

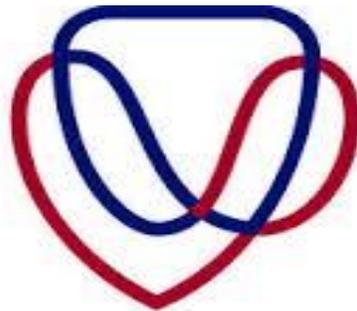
**DEVELOPMENT OF A COMMUNITY THROUGH A SOLAR ENERGY PLANT IN A  
RURAL TOWN**

by

**YVONNE ZUKISWA NDLELA**

**Dissertation in fulfilment of the requirements for the degree**

**Master's Degree OF Development Studies**



**UFS · UV**

UNIVERSITY OF THE FREE STATE  
UNIVERSITEIT VAN DIE VRYSTAAT  
YUNIVESITHI YA FREISTATA

**Centre for Development Support**

**Faculty of Economic and Management Science**

**University of the Free State**

**Bloemfontein**

**Supervisor: PROFESSOR LOCHNER MARAIS**

**04 February 2020**

## DECLARATION

I, Yvonne Zukiswa Ndlela, declare that the Master's Degree research mini dissertation that I herewith submit for the Master's Degree qualification in DEVELOPMENT STUDIES at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution for higher education.

.....

Signed

.....

Date

## **DEDICATION**

This study is dedicated to my mother, Lynette Nomfundo Rasmeni, who inspired me to further my studies when she graduated with her Honours Degree at the age of 56.

## ACKNOWLEDGEMENT

I would like to extend my sincere gratitude and appreciation to the following people:

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## **LIST OF ABBREVIATIONS/ACRONYMS**

BW	Bidding Window
CDC	Development Corporations
CDW	Community Development Workers
CLO	Community Liaison Officer
CSR	Corporate Social Responsibility
DSD	Department of Social Development
DPSA	Department of Public Service and Administration
ED	Enterprise Development
GW	Gigawatt
GWh	Gigawatt hours
GWth	Gigawatt thermal
IDP	Integrated Development Program
IPP	Independent Power Producer
IPPO	Independent Power Producer Office
MW	Megawatt
NGOs	Non-Governmental Organisations
NPOs	Non-Profit Organisations
PV	Photovoltaic
REFIT	Renewable feed-in-tariffs
RE IPPPP	Renewable Energy Independent Power Producer Procurement Programme
SED	Socio-economic development
SMME	Small medium and micro enterprises

## **ABSTRACT**

This study explored the contributions of a solar energy plant towards a rural town's community development. The study focused on community development and renewable energy. It reviewed the definitions of community development and how community development has evolved over the years. It provides a synopsis of renewable energy, both globally and in South Africa, as renewable energy has become a worldwide focus in fighting climate change and reducing greenhouse emissions. The literature revealed that South Africa has linked renewable energy to community development through the Renewable Energy Independent Power Producer Procurement Programme. The programme specifies among other requirements that Independent Power Producers should spend a percentage of their revenue on enterprise development and socio-economic development. This case study deliberated on how a solar energy plant contributed towards community development within the first five years of its existence with the use of a technical support approach. Findings in this study specified the gap in the definition of community development that complicates execution of community development. There was a lack of clarity in the private sector's community development implementation policy. Thus, in applying corporate social responsibility, businesses tended to adopt a variety of inconsistent approaches. This lack of policy has also led to the ineffectiveness of socio-economic development. Additionally, political influence has had a negative impact on the progress of community development, exemplified in its introduction of bias with the aim of redressing inequality. In conclusion, I recommend further research on the socio-economic impact of renewable energy projects and the degree to which communities are informed about associated benefits.

**Keywords:** Community, community development, renewable energy, Renewable Energy Independent Power Producer Procurement Programme, enterprise development, socio-economic development

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# **CHAPTER 1 :**

## **BACKGROUND AND INTRODUCTION TO THE STUDY**

### **1.1 INTRODUCTION**

The world is currently going through major environmental adjustments, due to challenges posed by climate change. International discourse focuses on how climate change will continue to affect global temperatures. These discussions have resulted in the quest for sustainable energy options concerning, for example, food production and a reduction in carbon emissions (Viquez, 2013). Global warming occurs because of the rising temperatures on the earth's surface due to an increase in greenhouse gas emissions. Climate change is evidenced by recent rainfall and snowfall patterns, frequent floods, droughts, and extreme weather conditions (e.g. tornadoes, hurricanes and cyclones). The combined impact of these rapid changes calls for global action to reduce greenhouse emissions. The use of renewable energy is one such option.

There is a worldwide response to this challenge and many European countries have taken a stance to implement renewable energy as their source of electricity production. Martinez, DeFrancia and Schroder (2018) reported that 56 U.S. cities have committed converting to 100% renewable energy by 2050. The main drivers of the commitment are the opportunities associated with the local economic development, reduction of pollution-related illnesses, easy access to renewable energy resources and secure energy future.

Since the industrial revolution, there has been a rapid escalation of greenhouse gas emissions (specifically CO<sub>2</sub>). This has been associated with the burning of fossil fuels which, in addition, could lead to the depletion of natural resources (Ritchie and Roser, 2019). South Africa is one of the highest contributors to energy-use emissions amongst developing countries, owing to its reliance on coal-generated energy from Eskom. Eskom uses coal to produce about 96% of South Africa's electricity. This accounts for about 60% of CO<sub>2</sub> emissions in South Africa (National Response to Climate Change, 2011; Baker, Newell and Phillips, 2014; Sager, 2014).

Githau (2019) reported that Eskom is in dire financial strain due to billions of rands lost from corruption, non-payment by customers and municipalities. As Eskom was founded in 1923 they currently encounter regular breakdowns of production because of inability to repair some of the equipment. The breakdowns result in inability to provide enough power resulting in

power outages. The power outages have a negative impact on the South African economy while the very usage of coal has dire environmental effect.

The White Paper on Energy Policy (1998) mandates the Department of Energy to ensure safe and sustainable provision of electricity for socio-economic development. In support of this, South Africa has started to adapt by acquiring electricity from a variety of renewable energy plants such as wind farms, concentrated solar power (CSP), photovoltaic solar plants, and hydro projects (National Climate Change Response, 2011; Wlokas, 2015). South Africa's investment in renewable energy is crucial as it will have a positive impact on the economy, while decreasing the existing harmful social and environmental effects caused by fossil-fuel consumption.

Lombard and Ferreira (2015) confirm a series of beneficial global impacts of using renewable energy, both ecologically and socio-economically. To meet the requirements for socio-economic development, environmental sustainability and access to electrical power, South Africa introduced the Renewable Energy Independent Power Producer Procurement Programme (RE IPPPP). The programme was commended for its contribution to the country's investments.

RE IPPPP does not only bring clean energy but also creates an opportunity for diversity of socio-economic development, especially in the rural communities where the renewable energy projects are located. The Department of Energy stipulates that Independent Power Producers (IPPs) who fall in the first three bidding rounds should spend a maximum of 2.1% of their revenue in communities within and beyond 50 km radius of the renewable energy project (Baker and Wlokas, 2015). It is through the RE IPPPP programme that communities benefit through job creation, enterprise development, socioeconomic development, and participation in the procurement.

The programme has its challenges, despite stipulated targets, owing to the lack of a clear implementation policy for how these targets should be reached. Within the context of the community development component of the RE IPPPP, this study sought to investigate the community development of a rural town through a solar energy plant.

## **1.2 BACKGROUND AND STATEMENT OF THE PROBLEM**

The RE IPPP offers a variety technologies to provide renewable energy amongst which are; onshore wind, small hydro, biomass, biogas, landfill gas, Concentrated Solar Power (CSP) and photovoltaic solar (Eberhard and Naude, 2017). Most solar energy plants are situated in rural areas – as is the case for the solar energy plant considered in this study. Some of the community members in these areas might not be aware of the IPP obligations due to lack of public participation during community engagements. Thus the importance of investigating the development aspects of a community through a renewable energy plant.

Beyond the construction phase, round 1 to 3 renewable energy projects have an obligation to community development within a 50 km radius of the location of projects (Department of Energy, 2015;Eberhard and Naude, 2017). It is from this background that this study examines the development of a community through a renewable energy plant and its contribution to community development. Furthermore, beneficiary communities might not effectively engage with IPPs regarding their benefits resulting in beneficiaries remaining only on the receiving end. The study will contribute to the limited information on photovoltaic solar plants.

The community where this solar plant is operating has a population of about 8 500, of which 5% are above 65 years of age and 53% between 18 and 65 years. The community comprises 78% black, 10% coloured and 10% white members. It is characterised by low literacy levels with only 3% of the community having attained higher education, 21% have matric, and 19% have no schooling at all. Farming is the primary source of income in this community. Mines which used to be a significant source of employment closed down resulting in a high unemployment rate. Statistics SA (2011) and WaziMaps (2016) reveal that 35% of unemployed community members are youths. Only 24% of the community members are in formal employment, with an average annual income of R14 000.00. This illustrates the severe challenge of unemployment and the need for contribution of the solar plant in this community.

## **1.3 RESEARCH QUESTION**

This study examines the community development component in relation to renewable energy projects in a rural town within South Africa. The study examines the following research questions:

- What is community development?

- What are the development aspects of community development through renewable energy projects in South Africa?
- What effect does a renewable energy projects have in community development?
- How knowledgeable are the communities about benefits linked to the renewable energy plants installed in their communities?
- What challenges face renewable energy plants in developing communities?

#### **1.4 AIMS AND OBJECTIVES**

The main aim of the study is to investigate development of a community through an existing renewable energy plant. To attain this aim, the following objectives apply:

- To investigate the link between renewable energy projects to community development
- To consider contributions of a renewable energy plant to the community development of a rural town
- To examine community understanding of IPP obligations towards community development

#### **1.5 METHODOLOGY**

This study followed a qualitative research methodology that Marshall and Rossman (2016) and (Maree, 2016) describe as the understanding of a phenomenon or context. The research applied the self-reflection method. This method has become an accepted methodology in qualitative research due to its transparency, which encourages researchers to write more about their experiences (Ortlipp, 2008). An increasing number of researchers, such as Mortari (2015) and Pithouse-Morgan *et al.* (2016), are using this method.

Mortari (2015) describes self-reflection as a tool to expound on the epistemic actions that occurs during a review. The advantage of self-reflection, which is essential for the rationality of the enquiry, is that it allows one to be transparent in one's research; it provides the researcher with an opportunity to interrogate and elucidate the construction of the findings.

In this study, self-reflection was based on the experiences and observations of the author as a community liaison officer, who has over 5 years of working experience in a solar energy plant. The study commenced with observations made in the development of a solar energy plant

located in a small town. During the construction phase of this solar plant in 2014, and post-construction, there were progressive changes in the community. These changes intrigued curiosity to investigate the community development component of the solar plant in a rural town. Some of the benefits include job-creation, support to local small-business enterprises and local schools, and a general increase in the community's economic activity.

In addition to the self-reflections of the CLO, further evidence was retrieved from the solar plant documents. This included reports, minutes of meetings, and feedback received from beneficiaries. The identity of the community where the solar plant is situated is not revealed to ensure confidentiality. Further, permission to peruse the company documents was obtained from the solar plant company, whose name will also remain confidential.

## **1.6 CONCEPTUALISATION**

The study looked at different concepts (discussed below), such as community development, renewable energy, Renewable Energy Independent Power Producer Procurement Programme, enterprise development, and socio-economic development.

### **1.6.1 Community Development**

Phillips and Pittman (2014) define community development as both a process and an outcome. Other authors see development as a method or process through which change is brought about in a community. Though there are different theories on community development, this study follows Weyers' (2011:39) definition, which describes community development as the 'method, process, programme and strategy' through which developers bring about change in the society.

### **1.6.2 Renewable Energy**

In defining renewable energy, Temiz and Gokmen (2010) posit energy as a source of power that can reliably produce electricity, similar to conservative fuels but without releasing carbon emissions. This study defines renewable energy as the production of electricity using non-depletable sources like the sun, wind and water.

### **1.6.3 Renewable Energy Independent Power Producer Procurement Programme**

Vision 2030 presents the Renewable Energy Independent Power Producer Procurement Programme as a procurement programme that regulates the bidding tariffs in a bidding window (Sager, 2014). Eberhard and Naude (2017) describe the programme as ‘a competitive tender process that was designed to facilitate private sector investment into grid-connected renewable energy generation in South Africa.’ The program provides information on available tenders and ensures tariffs are within reasonable limit during a bid window. It is through this program that electricity is procured from private Independent Power Producers (IPPs). In this study this programme is viewed as not only a regulator of bidding tariffs, but also of implementation standards for socio-economic development, which is a key objective of community development work.

