AN EVALUATION OF THE IMPACT OF STATE WATER PROVISION ON RURAL DEVELOPMENT: THE CASE OF THE VUKUZENZELE PROJECT

By

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Submitted in accordance with the degree of

MASTER OF ARTS

in the subject of

DEVELOPMENT STUDIES

At the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: MRS A LIEBENBERG

JUNE 2010

DECLARATION

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I declare that

"**An evaluation of the impact of state water provision on rural development: the case of the Vukuzenzele project**" is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

_____ _____

Signature Date

ACKNOWLEDGEMENTS

I would like to acknowledge the contributions of various people and organizations during the course of the study:

- The Department of Agriculture, Pretoria, for providing information that was used in this study and their willingness to help at all times

- The Department of Water Affairs and Forestry for their contributions to the data that was used in this study

- Department of Development Studies, UNISA: Prof. L. Cornwell, Prof. FC. de Beer and Prof. P. Stewart for their constructive suggestions and advice at different stages of the study

I would like to express my sincere gratitude to the following people:

- My supervisor, Mrs. A. Liebenberg, for her outstanding and consistent support and review of the dissertation

- The members of the Vukuzenzele project for allowing me into their space and their willingness to provide information about themselves and their project

- All research interviewees: Ms T. Hobyani, Mr D.D. Mfolo, councillor of Refilwe, the Nokeng tsa Taemane Local Municipality's Infrastructure Department Officer and Department of Agriculture extension officers who chose to remain anonymous

- Colleagues, friends and extended family for their support and advice

- Lastly, and certainly not least, my parents for their interest in my studies, my dearest husband, Dr Renias Dube, daughter Chelsea and son Allen for their love and consistent moral support

ABSTRACT

Inadequate resources have always been suspected to be the main cause of persistent poverty and underdevelopment in many developing countries. Water is one such resource that is not readily available to many in South Africa. South Africa is a water-scarce country; access to adequate water provisions requires expensive infrastructure which can only be provided by the Government for most of the population. It is not certain whether there is a direct link between access to water and development or poverty alleviation. This study evaluated the impact that state water provision has on development especially in rural communities. The study concluded that there is indeed potential for community development where there is improved access to water. Findings further revealed the nature of several other variables that have significant roles in the relationship between access to government provided water and development.

Key words: water; poverty; rural development; South Africa; water provision; irrigation development

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List of Acronyms

ADB	Asian Development Bank
AGMRC	Agricultural Marketing Resource Centre
ARC	Agriculture Research Council
ASSAF	Academy of Science of South Africa
AWARD	Association for Water and Rural Development
AWIRU	African Water Issues Research Unit
AusAid	Australian Agency for International Development
CBA	Cost Benefit Analysis
CMA	Catchments Management Areas
DACE	Division of Adult and Career Education
DoA	Department of Agriculture
DWAF	Department of Water and Forestry
DWEA	Department of Water and Environmental Affairs
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization

GDP	Gross Domestic Product
HDR	Human Development Report
ILO	International Labour Organisation
IRIN	Integrated Regional Information Networks
ISRDS	Integrated Sustainable Rural Development Strategy
NWA	New Water Act
ODI	Overseas Development Institute
PIMSS	Property Asset Management Database Software and Support
RDP	Reconstruction and Development Programme
RSA	Republic of South Africa
SA	South Africa
SIA	Social Impact Assessment
SIDA	Swedish International Development Cooperation Agency
SfDM	Support for Decentralisation Measures
STATSSA	Statistics South Africa
TUT	Tshwane University of Technology
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WMA	Water Management Areas

Chapter 1: Contextualising the study

> As water flows through the landscape, water brings a variety of benefits to a range of users. It sustains us and our families; it waters the wide fields of commercial farmers; it nurtures the crops and stock of rural communities; it provides recreation for our children…and it nourishes the plants, trees and animals that make up our ecosystems. Water gives life – the amount and nature of the available water determines the extent and nature of that life (Hendricks 2008).

1.1 Introduction

In South Africa the National Water Bill has prioritised access to water by all as a key aspect of water provision (Bakker & Hemson 2000: 5; DWAF 1997: 10-11). Water is a basic human right and an essential component for human livelihood (Brundtland in Scanlon, Cassar and Nemes 2004; DWAF 2002a: 1). Human existence is dependent on the availability of water for use in households, for sanitation purposes, food preparation and for productive purposes such as farming, fisheries, forestry and in the industries. Poor people often do not have access or rights to water and as a result they may fail to be beneficiaries of legal tools that attempt to provide access to water as a human right. Development in terms of water availability often favours those who already have (Schreiner & Van Koppen 2001: 395; Bakker & Hemson 2000: 3).

In many developing countries agriculture is still the backbone of the economy (Hameso 2001: 158; DWAF 1997: 13) yet it must be noted that in agrarian communities it is the availability of water that determines the viability of agriculture (DWAF 1997: 13). In rural communities, access to water for agriculture is a major challenge because of the location of communities that are remote from water sources (Bakker & Hemson 2000: 3). Use of river water in South Africa's riparian water allocation system restricted its usage to those who owned land alongside the rivers. The riparian water allocation system was replaced by a new equitable water allocation system in the South African Water Act of

1998 (DWAF 1997: 5). The Water Act of 1998 opened the possibility of improving access to water to rural communities. The challenge after the 1998 Water Act has been to provide infrastructure in order to make water available to users irrespective of their location and the necessity of accommodating other competing needs (DWAF 1997: 6).

Prior to democracy, South Africa had a history of community relocations and forced settlements in arid areas which resulted in two-thirds of rural and the former homelands people becoming poor (The World Bank 1994: 1). The result of the relocations was that affected communities had little access to land and water with which to practise any form of farming to improve their livelihood (DWAF 1997: 18-19). Availability of water creates opportunities which rural communities can tap into. Questions such as "Is small-scale farming really the best way to uplift rural poor?" (Blom 2008: 1-4) are appearing in the print media. The study's focus on the impact of state water provision for rural development will shed light on such questions.

The development of rural communities is negatively affected by lack of access to water. "Development" is a term that means different things to different people, but Hameso (2001: 4) sums it up as denoting "a complex set of processes of change that encompasses the economy, society and the polity ..., embodies quantitative expansion of an economy's productive capacity and favourable change in the quality of life as determined by improvement in people's living standards". Development as a means of poverty alleviation encompasses access to resources, empowerment, securing independence, building self-esteem and the general improvement of livelihood. In order to achieve development, it is important that the underdeveloped first have access to resources such as water.

1.2 Background to the study area

The study of human development is usually incomplete without working with practical cases such as a close assessment of a typical case study. Realities of the state of some communities can only be known when one maintains contact with the affected people. The Refilwe community in Cullinan is one such community in need of development. Refilwe is a community situated 45 kilometres east of Pretoria with a population size of 13393 people in 2001 (Isifingo Developments (Pty) Ltd 2006/7: 4). Refilwe is a semi-rural settlement with little land and water for agricultural development. The use of the Vukuzenzele Project as a case study for a rural-based research thus arises from its being "a kind of backdrop to the findings rather than a focus of interest in its own right" (Bryman 2001: 49).

The Vukuzenzele Agriculture Project is a project which was developed with the support of the Department of Agriculture (DoA), the Agricultural Research Council (ARC), DACE (Agriculture), Cullinan Raton Council, Agriculture Service Providers and seed companies. It was officially launched in August of 1999. The overall purpose of the project is poverty alleviation through job creation for unemployed women and the elimination of food insecurity as a development strategy. The project is based on market gardening on two hectares of land.

The project relies on a borehole which supplies water for irrigation purposes. In the project business plan in 1998, the original membership was thirty-seven (37), twenty-five (25) of whom were female and twelve (12) male. The project was started in 1999 and at the time the document was compiled in 2002 the project had a membership of twenty-one (21), fifteen (15) females and six (6) males. The Department of Agriculture kick-started the project by funding a vegetable garden. The funding package consisted of the provision of an irrigation system, the drilling and installation of a borehole, fencing, and provision of a container, electricity installation, fertilisers and seeds.

1.3 Problem statement

A general lack of resources in most communities usually explains the persistent poverty. Access to resources such as water is, therefore, an important aspect of development. This study aims to find out if access to water translates into development with a special focus on state water provision for productive purposes. Given the extent of poverty in most South African communities and the different activities the people become involved in in order to reduce poverty, it is necessary to discover the extent to which beneficiaries take advantage of state water provision to develop themselves.

Government policy makers and the general public tend to view land redistribution as an end in itself without considering other resources without which such land cannot be productive. The main resource, in the majority of cases, has been access to suitable water for economic or basic livelihood upliftment activities such as irrigated gardens. Access to land is viewed as the answer to stopping high food imports to South Africa (IRIN 2008) but water availability plays an equally important role. It could perhaps be as a result of little or no faith in the ability of water provision to change the livelihood of people, or lack of knowledge, which is why this study needs to evaluate the impacts of state water provision on rural development.

The evaluation of the impact of state water provision in addressing rural development will be evaluated along the following lines:

- Has there been a general improvement in the standard of living of the beneficiaries such as improved access to food or improved cash flows?
- Is there job creation?
- Has there been a stream of positive benefits that are attracting young people back to rural areas?
- Are children of beneficiaries enjoying better access to education?

1.4 The research objectives

The main objective in this study is to investigate and understand state water provision and the manner in which it can address the social and the financial aspects of a community. As part of this key objective the project is expected to address the following issues:

- Determine the extent to which beneficiaries' standard of living can be uplifted through access to water
- Evaluate the suitability of state water provision as a means of developing a community
- Establish the level of participation of beneficiaries
- Find out if there are constraints to water provision as a strategy for rural development
- Identify constraints that hinder state water provision from enhancing development

In order to attain the stated objectives, the following research questions will be addressed:

- Is there a significant difference between members of the development project and those who are not?
- Has the project been replicated by people in the same community?
- Are water projects attracting the unemployed?
- Are the targeted community and external supporters sharing the same vision in water-based development schemes?
- Are there any structures in place to make the water-based development schemes sustainable?

1.5 Research design

A research design refers to the approach that is used to test a thesis statement (Hofstee 2006: 113). The study uses a qualitative method as it focuses on a specific group in a specific context (Neuman 2006:151; Holland& Campbell (2005: 2) and aims to provide

an in-depth description of the small community through the utilisation of a case study (Mouton 2001: 149). However, as pointed out by Hofstee (2006: 123) a case study alone would not be sufficient as there is a risk that a researcher might lose focus or that results might not be generic. As such, a literature study which looks broadly at the research questions is also used to ensure that the research outputs are generic.

1.5.1 Research instruments

Hofstee (2006: 115) describes research instruments as "pretty much anything that you use to get the data that you are going to analyse". To obtain in-depth data from the case study, the researcher used questionnaires, semi-structured interviews, focus group discussions, and observations. The design, strengths and weaknesses of these research instruments are discussed in detail in the description of the methodology in chapter 3.

1.5.2 Research procedure

The research in this study followed the following steps:

- Identification of study area and key informants
- Identification and study of relevant literature
- Design of questionnaires and piloting followed by modification of questions and administration of the questionnaires
- Focus group discussions, semi-structured interviews and observations
- Data from focus group discussions, interviews and observations were noted in notebooks. Photographs were taken to illustrate observations at the project site at various times of the year
- All collected data was collated and grouped into related themes. These were analysed in order to obtain informative findings
- Recommendations were made and conclusions drawn

1.6 Significance of the study

South Africa has been described by Kader Asmal (1994: 1) as a land of contradictions and extremes with regard to the distribution of basic services. Water is one such service whose distribution continues to be problematic and the fact that it is also spatially distributed in the country makes it worse. Water is viewed as a vital resource for a sustainable livelihood (Cloete & Pootinga 2009: 60) and this study will contribute to the knowledge of the capability of water as an integral part of the design and implementation of poverty alleviation strategies (Kaliba, Norman & Chang 2003: 3). There have been several studies on water provision but most of them have been about the cost of delivering or providing water and Asmal (1994: 29) adds:

> "Water research in South Africa has tended to follow the requirements of the water sector in general and therefore has a similar history. Research has been concentrated on addressing the problems and needs of the wealthy sector and South Africa has become world renowned in some of the finer points of effluent treatment, weather modification and other specific scientific issues".

An evaluation of the impact of state water provision on rural development will thus have a focus on rural (and semi-rural) people, 70% of whom are known to be poor (Smit 2005: 9). One of the objectives of Development Studies is to investigate solutions for eradicating poverty and this study contributes to that.

1.7 Chapter overview

Chapter 1 introduces the topic of the study and outlines the research objectives, the research problem statement together with the research questions and the research methodology. A brief background of the study area is given while a more elaborate one is discussed in chapter 3. The chapter also outlines the significance of the study and concludes with an overview of the five chapters.

Chapter 2 examines the literature on South African water provision. It begins with a discussion of the definitions of the study's key terms: development and poverty. Issues such as rural development, community vulnerabilities leading to rural poverty and the need for water provision are discussed in this chapter. The chapter also considers the documented benefits of water provision through irrigation activities.

Chapter 3 begins by providing a more detailed background of the study area and moves on to describe the research method, its role and its strengths and weaknesses. Limitations of the study are also discussed in this chapter.

Chapter 4 details and analyses the findings. Evidence is also provided in order to substantiate statements and arguments. The chapter ends with a preliminary conclusion of the findings.

Chapter 5 provides a conclusion and recommendations as well as suggestions for future research.

Chapter 2: Literature review

"...Water is essentially a tool to transform society towards social and environmental justice and poverty eradication". Schreiner and Van Koppen (2001: 969).

2.1 Introduction

There has been a great deal of interest in recent times in water in South Africa. In the media for instance, discussions range from conflicts on shared water use in Hofstatter's *A diminishing resource* (2008: 3), Mike Muller's article on "Gauteng running out of water by 2013" (in Yako 2008) to other warnings about the "impending" South African water crisis in Mbanjwa (2009: 5). A study of the impact of water on development has also received wide interest for decades. The former Department of Water Affairs and Forestry (DWAF now DWEA[Department of Water and Environmental Affairs]) also compiled a framework for water growth and development which set the foundation and created necessary pointers for the development of South Africa's National Water Resources Strategy (Hendricks 2009: 1).

In this particular study, attention is given to state water provision for rural development which requires that one examine South African water policies, the background to the issue of development, the need for development and also considers what other scholars have written on the impact of water availability/provision.

This section explores the existing literature on water and development from around the globe. A great deal has been written about water and development but most of it has tended to be on water for sanitation or the costs incurred in water supply. However, there is available literature on the role water plays in development which according to this study will be a valuable determinant of the impact of rural water provision. Literature on water and development dates from many decades ago to the present day. This study focuses on both published and unpublished documents as institutions and individuals are working on or have worked on papers for conferences, research-in-progress or for other

purposes but have not made them available to public view. The literature review takes as its point of departure, the elucidation of various concepts as this will set the parameters for the study. After explaining the key concepts of the study, the review moves to the background of water supply in South Africa and also the country's water policies. The literature review also aims to provide examples of the impact of water on development.

2.2 Understanding concepts

The focus of this study is the impact water provision has on rural development. Its main concern is the effect a development endeavour has on the people as they are always meant to be development beneficiaries. While appraising some literature on the subject, the researcher observed that, simple as they may seem, some terms such as "development", "poverty" and even "rural", need to be expounded in order to clarify the parameters and the depth the research has to aim for. The main aim in doing this is that "development' and "poverty" have become buzz words but the interpretation needs here to be context specific.

2.2.1 Definition of development

Development has been described by Hameso (2001: 4) as embodying "quantitative expansion of an economy's productive capacity and favourable change in the quality of life as determined by improvement in people's living standards". Hameso's definition implies that there has to be noticeable change where development has happened. In this study, development in a rural setting is examined. As some scholars have noted, Africa's rural population is predominantly an agricultural society (DWAF 2008a: 9) and agriculture contributes to social development through the generation of income, food security and the reduction of poverty (Wenhold & Faber 2008: 3; DWAF 1997: 13). Development has different components and availability of water plays a major role in rural communities.

Greenberg (2003: 7) notes that when rural development was first adopted as a sub-field of the broader field of development, it "began as a technology-driven and top-down imposition onto different cultures and economies". The focus was on the construction of big dams that failed to provide water for the local farmers and also displaced people from their lands (George 1977: 237 in Greenberg 2003: 7). Swanepoel (1997: 567) sees rural development as a people centred endeavour which should not emphasise on production or the creation of infrastructure. Rather, rural development for Swanepoel (ibid) is the development of the potential of the people who constitute the area called rural. The international labour organisation (ILO 1980: 1) concur with this as they see rural development as entailing the creation of productive employment and active participation of the organised rural poor themselves. In South Africa, the principles of the Growth, Employment and Redistribution (GEAR) define the focus on rural growth as pertaining to "land reform and associated agricultural development and on the provision of infrastructure, notably water" (DWAF 1997: 16). Using this as a starting point, this study evaluates the impact of water provision (for productive activities) on development as it addresses Goal 1 of the millennium development goals – the eradication of extreme hunger and poverty (UNDP 2007).

Contrary to commonly held belief, water is not an abundant resource; at least not for southern Africa or South Africa for that matter (Chenje & Johnson 1996: 19; Van Koppen 2007: 71). Availability of water is restricted by spatial distribution, poor quality and lack of infrastructure to transport it. Inequities in the ability to access water form a major cause of high levels of poverty (Bjornlund 2005: 1). In alignment with the millennium development goals, most governments have made commitments to provide basic services for their people in both rural and urban areas by various scheduled dates. As an example, in South Africa, the Department of Water Affairs and Forestry (DWAF) in its water for growth and development framework set up two goals: the sufficient supply of water for the achievement of economic growth and the provision of potable water for everyone in the country (DWAF 2009: 2). Development in this study will, therefore, be assessed from a poverty reduction point of view. The approach of this study

is to evaluate agricultural activities intended for development on the basis of their ability to reduce poverty.

2.2.2 Poverty

Development in rural areas of Africa and South Africa in particular is about poverty reduction. The United Nations Development Programme (UNDP) in Hemson, Kulindwa, Lein and Mascarenhas (2008: 2) defines poverty as a "denial of human rights, good health, adequate nutrition, literacy and employment". Poverty is also seen in both absolute and relative terms with absolute poverty referring to lack of access to resources or having no resources at all while relative poverty means juxtaposing one's poor status in relation to others (Kulindwa & Lein 2008: 1).

In South Africa poverty is viewed as largely a rural phenomenon (Hope 2006). It manifests itself in income poverty, food insecurity, lack of access to water and other resources such as schools, health institutions and resources which are abundant in urban centres (ibid). A definition of poverty can also go beyond this and consider life expectation, nutrition, illiteracy rates and incidence of disease (ILO 1980: 7). Although poverty is experienced differently by different people, all require opportunities through which to sustain their lives.

South Africa's rural areas are mainly populated by the unemployed whose main source of income is money sent to them by working relatives. As it is, this income alone is insufficient for the upkeep of a family (Shreiner, Mohapi & Van Koppen 2004: 171) and requires that families be involved in other productive activities for subsistence. Statistics South Africa (1999) in Hope (2006: 169) reveals that lack of access to water is "cited as a principal rural livelihood constraint". Other scholars, however, see poverty as being a result of a combination of socio-political structures which influence the ability to accumulate assets or resources and thus access to water alone may impact differently on different communities (Carter & May, 1999; Hope, 2004; Marais, 2001 in Hope 2006: 169). In the case of South Africa, access to water is seen as giving the poor a significant opportunity for survival and sustenance (Hendricks 2008: 1; Moriarty & Butterworth

2003: 11). A report by the United Nations Environment Programme (UNEP) also notes how natural wealth such as water "could lift Africa's poverty" (cited in The Water Wheel 2006: 7).

