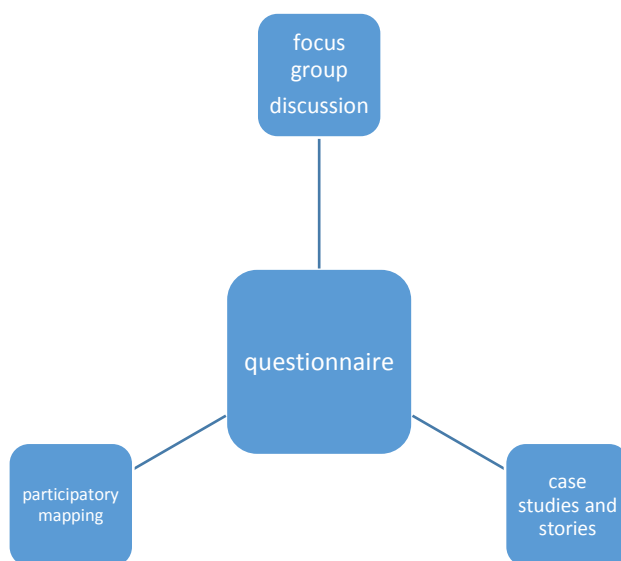
Section A: Demographic information

Section D: Environmental background

Section B: Educational background

Section E: Community engagement issues

Section C: Employment background



**Figure 4: Questionnaire main guideline with regards to data gathering to answer research questions.**

Furthermore, this research only focused on a portion of photovoltaic farms being planned around South Africa. The farms in Theunissen, Koffiefontein, Bloemfontein, Christiana, Bloemhof and Hertzogville are used in this research. These six communities were chosen based on their proximity to one another and accessibility thereof. The photovoltaic farms in these communities were all in the planning stage during the duration of this research.

Although conventional EIA with PP was completed in all six communities, two (Theunissen, Koffiefontein) were selected for application of PRA methods to test their effectiveness for PP in EIA(Figure 5). They were selected for this purpose because these two communities were the only ones with active community forums. A community forum may enhance rapport and local relationships, which are critical for PRA, and may provide information the researcher would not be able to acquire otherwise, particularly local knowledge and values.



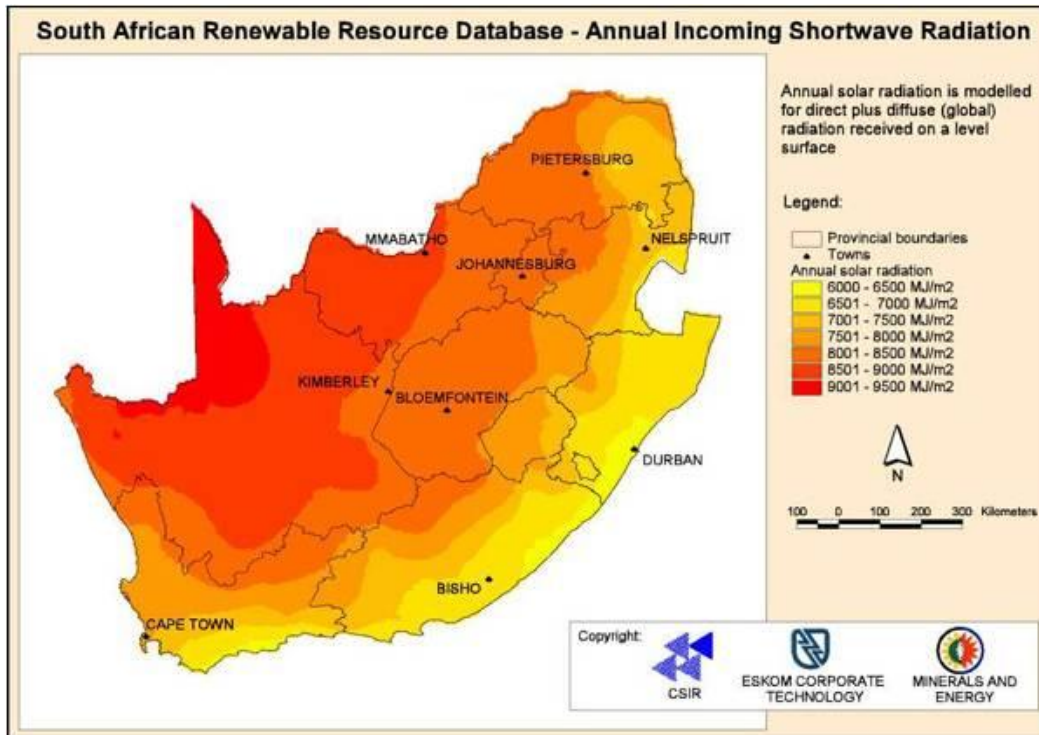


Figure 5: Approximate location of photovoltaic farms (Google Earth, 2015) and corresponding solar irradiation map of South Africa (Energy Intelligence, 2015).

### 3.3. Background information to the study areas.

As part of its 2012-2013 Integrated Resource Plan, the South African Government committed to produce 42% (17800 MW) of all electricity from renewable energy sources such as Photovoltaic farms, Concentrated Solar Power plants and wind turbines. Out of these renewable energy sources, solar energy is the most viable; as South Africa has some of the highest solar irradiance, (the amount of solar radiation hitting a given surface of the earth measured in  $Wh/m^2$ ) levels in the world (Geosolar, 2015). The country receives up to  $4.5-6.5Wh/m^2$  per day, placing it in the top-3 countries with the greatest solar irradiation in the world (Joemat-Pettersson, 2015:1)

In order to realise the 42% of renewable its energy target, the South African Department of Energy tend to erect several photovoltaic power plants in different parts of South Africa. As part of the country's environmental legislation, all new developments need to apply for environmental authorisation before commencing. Based on the size of the proposed development, either a full assessment (Environmental Impact Assessment) of a Basic Impact Assessment is required. In the case of the photovoltaic farms used in this research,

all had to undergo a full EIA. As part of the EIA processes, PP meetings were held for each individual photovoltaic farm by a registered Environmental Assessment Practitioner (EAP).

### **3.3.1. Theunissen.**

Theunissen is a small town in the Free State Province. It is situated in the province's gold mining and maize farming area. The area is dominated by rolling grasslands, scattered wetlands and lush bushes along the Vet River. Economic activities in the community include: farms, small gold and diamond mines, a golf course, and the Erfenis Dam and Nature Reserve in the vicinity of the community (ShowMe, 2015). Furthermore, this research was conducted in Masilo, a new extension (4.70 km<sup>2</sup>) in Theunissen and the location of the photovoltaic farm. According to the Census 2011 data, 21964 people lived in Masilo at the time of which, 52.62% were female and 47.39% male. In addition, 98.36% of the community is Black, 0.61% White, 0.54% Coloured, 0.32% Indian or Asian and 0.16% classify as other. The majority (75.56%) of the community speak Sesotho, 13.26% speak isiXhosa, 3.01% Setswana, 2.97% Afrikaans, 2.02% English, 1.07% Sign language and the rest (1.5%) of South Africa's official languages.

Furthermore, 34% of the population in Masilo is under the age of 15, 31.3% is 15-64 years and 47% are older than 65 years old. Also, 8.6% of the people 20 years and older had no formal education, 22.9% attended primary school, 37% attended secondary school, 20.1% attended grade 12 and 2.3% had some higher education. Masilo's population density is about 4668 persons/km<sup>2</sup>. In terms of average income per household, 16.3% have no formal income, 7% earn around R1-R4800, 11.3% earn R4800-R9600, and 43.6% of the community earn more than R9600 on average (StatsSA, 2011). This is an example of a neglected community that typically would not be engaged in the standard PP process.