### **1.6.4 Enterprise Development**

Enterprise development is defined as ‘the monetary and non-monetary initiatives carried out by a Measured Entity to assist and accelerate the development, sustainability, financial and operational independence of beneficiary enterprises’ (RSA Department of Energy 2014:2). Project revenue supporting the development of black-owned enterprises was considered as paramount. In this study enterprise development is viewed as Black Economic Empowerment by contributing 0.6% IPP revenue towards skills development and economic growth of small black businesses in communities within a 50 km radius from the respective case study IPP project site.

### **1.6.5 Socio-economic Development**

The RSA Department of Energy (2014:3) defines socio-economic development as ‘the initiatives carried out by a Measured Entity towards the promotion of access to the economy by black people’. In this study, socio-economic development is referred to as an expenditure of 1.5% of the case study IPP revenue on education, health and infrastructure, to improve livelihoods of previously underprivileged people. The 1.5% is a maximum spend amount stipulated for projects falling within bid window 1, 2 and 3.

## **1.7 STUDY OUTLINE**

Chapter 1 introduces the thesis by outlining the background and the statement of the problem. In addition, the research question, aim and objectives, methodology and conceptualisation, were briefly explained.

Chapter 2 (Community Development: A Review of Literature) reviews the literature on the various definitions of community and community development. The second part of the chapter focuses on the history and evolution of community development. The chapter further discusses the South African context of community development with specific focus on the community development worker programme, civil society and the corporate social responsibility (CSR).

Chapter 3 (Renewable Energy: A Review of Literature) of the study looks at the global overview of renewable energy, renewable energy in South Africa and its economic contribution.

Chapter 4 (Contribution of a Solar Plant to a Community) is a reflection on the first five years during which the case study IPP project implemented the Socio-Economic Development (SED) and Enterprise Development (ED) programmes in the local community. The discussion also focuses on various funded projects in relation to community expectations. It further deliberates on the successes and failures of ED and SED projects funded by the case study IPP project and its implementation policies. The study also looks at the roles of various stakeholders involved in this case study amongst which is the IPPO.

Chapter 5 (Findings and Recommendations) highlights the literature review findings, the gap where there is lack of consensus on the definition of community development and discusses the influence of politics which hinders the execution of community development in the studied case. Lastly, this chapter presents the findings pertaining to the challenge inadequate policies and unequal spending are placing on IPPs.

## **CHAPTER 2 :**

### **COMMUNITY DEVELOPMENT: A REVIEW OF LITERATURE**

#### **2.1 INTRODUCTION**

Community development has evolved in many ways since its inception with much recommendation and criticism. It has grown into an acknowledged discipline that is of significance to both practitioners and academics (Phillips and Pitman, 2014). Even with diverse literature on the subject, there is no clear definition of community development. Nonetheless, community development is still practised and acknowledged as a profession despite these concerns (De Beer and Swanepoel, 2013). This study focuses on the community development component of a renewable energy project hence the necessity to examine the definition of community development.

This chapter outlines the origins of community development, how it evolved to date, and the different concepts emanating from it. The first part of the chapter discusses the various definitions of community and community development while highlighting critical concepts on the phenomenon. The second part presents the origins of community development as reviewed from different authors' perspectives as they trace the various milestones achieved through community development. The last part of the chapter focuses on the different ways in which actors implement community development in South Africa. There is a particular focus on the community development worker, civil society, the Non-Governmental Organisations (NGOs), and corporate social responsibility(CSR).

#### **2.2 TOWARDS A DEFINITION OF COMMUNITY DEVELOPMENT**

Practitioners and academics claim that community development has been in operation since the existence of societies, but it remains to be clearly defined. There are various definitions and theories of community development that are debatable due to the different characteristics attached to a community – such as those relating to size, homogeneity, and self-support (Kingsbury, 2012; Brennan, Bridger and Alter, 2013). Some scholars view community as the system of programmes, methods and processes that involve social structure and ethnic behaviour (Brokensha and Hodge, 1969); however, there are also claims that the community is about the collective regulation of common principles, standards, ethics and views relating to

what is essential for sustaining the community (Bradshaw, 2013). Community is also viewed as a place where people live, work, and raise their families (Brennan *et al.*, 2013). Henderson and Vercseg (2010), asserts that the existence of a community is subject to certain roles amongst which is economic wealth to ensure livelihoods and mutual support for the implementation of responsibilities. Unlike community development, the *community* seems to be a concept used in policymaking while *community development* is a process that should boost the effectiveness of community participation and capacity-building (Gilchrist and Taylor, 2011).

The early practice of community development focused on deciding what the community needs are and implemented plans towards actualising this envisioned change; however, the latest trend, which is process-based, positions the society as the deciding-makers in defining what needs to change in their community (Swanepoel and De Beer, 2011). Brokensha and Hodge (1969) presented an operational definition for the community based on features like the population size, the time it has been in existence, locality, and its available resources.

Weyers (2011:39) defines community development as the ‘method, process, programme and strategy’ through which developers bring about change in the society. In line with this, there are claims that the early practice of community development highlighted ways and means of bringing about transformation (De Beer and Swanepoel, 2013). However, Eriksson (2011) argues that change in a community does not necessarily mean a change in people. Kingsbury (2012:249) declares that community development is a method through which quality and stages of existing are practiced predominantly in less-developed regions. Community development usually focuses on ‘rural or small urban, communities’. It mainly deals with urgent societal matters for which outcomes can be sustainably achieved.

Some scholars view community development as a human-focused process in which prejudice, significance and the principled obligations of a lively and dependable society are dissected (Westoby and Dowling, 2013; Larsen, Sewpaul and Hole, 2014). Henderson and Vercseg (2010) concur that decent community development practice is a drive in which citizens get to be progressively vigorous in pursuing approaches that will upgrade and contribute to the society’s quality of life. For some, community development is a comprehensive drive for social change towards intensified societal fairness (Gilchrist and Taylor, 2011). Because development leads to progress in people’s lives, the rationale should begin with people (Kingsbury, 2012).

Eriksson (2011) points out a contradiction in the community development field, in that community development is supposed to promote ‘self-help and participation’ whereby society can drive the development. Another school of thought holds that there must be a community development expert to run the process (Robinson and Green, 2011). In other words, a community might not successfully drive development without someone facilitating the process to lead and manage. Another criticism is that community development uses Western values that are irrelevant to the Global South (Kenny, 2016) and that community development has shifted from its original purpose as it now turns the community into a ‘social framework’ (Chambers and McBeth, 1992).

Community development is prone to criticism because of ambiguity, the blurriness of its operational space, and questions around the very purpose of community development. Additionally, Kingsbury (2012) asserts that external aspects like environment, governance, and fiscal capacity can have a restraining effect on what is attainable in the local context. From the different possible meanings of community development, the common element is ‘change’ in specific facets of community life (Robinson and Green, 2011). Lastly, despite its diverse definitions, no consensus has been reached regarding the concept of *community*, even though community is claimed to play a crucial role in community development (De Beer and Swanepoel, 2013).

**TABLE 2.1: KEY CONCEPTS ON COMMUNITY DEVELOPMENT**

<b>Key Concept</b>	<b>Description of the concept</b>	<b>Author</b>
Community	It is an idea, a process, a program, a method and a policy-making concept.	Gilchrist and Taylor, 2011; Kingsbury, 2012; Brokensha and Hodge, 1969
Community development	A method and process through which change is brought about in a community.	Kingsbury, 2012; Brokensha and Hodge, 1969
Method	Community development requires a person to determine community needs and plans to bring change.	Swanepoel and De Beer, 2011 Kingsbury, 2012;
Process	The community takes charge of what change occurs in their community.	Brokensha and Hodge, 1969; Swanepoel and De Beer, 2011; Westoby and Dowling, 2013
Change	The gist of community development is changing. The community is a comprehensive drive for social change.	Chambers and McBeth, 1992 Weyers, 2011; Robinson and Green, 2011;

According to the outline in Table 2.1, the term *community* does not necessarily mean a group of people with the same interest. Therefore, the approach used in developing the community should be carefully chosen because development revolves around people and without them and their place of dwelling, meaningful development may not occur (Kingsbury, 2012). Though authors see a difference between the process and the method, these two are intertwined because having a person to guide and facilitate the process is critical.

It is therefore essential that community developers do not decide what is suitable for the community, but allow community members to identify what is necessary for developing their community. What may seem relevant to the development practitioner might not be of significance to the progression of that particular society. Therefore, community development as a process which should be people driven, still requires support of a community development practitioner.

## **2.3 ORIGINS OF COMMUNITY DEVELOPMENT**

Different authors trace the history of community development to as early as 1870 in the United States of America. In this context it took the form of education focusing on agrarian methods, soil preservation and self-help ventures among Negro labourers to increase farming production and skills transfer (Cornwell, 1987; Swanepoel and De Beer, 2011). Its origins are embedded in two aspects, education and social work. These aspects drove the pursuit of a package to recompense for the restrictions of the traditional education method and to enable education to provide for a liberal advancement of the people (Brokensha and Hodge, 1969).

In 1921 these methods were adopted in India by the Institute for Rural Reconstruction with the intent of promoting self-reliance, self-respect, knowledge of their culture, and competence of the villagers to utilise modern resources for the advancement of their 'physical, social, economic and intellectual conditions' (Cornwell, 1987). Singh and Tirmare (2014) declare that community development in India also aimed at increasing job creation and resulted in the formation of the Department of Urban and Rural Community Development in their first institute of social work (Andharia, 2009). In 1944 the experience of rural reconstruction became a widely accepted example of community development and led to the adoption of mass education community development as part of the British Government Policy in the African colonies (Cornwell, 1987).

Despite these developments, field experience proved that mass education was not achieving the collective improvement of the community at large. The Department of Education had to take over, even though some education departments felt this was the Department of Social Welfare's responsibility (Brokensha and Hodge, 1969; Singh and Tirmare, 2014). At the Cambridge Summer Conference held in 1948 on African Administration, it was tabled that mass education community development was officially replaced by community development defined as 'a movement designed to promote better living for the whole community with active participation'. The decision was taken based on views, expressed in the conference, claiming that community development embraces all forms of betterment (Cornwell, 1987).

During the 1950s and 1960s, which was a time of the Cold War, both the United States of America (USA) and the United Kingdom (UK) regarded community development as a tool for instituting social equality, eradicating poverty and fighting off communism (Eriksson, 2011; Swanepoel and De Beer, 2011). During this phase, decolonisation led many developing countries to experience economic losses, while some other countries progressed (Kingsbury,

2012). Subsequently, the USA and the UK introduced the 'redistribution with growth approach' with the intent of relieving poverty in of the globe's 40% lowliest nations (Chambers, 1989).

The US Federal legislation stimulated the creation of development corporations (CDCs) that provided funding for non-profit community organisations (NPOs). This resulted in social change and collective action. The NPOs received much attention due to the need to remedy dismal conditions within poverty-stricken rural and urban areas of decline (Phillips and Pitman, 2015). Social workers and community organisers in India recognised this work, which led to the establishment of 'grassroots empowerment' (Van der Watt, 2016). The regrouping occurred in response to disappointment in Government responses, which failed to transform the levels of poverty (Andharia, 2009).

The three decades from 1960 to 1990 was a frustrating period for community development fundamentalists. It was marked by a disregard for the prominence of community development that left no room for policy (Henderson and Vercseg, 2010). In 1987, the UN Brundtland Commission released a report (*Our Common Future*) that acknowledged that economic development had to change focus to fit within the global environmental limits. This report stimulated sustainable development to meet the needs of the present generation without depriving future generations of the ability to meet their needs (Summers, 2011).

The *Human Development Report* by UNDP, released in 1990, focused on a strategy to rethink development approaches and economic growth as a goal to human development (UNDP, 1990). The report defines Human Development as 'a process of enlarging people's choices, leading to a healthy lifestyle, to be educated, and to enjoy a decent standard of living' (Kingsbury, 2012). The UNDP emphasis favoured the utilisation of revenue over its desired plans. The UNDP also produced a measuring tool known as the Human Development Index (HDI) to gauge how each country performed in human development and which country had achieved the most in poverty reduction.

Since the 1990s, there were innovative community development approaches that included human rights, linked to Sen and Nussbaum's theories from the 1980s and Putnam's (2000) idea of social capital. This comprised of four strength-based community development approaches: social capital, capabilities, asset-based and sustainable livelihoods. The social capital approach believes that there has to be wealth for a country to have a functional economy, and that a decrease in wealth may result in social problems (Van der Watt, 2016).

The capabilities approach, founded by Sen (De Beer and Swanepoel, 2013), emphasises the role of activity and freedom in people's ability to make their own choices and the need for self-governing practice to promote the proficiencies that are most valuable within a particular local perspective. Before development occurs, people need to be capacitated. Development responsibilities cannot just be given to people, but should consider people's abilities (Beukes, 1992).