2.2.3 Rural areas

The definition of rural areas differs from one country to another, from one continent to the next. The Integrated Sustainable Rural Development Strategy (ISRDS) has it that "there is little agreement on what constitutes rural areas and rural populations, and ambiguities still surround the concept of rural" (2000: 7). Rural areas are known to have commercial farmers, subsistence farmers as well as some small towns and villages (ISRDS 2000: 7). In South Africa rural homes are known to be unplanned, scattered and spaced, sometimes with low populations. The general structure of houses in rural areas cannot be used to define rural areas as the development of RDP houses in South Africa in both urban and rural areas has meant the existence of houses structured in the same way. Service delivery for resources such as water is not limited to urban areas only as there is a plan which must be implemented by local governments for all citizens to have clean potable water (DWAF 1997: 25). Some townships as well as small towns may, therefore, fall under the term "rural". For the purposes of this study, rural areas will refer to areas where all or most of the population have lifestyles or use life strategies similar to those used by those seen as definitely rural to make a living (ISRDS 2000: 7).

2.2.3.1 What determines rural poverty in South Africa?

South Africa's long history of apartheid sets it apart from other countries in terms of how poverty is experienced in different communities. Poverty in South Africa has a black face (See Figure 1 below). Inequalities which result in poverty are stratified according to race with black people at the bottom of the scale. For black South Africans, one is compelled to think that their segregation into homelands which were barren of any developmental possibilities made their dire situation worse. Poverty in South Africa exists in the same hierarchy that population groups were placed in apartheid times. The International

Labour Organisation (ILO 1980: 7) adds that "the distribution of assets ... is the major determinant of the degree of inequality and rural poverty".

Scholars put the percentage of the rural poor in South Africa at 75% (DWAF 1997: 15) of the total population and this is so precisely because of the level of unemployment in rural areas. The ILO (1980: 7) also sees poverty in terms of per capita income and consumption and in that regard it is the lack of the means to obtain subsistence living that makes the rural folk poorer than their urban counterparts.

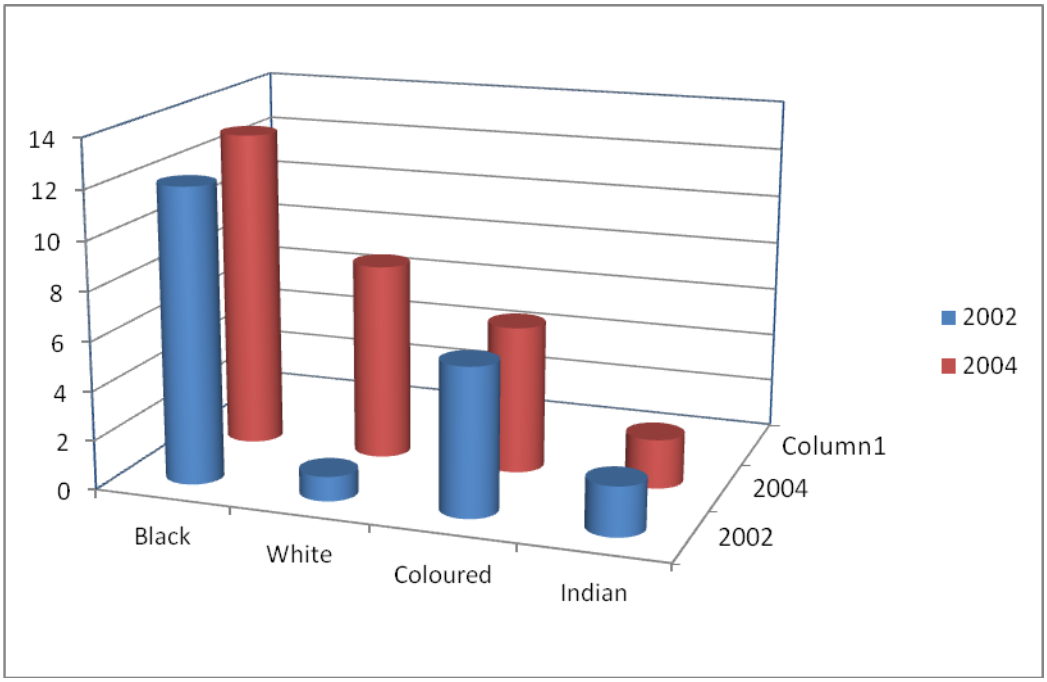


Figure 1: Lived poverty in South Africa (Food). Afrobarometer Briefing Paper, 2005: 6

Government policies which tend to favour urban areas at the expense of rural areas are also seen as a factor which determines the poverty status of the latter (Timberlake 1985: 12). Some may view this idea as a myth but the differences in types of infrastructures, service delivery and many other amenities between rural and urban areas reinforce just how much effort is put into creating conditions which keep poverty at bay while breeding suitable conditions for poverty in rural areas. The political marginalisation of rural areas

leaves little or no opportunity for the rural poor to influence government policy (ISRDS 2000: 2).

The absence or non-existence of infrastructure results in the working age groups being driven to towns where there are chances of securing better opportunities. The absence of economic opportunities leads to the migration of the able-bodied (usually young men) and until recently, young women too. This not only creates a gap in development as the ones who are left behind are old or not strong enough to effect any change but also exacerbates the feminisation of poverty (a phenomenon whereby women increasingly become poorer than their male counterparts as a result of gender imbalances (BRIDGE 2001: 1; Chant 2003: 4; Chant 2007: 35) as mostly women are left behind to fend for themselves with inadequate resources.

Farming is also known as the backbone of the rural economy in Africa (Hameso 2001: 158; DWAF 1997: 13) and with the increasing utilisation of modern technology, employment in the agricultural sector has stagnated as machines do most of the work from which humans could earn a living. Rural poverty is worsened by the lack of economic drives where development is often targeted at locations where profits or returns are greatest. Water is usually supplied to urban areas with good returns.

The state of poverty is worsened for the rural poor by the market system that favours commercial farmers (Vink & Kirsten 2000: 8). Tenders to supply big shops with farm produce are mostly given to commercial farmers leaving the rural farmers to sell or supply to their communities only. It can be argued that there is a difference in quality and quantity between the produce of the commercial and subsistence farmers but the issue is that there is need for an equal playing field for there to be a comparison, comparing apples with apples. It is this inequality in the circumstances of the haves and the have-nots which makes the poor.

2.3 Background to rural water supply in South Africa: a historical overview

The distribution of rain in South Africa is unequal (DWAF 1997: 2, 13; Mtolo 2008: 1) making water provision in most parts of the country a necessity. Although rich in minerals, South Africa needs more to feed its population hence the need for a constant supply of food (Turton, Nicol, Allan, Earle, Meissner, Mendelson & Quaison 2003: 19). For this purpose dams were constructed for multiple purposes of which irrigation on adjacent farms was one of the reasons (Van Vuuren, Nel, Van Damme, & Braune 2007: 65). The construction of these dams did, however, not include blacks who had also been "disowned of their land" (ibid: 65). Black South Africans have now mostly been resettled and do have small pieces of land but without water it may still remain difficult for them to maintain sustainable subsistence living. Van Vuuren et al (2007: 65) point out that during the apartheid era some irrigation schemes were set up for black people but had no support and therefore fell into "disrepair".

In South Africa in the 1970s, water allocation was based on the "economic viability" of the enterprise for which the water would be allocated (Van Koppen 2007: 71). This type of allocation denied the poor their right to water. Also before the Water Act of 1998 (DWAF 1997: 5), water in rivers was for use by people who lived alongside the rivers (known as the riparian system). After the Water Act, water became a state product and everyone had the right to enough water for sustenance (DWAF 1997: 11). The then minister of water and forestry, Kader Asmal, proposed the setting of CMAs (catchment management areas) all over the country. This proposition was meant to bring water management to localised water management areas (WMAs) but remains a dream. As a result many rural communities have little access to water.

2.4 South Africa's rural water policy

Soussan, Pollard, Mendiguren and Butterworth (2002: 139) state that "any discussion of water issues in contemporary South Africa must be set within the context of the existing

dynamic changes to water laws, policies and institutional responsibilities". This study acknowledges that what happens or does not happen with regard to water in South Africa is informed by the new water act. Water policies, legislation and implementation are to a great extent affected by history in South Africa (Van Koppen 2007: 6). Still and Balfour (2006: 4) note that from the advent of democracy, the South African government has aspired to provide access to water for everyone, in what has been called "some for all" (DWAF 1997: 11). The New Water Act of South Africa (RSA 1998) has been described as the most comprehensive water legislation based on equitable water allocation (Hope 2006: 168). Extreme inequalities were inherited from South Africa's colonial past and the New Water Act sought to redress these inequities (Van Koppen 2007: 6). It has been observed that the implementation of the legislation leaves more to be desired. As a result people continue to be deprived of water in rural areas (Balfour, Wilson, De Jager, Still & Louw 2005).

This study is based on the research of water for productive uses which is recognised in the water user category known as Schedule 1 and for which no licence is required (Soussan et al 2002: 139). Availability of water for productive use can mean a difference between getting by and destitution (Soussan et al 2002: 148). The Department of Water Affairs and Forestry (DWAF) in their water for growth and development bid have acknowledged that "water is a key ingredient for ensuring growth and development" and the new water policy has made water available to previously disadvantaged people. The riparian system, for example, which was previously in use before the new act, disadvantaged those who had been put in homelands where the land was dry without any water. In a panel discussion in June 2007, Councillor A. Mphele said that since water dealt with livelihood and the prosperity of communities, its availability was critical (DWAF 2007: 11).

2.5 Why provide water for rural development?

The use of water in farming as a way of developing communities at national level is often criticised when agriculture's contribution to the Gross Domestic Product (GDP) is

compared to other economic activities such as mining and the industries which have a higher GDP contribution rate per cubic metre of water (DWAF 1997: 13). As most of the poor have little or no access to employment in the mines and industries, agricultural activities tend to present themselves as accessible survival strategies, hence the need for water provision in rural areas.

Economic growth has been seen by some as the solution to poverty and development challenges (Cusworth & Franks 1993: 1; Hameso 2001: 5). An economic solution to poverty does not necessarily benefit the poor as they only work harder for long hours in return for very little (Narayan 1999: 6 cited in Cornwell 2003: 6). In order for the poor and the very poor to survive, the South African government introduced a number of initiatives which included free basic service components in electricity, sanitation, solid waste and water. This was meant to "... alleviate the plight of the poorest ..." (Mbeki in DWAF 2001b: 3 cited by Balfour, Wilson, De Jager, Still & Louw 2005: 4).

Minister of Water Affairs and Forestry, Mrs Lindiwe Hendricks, in her budget vote speech (May 2008) pointed out that water and forestry "contribute significantly to the alleviation of poverty, providing a way for the poorest of our people to survive and sustain themselves". A report by the United Nations Environment Programme (UNEP) also notes how natural wealth such as water "could lift Africa's poverty" (cited in The Water Wheel 2006: 7). An increasing number of meetings and workshops have also been held to discuss the link between water and improved livelihood (AWARD 2004: B6) which indicates an interest in how water can be a tool for development and poverty reduction.

"South Africa is an arid country ... with just over 1200kl of available freshwater for each person", (DWAF 1997: 13). That being the case, available water has to be used efficiently so as to have maximum benefits. Rural South Africa where 75% of the poor live (DWAF 1997: 14) is adversely affected by poverty and state water provision can play a vital role in changing people's livelihood.

Agricultural development projects depend on a steady and reliable supply of water and may fail if there is little or no access to water. Earlier researches on poverty assessment consistently noted how improvement in water services is a "critical element in designing and implementing effective strategies for poverty alleviation" (Kaliba, Norman & Chang 2003: 3).

Lack of basic resources such as water stunts any potential for subsistence or improved livelihood especially considering that the majority of South Africa's poor have been excluded from the land and have also been "denied either direct access to water for productive use or access to the benefits from the use of the nation's water"(DWAF 1997: 2).

2.6 Water as an agent for development

Water is a fundamental asset and for nations that are dependent on agriculture, water is indeed an agent for their development. As Moriarty & Butterworth (2003: 11) point out, "People do not just drink water, or use it to wash or cook. They use it also to grow crops and water livestock and to produce goods and provide services ...".

Chenje and Johnson (1996: xv) point out the importance of water to human life when they mention how great rivers such the Nile, Niger, Limpopo and the Zambezi "gave birth to African civilisations". There is so much potential for growth where there is water and this study does not question or seek to refute that. The question is, is water alone enough to change the lives of people for the better?

Kaliba et al (2003: 3) also note that poverty assessment researches have consistently shown that improvement in water services is a critical element in designing and implementing effective strategies for poverty alleviation. Yet it has also been noted that the actual impact on poverty that might be achieved by promoting productive uses of water will clearly depend on other constraints faced by poor people (Moriarty & Butterworth 2003).

2.6.1 Impact of water provision on food security

Turton et al (2003: 19) note that "nearly all of Southern Africa is classified as low-income and food deficient because countries in the region neither produce sufficient food to feed their populations, nor import sufficient quantities to fill the food gap". Other literature such as that provided by The International Water Management Institute acknowledges the contribution water has on food security through irrigated agriculture (Mukherji 2007). Thus availability of water can play a vital role in poverty alleviation (United Nations Educational, Scientific and Cultural Organization (UNESCO) 2003: 18) through food security.

According to a research in Asia, findings show that there is increased productivity in irrigated areas as compared to rainfed areas (Lipton, Litchfield, Blackman, De Zoysa, Qureshy, & Waddington 2003: 8). The study, carried out between 2001and 2002 showed that poverty was 20%-30% higher in non-irrigated areas (ibid). In South Africa, irrigated agriculture provides most of the food available in the country. In the Venda area in 1992, farmers' entire crops were wiped out by drought, and these were experienced farmers (Lahiff 1997: 62). Had they had a steady supply of water they might still have produced a good harvest. In sub-Saharan Africa, South Africa, although having a drier climate, is still the top food exporter but in the former homelands where most of the black people live, people go hungry owing to the non-availability of water (Vorhies 1989). Goal 1(one) of the millennium development goals is the eradication of extreme poverty and hunger and agriculture is viewed as the "mainstay of many rural economies" (UNESCO 2003: 17).

Water projects in the Mpumalanga province of South Africa show that having a steady water supply can help households have food security. Landcare Forum Magazine (2006: 11, 14) of Mmaphake documents several water schemes in which both women and men are involved (reference is here given to the Koketso Bodiba, Rebone Landcare and Mma Maubanethe Female Farmer projects) and points out that there are notable improvements in food security for the project members as well as their immediate communities as they

can easily access fresh vegetables at no extra cost. Turton et al (2003: 19) note that as achieving food security is a primary consideration for poverty reduction, approaches providing water for the rural people can help them secure a livelihood. Figure 2 below illustrates the inextricable links between access to water and intra-household development.

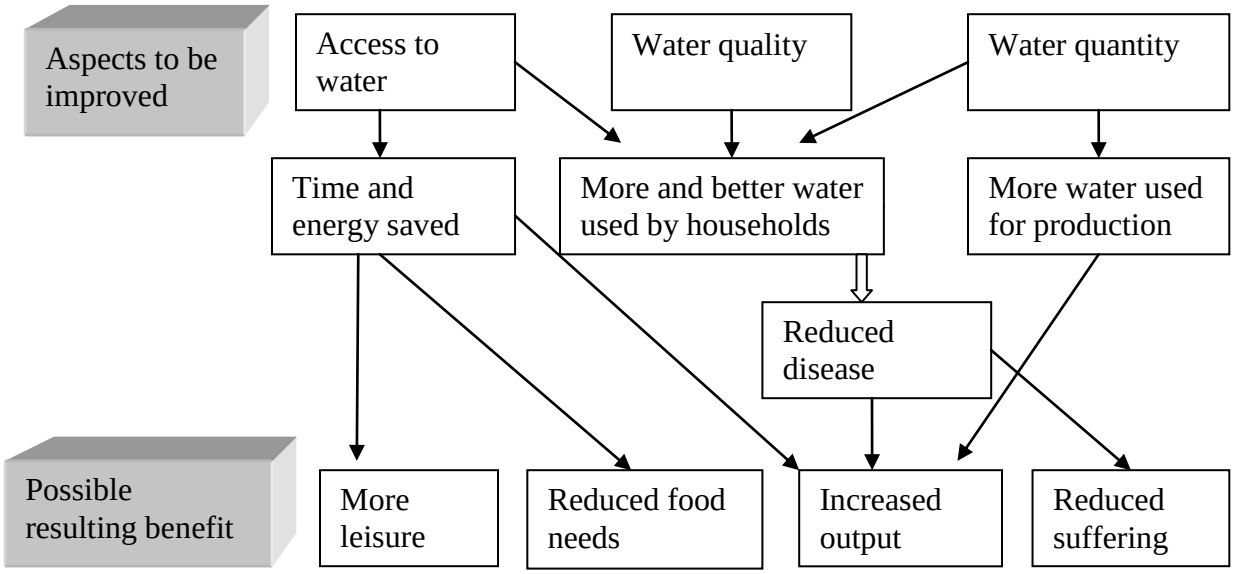


Figure 2: Potential benefits of rural water supply. Hubbard 1995 in Wenhold & Faber 2008

Some scholars state that although water is required for food production, there is more to it than simply having water (Kamara & Sally 2008: 1). There is need for suitable soil, availability of seeds, knowledge of farming, resources to till the land and manpower to do the work.

2.6.2 Impact of water provision on health

Where there is a need for water provision, health improvements are a definite measure of the impact that provision has on development. Briscoe and Ferranti (1988: 3) concur when they say that the effect of adequate water on health "is seen to have an overall effect on development" (see also Fox & Liebenthal 2006: 271).

The health of women and girl children has been reported to be negatively impacted by non-availability of water (UNESCO 2004: 1). "In some parts of Africa, where women expend as much as 85% of their daily energy intake fetching water, the incidence of anaemia and other health problems is very high " (Swedish International Development Cooperation Agency (SIDA), 1997 in UNESCO 2004: 1).

Availability of water for productive purposes can translate to activities such as irrigation and research has shown that there is a direct link between water availability and improved nutrition (Wenhold & Faber 2008:38). Irrigation or agriculture helps in achieving food security. Hunger can cause poverty as people become too physically weak to fend for themselves and poverty can also cause hunger as people may not even have a starting point.

2.6.3 Impact of water provision on rural employment

The literature on the impact of agricultural water use on employment varies from author to author. What most agree on, on the surface, is that when water is provided for agricultural purposes, there are possibilities of job creation as agriculture mainly uses unskilled labour and thus waged employment is created (Bresciani & Valdés 2007: 7; Kulindwa & Lein 2008: 8). Most migrant workers are employed on the South African commercial farms as work is always available owing to water availability which as Bresciani and Valdés (2007), state, makes it possible for crop interchanges throughout the year.

Experience in commercial farms is, however, not always similar to that in communal farms but in a research done in Bangladesh, it was discovered that the availability of water resulted in a growth in agricultural productivity (Lein 2008: 87). Lein (ibid) also noted that although water schemes had increased in number there was not a huge demand for labour especially on small farms. Employment was thus not created as members of the scheme did the work themselves or got unpaid labour from members of their own

families. Although agriculture is seen as having a positive impact on a household's income (Bresciani and Valdés : 7) its impact on employment in communal farming is not big leading some to conclude that in future, "two out of three jobs in rural areas will have to be found outside agriculture in the coming decades" (Lein 2008: 100).

Machethe, Mollel, Ayisi, Mashatola, Anim and Vanasche (2004: i) point out that most water projects are formed with the idea of generating employment and alleviating poverty. But in instances where projects fail to perform optimally, they may result in failure to achieve the objective of job creation (Machethe et al 2004: i). The Limpopo province, for example, has 171 irrigation schemes with assets valued at R4 billion but because they are not functioning optimally, they fail to employ as many people as previously thought (ibid).