### **3.3.2. Koffiefontein.**

Koffiefontein (36.85km<sup>2</sup>) is situated 140 km south-west of Bloemfontein in the Free State Province. The town's origins are attributed to the discovery of diamonds during the 1880s. Mining activities were stopped numerous times (for example during the Great Depression in 1932, the 1981 slump in the diamond market and in 2006 when De Beers sold the mine to Petra Diamonds) since the town's origins (Mining Weekly, 2011, Petra Diamonds, 2015). However, the main economic activities in the area today are sheep farming and some

agricultural products like potatoes, groundnuts and lucern. Other activities also play a role in the community's economy; a bird park, Coffee pot fountain, open pit mine, WW II murals and San rock art (South African Tourism, 2015). According to the Census 2011 data, 10402 people stay in Koffiefontein of which 51.08% are female and 48.92% are male and 74% are Black, 20.36% Coloured, 4.69% White, 0.61% other and 0.34% Indian or Asian. Afrikaans is spoken by 63.07% as first language, Sesotho by 14.15%, isiXhosa by 12.08%, Setswana by 7%, English by 1.28%, isiZulu by 0.82% and the rest (1.77%) are divided between the rest of South Africa's official languages.

Furthermore, 31.5% of the population is under the age of 15 years old, 63.64% are 15-64 years and 5.2% of the population is older than 65 years. Around 13.8% of the community had no formal education, 5.4% had higher education, and 21.6% completed grade 12. Also, around 12.9% of households within the community have no formal monthly income. According to StatsSA (2011), 5.2% earn R1-R4800, 7.9% earn R4801-R9600 a month, and 73.9% of the population earn more than R19000 per month (StatsSA, 2011). The Koffiefontein community has almost the same profile as Masilo in Theunissen, and like Masilo, Koffiefontein is an example of vulnerable communities absent from/ left out of the normal PP processes.

### **3.4. Commencement of the research process.**

In 2014, the initial Public Participation processes was conducted by a registered Environmental Assessment Practitioner (EAP). The researcher accompanied the EAP to all six PP meetings as a means to scout all six communities and to get general information concerning the attendance of these proposed PP meetings. During each meeting, the researcher made the first contact with the respective community forums. A community forum consists of a group of people from within the community that aims to advance the development of a specific theme within the community, usually on a voluntary basis, for example; a police forum for safety and security, a forum for child welfare, and a forum that focus on the overall wellbeing of the community. These forums are often legally registered as Non-Governmental Organisations (NGOs), which give them the legislative mandate to take action and represent the community where needed.

Furthermore, the researcher contacted the community forums in both Koffiefontein and Theunissen via email, three months before visiting the communities. The research team (Jason Chabalala-researcher, Laurence Modupi-the translator and Ulrich Henderson-driver) stayed for a period of two days per community. The aim of this research was not to add

additional strain, in terms of the number of days spent on the execution of PP meetings, to the already strenuous EIA process. Also, as stated in section 2.12 , Origins of Participatory Rural Appraisals, there is a possibility that community members might disregard lengthy research processes that would consume their time and or resources, so two days ended up being optimal in the context of an existing EIA system. By talking directly to the community leaders, one can get an idea of the setup, political influence, attitudes towards strangers, intentions towards development and interests and dislikes of the community. Furthermore, by extending the visit/meeting with community leaders directly to the affected community, one can reaffirm/ discredit what was being said by the leaders in comparison to what the community say.

The first day was dedicated to meetings with the members of the community forums. Meeting with the community forum, before commencing with the research, established a sense of rapport. Both the community forum in Theunissen and Koffiefontein are in opposition to their local municipalities. For example, the community forum member from Theunissen (hereafter referred to as the respondent in Theunissen) claimed that the municipality actively tried to exclude her from all community meetings by means of diversion, i.e. they would provide her with a date of a meeting being planned and change the date soon after. This history of distrusting between municipal leaders and the community was often quoted by the interviewees as the reason for mistrusting anyone whom the community perceive as a stranger. It made the research process difficult as the research team had to overcome mistrust and misdirection before any progress could be made during this research process. Furthermore, the Koffiefontein community forum's agenda are different from those in Theunissen, i.e. Koffiefontein's forum took a Self-mobilisation typological participation approach, while the Theunissen forum took more of a Collaborative typological approach during the duration of the 2014 PP process.

### **3.4.1. Selection of research location in Theunissen:**

In Theunissen the research team (with the help of one of the locals) established that the most western section of the Masilo community is situated about 100 meters across the road from the proposed photovoltaic farm as shown in Figure 6. In order to execute the research process as effectively as possible, respondents were selected based on age, gender and area of residence (only residents from the Masilo community were selected). The community section identified for this research, was selected because it is the closest and would be in direct view of the plant.

Based on the community's anti-public meeting attitude, the research team only interviewed people who were willing to listen, participate and have their responses jotted down. Furthermore, the selection of houses were random and spread across the whole western section of the community in order to cover as much ground as possible in the shortest amount of time. Also, in an attempt to hear both sides of the story, contact was made with the local municipality leaders, but only one person agreed to an interview.

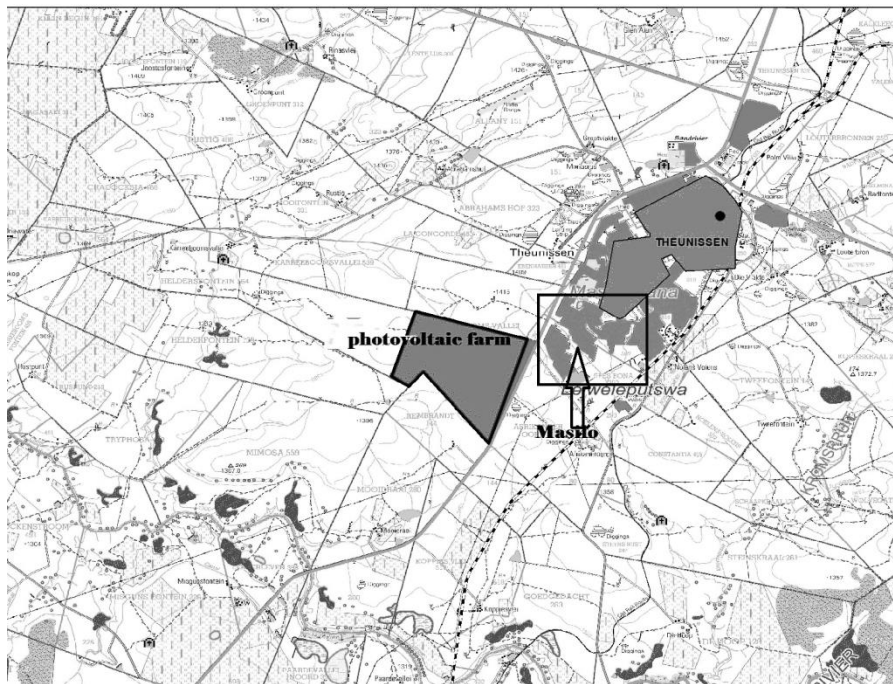
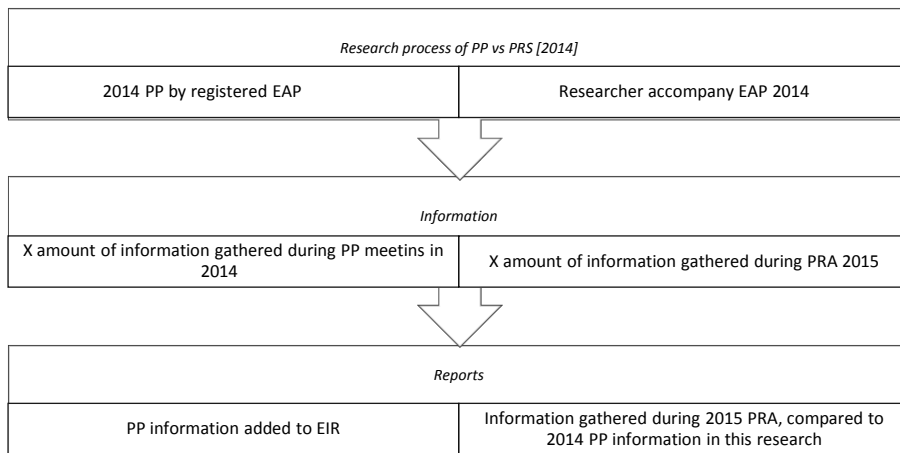


Figure 6: Location of farm and Masilo community (Google Maps, 2016).