The asset-based approach focuses on a strong goal-orientation, systematic assessment of strengths or assets, harnessing of the client and environmental forces for goal attainment, a relationship that is hope-inducing, and the provision of meaningful choices (Swanepoel and De Beer, 2011). The sustainable livelihoods approach originated from varying perceptions on poverty, participation and ecological development and then merged with the ideologies of 'capabilities, capital and assets', connecting them to social, economic and environmental concerns (Van der Watt, 2016). This approach assumes that the degree to which people are underprivileged and susceptible varies (Davids and Theron, 2014).

Gamble and Hoff (2013) argue that community developers should think outside the traditional rules of planning. Community developers should ensure sustainable community development by decreasing environmental degradation and having a positive influence on the quality of human life. Their goals, and means to achieve them, must evolve with and for people. These goals should strengthen rights, uphold citizenship, deepen democracy (Ife and Fiske, 2006; Weil, Reisch and Ohmer, 2013).

Development can quickly lead to unproductive and unliveable conditions when natural resources are depleted. Therefore, the sustainability of natural resources should be a critical component of community development. Henderson and Vercseg (2010) contend that without community development the voices of communities would be muted.

**TABLE 2.2: A SUMMARY OF COMMUNITY DEVELOPMENT EVOLUTION**

<b>Year</b>	<b>Occurrences</b>	<b>Description of what occurred</b>
1870	The beginning of community development in the Mid-western States America	Agricultural extension was introduced to impart knowledge of agricultural practices.
1921	Institute for Rural Reconstruction created in India	Rabindranath Tagore established the Institute for Rural Reconstruction in India with the motive of bringing back life in all its fullness, thereby making villagers self-respecting and acquainted with their cultural tradition.
1931	Gandhian rural reconstruction experiment in India	Mahatma Gandhi continued with the rural reconstruction plan and promoted rural factories, the betterment of women, sanitation and elementary education.
1944	Colonial development by the British Colonial Office	Mass education was introduced to the African Countries.
1948	Cambridge Summer Conference and the launch of Etawah Project which was quite successful in vegetable production in India.	During this conference, mass education was officially replaced by Community Development, and education for citizenship in Africa became part of Government policy.
1950 - 1960	Cold War leading to an influx of Community Development Corporations	Social workers and community organisers in India reorganised their work. Community development was used in America as a tool to introduce democracy and fight communism.
1970	Redistribution with a growth approach	The State embarked on land distribution to small farmers, targeting groups with the intention of asset distribution.
1987	Brundtland Commission Report – Our Common Future	Ecological preservation was introduced to achieve sustainable development by the year 2000.

1990	The release of the Human Development Report	United Nations Development Program published the Human Development Report, which consisted of scientific discussions on development issues, trends and policies from different countries.
1990	Birth of community development approaches	A variety of community development approaches were introduced.

## 2.4 THE CONCEPT OF COMMUNITY DEVELOPMENT IN THE SOUTH AFRICAN CONTEXT

The origins of South Africa's community development dates back to the 1920s when practitioners referred to it as community work (Weyers, 2011). In South Africa community development, as a field of practice, often uses community practitioners (Westoby, 2014). The strengths of community development in South Africa are listed below (Hart, 2012):

- It focuses on human development;
- It is institutionalised at all government levels;
- It is linked to a fulltime and paid employee to coordinate the process of community development;
- It allows for decentralised decision-making that involves the community;
- It reinforces the feeling of involvement and the possibility of dialogue;
- It incorporates the indigenous knowledge base in how social challenges are dealt with; and
- It promotes the values and principles enshrined in authoritative international and national policy documents.

Van der Watt (2016) describes South Africa as a country wounded by the historical imbalances and inequalities of apartheid. It is notable that despite the strengths that South African community development has, politics, crime and the psychological make-up of people are challenges that can harm the application of community development (Swanepoel and De Beer, 2011). South Africa acknowledges community development as a foundation of national development and, as a result, saw the need for accreditation of community development as a

profession (Hart, 2012). Thus, the South African Qualifications Authority (SAQA) was established to safeguard the homogeneous expertise and information required by community development consultants.

During the apartheid regime, state-led community development was dedicated to white society and was mostly distrusted by the black society. To address the inequalities existing between the white and black communities, the Government had to redirect their development approach. The new approach had to ensure that the rights enshrined in the *South African Constitution* (1996) are not violated. Hence, the execution of the new development approach focused on reconstruction and development promoting access to services for all, poverty eradication, and increase in equity (Van de Watt, 2016).

The *South African Constitution* (1996,88) also stipulates that local Government should encourage the engagement of local society in the running of local Government departments while also giving ‘priority to the basic needs of communities by promoting their social and economic development’. It is through this clause that the local municipalities engage community members in the Integrated Development Program (IDP). The South African Government became aware of a gap in service delivery and introduced the Community Development Workers Programme in 2003. The Community Development Workers Programme had to enhance service delivery by working closely with the communities. This section discusses three government facilitated community development programmes in order to take some lessons on implementation from each programme based on challenges and successes.

#### **2.4.1 Community Development through Community Development Workers Programme**

Former president Thabo Mbeki initiated the Community Development Workers (CDW) programme in 2003. The CDWs are ‘participatory change agents who work in the communities where they live and to whom they have to answer for their activities’ (DPSA, 2007). The CDW had to improve social equity and justice, increase service delivery and expand egalitarianism, provide evidence of its contribution to the improvement of citizens, and identify community needs, challenges and opportunities. The CDW must provide information to the marginalised and vulnerable people to help them gain access to available services (DPSA, 2007).

Further, the CDW should ensure consultation with all stakeholders in the development of the local municipality's IDP (Westoby, 2014); however, it is questionable whether all citizens had the chance to make their contributions. Furthermore, the Government expected CDW to form links with other community developers to establish income-generating initiatives (DPSA, 2007). The CDW should ensure consultation with all stakeholders in the development of the local municipality Integrated Development Plan (Westoby, 2014). Through this programme, South Africans can contribute to the country's development and growth.

Brokensha and Hodge (1969) state that community development workers should use three tools: personality, the promotion of healthy relationships with people, and proficient communication skills that include being a good listener. Helping people to articulate their needs and problems begins with the worker listening to what the people are saying, as well as encouraging systematic committal through discussion instead of through gossip and complaints.

The CDW programme falls within the Department of Public Service and Administration (DPSA) and the Department of Provincial Local Government, whose role is to ensure implementation of the programme. Therefore, CDWs are based in every local municipality of each province under provincially-based supervisors. The two departments have full responsibility to ensure the smooth running of the programme (DPSA, 2007). Evaluations conducted from 2003 to 2010 illustrate some gaps wherein provinces do not have uniform standards of programme implementation. This is due to their various interpretations of the aim and objectives of the programme (DPSA, 2010). One of the gaps is that CDWs are often under pressure to assist communities to support a particular political party agenda (Westoby, 2014).

The outcomes of the CDW programme are mixed. Some CDWs are dedicated to their work and have contributed to changing people's lives, while others have not (Mashaba, 2011). The programme intended to bring development but has not been successful in all provinces due to a lack of uniformity in its interpretation and execution. The fact that people get assistance from the CDWs based on their political affiliation is a significant compromise in the programme and marginalises those who do not belong to the favoured political party.

Perhaps the absence of close supervision by the two departments assuming responsibility for the programme contributes to challenges. Kingsbury (2012) argues that embedding CDWs in government structures limits the programme. There was a limited collaboration between the CDW and other development partners. The programme can be useful if correctly interpreted

and implemented in all provinces, more especially if CDWs can be afforded the opportunity to operate independently from the political parties to avoid prejudice when assisting civilians. The programme can be useful if correctly interpreted and implemented in all provinces, especially if CDW operate independently, free from political interference.

#### **2.4.2 Community Development through Civil Society**

Non-Governmental Organisations (NGOs) often seems to dominate civil society; however, in practice, society includes a more extensive range of organised and unorganised groups because of the blurred boundaries between sectors and organisational forms (Brady and Stassen, 2013). Although Henderson and Vercseg (2010) argue that civil society is necessary for ensuring lively local involvement and stable participatory democracy, there are claims that not much literature is available on community development and civil society (Van der Watt, 2016). Public organisations and NGOs received official recognition in the 1990s and were included in the consultations on democratic transition. Later, they lost their identity as a result of aligning their policies and mainstreaming their objectives with Government (De Beer and Swanepoel, 2013).

Before 1994, NGOs were granted access to funding based on their political status (Davids and Theron, 2014). Since 1994, a large number of Community Based Organisations and NPOs lost funding from foreign funders who redirected their funds toward reconstruction and development – consequently driving civil society to relying on the Government for financing. Ultimately, civil society was assisting the Government in fulfilling their mandate regarding socio-economic rights as they had to adhere to the Government objectives and procedures, thereby silencing the voice of civil society (De Beer and Swanepoel, 2013). Others changed their focus to align themselves with the reconstruction and development programme in order to access funding.

In later years, the Government established some means by which to partner with and avail funding to the NGOs through the National Development Act and the National Lottery Distribution Fund; however, these partnerships never took place as planned (Davids and Theron, 2014). The lack of partnerships was a barrier to meaningful contributions by the NGO sector. Nonetheless, the greater level of accountability for funds and the lack of profit-based incentives have positioned NGOs to provide more policy advocacy and cost-effective services to the community (Davids and Theron, 2014; World Economic Forum, 2013). Hence, we see

NGOs as people-centred promoters of micro-development because of their success in mobilising marginalised communities.

## **2.5 COMMUNITY DEVELOPMENT AND CORPORATE SOCIAL RESPONSIBILITY**

Werna, Keivani and Murphy (2009) describe CSR as the scheduled, supervised and deliberate use of company funds for initiatives related to addressing community needs. The role of business relations in development assistance is becoming more prominent. Such that some businesses have committed to their community development CSR programmes. The United Nations agencies, government agencies and non-governmental organisations, have also pursued a partnership with local businesses to provide funding for the development of local communities. However, there is controversy concerning the definition, constitution and implementation of CSR being ambiguous (Kemp, 2010) and resulting in marked variation in CSR activities from business to business and industry to industry (Davids and Theron, 2014). Banks *et al.* (2016) state that there is inadequate theory on CSR, with existing theory mainly focusing on corporate perceptions.

Despite the many years of private-public partnership, CSR continues to evolve in South Africa as the Government cannot be the only provider for its communities. Furthermore, there are difficulties in bringing stakeholders together (Tait, 2012) as communities and their need for development continue to grow. Therefore, it is crucial that CSR become part of community development, but it must be more directed for better manageable monitoring and evaluation (Mushonga, 2012). Banks *et al.* (2016) highlights that CSR might not successfully effect development as its focus is more commercial.

Patel and Mushonga (2015) note that the Government's incapability to address the basic necessities of the society has led to communities approaching businesses to provide for their essentials. Hicks and Ison (2011) revealed that renewable energy projects can contribute to the local economy through for example, Community Trust Funds that become a source of independent revenue for communities. While the Scotland Government provides a grant to the communities, South Africa stipulates a job creation, Broad-Based Black Economic Empowerment to allow wealth distribution to a broad spectrum of previously disadvantaged South Africans. Additionally, community shareholding through Community Trusts as well as contribution towards community development with a maximum of 0.6% of revenue to be spent

on enterprise development and 1.5% on socio-economic development over the twenty year period of the IPP's operation. (Baker and Wlokas, 2014).

Although big businesses must contribute funds toward the betterment of public living conditions (Davids and Maphunye, 2005), CSR does get abused as some companies use it for marketing purposes. Therefore, as part of community development, CSR should involve the community members from the outset of planning and implementation to ensure effectiveness.

The community itself must shape the community development initiatives around needs rather than the company agenda. Westoby and Loyns (2016) note that, by pushing hidden agendas, companies' support of projects may be to the detriment of communities. Henderson and Vercseg (2010) claim that community development must focus on the strength of communities, that, although it is not a simple adaptation, the emphasis should be on change. Therefore, skills transfer should be part of the development to equip community members for growth, even after the funding period is over.

**TABLE 2.3: CHALLENGES FACED BY NGOS, CSR AND THE CDW PROGRAMME**

<b>Community Development Workers Programme</b>	<b>Community Development through NGOs</b>	<b>Community Development through CSR</b>
Community development through CDW is meant to decrease dissimilarity while increasing service delivery. To fulfill its mandate, it is supposed to identify public needs and challenges; however, reports have revealed that this has not been fulfilled due to political interference.	NGOs have a history of successful contribution towards community development as it proved to yield good results. However, during the pre-democratic era, not all NGOs were afforded the opportunity to benefit from available funds unless they were politically aligned during.	Big companies are expected to contribute towards the Broad Based Black Economic Empowerment (BBBEE) through CSR. Implementation of CSR in South Africa has been biased because of the country's history and the societal disorders of poverty, lack of employment and ethnic inequalities.