Laker (2004: 4) interestingly notes that agriculture was seen some three decades ago as key to a successful economy. He further comments that "it is just simply not possible for a very large number of families, each with a tiny piece of land, to generate an acceptable standard of living out of agriculture" (ibid). This study acknowledges that there is an acceptable standard of living, yet still, standards are relative and poverty reduction however minimum, serves as a significant step in development. Ralo, Grinker, Kruger, Steele and Weitz (2000: ix) regard water provision through water schemes as the only significant development input in rural areas as these schemes create possibilities for income-earning activities.

2.6.4 Impact on gender

Empowerment of women and gender equality are among the goals for the millennium development goals. In most developing countries, women still bear the burden of water collection and most other water-related chores. A UNESCO report contends that "women and female children spend more than 10 million people-years carrying water from distant sources every year" (UNESCO 2004). Women are also responsible for 60 to 80% of food grown in Africa (Kotzé & Cornwell 2007: 11; Bryson 1981: 30) and without easy access

to water, the responsibility is undoubtedly heavy. Rural water provision would empower women in several ways: namely,

- by cutting on water collection time (UNESCO 2004; Wakeman, Supply & Council 1995: 7)
- by reducing incidences of disease which are a result of water collection methods as well as using water sources that are not safe (SIDA 1997; UNESCO 2004)
- by providing women with time to do other productive things or rest (Wakeman, Supply & Council 1995: 8)
- increased safety – it becomes safe to collect water as cases of rape can occur if water has to be collected from faraway places (Crow & Sultana 2002)

If a water provision scheme is directed towards women, it gives them a form of entitlement. Reid (1995: 113) notes: "development ... should have a human face, but that face is still rarely female therefore providing women with water for productive use empowers them by giving them a source of income". Pam Simmons (1997: 245), however, does not agree with the view of alleviating women's poverty by targeting development programmes at them as she says that it benefits "major development institutions and their backers". It nevertheless needs to be noted that true as that may sound, targeting development projects at women empowers them as it gives them rights and control over a resource and assuming that it will not work in their favour is assuming that women have no willpower to succeed.

2.7 What constitutes rural development?

Development as mentioned earlier means different things to different people, and as such, the way to it may be straightforward for some and meandered for others. Rural development must be viewed separately from other forms of advancement as it is more concerned about the people who constitute its space and not only about the physical structures that are used as beacons of development.

Rural development should be people-centred. As Mogane-Ramahotswa (1995: 10) reasons, making development people-centred empowers them and gives them the will to

sustain that which will help develop their areas. Even if rural development involves modernising rural areas, it means doing it in a way that does not create dependencies on the part of the beneficiaries. A participatory method must be used in the development projects or programmes in order to enable learning to take place for the rural dwellers. Even if such projects or programmes cannot be replicated, at least the learning empowers them to be able to sustain the projects.

Underdevelopment is seen as a purely economic problem (Berger in Mogane-Ramahotswa 1995: 17). The lack of infrastructure necessary for encouraging economic growth in rural areas is seen as one of the reasons why rural areas lack in development. Economic solutions are always proposed. The problem with many economic solutions is that rather than solve problems, more are created such as the widening of gaps between the poor and the rich. This is why rural development from this study's point of view has to be an initiative of both the helpers and those being helped, starting with what is known to those being helped. Agriculture, for instance, has been discerned as the mainstay of many developing countries but without the necessary natural resources it is a futile exercise.

Rural South Africa is mainly populated by blacks. Agricultural activities in the black areas were made unattractive by apartheid as it was hardly an option in arid barren lands. Similarly in Zimbabwe, land that was unsuitable for white settlement, which was drier and in more remote parts of the country was allocated to blacks in what was known as the Native Reserves (Rukuni 1994: 18). Agriculture at communal level is, therefore, not regarded as particularly significant on the rural development agenda. Other options such as the urbanisation of rural areas are hardly plausible since service delivery on its own without the infrastructure has proven to be not easily achievable. ISRDS (2000) claims that it is difficult for services such as water provision to reach the scattered rural settlements in South Africa often built on hilly ground.

Rural development should, therefore, be viewed as a strategy for the people by the people. Self-sufficiency should constitute rural development as not only the renowned

think-tanks or experts can bring about change. There is need for outside help; however, the help has to be advised by the needs of the people. Coetzee (1989: 99 cited in Mogane-Ramahotswa 1995: 20) argues that "it is the people, the communities in the developing world, who must generate directives for development in accordance with how they understand their life world because they can attach meaning to it much better than outsiders".

What constitutes rural development can be summed up by the following key factors:

- The need to address the causes of rural underdevelopment
- Implementation of sustainable income-generating projects
- Development of the necessary infrastructure to attract investments
- Empowering communities with the skills, knowledge and resources to start their own sustainable food production and self-sustenance, and initiatives to improve livelihoods
- Reducing incidences of disease outbreak and decelerating health degradation through access to potable water
- Accessibility to education, communication, that is, through use of roads, public and individual phones

2.8 Sustainability of water projects

AusAid (2000: 1) describes sustainability as the continuation of benefits after major assistance from a donor has stopped. De Beer and Cornwell (2008: 15) see sustainability and ability to affect all aspects of life as the essence of development. The sustainability of water projects is seen as probable. Lein (2008: 92) gives an example of irrigation schemes set up in the late 1960s in Bangladesh that were still operating in the 1990s. Village schemes of the same nature had also increased in number from nine to twenty-six (ibid). In South Africa, however, irrigation or agricultural production is largely dominated by commercial farming and communal farming in the rural areas is dominated by inexperienced farmers as a result of many years of segregation in non-arable lands.

Sustainability in that case requires skills training and having institutions in place that can assist in order for more benefits to be accrued.

Water projects can fail to be sustainable if unsustainable water provision methods are used. Water provision methods may be implemented in a sustainable way in terms of the manner in which they are run, their use, and the amount of water that can be used over a given period but if the equipment needs maintenance that users are unable to give, it will become unsustainable. In order for such projects to remain sustainable, it is imperative that the beneficiaries participate and be trained in order for them to acquire the necessary knowledge of the water provision method.

In South Africa there are two methods of water supply: namely, the demand-responsive approach and the supply-oriented approach of which the former implies that consumers receive an amount of water that they can afford and the latter implies a supply of a basic minimum across the board (Ralo, Grinker, Kruger, Steele & Weitz 2000: v). The latter is also known as free basic water which amounts to 6000l of clean water per household per month (DWAF 2002b: 3). Beyond that amount, water has to be paid for by the users.

Sustainability of rural water schemes thus depends on

- ability to pay for more water
- method of water provision.

In the case of communal taps, there are possibilities for productive activities but they are minimal as they depend on a regular flow of water, which according to the Rebone, a water project in Mpumalanga, is not always the case (Landcare Forum Magazine 2006: 11). Sustainability is also threatened as sometimes water is cut off and ground water in that area of Mpumalanga is not a viable option as it is salty [personal interview].

In her book entitled “Pillar of sand: Can the irrigation miracle last?” Postel (1999) discusses how ancient irrigation civilisations came and went. The fact that water, though

a renewable resource, can be depleted if wrongly used or managed points to another fact that sustainability of irrigation is questionable (Postel 1999).

2.9 Conclusion

It is clear that there is a link, an "inextricable link" (Kulindwa & Lein, 2008) between water and development. Availability of water has far-reaching implications especially for the poor who need basic resources in order for them to carve a living. The effect of water on health is seen as having an overall effect on development as good health can mean improved productivity (Briscoe & Ferranti 1988: 3). However, Briscoe and Ferranti note that the effect on health is often overemphasised as many water projects have not produced convincing evidence of health gains (1988: 3). Water is an essential component in achieving millennium development goals (Fox & Liebenthal 2006: 257) but Briscoe and Ferranti (2008) see water's overall effect on economic development and poverty alleviation as easier to speculate on than document.

In the next chapter, the study investigates how much of the impact of water on development is speculation and how much can be documented using a case study. The effect on employment, for instance, is not very straight-forward and the hope is that the case study will provide first-hand information on the manner in which water projects (sometimes referred to as agriculture or irrigation in the study) can indeed provide employment for the rural population.

Chapter 3: Methodology and case study

3.1 Introduction

The previous chapter provided an overview of the developmental issues linked to water by giving a historical background of water provision in South Africa and then considering the different livelihood aspects that can be affected by water provision. It also defined the goals of development that provide the point of reference for the analysis of the evaluation. In this chapter, the study examines the methodology used for empirical research in order to evaluate the impact of state water provision on development. The research design follows Chandler's design in which the considerations are as follows:

- what information was required
- where the information was to be found
- how information was to be collected
- how the information was to be dealt with

Chandler's design helps provide unambiguous and relevant conclusions (Chandler 2002: 101; Devers & Frankel 2000: 263-271).

It is important first to give an overview of the impact evaluation has as this serves as a guide to the information needed to be collected and the reason for it. A background of the study area is also provided as it is important to have knowledge of the area in which a research is conducted. Such knowledge can also help an impact evaluation as one is able to tell whether there are other variables that come into play resulting in the success or failure of an intervention.

3.2 What is impact evaluation?

An impact evaluation is the identification of effects of a project or programme, negative or positive, on the well-being of individuals, households or communities (The World Bank 2009; The World Bank 2004 in Sette 2008). An evaluation of this nature helps us

understand if and to what effect projects, programmes and policies work to address poverty. Impact evaluations help answer questions such as the following:

- Was the intended objective achieved?
- Are the results directly linked to the project or are they the results of other factors?
- Are there any unintended outcomes, positive or negative, as a result of the project?
- Can the project be seen as the most effective intervention method?
- Are the project impacts the same across all beneficiaries?

An impact evaluation analyses the link between cause and effect and identifies if an impact is a result of an intervention (Ezemenari, Rudqvist & Subbarao 1999: 1).

3.3 Where the information was found – background of the study area

The Vukuzenzele Agricultural Project is situated in Refilwe, Cullinan, 45 kilometres east of Pretoria. Refilwe Township is described by the South African Agriculture Portal (2002) as one of the "poorest townships in Gauteng and unemployment and malnutrition are two serious problems". Through the poverty relief strategies of the Gauteng Department of Agriculture (DoA), household food security projects that aimed at helping the poor "help themselves" were embarked on (Annexure 3). It is through these projects that the Vukuzenzele project was formed. The extension officer in charge of the project says that unemployed women contacted the Department of Agriculture through their councillor. The project also had partnerships with the following organisations/companies:

- National Department of Agriculture
- Agriculture Research Council
- DACE (Agriculture)
- Cullinan Rayton Council
- Agricultural Service Providers
- Seed companies

Through a document made available by the Department of Agriculture, it is reported that women who were unemployed, neglected by their husbands or whose husbands were unemployed saw a need to fend for themselves and their hungry children (Annexure 3).

The Vukuzenzele project falls under the Nokeng Tsa Taemane Municipality (see map, Annexure 1) and the estimated population in 2001 was 9 130 (see table 1 below). Water in the community is the responsibility of the local government (municipality) and tables 1 and 2 below show the levels and types of water supplies available in the district.

Table 1 Population in need of basic services

SETTLEMENT NAME	ESTIMATED POPULATION	POPULATION WITH WATER BELOW RDP STANDARDS	POPULATION WITH SANITATION BELOW RDP STANDARDS	POPULATION WITH WATER & SANITATION BELOW RDP STANDARDS
Cullinan	8 151	22.2%	8.1%	2 470
Cullinan Farms	1 174 1 366 197	0 71.3% 78.7%	0 5.5% 2.5%	0 1 049 160
Pretoria Farms	255 746	58.4% 31.5%	25.9% 11.1%	215 318
Rayton	3 013	30.2%	1.5%	954
Refilwe	**9 130**	**6%**	**6%**	**1 101**
Roodeplaat	850	26.6%	2.2%	245
Wallmannsthal	4 133	40.2%	2.5%	1 764
Wonderboom Farms	3 256 556 680	12.7% 26.8% 33.2%	1.8% 0.4% 2.5%	472 151 243

Source: DWAF (2001) Copyright © 2001 PIMSS.NET (in Isifingo Developments (Pty) Ltd. 2006/7)

Table 2 Levels of service in respect of the provision of water

TYPE OF WATER SERVICE PROVIDED	POPULATION	PERCENTAGE
Water to dwelling	13 448	46%
Water provided on site	6 722	23%
Public tap	2 865	10%
Tanker	346	1%
Borehole	4 416	15%
Natural water	333	1%
Other	920	3%
Unspecified	237	1%

Source: STATSSA (1996), DIB (2001) Copyright © 2001 PIMSS.NET (in Isifingo Developments (Pty) Ltd. 2006/7)

3.4 How the project was chosen for purposes of this study

The objective of the study being to evaluate the impacts of state water provision, the researcher first asked state departments to find out if they were involved in any poverty alleviation initiatives in which water provision was central to the objective. The Department of Water Affairs and Forestry was the first department contacted but after the realisation that nothing was materialising the search turned to the Department of Agriculture which the researcher thought would be the most likely to be involved in people-centred projects. The Department of Agriculture was indeed involved in food security projects of which water-based activities were on the list. The Pretoria-based department, however, said that Gauteng had no "rural" areas except for a small part of Hammanskraal which was under the leadership of a chief. The researcher was referred to a backyard garden, a project which was being run with the assistance of the Department of agriculture. After the realisation that backyard gardens might not have a big impact on the community and thus might not be suitable for an impact evaluation, they were abandoned as possible case study areas.

The search moved to Mpumalanga, a bigger province with many municipalities and many rural areas. Unfortunately, the people in charge did not grant any access to any of the researches in their province. Emails (dated December 4, 2008 and January 20, 2009) sent

to them requesting information about any such projects and also requesting access to their projects remain unanswered (see Annexure 2). Names of the recipients have been deleted to safeguard their privacy. It is through the Pretoria Department of Agriculture that the final decision to use the Vukuzenzele project was made.

The background of the project members as given by the DoA suited the criteria for the case study as the aim of the study was to find out whether development would be attained if water were supplied for activities intended for growth and development such as irrigation. The DoA documents the project members as mostly struggling women without a means to subsist and notes that water is also being provided for this project. The document on the Nokeng tsa Taemane Municipality refers to Refilwe, the area where the Vukuzenzele project is situated, as both a township (2007/8: 45; see also Dinokeng Project 2008: 38) and also an urban area (2007/8: 4). The fact is that Refilwe is a place that is in the process of being developed and is not yet a town. It, therefore, fits within the scope of the study and questions posed in the problem statement can be answered.

3.5 Research methodology

This study uses a qualitative approach. Creswell (2008: 181) says of qualitative research that it

> takes place in the natural setting. The qualitative researcher often goes to the site ... of the participant to conduct research. This enables the researcher to develop a level of detail about the individual(s) or place and to be highly involved in actual experiences of the participants.

In qualitative research, data produced is in text form as compared to quantitative data which is mainly numerical (Holland & Campbell 2005: 2). The quantitative approach will be used to a lesser extent when results are being analysed and also to measure objective facts (Neuman 2006: 13). The focus, however, will not be on numbers but on measuring variables and testing hypotheses, which is why there is a research problem statement (Neuman 2006:151). The qualitative approach is used in this study as qualitative research focuses on a specific group of people in a specific context (ibid; also Holland &

Campbell 2005: 2). Parker concurs with this definition when he says qualitative research is "the study of processes and behaviours in their natural settings, through which the researcher tries to make sense of phenomena and the meanings that people attribute to them" (Parker 2004: 159).

The literature review supplied in the second chapter of the study also paves the way forward into the evaluation as it provides examples of goals that can be achieved through a project such as the one being evaluated. The information collected in the second chapter will be used to assess if the outcomes experienced in the case study are similar to or different from the ones that are experienced elsewhere. The survey questions will thus be formulated bearing in mind other realities experienced elsewhere as noted in the literature review. Impact evaluations require that one compares what happens in a group in which an intervention was conducted with a group where no intervention was made (The World Bank 2009). In this study, a focus group discussion was held with project beneficiaries while unstructured interviews were held with non-project beneficiaries. The World Bank (2009) states: "By establishing a good comparison of outcomes for these two groups, an impact evaluation seeks to provide direct evidence of the extent to which the intervention changes outcomes".

3.5.1 Methods of data collection

Noor (2008: 1602) suggests that the choice of a research method is informed by the nature of the problem statement. In order to gather information to use to evaluate the effectiveness of a water scheme as a strategy for development and poverty alleviation in rural South Africa, a case study research method was chosen as the methodology. A case study is described by Pitchforth and Van Teijlingen (2005: 2) as a "research methodology that focuses on the circumstances, dynamics and complexity of a single case or small number of cases".

Zainal (2007: 1) adds that case studies "explore and investigate contemporary real-life phenomena through detailed contextual analysis of a limited number of events or

conditions, and their relationships". (See also Kitchenham, Pickard & Pfleeger 1995: 53). For this study, in order to verify the benefits of directing water towards agriculturally based activities, the best method was to choose a place where water was already being provided for agriculturally based development activities in order to establish at first hand whether such activities were worthwhile. Van Koppen (2007: 82) also quotes DWAF (1986) as having stated that irrigation is seen as an important first step in the uplifting of undeveloped communities but is not necessarily the most effective means of achieving socio-economic objectives. The use of a case study will thus move away from theorising and get into a real situation to make the assessment.

Case studies are, however, criticised for their inability to provide results that can be generalised (Sette 2008; Noor 2008: 1602). Zainal (2007: 2) agrees with Sette but he adds that single-case designs are the ones that have a problem, particularly when the case that is being researched is rare. In this research, the use of a case study will not deem the results non-generalisable since there are many other small scale water-based schemes or food security projects in South Africa's rural and semi-rural areas. Sette (2008) also argues that case study methods cannot be ruled out because results may not be generalisable. The whole intention of using a case study is to focus on a particular issue, feature or unit of analysis (Noor 2008: 1602). Sette (2008) argues further that readers will have to choose to use information to apply to their circumstances if the data is applicable.

Another reason why a case study was chosen as a research method was that as a researcher one can use multiple research instruments such as questionnaires, interviews and focus group studies. For this research, all of the above-mentioned techniques were used. A self-completed questionnaire was utilised because time constraints made it difficult for the researcher to interview all respondents individually. Additionally, information is obtained quicker as questionnaires can either be faxed or emailed to respondents no matter how far away they are situated. Questionnaires, however, also present problems in that some written information may be difficult to interpret or the honesty of the writer may be questionable.

3.5.2 How the questionnaire method was utilised

A questionnaire is a set of questions used to obtain information (Burcu 2000: 1; Liebeck & Pollard 1997). A great deal of effort and consideration are needed to develop a questionnaire that gives one the answers that one is looking for as well as questions that are easily understood by the respondents and not offensive in their language. For this study, a questionnaire pre-test was conducted to discover whether the questions were easy to understand and also to predetermine the type of answers one would elicit from the questionnaire. Two sets of questionnaires were prepared and sent. The first questionnaire was for the extension officer in charge of the project and this was first sent to an individual who works in the same field and does the same job as the questionnaire respondent. A suggestion was made that the questionnaire be given to several other extension officers for the results to be quantifiable. The idea was that if perhaps 12 officers filled in the questionnaire, the results would reveal a percentage derived from a number of projects. The questionnaire was also sent to colleagues who have years of research experience behind them. These were asked to check if the language was correct. A study of rural development often makes reference to the terms “poor” or “poverty” and that was one word that had to be edited in order for the questions not to be in any way offensive.

All suggestions were considered and adjustments made to the questionnaire after which it was sent to the actual respondent. A decision was made to send the questionnaire (Annexure 5) by email to the respondent who is an extension officer in charge of the project under evaluation. As mentioned earlier, there are several other similar projects with extension officers attached to them but the reason for using only one was that that particular officer was familiar with the project that was being researched. The idea was to have a quality assessment rather than one based on quantity. Holland and Campbell (2005: 5) also note that “while quantitative methods produce data that can be aggregated and analysed to describe and predict relationships, qualitative research can help to probe and explain those relationships and to explain contextual differences in their quality”.