### 3.4.2. Selection of research location in Koffiefontein:

In Koffiefontein the community forum member (hereafter referred to as the respondent in Koffiefontein) stated that the municipality denied the forum access to the local community hall, thus all their community meetings takes place in the local library. The community members were willing to direct the research team as to how they should go about the research process within the community in order to achieve the best results possible. For example, one of the interviewees suggested the research team speak to the department of agriculture, as they might be able to provide valuable information regarding the local environment. Members from community forum also gave an explanation about how the community acts towards the local municipal leaders. The respondent in Koffiefontein recommended that the research team spend time in the library. The team took initiative and interviewed people who came to visit the library.





**Figure 8: Research process 2014-2015.**

### **3.5.1. Focus Group Discussion (FGD).**

As asserted by Marczak and Sewell (1999:1), FGDs can provide insight into what a community thinks and believes about certain topics, for example the use of plants for medicinal use, or any other issues of interest. Furthermore, FGDs also assists in the triangulations of information gathered during individual interviews. Upon arrival in Masilo, the research team discovered that the community refused to attend any form of community meetings. Each of the interviewees stated that they do not attend community meetings held within the Theunissen community. They claimed that every Public Participation meeting is being overwhelmed by political agendas. Furthermore, nepotism also plays an important role in deterring effective participation from most of the community members. One interviewee stated that she had no interest in attending meetings as an act of dissatisfaction with all the empty promises of job creation that never realise or if it does, it is jeopardised by nepotistic actions.

Due to the community's attitude towards community meetings in general, the FGD had to be adjusted, and took the form of house-to-house semi-structured interviews i.e. the research team went from house to house in an attempt to talk to the community. Semi-structured interviews was chosen based on the time and in-situ conditions. Furthermore, in terms of its openness, the semi-structured interview was best suited as it allow for diversion and continual changes as the interviews and discussions progressed. A translator was always on standby and was tasked with translating all information (from English to Sesotho/ Setswana) that the interviewees had difficulty understanding. The general discussion was led by providing guideline questions by means of a brief discussion with the household as the intended focus group, followed by a semi-structured interview. The interview was conducted

by means of guideline questions from a questionnaire. The researcher acted as a facilitator: distributed the questionnaires to all the individuals who could read and write, but did not actively help with answering the questions. However, when the questionnaires were handed out, members in the household would nominate the person they felt best suited to answer the questions on behalf of the group. On average each household consisted of 4 to 7 members in total. The individuals in the household that could not read or write, were assisted with the answering of the questions.

### **3.5.2. Case studies and stories.**

Case Studies and Stories were used to convey information that was seen as complicated (sections in presentations that the audience did not understand / where explanations were requested), for example, the principle of sustainability, and other academic terminologies. Case Studies and Stories also acted as a reinforcement tool to the FGD, as people could also make use of storytelling to express themselves. Storytelling also assisted information collection, in terms of historical natural events like floods, droughts and other phenomena that took place in the communities. Community members were asked to recollect and convey any changes in the climate and / or other environmental issues, for example the change in rainfall over the last decade.

A recollection of what each community used to look like, what it is currently like, and where they would want to see the community going were encouraged through the means of probing questions. The photovoltaic farm was discussed in terms of what it is and why the government would approve of it, this was followed by the communities' own views on the farm, and what they felt or thought about it. The concept of environmental impact was discussed by telling a story about how a given community's harvesting practices of the Mopani worm lead to its demise. The story was a retelling of a story told by an elderly lady. Community members told their side of the story, in terms of how they perceived the proposed photovoltaic plant. The purpose of this was to get community members to share their feelings and understanding of environmental impacts in a way that they felt comfortable with (CIDA, 2005:28). Due to the community's attitude towards meetings and their insistence on anonymity, it was difficult to record the community's stories by means of voice recorder, video camera and or DSLR-camera. Thus hand notes were made to capture the main idea behind every story.

### 3.5.3. Participatory Mapping in an urban environment.

Emmel (2008:1) states that Participatory Mapping can be regarded as an interactive tool, used to interrogate qualitative research questions. The NCCPE (2014:1) asserts that Participatory Mapping differs from FGDs in that it is not necessarily guided by pre-set questions, and the influence from the researcher is minimal. Thus, Participatory Mapping is a more flexible tool that can help to highlight issues that would not otherwise be discovered.

The best approach during the visit to these communities was to determine their awareness of the development being proposed. With a question, “Do you know about the photo-voltaic farm being proposed in your community?” it became clear that no one in the community knew about the proposed development.

In both Theunissen and Koffiefontein a 10.1 inch tablet was used to run the Google Earth application. The research team travelled per foot from house to house, thus a 10.1 inch tablet was light weight and practical in this situation. However, in some instances a lag in cellular network reception was experienced and a few seconds or minutes were delayed. In both Theunissen and Koffiefontein the visited sections of the community were either built by private home owners or the government’s RDP initiative, i.e. little to no rural activities like hunting, gathering of firewood, digging of medicinal plants or digging of pit-latrines took place. Furthermore, both communities were well acquainted with technologies like cell phones and tablets. The use of electronic maps, as was used in this case, was not totally new technology but rather an introduction to an alternative use thereof. More than 80% of the community members, in Masilo, have access to a cellular phone, according to StatsSA (2011), as seen in Figures 9 and 10.

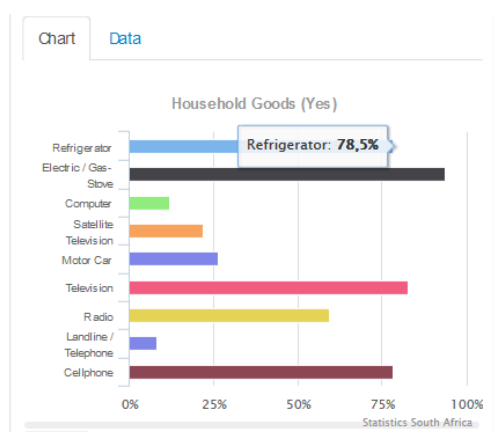


Figure 9: Access to cell phones in Koffiefontein (StatsSA, 2011).

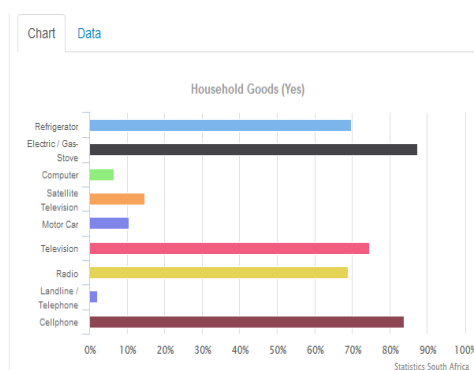


Figure 10: Access to cell phones in Masilo (StatsSA, 2011).

Community members were given the opportunity to explore the Google Earth application. The researcher used probing questions to guide the exploration, for example: show me the river, mine, main roads and dumping site in the area? The exploration was then shifted towards the proposed photovoltaic farm's location. Lastly, the exploration was allowed to take its own path, as the community explored what they saw fit, for example; the location of their own house, location of Central Business District (CBD) and or local school. This acted as an observation opportunity, to observe how the community explore their environment and what type of questions, if any, arise from the whole experience.

However, the aim of the mapping exercise had to change too: it became an information provision tool. As the community did not know about the proposed photo-voltaic farm, they had to be shown where it was proposed. Furthermore, the use of the Participatory Mapping tool had to be shortened somewhat, as interviewees were more interested in the development and how they would benefit from it. More time had to be allocated to the answering of questions and explaining EIA as whole.

### **3.6. Problems during this research process.**

Firstly, one of the main challenges to this research was changing the research approach to accommodate the community's anti-community-meeting attitudes. However, the PRA process allows changes as there are no rigid guidelines and the process is open to interpretation as need be from situation to situation.

Secondly, in the case of Theunissen, defending the independence of the project and the independence from political influence proved to be difficult. Community members accused researchers of being from the South African Social Security Agency (SASSA) or the African National Congress (ANC). Even after extended explanation of the aim of this research, people were still hostile in some cases. Trying to explain that the research team do not have access to confidential business information regarding the photovoltaic farm in Koffiefontein was also challenging.