Challenges faced by both the CDW programme and NGOs in South Africa resulted in ineffectives due to political interference. It is critical that implementation policy for government facilitated programmes is reviewed to avoid repetition of the same challenges and failures.

## 2.6 CONCLUSION

In this chapter, I discussed the definition and origin of community development. The literature emphasised that there is no clear definition of community development. However, some common elements were identified in various definitions. These include change and the fact that community development can happen where there are people even when they are not homogeneous. In spite of all the challenges community development encountered, its evolution brings a number of positive changes and creates a platform for learning and improvement of the implementation policy.

The study looked at community development from the South African perspective, with a specific focus on the role played by the CDW programme. The CDW programme aimed at creating an opportunity for communities to reduce poverty whilst contributing to the country's economy. The focus was on NGOs and how they struggled to access funding before 1994. Their struggle was a result of not being politically aligned and the democratic Government's failure to implement funding strategies through the National Development Agency and National Lotteries Board.

The last part of the chapter looked at development through CSR, within which the solar energy plants are contextualised, based on the obligation of renewable energy projects to spend part of their revenue in communities within a 50 km radius of their plant as a priority. The South African Government's idea to use energy projects to implement community development could work well if an explicit policy on revenue expenditure is in place. A review on how the energy projects are contributing to the communities will inform policymakers of the gaps in the programme implementation.

## **CHAPTER 3 :**

### **RENEWABLE ENERGY: A REVIEW OF LITERATURE**

#### **3.1 INTRODUCTION**

Energy consumption will increase due to population increase and commercial development (Lewis and Nocera, 2006). Many governments and private sector institutions worldwide are establishing renewable energy resources to generate power. The emphasis on renewable energy stems from the alarm raised by Cristescu *et al.*, 2017) regarding the possible depletion of oil and coal resources (see also Hadian and Madami, 2015). The REN21 (2016) states that the shift towards renewable energy generation is the result of ecological concerns; it notes that such a shift is dependent on policy initiatives, availability of funding, economic efficiency, improvement in affordability, the necessity for modernised energy, and the uninterrupted availability of energy sources at a reasonable price.

In reviewing renewable energy literature, this chapter is divided into four sections. First, the chapter gives a global overview of renewable energy industry and its implementation. The second part of the chapter investigates the renewable energy initiatives in South Africa, and the third part of this chapter focuses on the (RE IPPP) implemented in South Africa. Finally, the chapter examines policies on solar energy plants, their contribution to renewable energy, as well as implementation concerns regarding community development in South Africa.

#### **3.2 GLOBAL OVERVIEW OF RENEWABLE ENERGY**

Globally, industries have invested more than 200 billion USD in renewable power and fuels per year since 2010. In the first quarter of 2018 alone, the investment was 61.1 billion USD, with China leading by more than 40% (Louw, 2018). The continuing evolution and environmental development of renewable power capacity are consequent to the continuous weakening price of renewable energy technologies, intensifying calls for electrical power in other nations, and burgeoning renewable energy support mechanisms (REN21, 2017).

Other reasons to the increasing transformation to renewable energy is that the world-economy is deeply reliant on non-renewable materials like coal, oil and natural gas (Cristescu *et al.*, 2017). It is therefore critical that all governments should consider using renewable energy to

reduce the pollution produced by its energy sources (EPA, 2017). Also, there are approximately 1.2 billion people (16% of the world wide's inhabitants) do not have access to electricity, and 2.7 billion persons (38% of the world's population) live near unclean gastronomic amenities (REN21, 2017). The most significant portion of people who cannot access electricity live in Sub-Saharan Africa and the Oceania area.

All European member states have committed to implementing policies on green energy (Simionescu and Dragomir, 2012). Europe believes that an improved way of land utilisation, through energy production, contributes to economic development. European regions are co-dependent in securing energy provisions, generating steady economies, and efficiently fighting macroclimate problems (Andreea and Mirela, 2011). In line with the commitment from Europe, Hungary, which is mainly utilising nuclear power, has increased its renewable energy production. However, biogas dominates renewable energy, with 70% of renewable energy generated from biogas (Honvári and Kukorelli, 2017).

The reduction of the community's greenhouse emissions, through the use of renewable energy, is a crucial motivator in many cities as it ultimately contributes to macroclimate transformation. By using renewable energy sources, Germany improved its energy production from 11% in 2006 to 32% in 2015 (Böhringer, Landis, Reaños and Angel, 2017). Denmark has increased its quality of energy services through community renewable projects (Hicks and Ison, 2011).

A shortage of fossil-fuel has resulted in energy supply insecurity, difficulty in planning, and reliance on imported energy sources (Hadian and Madani, 2015). Hungary is one example of a country that must import natural gas (Honvári and Kukorelli, 2017). Tait, Wlokas and Garside (2013) emphasise that, internationally, there is a need for reasonable and unpolluted energy facilities. However, the response to see renewable energy as an alternative has been slow in African countries (Lombard and Ferreira, 2015) despite more than 100 countries across the globe initiating renewable energy projects (REN21, 2016; Cristescu *et al.*, 2017)

Consumption of biogas has markedly increased in the United States as well as in Europe, where fuel mix is used for energy generation (IPPO, 2016). Similarly, there has been a widening in thermal and organic energy production. This results in a continuous accrual of development and trade in biofuels, especially with an establishment of new plants in China and India (REN21, 2017).

Below is a detailed progression of renewable energy up to 2016 (IPPO 2017):

- Wind power has increased from 74 to 488 from 2006 until 2016.
- More than 90 countries had profitable wind power activity.
- There were active solar heating and cooling technologies in at least 127 countries.
- The collective volume of glazed (flat plate and vacuum tube technology) and unglazed collectors in operation increased to a year-end total of 456 Gigawatts thermal (GWth), up from 435 GWth in 2015.
- In 2016, China increased capacity 126% over a one-year period, resulting in an increase of its overall energy solar PV volume by 45%, far more than that of any other country.
- Solar PV global capacity has increased from 1.4 Gigawatts (GW) to 303 (GW) from 2006 until 2016.

Renewables are, however, not without criticism. Honvári and Kukoreli (2018) raised a concern that the utilisation of local people and resources during the construction of solar plants is very low. There is a lack of communication and information dissemination, as well as a non-participation (or apathy) of local stakeholders when making decisions. This results in negative attitudes developing in communities. Min, Lou and Wang (2012) contend that during the 1980s and 1990s, there were no policies pertaining to renewable energy projects. Consequently, power producers abandoned projects at the end of their contracts. Marais *et al.* (2018) proposes that renewable energy project managers should be more prepared as unforeseen circumstances may lead to early closure.

Renewable energy policies may lack depth in certain aspects due to unforeseen secondary consequences of renewable energy consumption (Hadian and Madani, 2015). Germany is an example of a country that experienced unintended consequences. Their consumers had to pay a lot more due to a considerable increase in household power charges, in accordance with their energy policy. The policy prescribes clearly defined technology feed-in-tariffs that guarantee procurement of renewable energy at a non-changing specific price level over a long period. However, the feed-in-tariffs resulted in comprehensive local deliberations on the financial effects of Germany's renewable energy policy (Böhringer *et al.*, 2017).

Hadian and Madani (2015) argue that renewable energy can result in water depletion and scarcity of land. Furthermore, Marais *et al.* (2018) highlight one of the unintended consequences of renewable energy, that of social disruption (the disruption of ties between people and their area of living). This social disruption is similar to effects that occur in mining towns, where the Government established permanent residential areas next to the mining sites.

Even though renewable energy projects have not done the same, employees have had to relocate to communities where the projects are situated far from their families.

Hadian and Madani (2015) raise a concern that the global ecological footprint is anticipated to exceed the world's biocapacity by 100% in the late 2030s. However, sustainable development mandates the establishment of a balance between biocapacity and ecological footprint. It is therefore critical that in the fight to mitigate CO<sub>2</sub> emissions and address climate change, implementers should be aware of the unintended consequences that could occur.

Therefore, the expansion of renewable energy projects can limit the effects of airborne contamination, greenhouse gas emissions and forestry degeneration (Simionescu and Dragomir, 2012). It is, therefore mandatory that renewable energy should improve profits and promote social development while also reducing health diseases that result from the use of wood, charcoal, and agronomic waste as fuel in developing countries (Kaygusuz, 2011).

### **3.3 RENEWABLE ENERGY IN SOUTH AFRICA**

In 2015, South Africa was amongst the top 10 countries with regards to renewable energy investments (Department of Energy, 2015). The South African journey of renewable energy emanates from the *South African Constitution* (RSA, 1996:11), which specifies that 'everyone has a right to an environment that is not harmful to their health or well-being, and to have the environment protected for the benefit of present and future generations'. The Constitution further requires that consumption of natural resources promotes reasonable economic and social development. The seventh Millennium Developmental Goal gives focus to the integration of ecological expansion philosophies with state law towards protecting the loss of conservational funds (Statistics SA, 2011).

As compared to other developing countries, South Africa is one of the highest contributors to energy-use emissions, which account for almost 80% of total emissions compared to the 49% of other developing countries (National Response to Climate Change, 2011). Eskom, the major electricity production company in Africa, is responsible for about 96% of South Africa's electrical power generation (Baker, Newell and Phillips, 2014). A significant percentage of Eskom electricity is coal-powered, which accounts for approximately 60% of CO<sub>2</sub> emissions in South Africa (Sager, 2014).

Eskom has been unable to provide a consistent power supply to the country and there was no progress towards reaching its target to increase power supply by 12% in 2015 (Lombard and Ferreira, 2015). To mitigate the negative consequences of using fossil-fuel-based electricity, South Africa is committed to reducing toxic emissions from energy generation. The Independent Power Producer Office (IPPO) has described the South African Government's plan to be a complete and all-inclusive approach. A government-planned policy is three-pronged in designating and 'promoting economic development, providing energy access and security, while achieving environmental sustainability' (IPPO, 2016:7).

According to the Integrated Resource Plan (2010), the Government will utilise a combination of various energy production plants, until 2030, to yield 17 800 Megawatts (MW) of power. Sager (2014) proposes that the IRP should cater for a provision of an 11-19% segment of energy capacity by 2030. The implementation plan included an introduction of a Renewable Energy Flagship Programme, which uses the progressing South African Renewables Initiative to lead the distribution of renewable power technologies (McEwan, 2016).

This programme endeavours to achieve more than merely advance renewable energy. Having realised the cost-effectiveness of using renewable energy, it also aims to facilitate a higher retention of profits for the country (IPPO, 2017). Calitz, Mushwana and Bischof-Niemz (2016) provide insight into the remarkable provision of 20 000 jobs for South Africans and the R192.6 billion of investments obtained through renewable energy projects in 2016. Eberhard, Leigland and Kolker (2014) acknowledge that South Africa's fast-track private investment in renewable power is a progressive step. In April 2018, the Department of Energy signed for the installation 27 more IPP projects, which are estimated to produce 7 974 GWh per annum and thus provide electricity to about 2.4 million houses. The cost of this energy will be lower than the Eskom rates (IPPO, 2018). In addition to the above commitment, the National Development Plan is required to have 7 000 MW of the 2030 target operational by 2020 and to involve the private sector in the advancement of renewable energy.

Musango and Brent (2015) indicate that as part of the strategy for reducing CO<sub>2</sub> emissions, the South African Government had made use of solar-aided power production to efficiently and economically generate electrical power. Solar-aided electrical manufacturing utilises both solar thermal technology and coal power plants; however, no policy exists to accommodate for a combination of the two. Even the RE IPPPP does not cover solar-aided electrical generation, although REN21 (2016) states that there is a likelihood of South Africa intensifying CSP to

boost coal power plants. Pierce *et al.* (2013) contend that the cost of solar-aided power plants is equivalent to 72% of a stand-alone CSP. In comparison to stand-alone CSP, solar-aided power plants produce 25% more electricity and are 1.8 times more economical.

The Department of Energy (2015) lists a minimum of three policies on South African Renewable Energy: the *White Paper on Energy (WPEP)* (1998) focuses on the disparities between energy access and consumption, and advocates for the need to increase access to inexpensive energy services for all South African residents; the *White Paper on Renewable Energy (WPRE)* (2003) addresses various ways in which Government will support renewable energy and the *National Climate Change Response Paper* (2011). Weideman, Inglesi-Lotz and Van Heerden (2016) guides us to manage the unavoidable effects of climate change through interventions, and describes how the country can contribute to the reduction of greenhouse gases. The three policies function as a basis for strategic planning and expansion in the energy sector. In May 2011, the Department of Energy, released a periodical on the New Generation Regulations under the Electricity Regulation Act (ERA) and determined the new energy capacity.