The second questionnaire (Annexure 6) was for the Vukuzenzele project members and this was prepared after the first meeting in which a focus group was held. The questionnaire was prepared in order to obtain answers to some outstanding questions. During the focus group, not all members participated equally and the researcher hoped to gain enough information when all members were given a chance to air their concerns or provide their points of view. For this questionnaire questions were close ended with room for added explanations if need be. Close-ended questions are, however, criticised for their lack of flexibility as respondents must choose from the given answers only (Bernard 2002: 267). The choice of close-ended questions was informed by the idea that answers would be "unambiguous for analysis purpose" (Bernard 2000: 268). Considering also that a translator was being used to obtain the information, fixed answers would work well as there was not much risk of questions or answers being misinterpreted.

3.5.2.1 Questionnaire format

The two sets of questionnaires were structured differently. Bernard (2000: 268) notes that with close-ended questions "there is no rule that prevents" one "from mixing question types". For open-ended questions, however, question types were grouped according to theme. Thus for the questionnaire to the extension officer, the first page was a covering letter which briefly stated the purpose of the research, how the information gathered would be used and encouraged a response. The questionnaire was divided into six sections. The first section consisted of a confidentiality clause. If the respondent did not wish to have his or her name used in the research, this section allowed for a response. The purpose of the second section was to have an insight into water schemes with a special focus on the role extension officers played in such schemes. The third section was on water provision methods. This section sought to determine whether water could only be provided directly by the state or whether there were other methods that could be used. If these other methods were in existence, they could be recommended so that other people could make use of them and enhance their lives. The fourth section focused on any notable impact water provision had had on the beneficiaries. The fifth section sought to determine whether project beneficiaries were empowered through such projects by being given decision-making power. The purpose of the final section was to gain a

general comment about the objective of the institution which made the project possible. This would help in the evaluation when answering the question of whether the project had achieved the intended goal (Sette 2008).

3.5.3 Interviews and focus groups

"A focus group is a carefully planned discussion designed to obtain perception on a defined area of interest in a permissive, non-threatening environment", (Krueger 1988: 18 in Bernard 2000:175). Focus groups are "almost always used to collect qualitative data" (Oates 2000: 187). The number of people typically used in focus group discussions is usually small, from about six to fifteen people and the discussion lasts between ninety and one hundred and twenty minutes (Kahan 2001: 130). In qualitative research, data collection also involves direct interaction with individuals either on a one-on-one or group setting (Hancock 2002: 9). This research involved two sets of groups, one was composed of the project beneficiaries and the other was a control group of non-beneficiaries. The project beneficiaries did not form a large group and therefore all of them were involved. The reason for involving all of them was that the project plot layout was partitioned into five sections and members were each given a portion to be in charge of. Their experiences would thus be expected to be different. The advantage of using a focus group is that "it allows the researcher to obtain data from a large number of participants in a short time span" (Bernard 2000: 175). Lofland and Lofland 1984: 14 in Bernard 2000: 175) also acknowledge the usefulness of focus groups in public issues where people can reflect and recall experiences. For the focus group in this study it was helpful to have the project members all together as they helped one another recollect how things had happened and when one did not remember details, another would always fill in the gap. Bernard (2000: 175), however, notes that focus groups can be problematic if one member plays a dominant role or members influence one another.

In order to hold the focus group meeting, a telephonic appointment was made with the project members who agreed to meet with the researcher on a Saturday, a day they did not normally go to the project. On Saturday, the 22nd of August, all five members were at the project to meet the researcher and a translator.

3.5.3.1 Use of a translator in qualitative research

As mentioned earlier, qualitative research sometimes requires face-to-face interviews and often there are language barriers between researcher and interviewees. Cross cultural or international researches sometimes require a translator (Pitchforth & Van Teijlingen 2005: 1). In this study, a translator was used and her role as well as a brief summary of the research objective was discussed. Pitchforth and Van Teijlingen (2005: 2) propose two suggestions to follow when using a translator, suggestions which were also followed in this study:

- Clarification of roles between the researcher and interpreter before the interview to avoid potential problems
- Cooperative working, which is achieved when the researcher appreciates the interpreter's role as actively participative

Temple and Young (2004: 170) quote Edwards (1998) who argues that "if we treat interpreters as 'key informants' rather than as neutral transmitters of messages, then a conversation about possible differences in perspective can begin". Thus in this study, the interpreter's role was not that of key informant but a participative one with a link to the researcher, see Figure 3 below

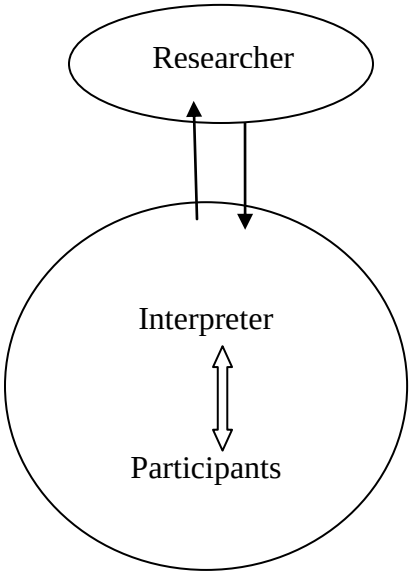


Figure 3 Active interpreter model. Pitchforth & Van Teijlingen (2005: 4)

3.5.3.2 How the focus group was organised

A discussion was held using a set of questions compiled prior to meeting the project participants (see Appendix A). Photographs (see photographs 1, 2 and 3) of the progress of the project activities were taken as well as cheques received from ABSA and NEDBANK, won in competitions such as Female Farmer of the Year Competition (National Department of Agriculture 2000: 4). Notes were taken as the discussion proceeded and this did not in any way disrupt the discussion as it provided the participants with time to reflect and also gave others opportunities to respond to the questions. Questions were not necessarily asked in the order they appeared in the list as some answers led to questions that did not chronologically follow or answers were given that overlapped with others.

The second group consisted of non-project members or the control group. The purpose of the control group was to help address one of the research questions which sought to find out if there were any significant differences between the project members and non-project members. While there was consideration to use former Vukuzenzele project members in

the control group, initial discussions indicated that they were not objective and that could compromise on the quality of data to be collected.

The control group that was used was not randomly chosen. All three were chosen because they were involved in small-scale livelihood activities: namely, selling at small 'spaza' shops, flea markets and vegetable stands. Semi-structured interviews were held with them. A semi-structured interview

"involves a series of open-ended questions based on the topic under investigation but provides opportunities for both interviewer and interviewee to discuss some topics in more detail" (Hancock 2002: 9).

The researcher and the interpreter would introduce themselves to the would-be participants, explain that they were conducting a research and briefly tell them the purpose of the study. Pertinent questions about the trade they were involved in were asked. The questions also sought to establish if they were in any way benefiting from or supporting the Vukuzenzele project. These kinds of questions were aimed at establishing from non-project members if a project such as the one in question was having any impact on the community. The type of trade in which the interviewees were involved entailed communication with others in similar trades and as the Vukuzenzele project was the only project of its kind in Refilwe, one could assume that many people would have heard about it. With regard to the interviewee involved in a vegetable stall, the assumption was that some of the vegetables at one point or another would have come from the Vukuzenzele garden. The purpose of the interviews was based on the reasoning that as Refilwe was a small township, knowledge or lack thereof of the Vukuzenzele project would be as a result of the project having or not having any impact on the community at large.

3.5.3.3 Telephone interviews

A researcher must obtain information from many respondents some of whom may not be within physical reach but there are ways to contact them such as emails or telephone calls. Carr and Worth (2001) note the popularity telephone interviews have had in recent

years. In studies that compare telephone and face-to-face interviews, results reveal that the quality of the researches is comparable (Carr & Worth 2001). Having a telephonic interview has various advantages as noted by Bernard (2000: 234). Among the advantages listed by Bernard (2000: 234), the following are true for this research:

● Telephone interviews have the impersonal quality of self-administered questionnaires and the personal quality of face-to-face interviews. The comparison with questionnaires that are self-administered arises from the fact that an interviewee would feel comfortable answering questions the way he or she would on a questionnaire because although the interviewer is not physically present they can still communicate as if they were physically in one place. Telephonic interviews thus become unintimidating (like questionnaires) at the same time allowing an interviewer to probe or to answer questions dealing with ambiguity of items as in personal interviews. The point is that if anything is not clear to either the interviewer or interviewee, there is provision for clarification.
● Telephone interviews are inexpensive and convenient to conduct
● There is no reaction to the appearance of the interviewer in telephone interviews, although respondents do react to accents and speech patterns of interviewers

Telephone interviews, however, have disadvantages and in South Africa one would assume that it is caused by people's unwillingness to talk to agents who want to sell goods to them over the phone. They may also be inconvenient as interviewers do not necessarily make appointments to telephone someone; they just do so.

For this study, telephone interviews were held with two people from the municipality in which the Vukuzenzele project is being conducted in order to establish the municipality's role in the project's water supply. The main question was about the availability of groundwater in the Vukuzenzele project borehole. As information could not be obtained from the first person interviewed, a second was suggested: the councillor of Refilwe. Though it was not possible to pose infrastructure questions to her, she could add information to the research as she was a Refilwe resident. The telephone interviews

proceeded well and answers that were being sought were found. (See Appendix B for the telephone interview questions).

3.5.4 Project records

Project records were also made available to the researcher by the person in charge of the project. The record was in the form of a photograph album which reveals the different stages through which the project has passed. These records show the way the project has progressed from the time of inception to date. The album contains photographs of the initial large group which also included men. It depicts how the land was fenced and cleared in preparation for planting. The photographs reveal the hay days when most of the garden was green and healthy. The chickens they kept at one point also form part of the photographic record. The Vukuzenzele members also have another document in the form of a visitors' book, which visitors sign and state the purpose of their visits. Two documents entitled "Vukuzenzele Agricultural Project" (Annexure 3) and "Status for Exited Projects" (Annexure 4) were also made available by the Department of Agriculture.

3.6 Observation

Bowling (2002: 9) supplements her quantitative research with the use of a qualitative method, observation. When conducting research on health and health systems, she noted that observation could provide key answers when one visited wards and clinics as in her case. For this study, observation also played a vital role. In determining the progress or lack thereof, the impact, positive or negative, it was necessary not only to obtain verbal answers from the community or from the people involved but also have a visual image in order to assess the situation. It was critical that one be in the place where the research was conducted in order to see for oneself how things were organised, why they were being organised that way and the general look and feel of the community.

Observation may, however, be risky in that researchers may become biased or be judgemental about what they see. For this study, observation was used to a minimal

degree and only in order to discover missing points in the provided information. Where observation did not help to clarify a point, follow ups were made with people who were responsible or who could shed light on the matter. As a result of the use of the observation method, other key methods in obtaining answers for this study that had not been identified earlier were discovered.

3.7 Other methods that could have been used

On his discussion on research methodology, Hofstee (2006:115 – 116) points out that all possible ways of coming to a reliable conclusion need to be discussed, if not used, the researcher has to explain why, so readers do not doubt the conclusions. The discussion below looks at other methods that could have been used and explains what they were created to do and why they were not used in this study.

There are several other methods in which project impact can be determined. Three appraisal techniques: namely, the Cost Benefit Analysis (CBA), the Environmental Impact Assessment (EIA) and the Social Impact Assessment (SIA) are tools that can also be used to assess the impact of projects. Mouton (2001: 160) recommends that the above techniques be used in evaluation researches dependent on other variables. These techniques, however, focus on specific aspects of projects. For instance, the Cost Benefit Analysis method "monetizes all impacts" (Cornwell, Modiga & Mokgupi 2006: 55). Though it is important to evaluate the monetary worthiness of a project, be it before or after implementation, this method would not augur well with the purposes of this study whose main focus was to find out the impact on the wellbeing of beneficiaries. Baker (2000: 13) concurs with this line of thought when she says that "in the social sectors, it is not possible to measure all the benefits in monetary terms".

The Environmental Impact Assessment technique focuses on the impact a project will have on the environment (Cornwell et al 2006: 60-61). This type of assessment is very important especially when considering sustainability of the environment. Some projects can have a negative impact on the environment, for instance, water can be contaminated

through wrong irrigation methods. However, this study focuses on people as subjects of the development process and the environment though important, is not the focus.

The Social Impact Assessment technique relates best to the issue at hand but is, however, used before a project commences in order to find possible impacts on the "social and cultural facets of human existence" (Cornwell et al 2006: 57). Aucamp (2009: 110) describes social impact assessment as "a tool for planning and decision making". If this appraisal technique could be used after project completion, then it would be the best technique to determine project impact on the lives of the beneficiaries. Besides, the SIA method concentrates on negative aspects that might occur as a result of project, programme or policy implementation. SIA, for instance, looks at the possible impacts on a community's population, community or institutional arrangements, possible conflicts between local residents and newcomers, individual and family level impacts and community infrastructure needs (Cornwell et al 2006: 58-59). This study, however, seeks to evaluate a project in order to determine its worth as a strategy for rural development.

3.8 Ethical considerations

In qualitative research, ethical considerations are very important not only as contact between researcher and participants can be on a one-on-one basis but there can also be closeness while the research is undertaken. The most pertinent issues to be considered are "informed consent, the dignity and privacy of the research subjects, voluntary participation and protection from harm" (Holloway & Wheeler 1995). Rayner (2008) explains that "ethics are concerned with attempting to formulate principles and rules for moral behaviour..."

In this research, informed consent was not achieved by means of a signed letter indicating that the participants would be observed or interviewed as part of the research. Through the assistance of the extension officer who works with the particular project, consent to use the project as a case study was first obtained from the officer in charge of the Gauteng projects. After consent was granted, the extension officer was asked to inform the project members that a research would be carried out on their project. The researcher

then made contact with the project members to introduce herself and to inform them of the purpose of the study. When the focus group discussion was held, the members were also informed of the visit and an appointment was made. Rayner notes that "by not informing the participants that they are being observed, the ethical issue of deception is raised ..." (2008).

The issue of dignity and privacy of research subjects in this study was also considered. An impact evaluation research can mean labelling a research as a success, a failure or impacts may be said to be positive or negative. Bearing in mind these considerations, the focus group discussion was held at the project site and not the members' homes as this would have infringed on their privacy. Photographs of the members were taken with their consent (see photograph 10 chapter 4). Permission was also granted for the photographs to be placed in the final research document with the use of their real names.

Other methods of data collection such as observation were also carried out in an ethical way. No photographs were taken from private homes but the observations were noted. Throughout the survey, the researcher was very sensitive to the participants' needs. Participants were also assured that no information would be used without their consent.

3.9 Limitations of the research

The focus of the research is rural development. The first limitation which the researcher encountered was finding a truly rural setting and obtaining permission from responsible authorities to carry out the research (more details are supplied in chapter four under the heading: How the study area was chosen). Ultimately, the researcher opted to use a project in a semi-rural setting. Refilwe as indicated in chapter 4 is an urban township but as explained in the literature review, chapter 2, there are some townships that have similar characteristics to those in rural areas. The project members, when asked in passing what they thought the area was in terms of rural or urban, considered the idea of rural but settled for township. More details about the study area are provided in chapter 4.

In an almost similar study by FAO, (Lipton et al 2003: 27) irrigation projects were used to determine the impact of irrigation on poverty. Time constraints in this study did not allow the researcher to investigate impact on more than one project. Though looking at more than one project will increase validity of results, the researcher is still of the opinion that having a comparative analysis in the form of people who are not project beneficiaries will give basis for valid results. Mouton (2001: 154) describes the focus of comparative studies as being on the similarities and differences among groups of units of analysis. Robson (2002: 205) also points out that in evaluation research comparisons are seen as key to a strong evaluation. He, however, notes that there can be problems finding an appropriate control group. In this study, the researcher regarded information provided by non-project beneficiaries and general observations from the community as well as input from the extension officer (questionnaire respondent) as sufficient to provide a comparative analysis from the point of view of a control group.

The researcher also intended to interview more than three people who were non-project members but some of the people chosen as the sample group were unwilling to provide more details about their source of products. Attempts were also made to contact an institution which was closely linked to the project in its early days but all calls went unanswered. The only person who could be reached had no knowledge of the existence of the project but she provided the information that the institution's name had been changed (name withheld).

3.10 Conclusion

This chapter sought to outline how information was gathered and which instruments were used. An insight into the way the different instruments were used and their strengths and weaknesses were also discussed. Bernard (2000: 177) notes that "triangulation of data collection ... helps to establish trustworthiness, face validity and catalytic validity". The next chapter examines and analyses the findings.

Chapter 4: Research report and analysis

4.1 Introduction

In the previous chapter the techniques that were used to gather information for the evaluation of a water-based project in Refilwe were discussed. In order to enhance confidence in the information to be gathered, data triangulation (Denzin 1970 in Bryman 1988) was used. Semi-structured interviews, focus group discussions, observation and questionnaires were all combined in order to widen and deepen the researcher's understanding of the area and subject of study (Olsen 2004: 1). Two sets of questionnaires were sent to respondents. One set was sent by email (Department of Agriculture Questionnaire, Annexure 6) and the other set was hand-delivered (Refilwe Questionnaire, Annexure 6). There was a 100% response to both questionnaires.

In this chapter, a report of the research findings from the questionnaires, focus group discussions, observations and interviews is presented together with an analysis. Information discussed in this chapter is information that the researcher did not previously have until meeting and talking with the study participants. This also includes information pertaining to the case study group and their project activities.

The findings of the study are presented thematically in a descriptive nature with reference to the research questions (Hossain 2008: 4; Mouton 2001: 124). It was decided that the information would be more easily understood if collated according to theme rather than according to the collection methods used as two or more methods may have been used to find information from the same people. Hancock (2002: 16) says of an analysis of qualitative data: "... there may be some data which are measurable but for the most part we are interested in using data to describe a phenomenon, to articulate what it means and to understand it."

Bernard (2000: 177) also quotes a description of data analysis from Marshall and Rossman (1989: 112) in which qualitative data analysis is discussed as

> the process of bringing order, structure and meaning to the mass of collected data. It is a messy, ambiguous, time-consuming, creative and fascinating process ... Qualitative data analysis is a search for general statements about relationships among categories of data; or builds grounded theory.

4.2 The case study

Detailed knowledge was required to answer the research questions asked in chapter 1 of this study. Through the multiple data collection methods that were used, the following are the findings which have been broken down into manageable themes for easy interpretation.

4.2.1 Vukuzenzele's early years – narratives from the focus group discussions

The Vukuzenzele project has come a long way since its inception in 1997. It is thus imperative to take cognisance of these early years in order to be able not only to compare the current status of the project and its members with the inception but also to evaluate the progress or lack thereof while looking at the project as a whole. This type of information was obtained through the focus group discussion as well as available records in the form of a photograph album.