Thirdly, the research team being strangers in a community that are hostile towards political leaders proved to be dangerous. Some interviewees got angry and frustrated towards the research team, which made the research process difficult and the team was forced to change their approach once more. Henceforth, the team was cautious and took extra care before entering a household by reassuring the inhabitants that the research had no political connection, no Identity Documents were required to participate and no photos would be

taken. This research also highlighted the fact that *handing over the stick* might not always be the best suited method of handling the research process. For example, by handing the research process over/ by trying to work with the local forum members the research process in Koffiefontein almost collapsed when the proponent lost interest and the team could not reach more interviewees within the community. Although the research design went through in situ adaptations, valuable information was still gathered and will be presented in the next chapter.

## **CHAPTER FOUR.**

### **DATA ANALYSIS, RESULTS, AND DISCUSSIONS**

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#### **4. Introduction**

This chapter is aimed at answering objective four: To analyse and compare the data gathered during the PP processes, of all eight photo-voltaic projects, to the PRA data from Koffiefontein and Theunissen. The first section (4.1-4.4) will be dedicated to the findings and observations made during the PRA processes in Theunissen and Koffiefontein. The second (4.5) section focuses on the information gathered during the 2014 PP processes done by the EAP in application for the approval of the photovoltaic farms in these communities. The third section (4.6) presents the concerns amongst PP meeting attendees and the last section (4.7) is dedicated to the similarities and differences between the information gathered during the PP and PRA processes. The findings are presented in a chronological fashion as per the timeline for the fieldwork in each community. This approach is an emulation of the iterative and triangulation processes common to PRA.

#### **4.1. Day one in Theunissen.**

The first day in Theunissen a meeting was arranged with one member from the community forum (she was the only one available, and here after referred to as the respondent). Three important findings were made on day one. Firstly, the respondent was well aware of the development of the photo-voltaic farm. Within the first 15-30 minutes of the meeting it came across that new information came to light after the initial PP process held in 2014: the national agriculture department declined the proposal for the development of the solar farm. The department claimed that the portion of the farm, earmarked for the development, had economic value and thus not suitable for development of a photovoltaic farm. All proposed photovoltaic farms are planned on pieces of land on which no commercial practices are in place or can take place in the near future. For example a piece of land that is too infertile for crop production or too steep for grazing purposes.

Secondly, according to the farmer (with self-proclaimed ~46 years of farming experience within the community) on who's farm the photovoltaic farm was to be constructed, the portion that was earmarked for the development had no real economic potential besides grazing for

a hundred sheep over short periods. However, he stated that according to the agriculture department's new studies the farm does have "economic value", this after the initial research by the developing team (developers/investors and specialist in the solar farm industry and natural sciences) showed otherwise. Both the respondent and the farmer stated that they suspect that corruption within the municipality is to blame for the appeal of the farm. The farmer had no major concern regarding other environmental or social impact (issues raised by other farmers in the community) that might be caused by the proposed development. One of the reasons for his assurance is the fact that he is well known within the community. Thus, he is confident that possible theft and trespassing on his property will be minimal, at least from the local community (~100m across the road).

Lastly, according to the respondent there is a general gap in communication between the municipality and the community. This gap in communication relates to the provision of information regarding any development initiatives that the local municipality tend to initiate. On average, little to no participation takes place. Community members are unaware of the proposed developments and they only get informed after major decisions have been made.

In short, on day one in Theunissen it was discovered that the proposal was declined by the agricultural department, the municipality is being accused of several corrupt actions and decisions, and there is a communication gap between the local municipality and the community.

## **4.2. Day two in Theunissen.**

The research team managed to speak to nine households in total. It was observed that the average household in the Masilo community consisted of seven people, of which the children's ages range from one to the seventeen years old. Unemployment is one of the major issues in the Masilo community (an extension of Theunissen). Some community members are dependent on state funded social grants as an only form of income. There is however also farm- and mineworkers within the community. Up to 90% of the houses in the community were built through the government's RDP (Reconstruction and Development Programme) initiative. During the visits it came to light that sanitation is also a big problem in the area. Table 10 gives a summary of the information gathered in terms of demographics of the community.

Headings according to questionnaire	Male	Female
<b>Gender</b>	4 interviewees	5 interviewees
<b>Age range per household</b>	15-47 years	15-47 years
<b>Time interviewees stayed in Theunnisen</b>	More than 16 years (younger interviewee e.g. 15 years old, were born in Theunnisen/Masilo)	More than 16 years
<b>Ethnicity</b>	All 4 are Basotho	All 5 are Basotho
<b>Highest level of education</b>	All 4 attended High school	4 attended High school & 1 Tertiary institution
<b>Language</b>	English, Setswana and Sotho are the most prominent languages in the community.	
<b>Employment status</b>	All male interviewees are unemployed	All female interviewees are unemployed except one.
<b>Size of group</b>	Although the research team only spoke to 9 interviewees, each household consists on average of 7 people, thus the team reached around 63 people in total.	
<b>Newspaper being read the most</b>	The Vista and Masiloyana News	

**Table 8: Demographic information of the Masilo community.**

Furthermore, political influence plays a major role in how people perceive public meetings. Up to 30 minutes of the meeting was dedicated to explaining to community members that the research team had no political connection with the local municipality and or government. The community members were sceptical towards the aim of the research. They stated that they do not want to participate in any form of questioning session (they had bad experiences in the past). They also accused the research team as being outsiders hired by the local municipality to deceive them.

One interviewee stated that he was the last born of fourteen children. The research was done on a public holiday in Theunnissen, thus the team managed to reach both male and female members in the community. The most prominent issue in the community is the dissatisfaction between community members and the municipality. It was difficult to get people to work together in a group setting, since all of the interviewees stated that they do not attend any form of public meeting. They also stated that they had no intention to be part of group related discussion; the community was somewhat hostile when asked about meetings in general.

The main reason for their hostile behaviour was based on past experience and disappointment in local municipal leaders. The sense of powerlessness was also present as interviewees stated that they talked to local leaders in the past without any success, hence the notion of powerlessness, as one person stated,

*“I do not see the point in complaining anymore, they do not listen to us. I spoke to my local counsellor about the sanitation situation in my area and he gave me a t-shirt as a form of promise that he would come back to me, needless to say I never heard back from him. So I made peace with the current situation and do not care anymore.”*

All the interviewees were aware of the hierarchical processes and procedures being followed from National, Provincial, Regional and Local Government level. There is also the unspoken rule that all information regarding development proposals must be spread by the local municipality. They often stated that the municipality hold development proposals private, in an attempt to con the community. They expect the municipality to announce during public meeting that a proposal is in progress. During the interviews it was observed that the community expect their local municipality to provide them with all information regarding development proposals. The notion of using the library or any written medium to obtain information with regards to the local developments does not seem to exist. Statements like, *“They (the municipality) don’t tell us about any development proposals. They keep the information for themselves, and only share with their family or loyal political supporters”* were often mentioned when asked about how they (the interviewees) obtain information with regards to development proposals

The first order of business was to determine how much the community knew about PP in general. None of the interviewees knew about PP in terms of the EIA as a process, although they were aware that meetings are held by municipal members to convey information to the community. The interviewees had no knowledge about the PP processes, except one interviewee working at the municipality who knew what PP was and what it entails. The research team also spoke to two girls in high school, they also stated that they knew little about PP and environmental management as a whole. Furthermore, the interviewees also stated that they are unaware of the fact that they can raise concerns regarding all development proposals. They added that knowing the processes of raising concern is not the issue, i.e. even if they raise their concerns they do not trust the competent authorities to take their concerns into consideration.

It was also observed that the interviewees do not attach any value to the environment as a resource. When asked what their thoughts on air, water and soil quality are, the interviewees

would often be surprised and could not seem to comprehend what the quality of the air had to do with anything. Although, the interviewees did state that they value clean water, but in the context of a service delivered by the municipality. The concept of the environment as an entity that needs to be managed in order to ensure its sustainability was also not apparent during the interviews. Interviewees had an idea of what they dislike, for example littering, however, a dirty environment is attributed to bad service delivery and not a process that needs to be managed on a personal basis *per se*.