### **3.4 RENEWABLE ENERGY INDEPENDENT POWER PRODUCER PROCUREMENT PROGRAMME (RE IPPPP)**

Baker and Wlokas (2015) describe the advent of RE IPPPP as a response to Eskom's struggle to provide adequate energy in 2008, the annual electrical energy price escalation, and the State's 2009 commitment to mitigate macroclimate change. In 2008, South Africa introduced renewable feed-in-tariffs (REFIT) based on lessons learned from other prosperous countries like Denmark (Hicks and Ison, 2011). Many international investors were attracted to the REFIT rates published by the Government in 2009. The REFIT standards covered the costs of generating electricity as well as 17% of the tax return for incorporating BBBEE and local content. In 2011, the Government terminated the REFIT due to its lack of competitive bidding, a process that would have aligned it with procurement regulations (Creamer, 2011).

Baker and Wlokas (2015) confirm that, after the termination of REFIT, government introduced a new tendering process known as the RE IPPPP. Government intended to have a cumulative segment of renewable energy in the state energy gridiron by producing electricity from private Independent Power Producers. The IPPs needed to provide their submissions according to the economic development obligations (Sager, 2014). The South African Government envisioned

to advance the renewable energy projects by procuring 6 725 MW from IPPs through a bidding procedure. The IPPO (2016) confirms that 3 916 of the 6 725 MW was payable during the first three bidding rounds (Tait *et al.*, 2013).

In the *State of Renewable Energy* (RSA Department of Energy, 2015) documented that, by 2015, RE IPPPP accounted for more than 109 443 employment opportunities and had attracted both local and international investment to the value of R53.2 billion. Foreign investment accounted for 28% of this amount. The portion of Gross Domestic Product (GDP) invested in renewable energy placed South Africa in fourth position worldwide (REN21, 2016). Montmasson-Clair and Ryan (2014) concur that the emergence of the RE IPPPP is a constructive demonstration of a positive and effective strategy and regulatory learning process.

IPPO (2016) confirmed that by September 2016 there had been six bidding windows issued in South Africa. These resulted in 102 IPP projects, yielding 6376 MW of electrical energy to the value of R194.1 billion. The IPPO (2017) reported that by 30 June 2017 there were 64 operational projects, which had produced 16 991 GWh<sup>3</sup> since the first renewable energy plant became functional. Amongst the 64 projects, wind farms and solar plants are the most dominant (Calitz *et al.*, 2016; IPPO, 2017).

Below is an overview of the RE IPPPP status as of 30 June 2017 (IPPO, 2017):

- There were 64 active projects of which 57 were in operation and had added 3 162 MW generation capacity to the national grid. This included one project with 108.25 MW of generation capacity, as well as a second site of the landfill gas project (2.28 MW of generation capacity) that reached its commercial operation date (COD) in the reporting quarter. Since the first plant became operational, renewable energy projects had generated 16 991 GWh<sup>3</sup>.
- All 28 projects in Bid Window (BW) 1 and all 19 projects in BW2 had reached COD.
- Of the 17 projects from BW3, ten had reached COD and provided a combined production capacity of 714 MW. Of these, one project and one additional site had reached COD in the reporting quarter, leaving only six projects in construction. One project was still awaiting financial close.
- Of the two projects in BW3.5, one was in construction while one was still awaiting financial close.

- At the time of the report, the BW4 (26 projects) and small projects – BW1 (1S2) (10 projects) and BW2 (2S2) (10 projects) – were still concluding their financial viability phase and were not ready to commence with construction.

Eberhard *et al.* (2014) state that the programme has encouraged the involvement of various new role players and has led to springs of investment interest in the country. While the programme is developing and continuing to grow, significant changes in the execution of the RE IPPPP have occurred during its various stages. A crucial question is whether local investors will gain a fair share in the process (Baker and Wlokas, 2015). The fact that the programme involves multinational companies is a cause for concern as it displays an application of neo-liberalism in the programme's execution (Marais *et al.*, 2018).

Even though the RE IPPPP started well, Sager (2014) expresses uncertainty with regards to the future prospects of the South African Renewable Energy utility-scale. An exemplar of this uncertainty is how increasing levels of competition led to a decline of the RE IPPPP success rate from above 50% in round one to less than 20% in series three by 2013. Wlokas, Westoby and Soal (2017) acknowledge the success of the RE-IPPP programme; however, they suggest that the RE IPPPP should consider lessons learned by other renewable energy programmes and provide its shareholders with this information.

Understandably, the CSR and RE IPPPP projects emphasise economic development that could negatively impact on the 'place attachment', thereby disrupting the very development efforts they aim to provide (Marais *et al.*, 2018). Furthermore, it is probable that socio-economic development programmes implemented in the communities affect the lifestyle of its people, especially in areas where projects are situated.

Besides the social disruption, renewable energy projects have also impacted on the environment and the agronomic industry – some farmers sell or lease their land for the installation of renewable projects (Lombard and Ferreira, 2015). It is for this reason that the RE IPPPP should comply with regulations relating to environmental impact assessments. Reflecting on the success of the RE IPPPP, Motmasson-Clair and Ryan (2014) emphasise the significance of involving political will and institutional leadership in the decision and implementation of the policy. Therefore, both developers and community development workers must ensure policy alignment. Given the above arguments, renewable projects can worsen the societal interruption; hence, the RE IPPPP must carefully consider and learn from

lessons gained from previous mining projects that have been in operation for years prior the emergence of the RE IPPPP.

### **3.5 RE IPPPP AND COMMUNITY DEVELOPMENT**

This section gives an overview of photovoltaic solar energy, how RE solar energy plants link with community development and their contribution to renewable energy. The last part of the section will present the South African policy on community development concerning RE solar energy plants.

South Africa has had more solar energy plants and wind farms within the energy projects since 2016. Solar energy plants increased from 210MW to 1 474 MW operation capacity since 2013 (IPPO, 2017). The RE solar energy plants form a cost-competitive foundation for cumulative energy production. In describing contributions made by the solar projects, Calitz *et al.*, (2016) report that the monthly solar PV production from January to December 2016 varied between 150 and 330 GW, with the lowest maximum peak being 314 MW between 13:00 and 14:00. PV solar energy plants do not discharge lethal chemicals harmful to the well-being of people, animals or plants. Therefore, emission-free non-fuel solar power can enhance the production of electrical energy and emanations (Simionescu and Dragomir, 2012).

The report on the state of renewable energy in South Africa (RSA Department of Energy, 2015) advised that, to restore ecologic resources, South Africa has not only introduced clean energy but also incorporated community and economic development into renewable energy programmes. Renewable energy is the vehicle for rural socio-economic development through job-creation, the inclusion of local suppliers, and community shareholding (Weideman *et al.*, 2016). Economic shareholding provides that local communities have a share in the earned dividend revenue through a Community Trust or a similar legal entity. The community trusts are governed by a board of trustees consisting of local community representatives, members from the IPP, and other self-governing members who usually manage community shareholding (Lombard and Ferreira, 2015).

South Africa does not fall within the category of community renewables (Wlokas *et al.*, 2017). This is based on the argument that it does not give full ownership to the communities, but only provides limited property and socio-economic development in communities that fall inside a range of 50 km from the renewable energy project sites. Marais *et al.* (2018) describe the South

African ownership of renewable energy projects as being shared with a representative of a community, which owns 2.5% dividends. On the other hand, Baker and Wlokas (2015) contend that the lack of set procedures in the planning of initiatives in South Africa lead to the reckless spending of funds.

Besides the Community Trust, RE IPPPP contracts require an (IPP) to contribute a maximum 2.1% of their revenue towards socio-economic development in the community within a 50 km radius of the solar energy plant location throughout the first 20 years of the solar plant's operation (Tait *et al.*, 2013). Marais *et al.* (2018) describe this 2.1% as a different version of the 'social licence' that applies to mines. The fund contribution has two categories: socio-economic development (SED) and enterprise development (ED). ED requires a 0.6% contribution of revenue and other minor procurement contributions in the outset of an operation for round 1 to 3 projects (Wlokas, 2015). ED aims to assist small businesses, as well as development and sustainability of other enterprises. The Department of Energy (2014:3) defines Socio-Economic Development as 'the initiatives carried out by a Measured Entity towards the promotion of access to the economy by black people to foster rural development and involve communities in the RE IPPPP'.

SED requires a minimum contribution of 1% of the revenue and has a target of 1.5% towards education, health and infrastructure to improve livelihoods of previously underprivileged people. However, IPPs take different approaches to the implementation of SED and ED as there are no strict measures on the listed SED categories (Walwyn and Brent, 2015). The IPPO (2016) confirms that the RE IPPPP has contributed to a variety of the National Development Plan outcomes. It places a specific emphasis to an active competitive and fiscal set-up in predicting that SED reserves will provide a subsidy to maintain societies and rural dwellings. Montmasson-Clair and Ryan (2014) confirm that communities within the proximity of solar energy plants have profited from the developing initiatives. RE IPPPP has equated to a significant contribution towards an enhanced power supply, fiscal stability, job-creation and development. Below is a snapshot of the economic impact of renewable energy as at June 2017 (IPPO, 2017):

- Investment (equity and debt) was attracted to the value of R201.8 billion, of which R48.8 billion (24%) was foreign investment;
- In 4 years, 32 532 jobs were created for South African citizens;
- R403.7 million was contributed towards socio-economic development;

- R129.8 million was contributed towards enterprise development.

However, there is concern that some reports on community funding might not necessarily translate to efficiency (Wlokas, Westoby and Soal, 2017). Authentic transformation requires time, consideration and taking cognisance of the area and circumstances under which development occurs. IPPs take various approaches to execute SED and ED obligations and this can result in inefficiency. A more specific procedure to be followed by IPPs is required.

Due to the lack of policy alignment in the renewable energy sector (Baker and Wlokas, 2015), project role players do not have a clear plan for the implementation of sustainable developed enterprises (Wlokas *et al.*, 2012; Wlokas, 2015). Amansure and Adendorff (2017) report that beneficiary communities often lack proper financial planning and management. This can negatively impact on the development of SMMEs and other projects being implemented in the communities. Beneficiaries need to be capacitated to receive and successfully manage development in their communities. This will enhance the purpose of implementing renewable energy projects and finally lighten poverty in the most down-trodden societies.

### **3.6 CONCLUSION**

This chapter discussed a global overview of renewable energy. It revealed that many countries have realised the need for renewable energy in light of fossil-fuel shortages and excessive CO<sub>2</sub> emissions. There has been significant growth in the use of renewable energy worldwide, giving more reason for government to invest in renewable energy power production technologies in order to reduce fossil-fuel production and greenhouse emissions. Furthermore, this chapter has reviewed South African renewable energy projects and revealed that the country has made a notable contribution to the electricity supply and local investments through the RE IPPP programme. Contributions take the form of job opportunities, socio-economic development, and enterprise development.

Scholars in the field of renewable energy suggest that there is still room for improvement of the industry's policy towards addressing gaps. One area for improvement is that the RE IPPPP needs to consider lessons learnt from similar projects within the Department of Energy. Furthermore, monitoring and evaluation of renewable energy projects must be strengthened to ensure productivity. Despite the positive contributions made by renewable energy, this chapter

has also discussed some negative consequences of renewable energy that can lead to the depletion of natural resources. These can have adverse societal and economic effects.

Slee (2015) proposes that the industry requires further study on various topics like community ownership and rights. Also, the review should not only focus on countries with developing renewable energy projects, but on the entire world. Allocation of shareholding shows that a higher shareholder percentage goes to wealthy black people. This maldistribution raises the question of whether community members on the ground are aware of their shareholding and management responsibilities.

There is a need for further research on whether the community members know about their share benefits and permitted involvement in the spending of community funds. Walwyn and Brent (2015) assert that the South African Government has a history of poor management and monitoring of funds, a standard that could endanger the success of projects. The fact that there is concern regarding the lack of policies on renewable energy projects calls for a review and action from the Department of Energy. It is therefore critical that policies that govern the renewable energy industry are executed with the intent of improving the national management and monitoring of energy projects.

## **CHAPTER 4 :**

### **CONTRIBUTION OF A SOLAR PLANT**

#### **4.1 INTRODUCTION**

Community development projects can utilise technical assistance in the implementation of programmes (see Chapter 2). Without the external assistance and the use of a facilitator communities may not be able to successfully drive development (Eriksson, 2011). Though this is not theory is not much supported by many scholars, it is the theory followed in this case study as the IPP has designated employee who deal with community development. The employee starts start with a community needs analysis which guides identification of projects to address the needs.n and Green, 2011).