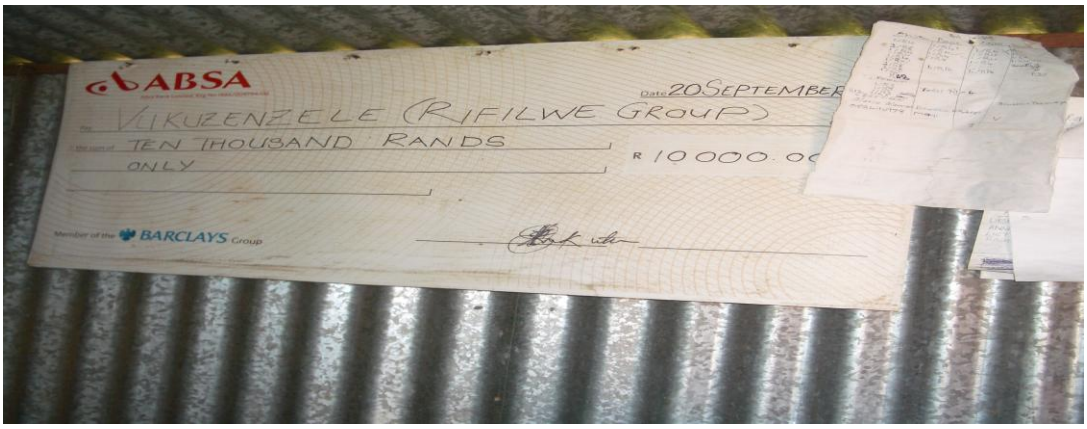
During the first visit on the 22nd of August 2009 when the members were met, a group discussion was held in which information with regard to the formation and objectives of the project were sought. It was evident from the focus group discussion that the Vukuzenzele women recalled the early years of the project with nostalgia. They recalled the manner in which they had come together and approached their councillor for help

with the objective of self-sustenance. The Zulu name "Vukuzenzele" that means “stand up and do it for yourself” aptly describes what the group had in mind when they thought of this project. The Vukuzenzele project members said that the project began with both women and men as active participants. In its infancy, the project had some success. A report produced by Partnership Central (2002) points out that at one stage the project managed to provide a “relatively inexpensive source of fresh and nutritional produce” to the community (the reports were composed three and four years after the commencement of the project, 2001 and 2002 respectively). Both Partnership Central (2002) and the Department of Agriculture report that the members also donated produce to the “destitute and the disabled in the community” as well as to some nursery schools (see Annexure 3). In those early years of the project, the project members also managed to form a burial society for the members (see Annexure 3). The members reported that their burial society was still in place and that they also still managed to give vegetables and fruit to the needy on occasion.

The project managed to extend its activities to poultry farming and fruit trees using the proceeds from their produce. The Vukuzenzele project is also documented as one of the projects to have won an award for Female Farmers of the Year representing their province, Gauteng (DoA 2000: 4). They have won several awards in this regard; see photographs 1, 2 and 3 below.

Photograph 1: Cheque for R8000

Photograph 2: Cheque for R10 000



Photograph 3: Cheque for R10 000

A photograph album containing pictures of the project in its early years shows that it was very productive. Large quantities of very good quality produce were supplied. They, however, reported that in 2001 their borehole motor broke down and as they could not pump any water the crop failed. They have not had an engine break down since then.

4.2.2 Status of the project

The Vukuzenzele project is now in its twelfth year. It is one of the Department of Agriculture's "exited projects" which according to one of the department's extension officers (contacted via telephone interview (Hobyani 2009) means that the department weans them and leaves them to manage on their own. This is said to happen after the third year of implementation. In the first year, 80% of the project's grant is spent on activities like the drilling of the borehole and in the second and third year respectively 10% is spent on other activities that need sponsoring. When the grant is finished, the department "exits" the project. Records show that the Gauteng Department of Agriculture granted a total of R60 438.00 for the project (see Annexure 3).

In South Africa's Gauteng province, the rainfall season starts in October (see figure 4 below) and this is the month when most farmers begin planting their fields. The Vukuzenzele project members do not necessarily have to wait for the rainfall season since utilisation of the irrigation system makes it possible for them to plant all year round.

However, in November 2008, when the researcher visited the site, the project site did not show much preparation for ploughing, nor was there any sign of irrigation water on site. While the fruit trees were green, the land was overgrown with weeds and there was little indication of any work in progress (see pictures 4, 5 and 6 below).

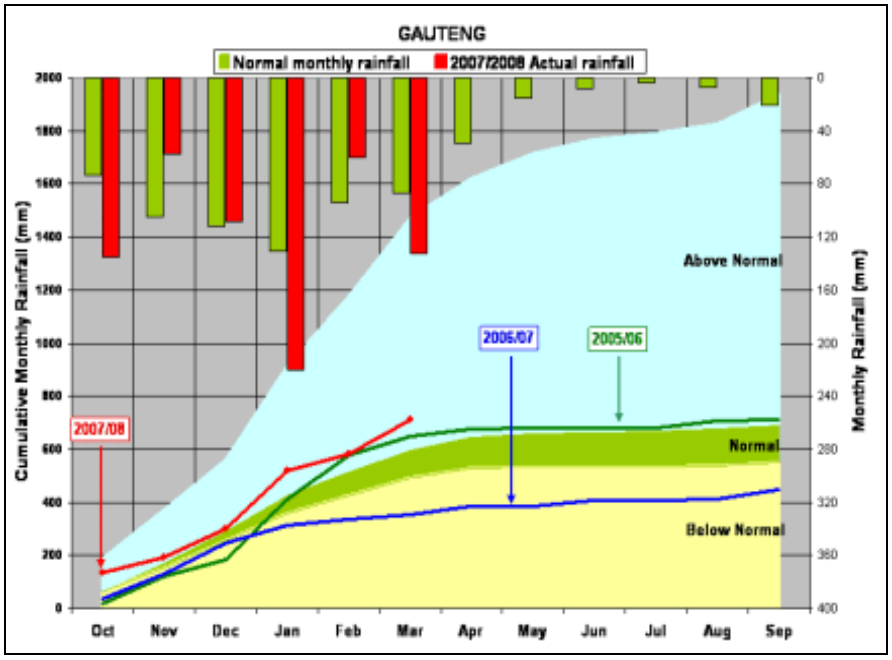


Figure 4: Rainfall Gauteng

Source: Charts from October 2007–March 2008: DWAF 2008b

Photograph 4: Vukuzenzele in November 2008 showing little agricultural activity

Photograph 5: Vukuzenzele Project-planting had not begun in November 2008

Photograph 6: A small portion of the garden planted with cabbages (November 2008)

4.2.3 Type of water provision for the project

The Vukuzenzele project is scheme that could not survive without irrigation water. The project thus has a borehole and two water storage tanks that were installed with the help of the Department of Agriculture during the first phase of the project implementation. The project members did not contribute to the development of the water infrastructure but are, however, responsible for its maintenance.

The extension officer explained that the irrigation method used for this project was a micro-jet irrigation system chosen because of the size of the area in relation to the borehole delivery capacity. The report on the water provision method states that with the micro-jet system, project members are able to irrigate at least four blocks at a time with good water distribution and little water wastage. The extension officer, however, pointed out that there is a new system of irrigation – dragline irrigation – which has sufficient borehole delivery. This is reportedly the most-used water provision method in communal irrigation schemes as "it avoids cost implications associated with the micro-jet system" (Questionnaire respondent, DoA Questionnaire, Annexure 5). The project members all agreed that their irrigation system was still efficient and that they had not had any problems with water emissions from the pipes. A representative from Tshwane University of Technology's (TUT) Crop Science Department, Mr. D.D. Mfolo, who visited the project on the 27th of January 2010 noted, however, that the pipes needed to be changed as they were old and leaking in some sections which would affect efficiency (Mfolo 2010: personal interview).

Photograph 7 and 8: One of two water tanks and micro-jet irrigation pipes

The members indicated that they had at one point asked the municipality to provide access to more water through the installation of a new borehole. They pointed out that the municipality had to date not responded to their request. A follow-up on the matter was made on the 25th of August 2009 through a call to the Nokeng tsa Taemane Local Municipality's Infrastructure Department where the researcher was referred to the councillor for Refilwe.

A telephone interview was held with the councillor on the 25th of August 2009 in order to establish if there were possibilities of additional water supply to the Vukuzenzele project. The councillor said that she was aware that more water might be required by the project but she acknowledged that the municipality was "slow in delivering". The municipality's pace in delivery was questioned by the researcher as it had been noticed that new developments had taken place close to the project. The project shares a wall with a cemetery and the cemetery has a secure wall with green lawn that is well watered (see photograph 9 below). The other question that was posed to the councillor was how the municipality could afford to water lawn at a cemetery when people who needed water for vegetables that would not only feed their families but also the community at large were not being provided with adequate water. The councillor responded that the community had a greening project being overseen by a government department, the purpose of which was to beautify the Refilwe area. A new football ground had also been constructed, a few metres from the cemetery. The new football facilities were aimed at the children in the community.

Some project members had attempted to point out the need for more water but from what was said about water availability during the focus group discussion and the questionnaire it was noted that the project had in fact access to adequate water. In the12 years the project had been in operation, the Vukuzenzele project members revealed that they had only had a problem once with the pump and not water availability. The extension officer had, however, indicated in the questionnaire (Annexure 5 question 4.6) that some projects had not succeeded because water could not be found on their sites.

Photograph 9: Cemetery boundary with well-watered lawn

4.2.4 Vukuzenzele project members' profile

The information about the members of the Vukuzenzele project in the documents provided by the DoA (Annexure 3 and Annexure 4) gives conflicting figures for the number of people presently involved in the project. The two undated documents give two different figures as the numbers of members presently involved in the Vukuzenzele project. The current membership of the project is five women as evidenced by the researcher in 2009 and 2010, (photograph 10 below). These are all founder members. The information from available DoA reports indicates that the project was begun in 1999 with both women and men as project members. The remaining members say that when the project idea was first proposed there were as many as 150 prospective members of both sexes. The numbers have, however, gradually dwindled as represented in Figure 5 below.

Photograph 10: The Vukuzenzele members August 2009

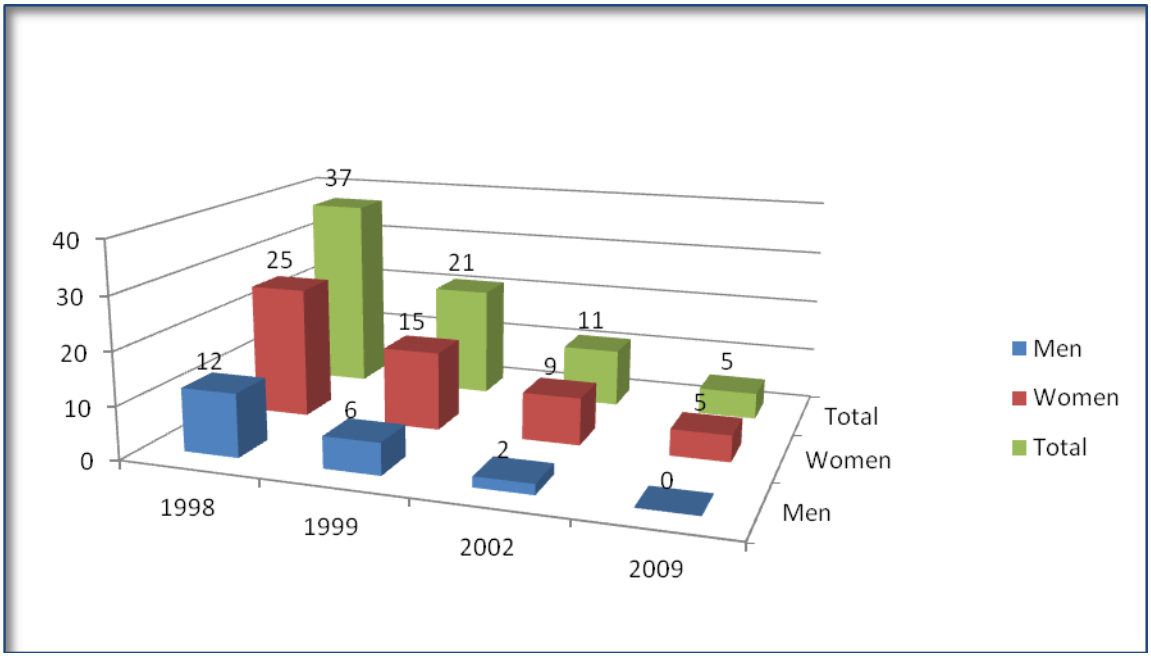


Figure 5: Vukuzenzele membership from inception to date

The Vukuzenzele women who remained pointed out that the main reason for members – especially men – leaving was that remuneration was paid only once a year in December. They explained that many fellow members had left because they wanted to look for better opportunities elsewhere. The traditional set-up in which men were breadwinners motivated them to look for better remunerative opportunities. The fact is that the

remaining members, all women, are also breadwinners in their female-headed households.

Possibilities of finding new members were also discussed. The members indicated that people did come to the garden to find out if they could join, but as soon as they discovered that they would only be paid once a year they lost interest. This information was gathered through the use of a focus group discussion during which the Vukuzenzele project members, the researcher and the fieldwork assistant all sat together and discussed issues involving the project in a free and comfortable way. The questions were asked and answered in a way that gave validity to the discussion as members would agree to an answer given by one of them or add information.

As Plummer-D'Amato (2008) points out, focus groups are particularly useful as interviewing, participant observation and group interaction are all combined and this assists in bringing out ideas and thoughts that may not emerge during a one-on-one interview.

4.2.4.1 Demographics of the Vukuzenzele members

The membership of the Vukuzenzele project comprises of middle-aged women. The average age of the members is 52 years with the youngest of the group being 47 and the oldest 56. Compared to the age groups of those involved in hairdressing, tuck shops and vegetable stalls, the Vukuzenzele members are older. Age is shown here to play a role in the choice of livelihood activities people become involved in. Traditional livelihood methods such as agriculture-based activities are practiced by elderly women while occupations that can be said to be modern such as hairdressing and selling of miscellaneous items is carried out by the relatively younger women of the Refilwe community. Two of the members said that their health was good, with one being in very good health. The other three members of the group said their health was poor and considering the scale that was used on the questionnaire (Annexure 6, question 4) on the members' health status, 'poor' is at the bottom of the list. However, in terms of being able

to work in their garden, the women look physically able. Table 3 below shows age distribution together with other important information about the members found through the use of a questionnaire (Annexure 6) and the focus group discussion.

Table 3: Demographics of the Vukuzenzele members

Name	Age	Level of education(Grade)	Number of children or dependants	Marital status	Health status
Maria	52	2	4	widow	poor
Lucy	56	2	5	separated	fair
Rachel	47	8	2	single	good
Elizabeth	53	5	5	single	poor
Anna	54	Has never been through formal education	6	single	good

4.2.5 Source of income other than the project

In order to determine whether the women's present economic status was as a result of their being involved in a water project or not, a combination of the focus group discussion and telephone interviews was used to discover whether project members were involved in any other activities or received any benefits that helped improve their lives. Two members of the group said they received a monthly pension. None of the members received financial support from other members of their household; they were the sole breadwinners of their families. All members were single and they had dependants, children and/or grandchildren. Officially all members were full-time Vukuzenzele project members with no other forms of employment. It was important then to find out how they survived during the remaining 11 months when they were only paid once a year.

The project members were thus asked in the focus group discussion how they managed their money from the garden sales. The members explained that they received different amounts per week and per month from their separate garden portions and they put the money in a common bank account. Maria said she received about R2000 sometimes R3000 in a month from her individual sales. Anna and Elizabeth said that they earned

R200 per week which amounted to R800 in a month. Lucy sometimes earned R300 in a week but it could on occasion be as low as R120. Rachel said she achieved R1000 in a month. The amount they earned varied depending on the type of produce available for sale but all proceeds were taken to their bank account after which each received an equal amount at the end of the year, irrespective of an individual's contribution. It was in this account that they also kept money for repairs that might be required at the garden. The project members indicated in the focus group discussion that the money they received in December was never more than R1000 per person. Four members stated that they also paid rent for accommodation and transport for their children to attend school. It was particularly important to ask Maria who had four foster children if she was receiving any grants for the children. The South African policy on foster children stipulates that "foster parents can get a monthly payment from the government for the foster child" (Cape Gateway 2009). The foster grant is at present R940 per month (said to be correct as of 27 January 2009; Goldblatt 2009: 369) and the grant is given for two years as foster parents may only be appointed for two years (Cape Gateway 2009).

Maria pointed out that the children she had in her care were relatives' children she had offered to take care of and she was thus not entitled to a government foster grant. Only one of the children was eligible for a blue card owing to illness and the money was going directly to the beneficiary as she was above 18 years of age. Though South African government-commissioned research showed these grants as having a positive effect on households' ability to access education, job-seeking opportunities and improve health, (Samson, Lee, Ndlebe, Van Niekerk, Gandhi, Harigaya, & Abrahams 2004; De Koker, De Waal & Vorster 2006 in Goldblatt 2009: 369), this has not been the case in Maria's household. Maria was thus solely dependent on the project for survival and so were Lucy, Anna and Elizabeth. In Rachel's case, she subsidised the income she received from the project once a year by selling items like sweets or Simba chips and chicken. When she received her R1000 in December she bought various items to resell. Rachel said that besides the money she raised for the project from the garden sales, she also made R1000 a week from selling things from her house.

4.2.6 The Vukuzenzele project activities

The Vukuzenzele project is involved in agricultural activities which include vegetables, fruit and animal husbandry. Water is, however, central to all the activities at the project. The extension officer said in his questionnaire responses that certain projects of a similar nature could not be initiated in some areas as ground water could not be found. It is thus important to describe the activities in order to evaluate their contribution towards poverty alleviation and development of the beneficiaries. The irrigation land is partitioned into individual plots. As documented by the Department of Agriculture, at one point there were four plots with each plot having five members running it. The Department of Agriculture reasons that tensions are easier to control with a small number of people, rather than with many (Annexure 3, page 2).

From the time that the project had only the five remaining members, the land was divided into five plots with each member being responsible for her own plot. It is a lot of work for the five women since they had previously worked on four plots with each plot having five people each. As a result, only part of the land is being used and the portions are as big as backyard gardens, not big enough to produce for commercial purposes. The unproductive section is overgrown and the rainy season exacerbates the situation. The situation in January 2010 is not very different from that of November 2008 when the researcher first visited the project site.

Photograph 11: Part of the garden that is not in use

4.2.6.1 Activity 1: Vegetable garden

The Vukuzenzele project members have mostly specialised in growing spinach, tomatoes, carrots and cabbages. In this project, the members do not seem to diversify their crops per season and also among themselves. There have been instances when the whole garden was planted with one type of vegetable when they could each have planted a different crop thus widening their food choice as well as their market. During the August 2009 visit, it was noted that with the exception of some small patches, the whole garden contained spinach of different sizes. It was also evident that in one plot the spinach had passed the harvesting stage as it was already flowering and would, therefore, not be good for eating. Keeping overgrown spinach was viewed by the researcher as having a negative impact on the overall performance of the project as it was still watered when it no longer had a retail value (photograph 12 below). In addition the overgrown spinach would continue to drain nutrients from the soil that could be nourishing new plants. Also, considering that the women work on individual plots, the person with the overgrown spinach patch would not be contributing to the common pool of financial gain which was

shared at the end of the year. The small plots of healthy spinach could not make up for the lost chances of taking advantage of all the available water and land (see photograph 13 above). The visits to the project site confirmed that planting took place in an unplanned manner and that the quality of the produce was not being considered.

Photograph 12 Overgrown spinach

Photograph: 13 Spinach that can still be consumed

On the 12th of December 2009, during a visit to the project, it was noted that new vegetables had been grown. These included carrots and pumpkin but spinach in some parts of the garden already showed signs of having been affected by aphids. The carrots had also grown very large which could have been as a result of there not being a market for them or the women not having plans in place for planting a new crop. A few other carrots were being dried in the sun. The space in which the carrots were grown was very small – approximately 1.5m by 4m – and the few carrots that were being dried pointed to the possible idea that carrots were not in demand by the community. Lemke (2001: 212) found out in her study on household food security that there was a distinction between "cheaper" and "expensive" vegetables and on the list given by the households she researched, carrots were regarded as being among the "expensive" vegetables. This would explain why in the Vukuzenzele garden there was a small bed for carrots and also a handful was being dried (see photographs 14 and 15 below).