After the research team explained the concept of sustainability, the interviewees changed their views slightly. For example, soil quality was valued in terms of its fertility potential for gardening and air quality in terms of the absence or presence of odours from rubbish dumps and smoke from fires. When asked about it, all of the interviewees stated that they are not satisfied with the current state of their environment. The respondent and the farmer specially pointed out that they are dissatisfied with the way water spills are handled by the municipality in the community. Water spills are clearly visible along the main road around and within the Masilo community. Burst and unrepaired water pipes are the main reason for these spills.

Interviewees stated that they are not satisfied with the community engagement attempts by the municipality. Their dissatisfaction pertain the way public meetings are announced, e.g. via loud speaker and the fact that community meetings are hijacked by political agendas. In contrast, the municipal worker (one of the nine interviewees) stated that she is satisfied with the community engagement in Masilo. Interviewees also stated that they would prefer to be notified about public meetings by letter drop at their homes. They also stated that they would appreciate if the developer/EAP/municipal member came to speak to them in person about development proposals. However, they added that the fact that a municipal member speaking to them in person would not change their attitude towards public meetings as corruption still deters them.

There was little to no knowledge about the fact that PP advertisements are placed in local newspapers. *"I do not buy newspapers, as I am unemployed and do not have money to buy a newspaper, however I do sometimes read the one that is free, called the Vista."* This was the answer that two interviewees gave when asked which newspaper is most available in your community, and which one do you read. The rests of the interviewees stated that they read the Masiloyana news (two interviewees), the Community N/P (Masiloyana) and the rest do not read newspapers. Two interviewees stated that they knew nothing about advertisements in newspapers, five knew very little about it and two knew a bit.

The research team managed to speak to a member of the municipality. She confirmed what all the interviewees said. She said: “At first community did not want to take part in any activities, thinking that it is only for selected few, now their mindset is different”. Activities, as referred to by her relates to community meetings. However, she also stated that the mind-set within the community has changed, while the community disagrees. It would appear that the municipality is aware of the community’s attitude towards public meetings.

When the interviewees were asked to recollect what the environment in Masilo looked like in the past, they recalled the community as a whole in terms of employment, crime and development. This adds to the notion that the community does not assign any value to the environment in terms of natural resources and sustainability. It was also observed that the maintenance of the environment is assigned to the municipality in terms of cleaning up litter and cutting the grass.

To summarise, during day two it was discovered that unemployment, sanitation, political turmoil and distrust are some of the main concerns in the Masilo community. The community had little to no knowledge regarding PP in general and they do not attend public meetings irrespective of the aim of the meeting. They are also not satisfied with PP meeting arrangements. The community seems to attach no value to the environment, they had no knowledge of PP adverts and lastly, the municipality seems to know about the community’s attitude towards PP.

### **4.3. Day one in Koffiefontein.**

The fact that Afrikaans is the prominent language of communication in Koffiefontein meant that the research had no real need for a translator, although one was always present. The same research process was followed as in Theunissen, i.e. the first day of the research process was dedicated to meeting with the available community forum member (hereafter referred as the respondent in Koffiefontein). However, the difference between the Koffiefontein and Theunissen proposal is the fact that the Koffiefontein Community Forum appealed the application for the proposed photovoltaic farm. According to the respondent in Koffiefontein, they appealed the application because the local legislature did not inform the community about the development proposal for the photovoltaic farm. By law, the municipality is obligated to notify the community with regards to community participation proposals. Section 17 of the Municipal Systems Act (32 of 2000) necessitates municipalities to implement PP process to enable local communities to participate in decision-making

processes. Section 17 also states that the municipality needs to identify and cater for people with disadvantages like disabilities, illiteracy and different age groups when it comes to PP attempts in general. Notification must be done by means of local newspapers and radio broadcast in the official language(s) used within the community. However, the community claimed that these notifications did not happen. The community raised some concerns during a mass meeting held after the first PP meeting that took place in 2014. After the researcher explained the purpose of the visit to the respondent, he wanted to ask a few questions. Their reasons for appealing, according to the respondent and communities concerns raised during the mass meeting in Koffiefontein, includes:

- The community wanted to be partners in all new development proposals.
- The community forum wanted to know why a white farmer's farm has been chosen for the photovoltaic project, while there are struggling non-white farmers who could have benefitted more.
- The forum also wanted to know how the community trust (with each photovoltaic farm, a community trust is created and some of the income generated gets deposited into the trust) would be managed and by whom. They also questioned the project's BBBEE (Broad-Based Black Economic Empowerment) status.
- The forum wanted to know how much money the government contributed to the development of the farm and who the partners in the entire photovoltaic project are.
- There was previously an attempt to develop a similar photovoltaic farm under the lead of a different developer. However, the development was never completed and the community felt that they were betrayed by empty promises of job creation, thus the forum was more cautious in allowing the new development to be completed without fully understanding its workings.

In short, the community forum wanted to see the whole business plan for the proposed photovoltaic farm. Since the research team had no connection with the proposal of the photovoltaic farm, they could not provide the answers to these questions and statements. The respondent lost interest as he could not get the answers he needed. This can also be seen as highlighting one of the disadvantages of the PRA process (mentioned in Chapter two, 2.11.5), PRA being prone to influence by dominating forces within a community. In this case the respondent was the dominating force within the Koffiefontein community and as a result, he played an important role in the changed tempo (slower and more insecure after the change of interest of respondent/ research team lost his support) of this research when he

lost interest. The photovoltaic farm in the Koffiefontein area is situated on the outskirts of the community, thus none of the town's extensions would be in direct contact with the farm like in the Theunissen case.

Headings according to questionnaire	Male	Female
Gender	5	3
Age range of interviewee	15-48	26-47
Time interviewees stayed in Theunissen	More than 16 years	More than 16 years
Ethnicity	Xhosa, White and Tswana	Xhosa, Tswana, Sotho
Highest level of education	3 high school and 2 tertiary (college and university)	2 High school and 1 tertiary (college)
Language	Afrikaans, English, Setswana, Sesotho, IsiXhosa	
Employment status	One permanent employee, the rest unemployed	Two permanent and one unemployed.
Size of group	8	
Newspaper being read the most	Five free newspapers in the community.	

**Table 9: Demographic information of the Koffiefontein community.**

The demographical differences between Theunissen and Koffiefontein are negligible except that the Masilo community is mostly Basotho and Koffiefontein IsiXhosa. Thus, it would appear that demographics had no influence on Public Participation attendance in these two cases. In terms of both community's overall knowledge about the EIA in general, the difference is also negligible. The physical living environment between the two communities were different in the sense of the housing infrastructures, i.e. the Masilo community were mostly RDP initiated while Koffiefontein had more variety in their housing. One thing that these two communities had in common was the leading political party in the municipality. Both municipalities were led by the African National Congress (ANC) during the time of this research and in both cases the community were in opposition to their municipal leaders.

Furthermore, in Theunissen, when asked about the purpose of the research, the team had the support of the community forum and could call the respondent if need be. Without the support of the forum in Koffiefontein, the team was more vulnerable in terms of accusations and rapport establishment. Although the research was not a complete failure, it could have achieved more. Despite the lack/absence of support from the forum, valuable information was nevertheless obtained, as shown in the next section. The research team spent the majority of day one and two at the library.

#### 4.4. Day two in Koffiefontein.

On the second day of the Koffiefontein visit, the research team spoke to the librarian (one of the interviewees in Koffiefontein) in a twenty minute interview. She stated that she was well aware of the proposed photovoltaic farm, but only due to the fact that she had been working in the municipality for around 26 years and thus knew the procedures to be followed. Also, she saw the EIR for the proposed photovoltaic farm when it was dropped off at the library for public review. Furthermore, she had no knowledge of community members using the EIRs to inform themselves with regards to development proposals. She also stated that the community forum tend to have meetings on Sunday afternoons and these are the days that most farmers take the day off and thus they do not attend community meetings. Both the proponent and the librarian stated that the community tends to attend meetings held by the community forum more than they attend meetings held by the municipality. The same factors as observed in Theunissen plays a role in deterring effective participation in general, i.e. distrust in local municipal leaders and accusations of corruption and nepotism.