This chapter discusses the contribution of a solar energy plant towards community development. The discussions are taken from the experiences of the community liaison officer (technical assistance) at the solar plant over a five-year period in a rural town of the Free State Province. The information used in this chapter originates from project company documents and my experiences interacting with the community. Traditionally, community development fell in the domain of the Government and NGO sectors. There is a shift towards the involvement of the private sector. Community development may depend on them for support, especially when other sectors' help is not forthcoming.

The chapter starts with a brief discussion of how the community benefited during the construction period. The next section reflects on the community's expectations regarding the solar plant's construction and the IPP's contributions. The chapter also focuses on community engagement, how the IPP provided funding for project selection and the were selected. The chapter will then examine the successes and failures encountered during the first five years of the project. The section that follows will present an analysis of community perceptions regarding the IPP contributions to the community. The final section investigates the role played by the IPPO.

## **4.2 CONSTRUCTION BENEFITS**

The town is situated in the heart of a rural area and is mostly dependent on agriculture. The community experiences high levels of unemployment and poverty (Statistics SA, 2011; WaziMap, 2016). The first contribution of the solar plant to the community was during construction, between November 2013 and November 2014. The project employed approximately 1 000 local community members, of which 92 % were unskilled labourers owing to low education levels in the community. A further 26 residents received permanent employment and included one engineer, 15 semi-skilled security guards, and ten unskilled general workers (IPPXX, 2014a). The IPP had to search for workers from nearby towns as they could not find sufficient local people to perform some of the duties.

However, not all members of the community could benefit from the introductory phase of the IPP due to the pre-employment examination. Some of the main reasons for exclusion included ill-health, and drug and alcohol abuse. Employers had to enforce strict rules and regulations. There were 52 employees found not abiding by the rules and standards and they subsequently lost their jobs (IPPXX, 2014a; IPPXX, 2014d). Overall the local community benefited during the construction phase, with the creation of 1 214 temporary jobs – which included 98 semi-skilled and skilled jobs. In a community with an adult population of just over 5 000, this can be considered as an encouraging contribution towards the reduction of unemployment and poverty. Lifestyle and living conditions improved in some homes; many renovated their homes while others bought vehicles to join the taxi industry.

In addition to community upliftment through job-creation, local businesses also benefited. The tourism and services sector benefited the most and included two new guest houses and a new petrol station that was introduced by a local company. Contractors also made exclusive use of guest houses and private homes, which were partially rented out, for their accommodation needs. This included accommodation made available both locally and in neighbouring towns.

## **4.3 COMMUNITY EXPECTATIONS**

Munro (2013) emphasises the importance of knowing stakeholder-perceptions during a community development process. It is crucial to know community needs and preferences before project implementation. Marais *et al.* (2018:29) suggests that companies should ‘follow a transparent and participatory process, ensure equal representation of all community interest

groups in essential meetings, insist on transparent and democratic decision-making processes, monitor supported development activities, and minimise community conflicts'. Consequently, the IPP held community engagement communication *imbizos* for the identification of needs (IPPXX, 2014b).

#### **4.3.1 Community Consultations**

The IPP held consultative meetings with the community before the awarding of the bid in 2012. The consultation meetings sensitised the community stakeholders to future developments. Stakeholders included the local municipality, community leaders, schools, and the church on future developments. Presentations included projections on job-creation during and after construction, and the projected revenue figures that the IPP will spend on community development. In addition to the consultation meetings, the IPP conducted a needs-assessment before the start of construction. At the end of the project in 2014, the IPP held community meetings to unpack community expectations (IPPXX, 2014b).

The IPP also held further meetings to clarify project processes and procedures on how the community can access ED and SED funds (IPPXX, 2014b; IPPXX, 2015c; IPPXX, 2016d). The majority of attendees were young people and they showed much excitement about possible projects. These young people developed a broader vision for the community and a wish-list of projects. Arising from these meetings, the IPP identified specific community needs and potential projects. The IPP also conducted community consultations with interest groups like farmers, crèche-owners, and small, medium and micro-enterprises (SMMEs) to identify other projects. Additionally, the community was encouraged to submit proposals for SED and ED. Despite the excitement, some members were sceptical and thought it was a promise that the IPP would not fulfil.

#### **4.3.2 Funding Overview**

The case study IPP has an agreement with the IPPO to spend 1.5% of its revenue on contributions towards education, health and infrastructure, and 0.6% on ED, to improve livelihoods of previously underprivileged people. For the two categories (SED and ED), a total of 2.1% of the IPP revenue was allocated to community development. According to guidelines, these funds should benefit black people (Department of Energy, 2014:3).

The IPP followed the following steps in operationalising SED and ED in the community:

- Appointment of a CLO;
- The community needs-identification;
- Submission of proposals and funding applications;
- Approval of projects; and
- The identified needs are then classified as per size to determine how big the project should be, the period it can take to complete, and how much it will cost (IPPXX, 2015b).

This process had to avoid possible projects that would take too long to complete due to limited funds.

### **4.3.3 The Role of the Community Liaison Officer**

Eriksson (2011) emphasises that community development aims at uplift marginalised communities. In this case study, the IPP used a development practitioner or community liaison officer to reach the marginalised communities. The appointment of a community liaison officer allowed the IPP an internal accountable person to facilitate the process. The company prioritised a designated employee to liaise with the IPP and communities within the 50km radius. According to the guidelines from the IPP office, IPPs can pay the community liaison officer from the administration costs allocated from 2.1% of SED and ED (Department of Energy, 2014). Consequently, the company appointed a community liaison officer at the outset of construction. However, the community liaison officer does not have a sole mandate to make decisions about project choice. The decisions on the projects are the responsibility of a company committee, which consists of the asset manager, economic development manager, and the finance department (IPPXX, 2015b).

The IPP expects the community liaison officer to identify needs, receive proposals and channel these proposals to head office, communicate with beneficiaries, do project- monitoring visits, and collect reports from recipients for submission to head office. Head office decision-making allows for transparency and fairness in project selection, while having a company representative in the community enables the community to have access to the IPP. The IPP will also receive more accurate reports as the CLO has a clear view of project implementation and progress.

The disadvantage to this system is that the community does not take full ownership of development. The community tended to transfer the responsibility onto the community liaison officer even after having received funding. For example, one cooperative received funding for bakery equipment and a vehicle to do deliveries. The cooperative members would not take responsibility to repair faulty equipment and report the equipment breakages to the community liaison officer. The community members also expected the community liaison officer to resolve their infighting.

#### **4.3.4 Selection of Projects**

The IPP and the community liaison officer evaluated projects for possible risks, potential opportunities, and benefits. Initially, the IPP received many proposals that did not contain specificities. Therefore, the IPP laid down the following fields to evaluate proposals:

- ED;
- education;
- health; and
- any other socio-economic development coming from the IPP office (IPPO, 2016).

Furthermore, projects had to solve existing community problems, influence the well-being of citizens positively, reduce poverty, create jobs through new projects, and contribute to economic growth.

The IPP did not approve projects that required the implementing institution to be affiliated to a regulatory body when proof of affiliation could not be provided. For example, a crèche needs both an NPO registration certificate, and a two-year certificate to operate. The Department of Social Development issues the certificate after conducting an assessment. Another example is that a hospice must affiliate to the Hospice Palliative Care Association of South Africa; the hospice that applied for funding was unable to provide proof of affiliation. Also, ED applicants had to register with the Companies Intellectual Property Commission and South African Revenue Services, have a Black Economic Empowerment certificate and own a business bank account. The enterprise must also prove that it cannot afford to do the project from their own coffers. The IPP viewed it as unfair to fund a company that was already developed.

Once the IPP selected projects, it required project charters from the community liaison officer. Project charters provided timeframes for implementation, as well as details of the type of

support needed and proposed budgets. Where necessary, the company requested three quotations for large-scale capital items. Furthermore, the IPP provided project beneficiaries with letters stating their terms and conditions; amongst others, these stipulated that beneficiaries cannot sell the funded items and as such required monthly reports from the beneficiaries. Also, in case the beneficiaries decide to disband the company or the NPO, the project should hand the equipment to new recipients (IPPXX, 2018b).

One reason for scrutinising applications is that the IPPs are expected to spend the SED and ED funds every quarter (Department of Energy, 2014). As such, the IPP had to implement a project where the costs exceed revenue through a phased approach. However, the strategy of quarterly spending also resulted in IPPs approving specific projects to achieve quarterly spending targets without considering how the project would fulfil the needs on the ground. One example is an early childhood development project that only provided a fence. The beneficiary needed a complete structure to enable the effective functioning of the centre (IPPXX, 2016b). Through the lesson learnt while being associated with this project, the IPP improved on the approval process by ensuring that, once the needs were fully understood, all potential projects link to community needs and budgets.

The needs-analysis process hampered project-funding processes. The Department of Energy (2014) requires the IPPs to identify community needs during the bid stage in order to plan to address these needs. This needs-assessment at the bidding phase creates two main problems. First, the IPPs commonly decide to outsource the initial needs-identification process, as no in-house capacity exists to do this. The disadvantage of outsourcing the needs-analysis process is that it risks having the consultant make a commitment to the community on behalf of the IPP. Secondly, the ownership of renewable projects tends to change after construction when IPPs sell their plants to new owners and the IPP often loses institutional memory in the process.

Lastly, some requirements regarding the focus in SED are not always appropriate. Requiring SED to favour previously disadvantaged community members results in the exclusion of some of the community members who are equally affected by challenges in that community.

#### **4.4 WHAT WERE COMMUNITY EXPECTATIONS?**

The IPP held a meeting on 11 November 2014 where the community raised general concern regarding the lack of economic activity and subsequent unemployment. Farming is the

traditional backbone of this community’s economy. However, it does not adequately address unemployment issues, as it cannot absorb everyone (IPPXX, 2014b). Considering this lack of economic activity, the community then described a variety of issues. The IPP grouped these in three categories: outside the scope, within the scope, and too expensive (Table 4.1).

**TABLE 4.1: LIST OF COMMUNITY NEEDS**

<b>Outside the scope</b>	<b>Within scope</b>	<b>Too expensive</b>
Re-opening of mines	Provision of bursaries	Youth development centre
FET College	Internships	Sports academy
Cultural village	After-care and rehabilitation centre	Industrial centre
	Renovation of a school	Upgrading of roads
	Brick-making factory	
	Funding of existing SMMEs	

#### **4.4.1 Out of Scope Needs**

Historically, mining has been one of the leading job-creation sectors in the community. The community expected the IPP to re-open the mines. However, re-opening of the mines that the solar plant does not own is beyond the scope of the renewable energy plant. Furthermore, solar plants are renewable energy projects that contribute to sustainable development by using non-depletable resources, while mines contribute to the depletion of natural resources. This expectation reveals the community’s lack of knowledge regarding the solar plants’ implementation and scope.

One of the challenges in the community was that students have to travel to cities to access tertiary institutions – the community only has education access up to matric. Consequently, the community wanted the IPP to build an FET college in this town. Although supporting education is within the domain of the IPP, an FET college requires collaboration with the Department of Education. Considering the relatively small population, an FET college in the town did not seem feasible.

#### **4.4.2 Too Expensive Needs**

The community also identified youth development issues as a challenge. One of the challenges facing this community is that there are no projects or recreational facilities that keep young people busy, resulting in escalating crime, teenage pregnancy, and substance abuse. In addressing this challenge, the youth expected both a big youth development centre and a sports academy. The anticipated benefits of having a youth centre were job-creation, acquisition of computer skills, information, career guidance, sports, arts and culture. However, the IPP had to inform the community that the youth development centre is one of the big projects and that they had to wait for the Community Trust Funds(IPPXX, 2014b).

Another challenge faced by the community is the poor quality of roads – a safety hazard to road users. The community requested the upgrading of gravel roads with the intent of creating temporary jobs and road safety. This potential road project is another big undertaking that would need collaboration with the Provincial Department of Roads, as the Department has its schedule, budget and maintenance plan for the different types of roads. Arising out of a meeting held on the 28 August 2015, it became evident that the project would be quite costly as the Provincial Department tabled a budget for implementation of this project. The Department also stated that there was no plan to build the road due to a lack of funds. The final consensus was that, at the time of construction, the three stakeholders (IPP, the Local Municipality, and the Provincial Department) would have to combine resources to reduce costs for just one project (IPPXX, 2015c).

Other job-creation expectations included the construction of a cultural village and an industrial centre. As stated earlier in this chapter, the IPP had to weigh requests against the IPP obligations, as well as the risks and opportunities that could come from each project. Upon assessing the viability of the two projects the IPP saw that the cultural village would not easily attract tourists due to poor road conditions and a new alternative route would be preferred by road-users.

#### **4.4.3 Needs within Scope**

To provide bursaries and internships, the IPP had to include a term of reference to ensure that implementation occurs in line with policy. Due to the absence of policy at the time, the IPP had to delay education projects at first.