Photographs: 14 & 15 carrots in the garden

Plant production if maximised would have positive returns for the project members. The low level of production could be an indication of a lack of capacity or that production was meant for household consumption. The discussion with the members pointed to the former, as members indicated that they did not have a market for their produce. (This will be discussed later.) However, observations around the surrounding settlement showed that many vendors were selling vegetables. There is clearly a large market for vegetables in this community. It is also worth noting that when the group had many members, the land was divided into individual plots, but with the few members left, the productivity has been reduced. The questionnaire answered by the Vukuzenzele members showed that the impact of the project on individual members' lives varied. Below, in section 4.6 are some inputs from the questionnaire. The responses from project members demonstrate that availability of a resource such as water does not necessarily translate into poverty alleviation or development.

4.2.6.2 Activity 2: Fruit trees

There are ten peach trees in the Vukuzenzele garden. There is no direct irrigation of the fruit trees as they are planted within the area where vegetables are grown. The fruit trees are watered from the same irrigation process that is applied to the vegetables. The quality of the fruit as observed during the visit in December 2009 was poor as the peaches were badly affected by a disease. Such fruits cannot be marketed (see photographs 16 and 17 below). Information from the Tshwane University of Technology's crop science

department on the causes of the disease is that it probably results from the trees not being pruned and there being no pest control (Mfolo 2010). It is on record in a document written by the then De Beers Premier Mine (Partnership Central 2002), that one of the aims of the Vukuzenzele project was to have canning facilities for their fruit. In this document, De Beers Mine intended to highlight some of the achievements of the Vukuzenzele project. It was, however, clarified by the project members that they had intended to buy the canning machines but had not managed to. The issue of the disease affecting the peaches had to be addressed first in order for them to produce the quality of fruit needed for canning.


Photograph: 16 & 17: Disease-infected peaches

4.2.6.3 Activity 3: Poultry farming

As part of the development of their project, the Vukuzenzele project members built two chicken runs using money from the sales of their other produce. In the photograph album with the pictures of the project in its early years, there are photographs of the members in a chicken run full of healthy chickens. At present both chicken runs are no longer in use. The members said that they would find their chickens dead and could not tell what had killed them. In a visit to the project on the 12th of November 2009, the fieldwork assistant reported that she had seen only two chickens. Besides the chicken, animal husbandry is also practised. They have three pigs which they said they kept for selling to those who

wanted them for meat. They did not specify how often they sold the pigs but it was always the piglets that were sold and the mothers kept.

At the present moment the project members said that they were waiting for the pregnant pig to give birth so that they could sell the bigger offspring and keep the younger ones. The scale on which the pigs are kept is very small. It is clear that the project team is not working on a big picture in terms of productivity but rather on a subsistence scale.

Photograph 18 A pregnant sow

Photograph 19: Two piglets

4.3 How the project affected beneficiaries: findings from individual members

The questionnaire for the project members was prepared with the purpose of finding out if there had been positive changes in the team members' lives as a result of their involvement in the project. The questions were also aimed at a comparison between their lives now and what they were before they were involved in the project. After having read documents about this project which showed the project doing well and achieving awards, the researcher deemed it necessary also to find out if they had been able to maintain the gains from the early years of the project.

Only questions 2, 3, 5, 6, 7, 8, 15 and 16 (see Annexure 6) were selected as the answers directly point to what can be seen as cause and effect and also express from the

beneficiaries' point of view what they regard as recommendations for the revival of their project. The following discussion explores the various points of view presented by the members.

4.3.1 Maria

As far as Maria is concerned, the project was not working well with fewer people; she thought that they needed more people for the project to succeed. The education of the children had not benefited from the project as she was hardly managing to send her children to school. Maria's biggest problem apart from food was transport money. She and her family could only manage two meals a day and going to the clinic when sick was not affordable for them. Comparing her life now with what it was like before she joined the project, Maria said she had no choice but to be part of the project as there was nothing else she could do. It was noted in the discussion on how much money they made from the garden in a month that Maria mentioned that she received R2000 and sometimes R3000. For the project to work better, Maria recommended the following:

- Encourage more people to take part in the scheme
- Secure sponsors and suppliers of seeds
- Implement better marketing strategies
- Address the problem of inadequate water

4.3.2 Lucy

Lucy said she did not think that the project was working better with fewer members. She said that the money they received from the project was not enough to educate children or to receive medical treatment. However, her burden was made lighter by the fact that the public clinic was free. Lucy said that the meals that she provided for her family were those she bought with money earned from her other sources. In an earlier discussion with the project members, Lucy had, however, not mentioned being involved in any other activities that could provide food. The once-a-year remuneration from the project in December lasted for only that month. Lucy's overall view of her life now compared to

what it was before she joined the project was that her life was much better, which contradicts what she said about the project not helping much. She, however, clarified the statement when she explained that she could take fruit and vegetables home to her family which supplemented her family's diet. To improve the project Lucy recommended the following:

- Having a market place for their produce
- Obtaining sponsorships
- Securing chicken food suppliers

4.3.3 Annah

Annah was very reserved and talked very little which is why the researcher later used questionnaires in order to gather information from all the project members without reservation. Like Maria and Lucy, Annah also saw no benefit from the project group being small. Annah said that being part of the project had not made it easy for her to educate her children. She said she was neither able to send her children to school nor afford to go to the clinic when necessary. Annah was still part of the project because she had no other choice. She, however, made the same suggestions as the others for improving the project:

- Improve marketing strategies
- Have a bigger group working in the garden

4.3.4 Elizabeth

Elizabeth can be described as the morale booster of the project. However, just like the other three before her, she also thought that the small number of project members did not help the project function better. She described the way they received their remuneration once a year as "not earning even a cent". Elizabeth was thus neither able to send her five children to school nor take them to the doctor when they were ill. As for the number of meals she and her family could afford in a day, she said only one which did not happen every day. In spite of the dire situation Elizabeth pointed out that she saw her life as

much better than what it was before she joined the project as she explained that she did not have to buy fruit and vegetables any more. To make the project work better, Elizabeth recommended the following:

- Having more members
- Securing sponsorships

4.3.5 Rachel

Rachel like the other four members also shared the same problem of being unable to send her children to school with the money that she earned from the project. Rachel pointed out that the meals that her family depended on were not paid for with the money from the project but with the proceeds from her small business of selling sweets and chips from home. Rachel, like all the others, was unable to pay for clinic fees. She was, however, grateful for being part of the project as she said that her life was much better now compared to what it was before she joined the project. She qualified her point by saying that she could now provide for her family with the produce she received from the project. Rachel had the following recommendations for improving the project:

- Having a better place to sell their produce
- Securing sponsorship
- Receiving more training
- Having more members

4.4 Observations from original discussions

It was observed from the Vukuzenzele members' responses to the questionnaire that only one of them added that although they were unable to pay to go to the health clinic, they were still able to receive free treatment. The other members' omission of the free health treatment could perhaps be because they were responsible for medication or was simply an expression of the hardship of their lives. Level of education was observed to play a major role in the involvement of people in a project of this nature. Four of the women had

received little education and only one had been educated to the level of the first year of secondary school. Lack of education also played a major role in terms of how they thought about the project and how they articulated their problems. Education did not seem to matter much in terms of how much they were earning from the project as Maria and Rachel were earning the same amount regardless of the vast difference in their education levels. Experience seemed to matter more than education as they all gave similar recommendations for improving their project.

The responses from the discussion with the project members showed that the major benefit in this project was that the members regularly shared the vegetables and fruit for their daily usage. It was also noted that the project had more value for them as a form of diet supplementation than as a commercial venture. This position, however, does not conform to the idea of the original set-up of the project in which project members had individual plots for production for home consumption (see Annexure 3).

The issues of improving marketing skills and encouraging more members to join were also raised by most of the members. It is, however, interesting to note that the issues were brought up as something that needed to be done by outside assistance not by themselves. The members appeared to know what was missing but also appeared to be saying that they lacked the necessary training and knowledge to progress. The issue of markets and marketing was viewed by the researcher as one among other variables that stood in the way of progress at the Vukuzenzele project and is thus discussed in more detail in section 4.10.

4.5 Project's impact on food security

Kirsten, Townsend and Gibson (1998 in 2009: 18) confirm that improved agricultural productivity in less-developed areas of South Africa improves household and child nutritional status. This is indeed possible for the people of Vukuzenzele. At the present moment the problem is that production is low and thus the project members are unable to satisfy their nutritional needs. If they were producing more and also selling more, it

would give them an opportunity to buy other foodstuff that would supplement their diets. As it is, the project is not managing to produce enough for reasonably high volumes of sales to be made. The small market stalls and vegetable and fruit *spaza* shops in the area also revealed that vegetables, fruit and chickens were being sold in the same street as the Vukuzenzele project. The vendors were buying fresh produce from the Pretoria Marabastad market.

Note, however, that three of the project members believed that their lives were much better than they were before they joined the project as they now obtained free vegetables and fruit from the project. Food security for the Vukuzenzele project members cannot be said to be adequately achieved as the highest number of meals the members have in a day is two. Spinach and cabbage, the main vegetables they plant, can be planted all year round but are not by themselves enough to constitute a balanced diet. For the team members and their families to have a balanced diet or enough food to avoid risks relating to food inadequacy, they still need to obtain food supplies from other sources. Fruit trees are important to have but the fruit is seasonal and so are the benefits. Besides, the peaches from their trees are diseased and, without treatment, they may not be a source of food for long.

There was no indication that the Vukuzenzele team could store their produce when it was harvested in order to sell at a later stage. It is clear that whatever they harvested for selling was not kept if it was not sold. From what was observed from the Vukuzenzele project, production which can mean a difference between food security and insecurity was low and the 2008 October pictures of the project site show that production was not a year round activity. Kracht (1999a in Lemke 2001: 1) describes food security not just as absence of hunger but as absence of risk relating to adequate food consumption. The study carried out by Lipton et al (2003: 8) reveals that production in irrigated areas is higher than that in rain-fed areas. The Vukuzenzele project is involved in vegetable gardening and the vegetables planted there are not varied. From what the members say about the project being their source of fresh vegetables, one can deduce that the project is

no longer being viewed by the members as a commercial venture but rather as a form of subsistence farming.

4.6 Impact on employment

In the literature review it was noted that availability of water all year round in commercial farms makes it possible for waged employment to be utilised. This means that when one crop is harvested, a new one is planted without waiting for the rainy season. Commercial farms are usually large and are run on a scale bigger than those of communal or small-scale farmers (as the name aptly implies). For that reason, the impact of water availability on small-scale "farms" is not always comparable to that of commercial farms. The Vukuzenzele project is run on a 2ha piece of land and is divided into five sections with each member responsible for a section. Each member decides how she will plant crops in her plot. Employment of helpers will thus depend on an individual member's ability to pay for work done. The members say that if they employ someone (which is not often), for half a day, from 8:00am to 12:00 midday, they pay R20 and for a full day, 8:00am to 16:00pm, they pay R40. The willingness of the community members to undertake this work for meagre wages shows the level of poverty prevailing in the area.

The rates used to pay casual workers do not seem to encourage more or new people to come looking for work especially if one were to consider the cost of living today. Contrary to what Atkinson (2007: 7) says that "part time and small-scale agriculture offers unemployed farm workers an opportunity to make a living", with an unsliced loaf of bread selling for R5.49 on average, 2.5kg sugar for R18 in some shops, meat for an average of R45/kg and a litre of milk at an average of R8, earning R20 for half a day or R40 a day is not enough to make a living. This type of employment perpetuates income poverty leading to absolute poverty and according to the United Nations Development Programme (UNDP) (2003: 42) is an indicator that measures "the proportion of a population surviving on less than a specific amount of income per day". With the

members also complaining about their once-a-year payment arrangement, it must be difficult to afford hired help even if it means having more work done.

Atkinson (2007: 10), however, sees this part-time employment as a means of providing useful experience in a South Africa where there is growth in joblessness and having had a job places one at an advantage over many people who have never had a job and "have no prospects of ever securing one". But then again, such opportunities are rarely found at the Vukuzenzele project. The project used to employ a security person to guard the place at a rate of R800.00 per month but was unable to continue as they could no longer afford his salary. They had to substitute a guard with a dog .Guarding the facility is important as it is situated next to a busy road and also at the end of the location. Rosengrant and Ringler (1999: 10) point out that irrigated agriculture brings about secondary economic activities, which is when vendors, for instance, buy vegetables to sell. In the case of Vukuzenzele, this happened in the early years of the project as documented by the Department of Agriculture report about hawkers who came from Ekangala, a place 30km away from Refilwe (Annexure 3). These days such secondary employment is not happening for the local vendors are buying from the Marabastad market in Pretoria.

4.7 Socio-economic impacts

In the focus group discussion with the members of the Vukuzenzele project, the project's organisational framework especially with regard to how they earned their living emerged. As indicated in figure 5, the number of members had declined and according to one of the remaining members the main reason for most former members leaving was the inadequate remuneration. She explained further that when people joined the project they expected to earn on a monthly basis but that could not happen. Another member explained that mostly men had left because "as men, they were expected to take care of the family on a day-to-day basis" and working in the Vukuzenzele garden had little prospect of generating a suitable income. The socio-economic impact of a project or programme can also be measured by people's health-seeking behaviour and increased knowledge of nutrition. In this regard, the project members contributed to the uplifting of

some members of their community such as children in crèches and disabled groups to whom they donated part of their produce. The project members said they were still donating vegetables whenever possible.

There was also one social benefit the project had brought and continued to bring to the members. The members constituted a social group able to engage at a personal level and share ideas. They were also likely to attempt to solve one another's problems as a group considering they had known one another since 1997.

4.8 Other variables that might be affecting progress at Vukuzenzele

It has been noted in the above discussion that water availability is not a problem and thus the lack of progress in the project must be attributed to other factors. Apparent to the project members are problems of

- availability of adequate labour
- market availability
- access to equipment such as a tractor
- lack of transport to reach a wider market
- lack of continual training.

There are, however, other problems that contribute to the overall performance of the project. These are discussed below.

4.8.1 Project ownership

Project ownership relates to taking total control of everything that is happening within the project, both the positive and the negative (Olsson, Johansen, Langlo & Torp 2008: 40). It also involves being in control of all decisions that are made with regard to the project and not having someone who makes the decisions on one's behalf. The Vukuzenzele project members were the ones who went to their councillor and asked for the

Department of Agriculture's help in establishing a project. But they did not design the proposal through which crucial decisions were made, decisions such as the manner in which the grant money would be allocated and what would happen when the grant came to an end. From the onset, beneficiaries did not gain the experience of being in charge of income and expenditure flows and deciding how available money would be used. All the important plans were left in the hands of others, thus leaving the beneficiaries without a clear plan as to the future of the project. As a result, project members were not in a position to think of and implement possible solutions in order to reverse what was happening to their project. Their participation was minimal and pertained only to the physical labour required in the garden. The extension officer also considered that project members should have been the ones to make decisions relating to the project but decisions were always made for them which to him "compromised the sense of ownership". The Asian Development Bank (ADB) (2009: 1) states:

> People develop a sense of ownership, pride, and commitment to an activity when they work together to assess their resources and problems; reflect on possible solutions; select criteria for evaluating various options; choose the best course of action; and then formulate and act on plans for initiating, managing, monitoring, and evaluating a … project ...

4.8.2 Market availability

The Vukuzenzele project members said that they did not have a market large enough for their produce. It was observed first that most homes had little vegetable beds in their gardens which meant that the home owners often did not need to buy from the Vukuzenzele garden.

Table 2 in chapter 3 shows that quite a sizable number of the community in this municipal area had access to water in their homes and this provided an opportunity for them to use the water for small gardens and hence supplement their dietary needs. This meant that they could spend the money on other needs but at the same time it

disadvantaged the Vukuzenzele project as possible customers were already self-sufficient and thus would rarely buy from them. The need for the members to seek other markets further away from the project locality was evident. In a research done in Limpopo Province to identify problems facing smallholder South African farmers, the problem of marketing produce was identified among others (Shao, Konovalchuk, Clark & Bruening 2004: 592-594). Vukuzenzele members also explained that lack of transport was a major problem for them. Their garden was located in a less accessible area of the township. The project members had no money to employ someone to market the produce for them. They waited for buyers to come to the garden and there were not many of these. On average they had as few as four buyers a day depending on the type of produce available.

The marketing problem was not unique to the Vukuzenzele project only as Murphy (2006: 5) points out: "the vast majority of farmers lack the … capital needed to get their goods to distant markets, so they are left selling locally, to middle-men (and women) who now have more suppliers to choose from". This meant that sales figures of approximately R1000 in one month were what could be achieved only when vendors bought in bulk. On the other hand, commercial farmers often had the means to sell their produce anywhere as they simply employed someone to sell for them. Others sold their produce from the back of their *bakkies* at the sides of busy roads in Refilwe thereby reaching markets that could not be accessed by those without transport.

Second, there were several little roadside vegetable retail stalls where a variety of vegetables and fruit were also sold. When these vegetable vendors were asked where they acquired their vegetables, they said from the Marabastad fresh produce market in Pretoria. The Marabastad market obtained its supplies from commercial farmers who were involved in large-scale irrigation farming. The production of crops at the commercial farms was all-year round which was more productive than the Vukuzenzele programme. When the side-road vendors were already selling cabbages, the Vukuzenzele garden cabbages were still several months from maturity. In this case, the market problem was not only due to absence of buyers (buyers were there but were buying from others) but also to poor training or lack of information on cropping patterns. The quality

of the produce played a role in the reasons why vendors and potential customers chose to buy from Marabastad rather than from the project garden (see photographs 22 & 23 below which compare vegetables from a vendor's market stall with those at the Vukuzenzele garden).

The Vukuzenzele members also voiced the concern that they were facing stiff competition from commercial farmers who sold their produce cheaply (which they were able to do as they produced more cheaply). For instance, they said commercial farmers could sell half a cabbage at R3 and they would not be able to compete with that price. The photograph above (photograph 21) shows most of the products being sold at R5 a pack which could only be done by those who obtained the products more cheaply. As Kirsten and Vink (2003: 1) note, the 60 000 South African commercial farmers who occupy 87% of the agricultural land in the country produce "more than 95% of the marketed output". Kirsten and Vink's (2003) observations are not about quality or quantity but about whose output is marketed, a problem that has already been identified in the literature review in chapter 2, section 2.2.3.1. Marketability of the Vukuzenzele produce to the local market was found to be problematic as some vegetable vendors were not willing to discuss the project as one of the places from which they could purchase their market produce. The project members felt that their prices were reasonably low and that they were within walking distance of the vendors' stalls.

Photograph: 20 a cabbage in the Vukuzenzele garden

Photograph: 21 Vegetables sold by a roadside vendor

The Department of Agriculture writes in a 2000 report (Annexure 3) that the Vukuzenzele group used to target pension days as a marketing strategy. Hawkers from a place called Ekangala which is 30km away from the project also used to come to them. The researcher noticed during her four visits to the project garden that there was not much produce for hawkers to buy in bulk. As an example, in one visit the spinach was affected by the rains and as a result the leaves were not as healthy as they should have been. The only vegetable that seemed to have potential was the tomatoes. The tomatoes were still small and green and could conceivably be taken to a market and be successfully sold when tomatoes were mostly out of season. It, however, has to be noted that the space reserved for tomatoes was not large enough to allow for bulk supplies (see photograph 22 below).

Photograph: 22 Tomato bed at Vukuzenzele

4.8.3 Skills shortage

The Tshwane University of Technology's Crop Science Department trained the Vukuzenzele members in basic farming in 2003. Most of the project members also stated

that they had previously worked on farms and thus had some knowledge of a farming environment. New skills were required in order for them to be able to deal with the many issues that impeded their success. The skills include knowledge of how to manage the diseases that affected their vegetables and fruit. Most of the fruit and vegetables were not of good quality and without the necessary expertise to improve the quality, their local market would continue to buy from other vendors and the vendors would continue to buy from Marabastad. With the necessary skills, members would perform basic tasks such as the weeding of grass to prevent crops losing nutrients, more effectively. Photographs 14, 22 and 24 of the cabbages, spinach and tomatoes show all these crops competing with grass for water and nutrients. Weeding seemed to be neglected on the project when it was most needed.