When asked about their knowledge of the PP processes, six of the eight remaining interviewees indicated that they knew a lot about it, except two people. The interviewees were equally divided between very little, a bit and a lot when asked how much they knew about PP advertisements being placed in newspapers. They are unaware that their concerns can be raised regarding development proposals. They are also unaware of the processes that exist to raise any concerns (two people indicated that they were much aware, two had some awareness).

The interviewees described their environment in the past in terms of developments and job creations. As was observed in Theunnisen, the Koffiefontein community does not assign a value to the environment as a resource, but rather an entity they have little to no obligation towards. For example, one interviewee stated, *“Development was good in the past. There were projects established and the unemployment rate was low”*. Another interviewee stated that the levels of corruption were also low. Only one interviewee had an idea of what environmental law entails, she stated, *“The environment was clean/healthy. The By-laws and other was in place. Today there is nothing and no disciplinary actions”*.

The research team managed to interview the person (one of the eight interviewees) responsible for the general PP in the community. Out of all the interviewees, he was the most hostile. His behaviour might be attributed to the growing political turmoil within the community, as it was observed that all the interviewees were complaining about local political factions' incompetency with regards to their managing of the local municipality. He

accused the research team of being undercover investigators sent by the provincial government to spy on the municipality, a further indication of a growing distrust and turmoil between political factions. He refused to answer questions in-depth and gave vague answers without any substance.

When asked where they would like to see their environmental development in the future, interviewees had different answers. The research team had to make use of the story telling approach to explain the concepts of sustainability and environmental management as a whole. Henceforth, interviewees stated, that they would like to see implementation of environmental law, clean and healthy environment, and educating communities regarding environmental affairs. Other interviewees stated that they would like to see sports grounds, parks, planting of trees and development of schools in the future. An interviewee also suggested the recycling programme in the municipality be given to someone in the private sector, due to corruption being on the rise and inadequacy to manage the current recycling programme. In contrast, the person working with PP in the community stated that he would like to see a continuation of engagement.

In both the cases of Theunnisen and Koffiefontein the research team had to improvise by adapting to the *in situ* situation in order to keep the participatory appraisal process going. As stated in Chapter two, political interference plays an important role in the success of the PP process. Due to a prolonged process of corruption, poor service delivery and nepotistic behaviours both communities started mistrusting their municipal officials as well as anyone associated or accused of association with the local municipality. Furthermore, basic human needs like; clean water, sanitation, housing, job creation and personal security take priority over the environment. Thus people are focused on protesting against poor service delivery and for improved attention to basic human needs.

#### **4.5. Information gathered during the 2014 PP meeting.**

This section is dedicated to the discussion of the information contributed (for example local knowledge) by the communities during the 2014 PP meetings, held as part of the EIA processes of the proposed photovoltaic farms. Because of the focus of this study on participation of the public, comments from the Department of Environmental Affairs and any other department are excluded from this list. The names of individuals who made these comments, were removed to protect their privacy. The names of the photovoltaic farms were also changed to protect the privacy of the EAP responsible for the EIRs. Table 12 contains information from all six photovoltaic farms mentioned in this dissertation, namely;

Theunissen, Koffiefontein, Hertzogville, Bloemfontein, Christiana and Bloemhof. All six farms are included in this table to show that the low PP attendance rates in both Theunissen and Koffiefontein are typical of PP for EIA in South Africa. The information in Table 13, will all be compared to the information gathered during the PRA process in terms of the concerns raised and their similarities and differences.

<b>Photovoltaic farm</b>	<b>Number of I&amp;APs during PP meeting</b>	<b>Information gathered during PP meeting</b>
<b>Solar farm A</b>	5 surrounding landowners	1 comment received from landowner. Mr A indicated in a letter dated 5 May 2014 that he would like to receive a copy of the report via mail and that he will be interested in attending a meeting.
<b>Solar farm B</b>	3 surrounding landowners	2 comments received from landowners regarding the Impacts associated with storm water; and Impacts associated with the surrounding land uses (hunting activities and wildlife).
<b>Solar farm C</b>	5 in total from different sectors	No information.
<b>Solar farm D</b>	4 in total from different sectors	2 comments received. Impacts associated with the surrounding land uses, which includes security at the prisons, and fire hazards from the road; and Paleontological impacts, the Environmental Health and Safety officer had concern regarding paleontological artefacts in the area that might get destroyed.
<b>Solar farm E</b>	3 in total from different sectors	• Impacts associated with the surrounding land uses, which includes security at the prisons, and fire hazards from the road
<b>Solar farm F</b>	5 in total from different sectors	• Impacts associated with the surrounding land uses (Landfill site with a fire risks)

**Table 10 : Information gathered during PP of photovoltaic farms.**

#### **4.6. Concerns amongst PP meeting attendees.**

Across the six photovoltaic farms three main concerns were raised; impacts on water quality and quantity, impacts on security of surrounding properties and general impacts on existing and surrounding land use activities. The concern regarding water use was based on a notion that the 350 000 solar panels per photovoltaic farm will be washed around four times per annum, which amounts to about 2,800,000 litres of water. All these farms are situated in areas where water shortages are of concern to farmers. These concerns were resolved when the EAP explained that the water demand will be mitigated by means of gathering rainfall run-off from the solar panels which will be stored and reused during the next washing process. Furthermore, the security concerns were related to the new workforce that would be employed during the 12 months construction phase of the farms. Some landowners stated that they fear the possible theft of their cattle and or other possessions on their and surrounding farms and communities. The use of closed circuit television systems expected

to be installed on the photovoltaic farms were explained to the concerned farmers as a means to mitigating possible theft. In terms of land use activities, there were concerns regarding the interruption of existing hunting activities on one farm as well as the impact of construction vehicles on areas outside the areas demarcated for the photovoltaic construction. These concerns were resolved by explaining that Environmental Management Plans (EMPs) are in place for each of these farms.

#### **4.7. Similarities and differences between the information gathered during the PP and PRA processes.**

Compared to the information gathered during the PP meetings the PRA approach gathered a great deal of additional information about both communities, information that could have influenced the final Environmental Authorization regarding these photovoltaic farms. Information such as a community's lack of knowledge regarding EIA and related procedures (social spheres of the environment) are important factors that needs to be taken into account when granting Environmental Authorization. The similarities and differences between the PRA and PP processes that took place in Koffiefontein and Theunissen are summarised in Table 13.

Category	Criteria	PP	PRA
<b>EIA efficiency</b>	Number of field days	One day	Two days
	Number of hours per process	One to two	Two to two and a half
	Average number of participants	Five	Eight
	Number of communities	Six	Two
<b>Tools/practices used</b>	Method of notification	Newspapers, Site notices	Door-to-door
	Mapping tools	Geographical Information Systems, Google Earth	Geographical Information Systems, Google Earth
	Key informant interviews	Those who know about the PP meeting and can attend are interviewed.	Those not usually involved in PP meetings are interviewed.
	Community engagement & satisfaction	Little to no satisfaction	Little to no satisfaction regarding PP, but more appreciation of the PRA approach
<b>Scoping</b>	Satisfaction with status of environment	Status of environment an important factor.	Status of environment secondary importance to no importance.
	Environment as a value	High value and directly proportional to personal wellbeing e.g. healthy environment = healthy yield= high income	Little to no value attached to environment, unemployment a higher priority.
	Notions of sustainability	Well aware of overall concept of sustainability	Little to no awareness of the concept
	Important aspects of the environment	Environment is considered important as a whole.	Importance of environment is directly proportional to level of personal gain, e.g. fertile soil is important, but prevention of littering not highly important.
<b>Knowledge</b>	Project awareness, including PP	Aware to well aware	Little to no awareness
	Local knowledge e.g. knowledge about surrounding area/ environmental knowledge	Well informed regarding micro to macro impacts of developments on the environment.	Well aware of local area as a whole, particularly socio-economic dimensions, but no special focus on environment.
<b>Community ownership</b>	Socio-political context	In opposition to local politicians.	In opposition with local politicians.
	Governance	Proactively involved in community organisations with the aim of improving what local politics lack.	Passive involvement in community governing attempts, however, community forum is proactively involved.
	Trust	Trust outsiders/researcher more	Little to no trust of outsiders/researchers

**Table 11: Similarities and differences between the PRA and PP processes that took place in Koffiefontein and Theunissen.**

Since environmental management aims to focus on the natural, economic and social spheres of society, it is important that information regarding all three these spheres are gathered during a PP meeting. Based on this logic, the fact that landowners were concerned about the rise of crime on their premises and within the community can be seen as focus on social impacts of the proposed photovoltaic farms. Likewise, the PRA process also gathered that the community as a whole is concerned about unfair use of financial and other resources by municipal official, which also leads to the rise in crimes like corruption.