Besides for the submitted proposals and needs identified by the community, the IPP also identified other needs. Consequently, the IPP funded a Career Expo for all learners, starting with grades 9–12, to help learners choose suitable subjects in grade 10 (IPPXX, 2017c). Grade 12 learners who could afford to pay for transport attended the Open-Day at a university 120kms away from their home town. Going to a career exhibition might be too late for a grade 12 learner who made the inappropriate subject choices. Other learners may even get discouraged to discover that they did not choose the correct subjects and decide not to pursue their dream career. Bringing the Career Expo to the town meant that learners could make informed decisions, selecting their subjects in line with a preferred career path.

One of the significant challenges raised at meetings has been the high levels of alcohol abuse that result in many babies being born with foetal alcohol syndrome. This challenge falls within the health spectrum of the SED obligations requirements. One project proposal requested the construction of a rehabilitation centre and was motivated by the education and development-related struggles that children with foetal alcohol syndrome face. The Department of Social Development (DSD) confirmed that social workers often take children away from their parents because of child neglect and alcohol abuse (IPPXX, 2015c). A children's home would, therefore, be a refuge for vulnerable children. The project would make a difference by keeping children locally-bound and allowing for the continuation of schooling. However, the NPO did not meet the regulations concerning opening places of safety and rehabilitation. The two NPOs did not comply with the requirements as specified by the DSD (IPPXX, 2015c).

In conclusion, given the above expectations, it is clear that community members do not understand the role of renewable energy projects. The community does not seem to know how revenue works and they expect large community development projects. The community looked back at the projections that the IPP presented in 2012 and assumed they were exact figures. These initial projections have created unrealistic expectations. The IPP revenue depends on the performance of the solar plant; the revenue fluctuates and the planned 2.1% expenditure in the community sometimes does not come to fruition. The poor performance of the plant, which could be the result of weather conditions or technical defects, translates to less production and lower revenue. Renewable energy project managers should ensure thorough education and awareness on how the revenue works. Ignorance will result in unrealistic expectations, disappointment, and conflict once the expectations go unmet.

#### 4.5 WERE THE COMMUNITY EXPECTATIONS MET?

In response to the community expectations discussed above, the IPP identified the needs that were within their scope. The IPP grouped these projects into the two mandatory categories: enterprise development (ED), and socio-economic development (SED). This section reviews funded projects that met community needs.

At the time of writing, ten cooperatives and twenty socio-economic development projects received funding. The table (4.2) below shows how these projects performed on a scale of poor, average and good.

- Poor means the project failed to reach the set goals. For example, job-creation and increased profit were the common goals for enterprise development. Poor for a SED project indicates failure to meet beneficiary or community needs.
- Average means that the project could not yield profitable results and lacked sustainability. For a SED project, average refers to a project that partially meets community or beneficiary needs but is not sustainable.
- Good refers to a project that met its objectives and continued to do so, even after the end of the funding phase. The SED project success relates to being sustainable after the funding phase is over.

**TABLE 4.2: PERFORMANCE OF PROJECTS**

Project type	Poor	Average	Good
ED clothing company			✓
ED confectionery	✓		
ED training for 8 SMMEs	✓		
ED chicken breeding cooperative		✓	
ED brick factory		✓	
ED fresh crop produce	✓		
ED egg-layer structure			✓
ED water supply to emerging farmers			✓
ED piggery farm			✓
SED social welfare		✓	
SED donation of classrooms			✓

SED health day providing free medical examination to the community			✓
SED extra classes			✓
SED Grade R educational toys			✓
SED school bus donation			✓
SED donation of school uniform		✓	
SED donation of food hampers	✓		
SED furniture to a child care organization			✓
SED donation of groceries			✓
SED sanitary towels			✓
SED fence	✓		
SED education			✓
SED social welfare		✓	
SED lab equipment		✓	
SED computer lab equipment			✓
SED smartboard			✓
SED career expo			✓
SED ECDC structure			✓
SED school renovation		✓	

The above list shows that the projects were able to meet some community needs and expectations. However, out of 9 ED projects, I identified only four as 'good'. Consequently, the IPP needs to revisit the development strategy of ED projects. It is also evident that the SED projects are more successful than ED projects because they are more focused on social development and their success is not reliant on profit yield, market or job-creation.

## 4.6 PROJECT SUCCESSES AND FAILURES

There were a few challenges encountered by the IPP during implementation and these will be discussed below according to the following categories or themes: training, enterprise development, and project challenges.

### 4.6.1 Training

I will use three projects as an example of achievements (Training, ED and SED), and later discuss project failures. One of the projects funded by the solar plant company originated from meetings held between emerging farmers and the community liaison officer on the 20 April 2015 and 18 March 2016. The farmers raised a variety of needs, including training on company registrations, animal care, business and financial management. One of the challenges encountered by the farmers was that the area is semi-arid with insufficient rainfall. Most of the farmers solely rely on windmills for water supply. The lack of wind during specific periods means that they sometimes do not have water for their animals. Furthermore, prolonged droughts affect farmers' animals and crops. This has created a need for training to equip the farmers on animal and crop care during these difficult times (IPPXX, 2016d).

The assumption is that equipping the farmers with business and farming skills will yield more profits, create more jobs, and ultimately contribute towards the country's economy and food security. The project provided the 27 the farmers with training, solar water pumps, and water tanks on stands. A concern about the theft of solar panels was met with a plan to combat further thefts. The farmers commented on how helpful training was to them, and how it widened their knowledge in animal care, as well as in crop and business management. One farmer even said the following during training:

*I never knew how important human resource management and health and safety were for farming. This training has widened my knowledge of on-farm management (IPPXX, 2018e).*

The installation of solar pumps made quite an impact as one of the farmers sent an appreciation letter. He stated that having the solar pump saved him about R4000.00 on electricity costs per month (IPPXX, 2017c). He was able to channel this money to purchasing animal feed, which is scarce in this area due to its semi-aridity.

#### **4.6.2 Enterprise Development**

One of the funded ED projects was an egg-laying cooperative project that started from the backyard of the owner's house. After receiving a piece of land, the IPP supported the cooperative with a proper egg-layer house and 500 chickens. The project grew profitable and was able to deal with business risks. During the period, there was an outbreak of bird flu, but the cooperative did not need extra funding from the IPP. The cooperative members managed to purchase 100 egg-layers from their funds as proof that the project had reached a sustainable phase. This is one of the successful projects because, despite challenges faced by the project, the business continued to run without further assistance from the IPP.

Between 2013 and 2018, the number of registered SMMEs had increased from 9 to 21 (IPPXX, 2014c; IPPXX, 2016e; IPPXX, 2018f). The increase in the number of registered SMMEs is the result of the rising procurement opportunities for local SMMEs. For example, 19 of the 21 local SMMEs had a chance to do one of the following: delivery of furniture, delivery of equipment, or the erection of a fence (for some projects). To help increase the circulation of money within the local municipality, the IPP also linked the SED projects to local SMMEs for supply and services as part of enterprise development.

#### **4.6.3 Socio-Economic Development**

One example of a successful project is a SED project that started in 2015 with the intent of providing Mathematics and Science extra classes for Grade 9 to 12 learners. The project started in response to poor learner performance in Maths and Science, and the low uptake of learners for these subjects in high schools. There has also been a lack of Maths and Science teachers. The school principal said that the school has a challenge of retaining excellent teachers. He said that they even had to operate without a maths teacher; as a rural school it is less attractive to young teachers.

An NPO provided training to the local teachers as well as to the grade 11 learners who served as assistant teachers. The purpose of the project was to increase the number of learners opting to study Maths and Science and improve their performance in these two subjects. Furthermore, the programme helped to increase the supply of potential students for the fields of engineering, science, medicine, and technology. Having such experienced people can increase society's

ability to solve problems and become globally competitive while reducing poverty through job-creation and the provision of services.

Since the start of the project, there has been growing interest in learners to participate in the Maths classes. One of the schools was able to increase Maths learners from 42 in 2015 to 60 in 2017 (IPPXX, 2015a; IPPXX, 2016a; IPPXX, 2017b). A learner that was known for bad behaviour in the school became one of the top three performing learners in the Maths and Science programme (IPPXX, 2016c). Another learner shared her story on how fellow learners mocked her for only achieving a level 2 in Maths. She, however, had not given up and her performance increased to level 4 (IPPXX, 2017c). Evidence on the success of the project is offered by a teacher who has summarised the value of the project in the following words:

*Being a Maths teacher and seeing your learners succeed in the subject is a wonderful feeling. I wish that the grade 9 learners of 2019 can also be part of the programme. Most of them know what to expect because some of them are already part of the MSLA pioneers' programme. Those in grade 12 in 2018 were the learners who started in grade 9. I have noticed how they grew over the years. They have received excellent marks in school, they have learned how important commitment and hard work is, and that a little bit of extra work can take you very far. They have a passion for the subject and I have noticed that the learners are in competition with each other and that motivates them to work even harder (IPPXX, 2018e).*

The success of this initiative has come mainly from the NPO facilitating the programme. The NPO ensures learner-discipline, that teachers report to classes on time, and that there is accountability for the funds spent on the application (IPPXX, 2015a; IPPXX, 2016a; IPPXX, 2017b; IPPXX, 2018a). The NPO is reported as being successful in mobilising marginalised communities as a result of being people-centred. Part of the success came from the commitment of the school principals who support the educators that participate in the programme and motivate learners to participate in the programme.

#### **4.6.4 Project Challenges**

The projects also experienced several challenges. Besides the problems of poverty and unemployment, the community has the following characteristics:

- a low level of education that impacts on reading and writing skills; and
- an inability to create quotations along with a poor quality of goods and services.

The low education levels mean that SMMEs struggle to write out quotations. In assisting the development of SMMEs, the IPP arranged training on business management and basic bookkeeping. However, most of the SMME members could not attend the training due to low levels of education that restricted their understanding of the content, and those who attended were not competent (IPPXX, 2015a).

There is still a problem with SMMEs quoting way above, or below, the margin. Also, some SMMEs also cannot understand specifications, resulting in inferior quality products and poor-quality services. One example of this is an incident where the IPP provided a local SMME with a sample of the product they were to supply, but the eventual quality of the product was poor. Upon discussions with the SMME, it became evident that they were driving profits of more than 100%. The SMME charged R9000.00 while the product had cost R3 999.00. The low levels of education in these SMMEs hamper their ability to participate in the economy, both locally and in other areas. Local clients choose to pay for service from a non-local service-provider who will provide good quality, even if it means paying more (IPPXX, 2018e).

While there are several successful projects, there are also those that did not work out to be successful as planned. These were the reasons identified:

- beneficiaries were unwilling to put effort into making their project a success;
- lack of experience; and
- lack of ownership.

An unwillingness to put effort into ensuring project success was central to the problem. In an agricultural project, recipients had to work the land to produce vegetables, but some members opted to look for jobs instead of working on their projects (IPP7XX, 2017d). There were also incidents where beneficiaries could not even account for their first harvest. Other reasons included the lack of ownership and the expectation that the IPP should do everything for the recipient. Furthermore, the failure to provide reports hindered the IPP from reviewing the financial growth of the enterprise.

Start-up projects also failed in a shorter time-span when compared to enterprises that were operational prior to their receipt of funding. Failed start-up projects were mainly cooperatives, confirming what research indicated that very little value is derived in the development of organisations (Khumalo, 2014). Cooperatives have challenges regarding teamwork, management of funds, abuse of resources, and lack of commitment. Examples of these

challenges include the vegetable garden cooperative that could not account for the revenue from the sold harvest and the bakery where one of the members was using the delivery van to transport people and for hunting.

From the above challenges and failures, the IPP had to review the selection criteria of ED projects. The IPP decided not to work with start-up projects but instead focused on developing an SMME with a proven track record. The SMME would have to show financial records for the IPP to see efforts that had gone into building the business. Examples include an SMME who needed capital to buy equipment to improve product-quality and ultimately attract more clientele, and an SMME that lacked a particular skill and needed training or mentoring. During the first two years, ED success was not high enough because of the limited number of SMMEs at the time, low levels of education, and the time constraints to meet the obligations from the IPPO. It is not easy to find good ED projects to develop as most of the time SMMEs did not meet basic requirements.

#### **4.7 INVOLVEMENT OF MUNICIPALITIES IN IPP PROJECTS**

Marais *et al.* (2018) maintains that the allocation of community projects should consider how the projects construct, frame or alter place relations. However, the level of involvement of the local municipality has created confusion. This necessitates clarity on the role of the different stakeholders involved in projects.