In the questionnaire, the Vukuzenzele members were also asked where they obtained their farming information. From the list of answers they could choose from which included extension officers, friends, radio/television, themselves, or no one, they all said they got information from the extension officer. Considering that they had sufficient land and that their water supply was reliable but they still faced a lot of problems, getting information from a single source was inadequate. Besides, the extension officer wrote in the questionnaire that exited projects were only visited on request from the project members. Visits to Department of Agriculture projects by their personnel were scheduled as explained below:

> New projects may be visited weekly or daily depending on the number of activities taking place at a particular time. During planting season projects are visited an average of three times a day and during trough period, projects may be visited once in two weeks or on request. Exited projects are visited once a month for the first year and on request thereafter (extension officer).

Judging from what was observed at the project site, the researcher noted that more information was needed on the choice of crops to plant, when and how to make use of the land adequately as in two planting seasons no serious activities were noted at the project.

According to Mfolo (2010), Vukuzenzele members needed training on what is called a vegetable calendar which provides information on the specific crops to plant in specific months for specific regions.

4.9 Impact of water provision on the lives of the Vukuzenzele people

The photographs in the Vukuzenzele album reveal that in the early years the project was successful. The members attributed that success to the fertility of the soil in its early years (the large number of members did not appear significant to them yet four of them recommended more people in order to improve the project). It was also in those early years that the project won the Woman Farmer of The Year Award. The then De Beers Premier Mine (Partnership Central 2002) also wrote a report on the project acknowledging its success. Details about the presence of canning facilities contained in this document were, however, not consistent with what was happening on the ground. In his responses to the questionnaire (Annexure 5, question 5.4), the extension officer mentioned that the Vukuzenzele project was "one of the few projects that fared well" as it "was able to start a social responsibility programme and extended the project to erect poultry structure from own profit". It is worth noting that in those early years, the lives of the project members must have gained from the project. The membership was large and government funds were still available in the first three years for any repairs that might have been necessary which meant project members did not have to budget for them as they did now. Institutions such as De Beers Mine were still closely linked to them and were supplying them with seedlings which they are said to have stopped doing.

4.10 Preliminary conclusion

The discussions, interviews, observations and questionnaire responses for this study reveal that it is necessary to have state or free water provision in order to alleviate poverty and achieve a certain level of rural development. The study area in this research

does not receive extraordinary amounts of water and rainfall patterns are normal but it is clear that access to water for productive purposes can indeed make a difference to the lives of community members especially women, as evidenced from this study.

The study, however, discovered that the positive impact of having state-provided water can only be possible when other variables are also successfully addressed. It was found that, in spite of being involved in an income-generating project that relied on availability of free water, the beneficiaries could not feed themselves adequately; they could not send their children to school consistently, and they could not afford to visit specialist doctors when ill. The project had not achieved any significant changes in the beneficiaries' lives, in spite of their having water so that they did not need to waste time and energy carrying buckets for irrigation purposes. Having said this, it is also equally important to point out that, despite having nothing to show for the many years of being a member of the water project, the beneficiaries had lost nothing in being part of the project. They received enough vegetables from the garden for all members and their families. Some of them, however, did say that they were still part of the project because they did not have a choice. One is inclined to think that the project provided them with a place of solace, a place for them to do something for themselves rather than live on handouts.

In the next and final chapter, the focus is on evaluating water projects as a method of alleviating poverty as well as investigating the objective of both the beneficiaries and the institutions which helped set up the project. An analysis of why they failed to achieve the objectives follows. Impact analyses look at cause and effect and in this case, the effect of providing water in order to alleviate poverty in the Vukuzenzele project proved to have some shortcomings. Final conclusions and recommendations are discussed in the next chapter.

Chapter 5: Recommendations and conclusions

5.1 Introduction

This study investigated the impact of state water provision on rural development and made evaluations using a case study research. In this section of the study, conclusions are drawn and recommendations made. The chapter is divided into two sections, one section for conclusions and another for recommendations. The research objectives form the basis for this chapter's conclusions. First, a summary of the study is given through a review of the chapters.

5.2 Chapter review

Chapter 1 introduces the research topic and the purpose of the study as articulated in the research problem. The research objectives are outlined with the main objective being to investigate if access to a resource such as water would bring about rural development. Four other sub-objectives are recaptured below and these are used later to form the basis of this chapter's conclusion to the study.

Research sub-objectives

- Determine the extent to which beneficiaries' standard of living can be uplifted through water accessibility

- Evaluate the suitability of state water provision as a means of developing a community

- Establish the level of participation of beneficiaries
- Discover whether there are constraints to water provision as a strategy for rural development
- Identify constraints that hinder state water provision from enhancing development

Chapter 2 provides a literature review on the subject of water from a general point of view, the main focus being that of water provision in South Africa. The chapter takes as its starting point a discussion of key words such as "development" and "poverty". The link poverty and development have with water provision is further expatiated in the discussion on the known impact of water availability. It is found that South Africa has little and spatially distributed rainfall regimes where water conveyance and storage for the purposes of irrigation are necessary. A rounded view of the water situation in South Africa is addressed through a review of the South African water legislation and policies. The South Africa New Water Act of 1998 advocates water for all rather than all water for some. The chapter concludes that water provision to a certain extent has a positive impact on rural development.

Chapter 3 describes the method used to investigate whether the findings made in chapter 2 are similar to those of the case under study. A description is provided of the qualitative method of study and its advantages and disadvantages. A case study investigates the impact of water provision on a food security project in Cullinan called the Vukuzenzele Project. The chapter not only discusses the methods that were used and why, but also investigates other methods that could have been used in a research of this nature and discusses reasons for those methods not having been chosen. This was done in order for the findings to be valid considering that other possible methods would not have worked in this instance. Issues of ethics are also discussed as case study research can involve one-on-one contact with research subjects and the research must be sensitive to their privacy and other needs. A more detailed background of the study area is also given in this chapter.

In Chapter 4 the findings are discussed and analysed thematically in order to create a link with earlier findings from chapter 2 so that a comparison can be drawn between the two. Issues that arose from the interviews, the questionnaires, observations and focus group discussions are all put together and analysed. This chapter concludes with the researcher's final analysis of the case study and how it addresses the research questions.

5.3 Conclusions

Through the use of a literature review and a case study, conclusions are drawn which reveal the role that water provision plays in projects earmarked for the development of communities. The following discussion considers each of the study's sub-objectives and conclusions.

5.3.1 How water provision has uplifted lives

Various scholars have discussed the potential for growth when linked to irrigated agriculture which in this study is how water provision manifests itself in the case study. The views on the potential vary with some saying that "…communities that have improved access to water … achieve local economic growth" (DWAF 2007: 5).

Thomas Jefferson is quoted by Kirsten (2009: 16) as having said that agriculture is a nation's wisest pursuit. These scholars, among many others, are of the opinion that there is indeed potential for economic growth when there is access to water. The case study of the Vukuzenzele project, however, proves that not always to be the case. The study found that there is potential for economic growth if agricultural activities are done well, that is, using competitive skills. It was realized that water availability was not a problem for the Vukuzenzele project but marketing skills and the quality of the produce were. As a result, economic growth through agriculture was being attained by those who were in the field at a secondary level as they were not farmers themselves but had access to farm produce. In the case study area vendors who had roadside vegetable stalls sold their produce in many different locations some of them quite far from the case study location. In spite of what some of the project members said about being able to earn a fair amount a month from selling the produce, the overall view was that the project members were gaining very little in monetary terms; this led to a conclusion that the extent of the economic growth as a result of access to water was minimal. This concurs with what other scholars have also found. DWAF (1986 in Van Koppen 2007: 82) sees irrigation as an important first step in the uplifting of undeveloped communities but is not necessarily the most effective means

of achieving socio-economic objectives. It must, however, be noted that DWAF is not contradicting itself as in an earlier quote it sees access to water as one way of achieving local economic growth. The potential for using water for development is there as documented in the literature review but owing to other variables discussed in chapter 4 of this study, it was observed that this is not the case with the Vukuzenzele project.

5.3.2 Suitability of state water provision for community development

In the study of the determinants of rural poverty in chapter 2 of this study it was found that lack of access to resources such as water has a major implication on the level of poverty of a people. In South Africa during the apartheid era, most black South Africans were "…denied either direct access to water for productive use or access to the benefits from the use of the nation's water" (DWAF 1997: 2). The new South African government as shown in the New Water Act (NWA) of 1998 has rolled out a new policy on water which includes a free water policy targeted for the poor. The 6000 litres of water provided to all households is an example of state water provision. State water provided for the Vukuzenzele members is ground water pumped from a borehole and the suitability of such state water provision should not be considered when evaluating the failure or success of the project. This is because the study found that the water was not being misused. The project members were also once at the forefront of small-scale farming won a certificate for best female farmer of the year and that in itself shows that the function of water in community development can be achieved. As DWAF (2005: i) points out, water is central to all economic activity and it is necessary to give previously disadvantaged individuals a chance to become self-reliant especially when previous records on the project in this case show that they indeed had potential for growth through state water provision. It should also be noted that the amount of water used at the Vukuzenzele project judging from the irrigation system in place cannot exceed 200 litres a day and potential for development is there if the identified problems such as poor quality of produce and low level production are addressed.

5.3.3 An assessment of participation levels of water provision beneficiaries

The need to establish beneficiaries' participation arose from the idea that participation brings with it learning and ownership both of which are essential for the successful development of a community. Angeon & Lardon (2008: 264) describe participation as a process that seeks political agreement and representation of all involved. Orzoco & Welle (2005: 8) define ownership as the ability to provide people with a sense of control of their personal and social lives. In this study, ownership is viewed as key to the success of a community-based project such as Vukuzenzele. What was concluded from the study was that the level of participation of the project members did not allow them to take ownership of the project. Project members were first given a piece of land that they did not choose; there was no participation in the choice of location, and the land was bought and given to them. Financial support was provided for fencing the land, drilling a borehole, connecting electricity and installing irrigation facilities. There was no participation in terms of decision-making on their part and as Orzoco and Welle (2005: 3) point out, ownership enhances community development. The level at which the members are running the project demonstrates high levels of lack of ownership. It was also pointed out that the members did not choose which crops to plant and all decisions were made for them by personnel from the Department of Agriculture who now occasionally visit the project. The World Bank as noted by Briscoe & Ferranti (1988: 1) has a principle that states:

> It is the local people themselves not those trying to help them who have the most important role. The community itself must be the primary decision maker, the primary investor, the primary maintainer, the primary organiser, and the primary overseer

5.3.4 Possible constraints to water provision as a strategy for rural development

This objective was mainly investigated through the literature review which described the history of water provision in South Africa. It was concluded that there are still hiccups as far as water provision is concerned. Prior to a democratic South Africa, the Riparian water act was in use. White commercial farms had the right of access to water passing through their farms. Other communities who had no land of their own could not secure any rights to water access. The New Water Act of 1998 has provided for equitable water provision for all. However, Ralo, Grinker, Kruger, Steele and Weitz (2000: iii) note that other studies on the impact of rural water schemes show a serious crisis in delivery and a general failure to meet planned targets. In line with this thought, it has also been noted that delivery of water has been easy to implement in resourced areas as compared to non-resourced areas (Balfour, Wilson, De Jager, Still & Louw 2005: 15-16). However, water provision in the way it was done for the Vukuzenzele project can be constrained if ground water is not within close proximity of the project site. For other projects similar to the Vukuzenzele project, prospects of a project have had to be abandoned as boreholes could not be drilled at the project site.

5.3.5 Constraints affecting state water provision as a key for development

The literature on the impact of water on growth and development points to the fact that there is potential for growth if there is improved access to water. In the case study of the Vukuzenzele project it was observed that even if water is readily available, some obstacles may stand in the way and hinder progress. It was discovered that the land on which the project was run was proving to be too large for the project members without additional manpower. The project members were working on small pieces of land and leaving the rest of the irrigation land infested with weeds and overgrowth. In spite of the availability of water, the site looks abandoned to a first-time visitor to the project because the members are not managing to make use of all the land.

It was also noted that the lack of progress on the project was due to lack of skill in crop rotation or treating plant diseases in order to ensure healthy produce. Problems that resulted were the lack of a market as the produce was not market-ready and customers, therefore, opted to buy from street vendors rather than from the project garden. The street vendors also preferred to buy their stock from the Pretoria market as the local project garden could either not supply their needs or the crops were diseased. This hindered a successful water service from achieving the goal of enhancing the lives of the community.

It was also identified that the project members' lack of knowledge of market dynamics prevented them from enhancing their lives through the project. The project members explained in the earlier years of the project, there were people who came from other settlements as far as 30km away to buy vegetables from the Vukuzenzele garden for resale. Because of the small number of people now remaining in the project and their lack of farming skills, they are unable to maintain a client base especially as they are competing with commercial farmers whose produce is always available and of higher quality.

The issues of ownership and participation mentioned above have also been identified as constraining factors. For project members to be able to find solutions to the project's problems they need to identify themselves as the owners of the project and its problems. Without that sense of ownership, project members may think or work with an impression that someone from outside has to come and help make decisions on what has to be done. It was, however, noted that the members are not at fault for not taking full ownership of the project as they continue to rely on personnel from the Department of Agriculture and other institutes who have so far been assisting them to make decisions.

The lack of progress at the Vukuzenzele project was also attributed to the lack of mechanised equipment. The members have an irrigation system that is sustainable and it has been in use since the inception of the project in 1998. Weeding and tilling of the land, still has to be done manually by project members; this is labour intensive and is not likely to produce remarkable results.

In light of the above discussion, the study succeeded in addressing the objectives as set for this research. The overall objective of the study – does access to water translate into development? – is discussed later in this chapter.

5.4 Recommendations

The Vukuzenzele project is not a unique project. It is one of many of the Department of Agriculture's household Food Security Projects, a programme meant to help the poor help themselves (Annexure 3). The project is also viewed by one extension officer as one of their success stories. Recommendations that follow arise from the realisation that there is indeed potential for the Vukuzenzele project to be rejuvenated. Similar projects suffering the same fate can also benefit from these ideas and regain their potential.

5.4.1 Capacity building

The study of the Vukuzenzele project brought to the fore the fact that there was need for project members to be assisted in a way that brings their capabilities to the fore. There is need for skills training and redirecting individual efforts in a way that will assist members able to work effectively on their project. Scholars have described such efforts as capacity building. Capacity building has been defined in general and specific contexts and the most fitting definition for this study is one given by Brown, LaFord & Macintyre (2001: 5) in which they describe it as a "process or activity that improves the ability of a person or entity to 'carry out stated objectives'".

The UNDP (1997 in Gervais 2004: 2) has also defined capacity as "the ability … to perform functions effectively, efficiently and sustainably".

There are different levels at which to pursue capacity building for the Vukuzenzele project. There is a need first to train a managerial team in how to organise the team so that they work progressively together for the success of the project. The managerial committee must be able to manage funds, source information on how best to work on the project and encourage other members to do their best for the project.

As part of capacity building it is suggested that all members of the project receive training in relevant skills that are needed for the type of farming that is possible in this project. It was mentioned by one person from the Tshwane University of Technology that members needed training in soil type and crop rotation. Irrigation scheduling is also a major study area in itself training is required. If members receive training in these areas, the quality and quantity of produce is likely to improve, plant disease control will be possible and the project will win more customers.

Capacity building could help the project team in coordinating their activities in such a way that they work as one team rather than as individuals as they are currently doing. Working collectively will assist in that all members will try to perform at their level best as compared to the relaxed performance of individual work. As it stands, the team members at Vukuzenzele do not have a person who acts as the leader and decides on the way forward. It is thus the researcher's view that with capacity building, Vukuzenzele members will be able to perform in their garden in an efficient, effective and sustainable way.

5.4.2 Improved mentorship by extension officers

The key responsibilities of an extension officer include among other things community project establishment, provision of technical support to projects and training support for beneficiaries (Questionnaire 1, Annexure 5). Gaaya (2010: 33) gives the definition of agricultural extension as expounded by FAO as "a service or system which assists farm people, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living and lifting the social and educational standards of rural life".

The above definition shows that extension officers do have the capability for mentoring farmers and steering them in the right direction. The discussion with the Vukuzenzele members' focus group as well as the questionnaires completed by the project members

and the extension officer, reinforced the facts that despite the benefits of an extension officer, project members were not managing to improve their farming methods and techniques, production was deteriorating and members' living conditions had not improved. Vukuzenzele members indicated that the extension officers were their only source of agricultural information. Considering what the extension officer said about the number of visits made to projects, it is evident that more needs to be done with regard to frequency of visits and type of information agricultural project members receive in order for them to achieve better results in the agricultural project. The visits made by the researcher to the Vukuzenzele garden at various times of the year revealed that project members lacked information about how best to do their work yet extension officers were only 45km away. A telephone interview with one extension officer who chose to remain anonymous indicated that these officers were also facing their own challenges in delivering their services. One such challenge was identified as the lack of transport. Nevertheless, it is recommended that extension officers be available to mentor and train up-and-coming farmers.

5.4.4 Sub-leasing of development land and water resources

As discussed in earlier chapters, the Vukuzenzele project is on a two hectare piece of land and has only five members remaining of the original thirty-seven. During one of the visits to the project site, the researcher noted that the members had cultivated only half of the land as they could not manage the whole garden. It is important to note that this was also done in the rainy season when regular irrigation was not required. Rather than leave the land unused, the researcher recommends that the present Vukuzenzele members sub-lease part of their land and fence it resulting in additional income from the monthly rent.

5.4.5 Improved marketing skills

Agricultural Marketing Resource Centre (AGMRC; 2007: 3) describes good marketing as not only about selling but also about

> a clear and astute understanding of what consumers want and the ability to deliver it to them through the most appropriate channels for a profit. It includes the planning, pricing, promotion and distribution of products and services for consumers, both present and potential.

The Vukuzenzele members are struggling to market their produce and as discussed earlier, the researcher sees the quality of their produce as a big hindrance to successful marketing. In addition, an absence of marketing skills in the team plays a role in limiting the extent of their clientele. It is, therefore, recommended that as part of future training (which has been offered by Cullinan Mine in association with Tshwane University of Technology), the Vukuzenzele members should be taken through proper training on how to market their produce especially taking into consideration the different aspects of good marketing as defined by AGMRC (2007).

5.4.6 Quality control standards

The quality of the fruit and vegetables produced by the Vukuzenzele project is generally below the standard that will appeal to most customers. The spinach, cabbage and fruit, for instance, were sub-standard and diseased. This produce quality problem which is discussed in-depth in the findings in chapter 4 is one of the reasons why the produce does not attract buyers. It is, therefore, recommended that as part of their skills training, Vukuzenzele members receive training in disease control in vegetable and fruit gardens. Apart from disease and pests, birds also affect the quality and volumes of produce. The researcher observed that the reasonably small irrigation area could be covered by a green house and the agricultural activities intensified. It would then be important for the project team to make it a priority to build a green house. The Cullinan Mines or other institutions could be approached for external support in funding the structures.

5.4.7 Acquiring and use of modern equipment in water-based development

Pinstrup-Andersen (2006: 1) points out that technology in agriculture offers tremendous opportunity for reducing poverty through increased productivity and reduced production risks. It is clear that with mechanisation in the land tillage processes, the whole piece of land could be under irrigation. As far as irrigation equipment is concerned, the project is currently adequately provided for. The big problem is with the lack of mechanised tools for tilling and weeding. The current practices involve manual labour. Acquisition of mechanised tools will reduce the time required to till and weed manually resulting in more time to nurture the crops, harvest, package, market and investigate new crops.