The PRA process also gathered that some community members, for example the community forum in Theunissen, is concerned about the poor service delivery and misuse of water resources within the municipality, which was an overwhelming theme (poor service delivery) throughout the PRA process. Although from two different perspectives, both the attendees of

the PP and PRA process are concerned about the overall progress of their communities. For example, during the PP process, concerns were raised in terms of the impact of crime on the proposed development of photovoltaic farms and the community as a whole, while during the PRA process the impact of corruption on the community was raised and questioned.

The differences between PP and PRA lies firstly in the demographics of their attendees. The PP process was mostly attended by White landowners while the PRA was conducted amongst mostly Black and unemployed community members. The differences in environmental values are also visible in the type of information provided through the PP and PRA processes respectively.

The attendees involved in the PP (middle to upper-class citizens) processes attach different values to the environment, i.e. they value the environment as a resource that needs to be managed to ensure its sustainability. In contrast, the attendees involved in the PRA (lower class citizens) process assign a higher priority to the basic human needs like housing, employment and food security. The argument can also be made that a healthy environment (for example clean water is important for personal health and irrigation which is in turn important for better yields) is directly proportional to a farmer's housing, food and financial security, thus he/she assign higher values to the environment. Likewise, to the Masilo community a permanent role of employment is proportional to their food, housing and financial security and thus these factors receive higher priorities. This also comes down to one of the main driving forces of the development of PRA approaches, the different views of what constitutes as important issues between researcher and the researched as stated in section Chapter Two of this paper. The situation of different values attached to the environment based on economic stance is not unique to the Theunissen and Koffiefontein communities as it was also observed in Ventersdorp by Chabalala and Sebetlele (2013:16).

The PRA process also highlighted the fact that the lower-class South African population are not unreachable *per se*, and they have different issues that take priority over environmental related issues. With a slight change in approach, those affected most by developments can be reached and their voices heard. As observed in Table 12, the I&APs who submitted or made written comments during the PP meeting to the EAP are landowners, surrounding landowners and members of community forums (middle to upper-class citizens). It is evident that the lower classes were not part of these six PP meetings.

It was also observed during the research process that in both communities the lower-class citizens used to attend meetings held by their local municipalities, but after repetitive failure to deliver on promises made by local officials the community started to distrust the municipal system. But, officials are not the only deterring factor. For example, the fact that people are

unaware that PP processes are advertised in newspapers and site notices might also be a contributing factor. Hypothetically, if someone from the Masilo community manages to see a PP advert, it would still not have made any difference as the person seeing the advert does not know what it is and or what is meant by it. Overall PRA is perceived as cost effective, but in the case of dissertation it is not much different than the PP process, as presented in Table 12. However the PRA process did manage to gather more information than PP in the same community.

## CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS.

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### 5.1. Introduction

In this chapter a conclusion is made in terms of the main aim of this dissertation, namely:

To investigate to what extent the incorporation of a PRA approach into the current EIA system might lead to an increase in the quantity and quality of information gathered during the Public Participation (PP) process.

This chapter also demonstrates that the aim and objectives of this dissertation have been achieved. All the research results are summarised in relation to the different objectives, which provides a reference to the outcomes of this dissertation.

### 5.2. Summary of results in relation to research objective.

Five research objectives were set to aid in answering the key aim of this dissertation. A summary is presented in terms of the answers to these objectives.

**Objective One:** To investigate the functioning of the Public Participation process in EIA in South Africa.

In Chapter 2 literature about the Environmental Impact Assessment (EIA) and related Public Participation (PP) process on a global and national scale was explored. EIA was first introduced in the United States of America under the National Environmental Policy Act of 1969 (NEPA). Since 1969, the EIA system has been adapted and adopted in more than 100 developed and developing countries globally. EIA aims to cater for the economic, environmental and social spheres wherever it is being implemented. PP is one of the key tools being used to reach all three spheres. PP is defined as a process to involve those that

might be directly or indirectly influenced and affected by development proposals in their vicinity.

The middle to lower class citizens in South Africa are often not involved in the PP process. PP meetings are most often attended by upper-class citizens with a financial and or another gain in the proposed development for which the PP meeting is held. These lower and middle classes that are missing from the PP in EIA do participate in other areas by means of Rural Appraisals.

**Objective Two:** To examine different Rural Appraisal methodologies and investigate the effectiveness thereof in terms of community satisfaction and/participation and compare these to PP approaches in the EIA system.

In the second part of Chapter Two, Rural Appraisals were explored. Both Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) originated in parts of Africa and Asia. They were developed with the primary aim to empower the poor to a point where they can explore and solve their own issues. Empowerment is achieved by handing the *stick* back to the community, i.e. the researcher and the researched trade places. For example, the researcher becomes an observer as the community make use of sticks, stones and other materials to draw a map of their community on the ground. PRA is not new to South Africa, as it had been used in the past, and achieved successful participation, to aid in natural resource management amongst the lower class citizens. The South African Department of Environmental Affairs (DEA) acknowledged the use of PRA approaches as an alternative means to the prescribed PP process to reach the uneducated and or rural communities during PP meetings. There are numerous tools being used in PRA processes, but Focus Group Discussion (FGD), Participatory Mapping, Case Studies and Storytelling were the three PRA methods researched and adopted for this dissertation. These three methods were selected based on their potential to be seamlessly implemented into the existing PP process.

**Objective three:** To conduct PRAs within communities affected by EIA processes for photovoltaic projects in Koffiefontein and Theunissen.

Six photovoltaic farms were proposed in Koffiefontein, Theunissen, Bloemhof, Christiana, Hertzogville and Bloemfontein during the inception of this research. Out of these six communities, Koffiefontein and Theunissen were selected for this research, as they were the only two with active community forums. One key component of the PRA approach is the establishment of rapport with the community where a research project is being planned and working with a community forum can aid in rapport establishment. To gather baseline information in terms of the attendance of PP meetings, a preliminary visit to all six communities was made in 2014 during the PP processes for each photovoltaic farm. Furthermore, a questionnaire was used to gather information regarding the Koffiefontein and Theunissen community's knowledge of the current EIA system in South Africa.

In terms of the PRAs conducted, the Participatory Mapping tool was adapted and changed to an introductory tool, i.e. it was used as a means to give a spatial connection to the proposed developments. Where the interviewees had no idea about the proposed developments at the beginning of the interviews, they knew exactly where they were situated in real time as the research progressed over the two days, i.e. interviewees became aware of the size and location of the proposed photovoltaic farms.

The Focus Group Discussion was adapted to a house-to-house interview, in which male, female, old and young could hear the same information at once. This presented an opportunity to hear and observe how everyone reacts to the same bit of information. The house-to-house approach also had its own advantage, as the research team could validate and compare the issues raised during an interview from one house to the other. The Case study and Storytelling approach needed little adaptation in the field and were useful in conveying information, for example the concepts of sustainable development.

**Objective four:** To analyse and compare the data gathered in the PP processes of all eight photovoltaic projects and the PRA data from Koffiefontein and Theunissen.