Some of the confusion emanated from a local publication titled the '*Prosperity Booklet*' that recorded the local municipality's achievements. The booklet, freely available to the community members, incorporated some of the IPP funded projects. Evidence of this confusion came to the fore in a meeting held with SMMEs in 2016 (IPPXX, 2016d). The SMME and community member said that they could not distinguish between work done by the local municipality and work done by the solar plant. One of the members said:

*We have a problem, we cannot say which projects were funded by the solar plant entity because the municipality also seems to claim credit for the projects; we thought they are funded by the solar plant company (IPPXX, 2016d).*

Employment benefits through partnerships also became contested. During the construction phase of the solar plant, the municipality assisted with a database of unemployed community members even though the contractors had to interview and appoint workers. The municipalities

assigned two volunteers to help the CLO when needed. In cases where a project required land or a building the local municipality prioritised such projects and assisted with the installation of water and electricity. One Early Childhood Development Centre waited for years to get land from the municipality, which led them to running their service under unhealthy and unsafe conditions. The delay in acquiring land also meant they could not get funding for a building as soon as there was available funding. These arrangements created confusion.

In response to the confusion, the IPP senior management had to clarify the issue through a meeting where the community could raise their concerns (IPPXX, 2018d). In addition to the clarity meeting, the IPP ensured that all signage with the project company's name are put up on all IPP-funded projects.

The community might not necessarily see the support given to the IPP as pure support and may link it to politics based on their previous experiences with the local municipality. It is often difficult to resolve community and social issues because of some unresolved differences or preferences amongst stakeholders. Based on the confusion that occurred, one can state that renewable energy funding has replaced the role of the municipality. The IPP needs to distinguish itself from the municipality to avoid further confusion in the community.

#### **4.8 THE ROLE OF THE IPPO**

The Department of Energy and Treasury established the IPPO to ensure delivery of the RE IPPPP objectives. The fundamental objective of the renewable energy programme is to obtain electricity from the private sector through renewable and non-renewable energy hence the RE IPPPP technologies implemented in South Africa. RE IPPPP should contribute to the creation of job opportunities, intensify economic growth, and promote socio-economic development. The IPPO also provides procurement management services, monitoring, evaluation and contract management, which contributed to the success of the RE IPPPP (IPPO, 2016; IPPO, 2017).

The IPPO sets out threshold targets on job-creation, management control, local content, preferential procurement, enterprise development, socio-economic development and shareholding by black people and black communities. The IPPO monitors the projects at different stages of project implementation. Not only does the criteria relating to job-creation stipulate the number of black South African employees needed, but also specifies the various goals required during construction and during the operations phase (IPPXX, 2017a). Local

content specifies percentages of the project value to be spent in South Africa, whereas preferential procurement stipulates targets on the participation of women-owned enterprises and black-owned enterprises through sub-contracting (Department of Energy, 2014; IPPO, 2016).

The IPP office monitors the set targets through quarterly reports that enable the IPPO to see if IPPs adhere to implementation agreements. At the beginning of each year, IPPs submit annual plans involving projects with budget allocation linked to the IPPO. The yearly plans act as terms of reference for the IPPO when reviewing quarterly and annual reports. The IPPO uses reports to conduct audits and site visits. The IPPO plays an essential role in ensuring that the IPPs adhere to agreements. However, Walwyn and Brent (2015) argue that IPPs do not follow the same approach in rolling out the ED and SED obligations. This raises questions as to whether the IPPs meet community needs or spend for reporting purposes, and whether the IPPO monitoring tools can identify gaps in implementation.

#### **4.9 CONCLUSION**

This chapter discussed the contributions of a solar plant in a rural town with specific focus on the expectations of the community, and the IPP's policy on funding projects to explain how project-selection takes place. Also discussed were the community expectations towards the IPP, how these expectations were met, and which of the expectations were not met (with reasons). This chapter also discussed successes and how failures (linked to low levels of education) hinder the participation of local SMMEs in the local economy. Perhaps more research on the challenges of SMMEs in rural areas would answer how best to deal with the problem. This chapter also highlighted the failures of initiatives and how these involve lack of knowledge, communication and corruption. It reflected on the perception that the IPP is controlled by the municipality. The implementation of SED and ED was also discussed in terms of the challenges and lack of feasibility experienced with the funding of start-up.

Reflecting on the five years of implementation, I highlight the limitations of IPP Office guidelines. Firstly, the project must spend the funds on black people. This excludes white people who are faced with the same challenges of unemployment and poverty as they reside in the same community with the qualifying beneficiaries. Secondly, the disadvantage of quarterly budgets and schedules limits IPPs and motivates them to spend for the sake of reporting.

Thirdly, I also highlighted that community expectations reveal a lack of understanding of the IPP obligations towards the communities.

The specifications on the 1.5% that the IPPS must spend on education, training and health raise a question as to whether the IPPs are taking over the Government's role – there are Government departments that have budget allocations for this. However, Government has an immense backlog with regards to rectifying the disparities of the previous Government. A review of these issues is needed to answer the above anomalies. Lastly, the definition of SED stipulates that access to the economy is created explicitly for the black people in line with addressing past discrimination from the previous regime, as discussed in the SED section of Chapter 3. However, this could translate to a reversal of the same exclusionary principles that were implemented in the past because most IPPs are situated in remote areas characterised by poverty and unemployment for both black and white people. There is a need for a review of this clause because the primary purpose of spending 2.1% of the revenue is that of community development.

## **CHAPTER 5 :**

### **FINDINGS AND ANALYSIS**

#### **5.1 SUMMARY OF THE STUDY**

This study focused on the implementation of community development in a rural town through a solar energy plant. Chapter 2 reviewed the various definitions of community development as well as the origins of community development. Most definitions of community development emphasise change as a critical outcome irrespective of how and who facilitates it. Initial practices of community development emphasised community needs while more recent approaches focus on the community taking responsibility for the development of their community assets.

This chapter also discussed the different implementation phases of community development, both globally and in South Africa. It highlighted how community development continues to face a range of challenges. For example, political influences are the main reason for the failure of community development by NGOs and CDWs in South Africa. CSR is also discussed as one of the strategies for implementing community development. All three strategies are government facilitated just as is with the RE IPPPP.

Community development initially focused on education and skills development with the intent of compensating for past discrimination. Currently, community development still focuses on the reversal of the unfair treatment of previously disadvantaged people. This focus on disadvantaged populations is evident in the implementation policy of the RE IPPPP whose focus areas are education, skills development, reduction of poverty and reversal of past inequalities.

Chapter 3 focused on the global overview of renewable energy. The chapter highlights the significant growth of renewable energy in the European countries and the slow pace in the African states. The chapter points out that the mitigation against CO<sub>2</sub> gas emissions, climate change and economic investments are the main drivers for renewable energy. The chapter also discusses the implementation of policy in South Africa. More specifically, the section discusses the RE IPPPP, its role in community development, the specific obligations IPPs have towards community development and how the RE IPPPP has contributed to the country's economy and the national development plan.

The chapter reveals the lack of a clear policy on the implementation of the RE IPPPP, resulting in inefficient spending by some IPPs. However, the IPPO provides quarterly and annual reports which are good resources for learning and improvement on the implementation policy. These reports provide highlights of the IPP contributions and how they have changed different communities. development. The IPPO also provides workshops and conferences which create a platform for IPPs to interact and share lessons learnt. It further stipulates the renewable energy projects contribute positively towards the reduction of CO<sub>2</sub> emissions, job creation, and community development.

Chapter 4 of the study evaluated the contributions of a solar energy plant toward community development of a rural town. The community development process made use of technical assistance through a Community Liaison Officer to drive community development. This chapter evaluated the SED and ED programs against the obligations that the IPPs have towards community development. Additionally, the chapter discusses the process and policies on how the IPP implement SED and ED programmes. Through this chapter, the study reveals the community expectations, how these expectations were met, and projects implemented in addressing needs. This section also examined project successes, failures and the challenges encountered by the IPP while the last section discusses the role of the IPPO.

## **5.2 MAIN FINDINGS**

The findings of the study are discussed based on the reviewed literature and the case study in Chapter 4.

### **5.2.1 Ineffective implementation of SED in communities**

The IPPO specifies how much of the revenue should be spent on ED and SED. However, research has pointed to the inefficient spending of the ED and SED funds by the IPPs. The expectation that the IPP obligated spend has to be reported quarterly poses a challenge whereby IPPs are under pressure to spend contrary sustainable community development for the purpose of report submission. Chapter 4 shows that the IPP had to select projects that could be implemented per available funds during a quarter, thereby compromising the value that projects could contribute toward community development. Furthermore, the case study revealed that enterprise development was ineffective due to low education levels of the SMMEs, which

consequently led to poor enterprise development. This has an impact on both effective participation of SMMEs in the local economy and business management.

### **5.2.2 Beneficiary communities do not fully understand to role of IPPs**

Amongst other objectives of the study was to examine community understanding of IPP obligations towards community development. In this case study, it has been revealed that the through community some of expectations that the community did not have a clear understanding of the IPP's obligation. Lack of understanding can lead to unrealistic expectations, confusion and bad relationship between the IPP and the community. It may also create an opportunity for IPPs to exclude community members in planning community development projects.

### **5.2.3 Implementation is Biased towards a Certain Group**

During the early years of community development, Rabindranath Tagore established the Institute for Rural Reconstruction in India – which Mahatma Gandhi also continued with to promote self-respect and elevation of women. The same principle was applied in South Africa to ensure the availability of services for all and to protect people's rights in honour of the South African *Constitution*. However, CSR in South Africa has been biased because of the country's history and societal disorders like poverty, lack of employment, and ethnic inequalities. The same bias is also evident in the application of the RE IPPPP, which stipulated that the programme should focus on the previously disadvantaged to correct the disparities of the past regime. If, both previously advantaged and disadvantaged live under the same community experiencing poverty and unemployment, focusing development interventions on one group might not bring a holistic community development.

### **5.2.4 Community Needs versus Community Asset-building**

The literature revealed that community development has to address the needs of the community. A common practice with IPPs from round 1 to 3 was conducting needs-analyses, which would accompany bid submissions. However, the challenge with this is that IPPs tend to use external consultants to perform these needs-analyses. The involvement of a consultant

might be considered exclusively for the bidding phase, leaving us to question whether responsibility for the needs-analyses gets to be owned by the IPP owners thereafter. Moreover, management of renewable energy projects tends to change upon the completion of construction. In this case study, ownership has changed more than three times within the five years of the solar plant's existence. Also, despite the availability of needs analyses, there was no proper analyses of available assets to act as a benchmark; hence, the collapse of projects and their consequent lack of contribution towards the local community's economy. The Department of Energy needs to look at efficiently monitoring and evaluating the contributions of renewable projects towards community development.

### **5.3 RECOMMENDATIONS**

The first practice of community development focused more on the method and necessitated a person deciding on the community needs and planning how to bring about the anticipated change. However, this method might not always work (as stated in Chapter 4). The community members need to be involved from the planning stage of developments they would like to see in their communities. It is recommended that the companies implementing CSR and IPPs implementing the RE IPPP programme should not only focus on using the internal practitioner, but also incorporate the asset-based approach. From discussed definitions in Chapter 2 it is very clear that community development should be a process where community takes charge of changes occurring in their community as various authors are in agreement.

Chapter 3 highlighted that the South African Government has a history of poor management and a lack of fiscal skills to monitor funds such as to ensure the success of projects. The fact that there is a concern regarding the lack of policies on energy projects calls for a review and action from the Department of Energy. This also means that existing policies that govern the renewable energy industry are implemented to improve management and monitoring of the energy projects in the country. The Department of Energy should further evaluate the effectiveness of projects rather than the quarterly expenditure of IPPs.

Some authors argue that the allocation of shareholding shows that a higher percentage of shareholding belongs to the wealthy black people. This requires further study on the awareness of communities with regards to their shareholding, management and responsibilities. The case study in Chapter 4 revealed that the community members were not fully conversant with what to expect from the IPP, thus resulting in unrealistic expectations. The industry requires further

research on various topics like community consultations, preparation for project development, and community ownership and rights.

#### **5.4 FUTURE RESEARCH**

In addition to this study, there is a need for a review on community development through renewable energy projects. This could identify how these projects contribute to community development. Secondly, there needs to be a review of how well communities understand the role of renewable energy projects in contributing to the building of their communities. This would also clarify what communities can expect from the IPPs considering that community development of rural communities is becoming more reliant on renewable energy projects. Additionally, research on how communities are prepared for a time when the project contract has ended, should be considered.

The renewable energy industry requires more research to be conducted on the socio-economic impact of renewable energy projects (Lombard and Ferreira, 2015). There is a need for research on whether the community members know about their share and how much they are involved in the spending of community funds. Implementation of community development could work well if an explicitly defined policy revenue expenditure is in place as it will serve as a guiding principle. As part of the IPPs dividends falls into community shareholding through Community Trust, there needs to be a review of how the Community Trust Funds have been utilised.

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