Over the course of this research, two sets of data were gathered. During the 2014 PP process the Environmental Assessment Practitioner (EAP) responsible for the Environmental Authorization application of all the photovoltaic farms, organised and held PP meetings in all six communities. From these meetings, it was evident that little to no participation took place amongst the lower-class citizens. The PP meetings were mostly attended by landowners, community forum members and neighbouring farmers, all middle- to upper-class citizens. Their inputs during the PP meeting were from an environmental as well as economic

viewpoint. For example; they were interested in how the proposed photovoltaic farms will influence the water quality and quantity and they were also interested in the impacts the farms will have on their personal gain like the value of their farm.

In contrast, the PRA engaged primarily with lower-class citizens to establish the reason(s) for their absence in the current EIA system. It was discovered that the local political situation played an important role not only in terms of politics but also in areas not directly related to political factions. For example in Theunissen and Koffiefontein the public has become weary over continues dissatisfaction with service delivery and non-communication issues by their local municipality and refuses to continue participating in community-related meetings including PP meetings. The inputs they made in PRA meeting differed from those in the PP meetings, all being related to service delivery, unemployment, corruption and political agendas, with very little on the natural environment.

**Objective five:** To investigate to what extent a PRA approach can be implemented into the current EIA PP system.

The PRA approach as used here managed to gather information that would have been valuable during the scoping phases of these development proposals, and in the authority review and authorization. While PRA will not necessarily be able to overcome the gap in communication between local communities and municipal leaders, it can play an important role in terms of the capacity building amongst those most affected by development proposals that are unable to make any contributions due to some disadvantage. For example, in terms of PP processes, PRA can play an important role as replacement/enhancement for the current notification processes within the EIA system, for example, local municipal leaders or ward members can identify people within their communities that would be unable to contribute (disabled, illiterate, old and young people) in a normal PP meeting setup, and arrange a meeting, with help from the EAP, that would best accommodate everyone. From this research, it can be gathered that PRA can play an important role during the Application or Notification phase as well as the Scoping Phase of the EIA system. Furthermore, methods like Participatory Mapping can also help to bring PP into the digital world in terms of the use of Geographical Information technologies. All this also draws on one of the reasons behind the requirements of PRA and PP, in Environmental legislation in South Africa, i.e. the realisation that rural communities possess knowledge that can be vital in development proposals (Chapter Two).

When followed properly, a full EIA process from its application to authorization phase can take up to 12 months. As observed over the two-day PRA processes in Koffiefontein and Theunissen, PRA can be incorporated in such a way that the EIA process does not get prolonged, but to get to a point where the current time frames remain the same but can be utilised more effectively.

### **5.3. Conclusion.**

This dissertation covered a wide range of literature related to both the Environmental Impact Assessment (EIA) and Participatory Rural Appraisal (PRA) systems respectively. It was based on the deduction that lower class citizens, who are often most vulnerable and affected by development proposals, are mostly not involved in the EIA process in South Africa. This deduction was validated by the observations made during the six PP meetings held in 2014, where no lower-class citizens participated. The outcome of this research suggests that a PRA approach can be readily incorporated into the current EIA system's Scoping and the Impact Assessment phases where it has the potential to add the most value.

**Scoping phase:** because PRA is aimed at avoiding literacy biases, it is valuable during this phase as it can aid in identifying and notifying all Interested and Affected Parties (I&APs) irrespective of their levels of literacy. Thus, it can also help to get a variety of inputs from the lower to upper-class citizens within the community.

**Impact Assessment phase:** during this phase, the local community can add value to the expert reports and specialist studies required as part of the EIA process as they possess a local knowledge (spatially, environmental values) that might not be available outside their community. Tools like the Case Studies and Storytelling and Participatory Mapping tools can be valuable where the environmental history is needed on a local community scale. For example in cases where a proposed development is planned in a rural community where modern maps like Google maps do not provide information with regards to small ponds, wetlands, firewood gathering areas or fishing grounds.

### **5.4. Recommendations and future research.**

A larger sample of development proposals could be selected to test the PRA approaches used in this study. For example, proposals with greater potential impacts like a coal mine,

proposals in different provinces and proposals amongst different ethnic groups. Further research is needed with regards to the role that political turmoil might play in environmental affairs. The role that community forums and other NGOs can play in the field of Environmental Management also needs to be investigated with methods like PRA.

This research is the first step towards reaching out and involving lower- to middle-class citizens in the EIA system. However, this is not an exhaustive representation, as this research only focused on PP processes held as part of photovoltaic farm applications.

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# Appendix

## Questionnaire

### Section A: Demographic Information

1. Which age group do you fall in?				
0-14	15-25	26-36	37-47	48 and above

2. What is your gender?	Male	Female
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3. Which ethnic group do you fall under?							
Tswana	Sotho	Tsonga	Xhosa	Zulu	Venda	Coloured	White

4. How long have you lived in Koffiefontein/Theunissen			
0-5 years	6-10 years	11-15 years	16 years and more

### Section B: Educational Background

5. Can you?	Speak	Read	Write
Afrikaans			
English			
Setswana			
Sesotho			
IsiXhosa			
IsiZulu			
Other			

<b>6. Highest level of education?</b>	None	Primary School	High School	Tertiary

<b>7. Type of tertiary institute attended?</b>			
None	College	Technikon	University

**Section C: Employment Background**

<b>8. Employment area Koffiefontein/Theunissen</b>	Inside	Outside, For example: Do you travel to and from work:		
		Daily	Weekly	More

<b>9. Status of employment?</b>	Unemployed	Temporary / casual	Permanent	Self-employed
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**Section D: Environmental background**

<b>10. How much do you know about Public participation?</b>	Nothing	Very little	A bit	A lot
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**11. What aspects of the environment would you consider to be most important to you?**

*Number your options in order of importance from 1-5, where 1= most important and 5= 1 important.*

Air quality	
Water quality	
Soil quality	
Vegetation	
Animals	
Ecstatic	
Social disturbance	
Waste	
Noise	
Safety and security	
None of the above	
All the above	

<b>12. How satisfied are you with the current status of the environment in and around your community?</b>				
Do not care	Very Dissatisfied	Dissatisfied	Satisfied	Very satisfied

**Section E: Community engagement issues**

<b>13. How satisfied are you with community engagement attempts in your community?</b>			
Very dissatisfied	Dissatisfied	Satisfied	Very satisfied

<b>14. How were you notified about developments and activities that take place in your area?</b>	
Advert in a newspaper	
Word of mouth	
Protest and demonstrations	

Site notice	
Community meetings: e.g. Church , Sport, School, Ward, Tribal, Fun days (Bingo),	
Other	
None	
<b>16. Which newspaper is most available in your community and which one do you read?</b>	

<b>15. Which method of notification would you prefer?</b>	
Letter drop at schools	
Letter drop at home	
Site notice	
Word of mouth	
Advert in newspaper	
Community meeting: e.g. Church , Sport, School, Ward, Tribal, Fun days (Bingo),	
Radio broadcast	
Digital media, for example: Social media like: Facebook, Whatsapp, Mxit, Sms, Wechat, email	
Other	


<b>17. What radio station do you most often listen to?</b>

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<b>18. What Social Media platform do you make most use of, if any?</b>

<b>19. How would you feel if; the developer/EAP/community leader came to speak to you about developments in the community?</b>				
Do not care	Very unhappy	Unhappy	Happy	Very happy

<b>20. How much do you know about the advertisements being placed in newspapers regarding development proposals?</b>			
Nothing	Very little	A bit	A lot

<b>21. How aware are you about the fact that you can raise any concerns regarding development proposals?</b>			
Not aware	Very little awareness	Some awareness	High awareness

<b>22. Do you know the process to be followed when wanting to raise your opinion concerning any activity or development {developments that have an influence on the environment} in your area?</b>			
Don't know the process	Very little knowledge of process	Some knowledge	Much knowledge

<b>23. How would you describe the environment in the past?</b>			


**24. Where would you like to see the current environmental situation in the community in the future?**


**25. What would you like to see happen in order to get to your envisioned future environment?**