5.5 Future research suggestions

A study of how the efficiency of agricultural extension can be increased to improve efficiency in the use of water in water-scarce areas

The idea behind this study arose from the fact that those who go into the field and identify communities that need agricultural projects are the extension officers. If these extension officers are not well versed in their duties, scarce water will continue to be wasted when water projects are awarded and recipients are not adequately trained to best use the resource.

Exploring ways in which an enabling environment can be created for up-and-coming and female farmers in farmers' unions

The idea for this research arose from the fact that though farmers' unions are a possible forum for up-and-coming and female farmers, there is concern that the latter may not be able to express themselves well among other things and may not benefit as much as established farmers owing to an unlevelled playing field.

5.6 Final Conclusion

Conclusions drawn in this section are derived from answers to questions that are normally asked in an impact evaluation. In order for the research study to be able to provide a final statement about the evaluation of the Vukuzenzele project which also addresses the research problem, the questions below must be answered.

5.6.1 Were the intended objectives achieved?

In this section the objective referred to is the objective behind the setting up of a food security project by both the institutions that helped set up the project and the beneficiaries of the project. The project was implemented in order to help a group of men and women have a source of food and income. As a food security project, the Vukuzenzele project has managed to be a source of food for the members albeit not to a reasonably big extent. The project seems to be doing fairly well in meeting the vegetable needs of the team members but it is not managing to generate sustainable sales. As a food security project, the objective in this instance was partially achieved.

5.6.2 Can results be solely attributed to the project or other factors?

The project cannot be wholly credited for the project members' ability to have food on their tables. It should, however, be credited for giving some of the members an ability to engage in income-making schemes such as the selling of miscellaneous items as they obtained the money to start the side projects from the food security project. Again, it has to be noted that not all the members are involved in the selling of goods to supplement their income from the project. The achievement of the objective of setting up a food security project can, therefore, not be fully attributed to the project alone but to other efforts made by project members for food provision.

5.6.3 Are there unintended outcomes, positive or negative, as a result of the project?

The project has had mostly positive unintended outcomes. The Vukuzenzele project as indicated in the responses to Questionnaire 1, Annexure 5, is one of the Department of Agriculture's success stories as they have managed to add two poultry houses and at one point had chickens to sell. They have also added animal husbandry and fruit trees to their activities. As indicated also in chapter 4, the Vukuzenzele group won the title of Female Farmer of the Year award in 2000. The failure of the project to continue to produce well and maintain what top farmers do is seen in this study as an unintended outcome as with training, the Vukuzenzele project can succeed again. It should also be noted that sizable effort is required from project members to achieve their potential.

5.6.4 Can the project be seen as the most effective intervention method?

The experience from the case study shows that the answer to this question cannot be a straight yes. A project such as the one studied can help people, both men and women, who do not have the skills needed in formal employment. It gives such people an opportunity to use their inherent skills to achieve an income or to have food-secure households. It must, however, be noted that more needs to be done for a project of this nature to be sustainable, hence the recommendations. The study shows that it is not just a question of availability of water that can lead to the alleviation of poverty. Problems mentioned in chapter 4 have to be addressed for projects such as this one to be most effective. The literature review, however, sees great potential for growth where water for productive use is made available and instances are given of communities whose lives have improved through access to water.

5.6.5. Is the impact of the project the same across all beneficiaries?

The project has had an overall impact of being a source of food for all project members. However, not all members have used the opportunity to take this as a first step towards additional income-generating schemes. As a result, some project members are content while others are not.

5.7 Final words: Does access to water translate into development?

From what was found from the literature on the subject as well as from the field work, there is no clear positive or negative answer. The literature demonstrates that water brings with it opportunities for people to tap into. Instances are given which indicate that had water been available, the lives of the people would have been better. The case study, on the other hand, demonstrates that with water lives can indeed be changed but it would be more appropriate to apportion such resources after providing recipients with skills needed for effective water usage. Indeed water is just one step towards developing communities; the study revealed further inputs without which water usage would not produce the anticipated levels of development.

Bibliography

AGMRC. 2007. Lesson 3: Direct Marketing of Agriculture Produce. Agricultural Marketing Resource Center Value-added Agriculture Profile Iowa State University

[AO] www.agmrc.org/media/cms/VAALesson3_AF2708A5243A3.pdf

Downloaded on 23/03.2010.

Angeon, V, Lardon, S. 2008. Participation and governance in territorial development projects: the 'territory game' as a local project leadership system in International Journal of Sustainable Development, Vol 11, Nos. 2/3/4.

Asian Development Bank (ADB). 2009. Participatory Development. [AO] www.adb.org/Documents/Brochures/.../ParticipatoryDevelopment.pdf. Downloaded on 04/02/2010.

Asmal, K. 1994. Water supply and sanitation policy: white paper. Water – an indivisible national asset. DWAF.

Atkinson, D. 2007. People-centred environmental management and municipal commonage in the Nama Karoo, in *Development Southern Africa* (24)5 December. Routledge.

Aucamp, PJ. 2009. Environmental impact assessment: a practical guide for the discerning practitioner. Hatfield, Pretoria: Van Shaik Publishers.

AusAid. 2000. *Promoting practical sustainability*. Ausaid. Commonwealth of Australia.

AWARD. 2004. Securing water to enhance local livelihoods (swell): guidelines for implementing water and livelihoods planning process. AWARD/NRI. [AO] www.nri.org/whirl/ . Downloaded on 09/10/09.

Baker, JL. 2000. Directions in development: evaluating the impact of development projects on poverty. A handbook for practitioners. Washington, D.C: The World Bank.

Bakker, K , Hemson. D. 2000. Privatising water: BoTT and Hydropolitics in the new South Africa in *South African Geographical Journal* 82(1)3-12.

Balfour AF, Wilson I, De Jager J, Still DA , Louw S. 2005. Development of models to facilitate the provision of free basic water in rural areas. WRC Report No. 1379/1/05. Water Research Commission, Gezina.

Bernard, HR. 2000. Social research methods: qualitative and quantitative approaches. London. New Delhi: Sage Publications, Inc. Thousand Oaks.

Bernard, HR. 2002. Social research methods: qualitative and quantitative approaches. London. New Delhi: Sage Publications Inc. Thousand Oaks.

Bernard, WT. 2000. Participatory research as emancipator method: challenges and opportunities, in *Research training for social scientists: a handbook for postgraduate researchers*, edited by D. Burton. London. New Delhi: Sage Publications Inc. Thousand Oaks.

Bjornlund, H. 2005. Communal farming, poverty reduction and economic growth: conflicting objectives in water management? Proceedings from the XII World Water Congress, New Delhi, November. CD-ROM.

Blom, N. 2008. Is small-scale farming really the best way to uplift rural poor? *Business Day News*. www.agrisouthafrica.com/news/.../321-is-small-scale-farming-really-the-best-way-to-uplift-rural-poor-? Accessed on 17/11/2008.

Bowling, A. 2002. Research methods in health: investigating health and health services.

2nd edition. Buckingham; Philadelphia: Open University Press.

Bresciani, F, Valdès, A (eds). 2007. Beyond food production. The role of agriculture in poverty reduction. Cheltenham (United Kingdom): FAO/Edward Elgar Publishing.

BRIDGE. 2001. Briefing paper on the feminisation of poverty. University of Sussex. UK: Institute of Development Studies.

Briscoe, J, De Ferranti, D. 1988. *Water for Rural Communities: Helping*

People Help Themselves. Washington, D.C: World Bank.

Brown, L, LaFond, AK , Macintyre, K. 2001. Guidelines on capacity building in the regions. Module C: Supplementary information and references. SfDM Report 2005.

Brundtland G H, 2004. *Water as a Human Right?* Written by J Scanlon, A Cassar & N Nemes . Island Pr, 2005. p29.

Bryman, A. 2001. Social research methods. New York: Oxford University Press.

Bryson, JC.1981. Women and agriculture in sub-Saharan Africa: implications for development (an exploratory study), in *Journal of Development Studies,*17(3)29-46.

Burcu, A. 2000. A comparison of two data collection methods: Interviews and questionnaires. *Hacetteppe Universitesi Egitim Fakultesi Dergisi* 18:1-10. [AO] http://www.efdergi.hacettepe.edu.tr/200018BURCU Downloaded on 26/08/2009.

Cape Gateway. 2009. Grants and Pensions. [AO] www.capegateway.gov.za/eng/directories/services/11586/47472. Downloaded on 27/01/2010.

Carr, ECJ, Worth, A. 2001. The use of telephone interview for research, in *Nursing Times Research* 6(1)511-524. University of Edinburgh: Department of Nursing studies.

Carter, MR , May, J. 1999. Poverty, livelihoods and class in rural South Africa, in *World Development 27(1)1-20.*

Chandler, GJ. 2002. *Marketing tactics of selected micro small businesses in East London CBD area.* Thesis submitted for the degree of Master of Commerce: Business Management. Pretoria: University of South Africa.

Chant, S. 2003. Female household headship and the feminisation of poverty: facts, fictions and forward strategies, in *New working paper series.* (9), May.

Chant, S. 2007. Dangerous equations? How female headed households became the poorest of the poor: causes, consequences and cautions, in *Feminism in development: Contradictions, contestations and challenges* by A Cornwall, E Harrison, & A Whitehead. Zed: London, pp.35-47.

Chenje, M , Johnson, P (eds). 1996. Water in Southern Africa. SADC/ IUCN/SARDC. Maseru/Harare.

Cloete,TE , Pootinga, I. 2009. Water provision in rural areas and informal settlements and meeting the millennium development, in *Local economic development in small towns, housing delivery and impact on the environment*. ASSAF Forum Proceedings.

Coetzee, JK. 1989. Development is for people. Halfway House: Southern Book Publishers.

Cornwell, L. 2003. Gender and development: Only study guide for GENDEVY. Pretoria: University of South Africa.

Cornwell, L, Modiga, J, Mokgupi, W. 2006. Projects and programmes as instruments of development: functions and management: *Only study guide for DVA303Y*. Pretoria: University of South Africa.

Creswell, JW. 2008. Research design; qualitative, quantitative, and mixed method approaches. (2nd ed). Thousand Oaks, CA. Sage.

Crow, B, Sultana, F. 2002. Gender, Class and Access to Water: Three cases in a poor and crowded delta, in *Society and Natural Resources: An International Journal, 1521-0723,* 15(8)709-724.

Cusworth, JW , Franks, TR. (eds). 1993. *Managing projects in developing countries*. Harlow: Longman.

De Beer, FC , Cornwell, L. 2008. Introduction to development studies; *Only study guide for DVA101Q*. Unisa. Muckleneuk, Pretoria.

De Koker, C , De Waal, L, Vorster, J. 2006. *A profile of social security beneficiaries in SA* Stellenbosch University, Datadesk — Commissioned by Department of Social Development. www.welfare.gov.za/Documents/2006/prof1.pdf. Downloaded by Goldblatt, B on 26 October 2007.

Denzin, N. K. 1970. *The Research Act in Sociology.* Chicago: Aldine.

Dinokeng Project 2008. *Environmental management framework and environmental management plan for the Dinokeng project area*. Status quo report for public circulation October 2008. Bohlweki SSI. Gauteng Provincial Government.

Devers, KJ , Frankel, RM . 2000. Study design in qualitative research – 2: Sampling and data collection strategies, in *Education for Health* 13.pp 263-271.

DoA. 2000. Female farmer of the year competition 2000. [AO] www.nda.agric.za/docs/FemaleFarmer2000/ffbrochure.pdf Downloaded on 30/09/2009.

DWAF. 1986. Management of the Water Resources of the Republic of South Africa. Department of Water Affairs, Pretoria, South Africa.

DWAF. 1997. White paper on a national water policy for South Africa. [AO] www.dwaf.gov/za/Documents/Policies/nwpwp.pdf.

DWAF. 2002a. "Free basic water", Communication to the Ambassador of the European Union dated March 2002, Department of Water Affairs and Forestry (unpublished), Pretoria.

DWAF. 2002b. Some frequently asked questions and answers in *Q & A Brochure*. August 2002. Pretoria, South Africa: Department of Water Affairs and Forestry.

DWAF. 2005. Water for productive livelihoods in South Africa's national water strategy. Department of Water Affairs and Forestry. [AO] www.musgroup.net/page/473 Downloaded 19/02/09.

DWAF. 2007. Poverty alleviation and water for growth and development panel discussion, June 2007. Cape Town.

DWAF. 2008a. Water for growth and development in South Africa. Version 6. Unpublished.

DWAF. 2008b. Summer rainfall 2008. A good summer. Charts from October 2007-March 2008. Pretoria, South Africa: Department of Water Affairs.

http://www.dwaf.gov.za/Hydrology/Provincial%20Rain/Provincial%20Rainfall.htm Downloaded on 06/10/2009.

DWAF. 2009. Water for Growth and Development Framework National Consultation Summit, March 2009. Gallagher Estate, Midrand.

Ezemenari, K, Rudqvist, A, Subbarao, K. 1999. Impact evaluation: A note on concepts and methods (revised draft). PRMPO. The World Bank.

Fox, L, Liebenthal, R. 2006. *Attacking Africa's Poverty: Experience from the Ground*.Washington, DC: The World Bank.

Gaaya, A. 2010. Extension Education in Agricultural and Rural Development: Role of International Organizations ~ The FAO Experience. FAO, Institutions and Agrarian Reform Division, Rome (Italy). Cahiers Options Méditerranéennes, vol. 2, no. 4.

Gervais, S. 2004. Local capacity building in Title II food security projects: a framework. *USAID*: *Occasional Paper No*. *3*.

George, S. 1977. *How the other half dies: the reasons for world hunger*. London: Penguin

Goldblatt, B. 2009. Gender, rights and disability grants in South Africa, in *Development Southern Africa,* 26(3)369-382.

Greenberg, S. 2003. Power and politics in the shaping of rural development in post-apartheid South Africa in S Greenberg (ed) *Development update: complexities, lost opportunities and prospects; rural development in South Africa*. Vol 4. No. 1.

Hameso, S Y. 2001. Development concept and African views, in *Development, state and society: theories and practice in contemporary Africa*. USA: Authors Choice Press.

Hancock, B. 2002. *Qualitative data analysis*. UK: University of Nottingham.

Hemson, D, Kulindwa, K, Lein, H, Mascarenhas, A. 2008. *Poverty and water: explorations of the reciprocal relationship*. London & New York: Zed Books.

Hendricks, LB. 2008. Budget Vote 34 of 2008/09. Speech by Mrs LB Hendricks, Minister of Water Affairs and Forestry. National Assembly, Parliament, Cape Town,

Western Cape 23 May 2008
[AO]www.dwaf.gov.za/Communications/.../BudgetVote23May08.doc.

Hendricks, LB. 2009. Foreword in Water for growth and development framework: Version 7. Unpublished.

Hofstatter, S. 2008. A diminishing resource; a water project in Mpumalanga is unlikely to please all users, in *The Weekender*, Saturday-Sunday 18-19 October.

Hofstee, E 2006. Constructing a good dissertation: a practical guide to finishing a Masters, MBA or PHD on schedule. Sandton. South Africa: EPE.

Holland, J, Campbell, J (eds). 2005. Methods in development research: combining qualitative and quantitative approaches. London, ITDG Publishing.

Holloway, I, Wheeler, S. 1995. Ethical issues in qualitative nursing research, in *Nursing Ethics*, 2(3)223-232. Bournemouth,UK: Bournemouth University.

Hope, R.A. 2004. *Water policy and poverty reduction in a semi-arid catchment*. UK Comment, PhD thesis: University of Newcastle-upon-Tyne.

Hope, R A. 2006. Evaluating water policy scenarios against the priorities of the rural poor. *World Development*, 34(1)167-179.

IDP Review. 2007. Nokeng tsa Taemane IDP Review 2006/7. [AO] www.metsweding.com/.../FIVE%20Nokeng%20tsa%20Taemane%20Local%20Municipality%. Downloaded on 08/08/2008.

ILO. 1980. The challenge of rural poverty. Geneva, Switzerland. Information Systems. Bangladesh: University of Dhaka. [AO] http://ssrn.com/abstract=1287238 Downloaded on 03/03/2010.

IRIN. 2008. South Africa: land redistribution back on the front burner. Available on www.alertnet.org/thenews/newsdesk/IRN/d143d078c02a8be7306ad44dbdb4f45f.htm Accessed on 18/11/2008.

Isifingo Developments (Pty) Ltd. 2006/7. Nokeng tsa Taemane IDP review: community centred municipality providing quality services. Urban and Regional planning practitioners. [AO] www.metsweding.com/.

ISRDS. 2000. The integrated sustainable rural development strategy. [AO] www.info.gov.za/otherdocs/2000/isrds.pdf Downloaded on 09/08/2009.

Kahan, JP. 2001. Focus group as a tool for policy analysis. In Analyses of social issues and public policy. 2001, pp. 129 – 146.

Kaliba A.R.M, Norman D.W, Chang Y.M 2003. Willingness to pay to improve domestic water supply in rural areas of central Tanzania: implications for policy. www.uaex.edu/akaliba/Documents/p03~3.pdf.

Kamara, A, Sally, H. 2003. Water for food, livelihoods and nature: simulations for policy dialogue in South Africa, *Physics and Chemistry of the Earth* 28 (2003), pp. 1085–1094.

Kirsten, J. 2009. Role of agriculture in poverty alleviation. *In Local economic development in small towns, housing delivery and impact on the environment*. ASSSAF.

Kirsten, J, Townsend, R ,Gibson, C. 1998. Determination of agricultural production to household nutritional status in KwaZulu-Natal in *Role of agriculture in poverty alleviation* by J, Kirsten 2009, ASSAF. Pretoria, South Africa.

Kirsten, J, Vink, N. 2003.Agricultural policy changes in South Africa 1996–2002. Roles of Agricultural Project International Conference 20–22 October 2003, Rome, Italy.

Kitchenham, B, Pickard, L, Pfleeger, SL. 1995. Case studies for method and tool evaluation. IEEE Computer Society Press. Los Alamitos, CA, USA.

Kotzé, D , Cornwell, L. 2007. Gender and development. Only study guide for GENDEVY. Pretoria: University of South Africa.

Kracht, U. 1999a. "Hunger, Malnutrition and Poverty: Trends and Prospects Towards the 21st Century" in: Kracht, U. and M. Schulz (eds). 1999. *Food Security and Nutrition. The Global Challenge.* New York: St. Martin's. pp 55-74.

Kulindwa, K , Lein, H. 2008. Water and poverty: the inextricable link, in Poverty and water: explorations of the reciprocal relationship edited by D Hemson. London & New York: Zed Books.

Lahiff, E. 1997. *Land, Water and Local Governance in South Africa: A Case Study of the Mutale River Valley,* Rural Resources Rural Livelihoods Working Papers No. 7, Institute of Development Policy and Management, University of Manchester.

Laker, M.C. 2004. Development of a general strategy for optimizing the efficient use of primary water resources for effective alleviation of rural poverty. WRC Report No.

KV149/04. Water Research Commission, Pretoria.

Landcare Forum Magazine. 2006. MmaPhake Landcare Forum Moretele, Mpumalanga. Unpublished community magazine.

Lein, H. 2008. Water, agricultural development and rural poverty in Bangladesh in K, Kulindwa, D, Hemson, H, Lein & A Mascharenas (eds)'s *Poverty and Water: Explorations of the Reciprocal Relationship*. London & New York: Zed Books.

Lemke, S. 2001. Food and nutrition security in black South African households: creative ways of coping and survival. PhD at Technical University of Munich, Weihenstephan.

Liebeck, H, Pollard, E. (eds). 1997. The Oxford English minidictionary. (4th ed). Oxford, Clarendon Press.

Lipton, M. [unpublished]. Approaches to rural poverty alleviation in developing Asia: role of water resources. As given at a plenary address at the IWMI conference in Colombo. To be published by IWMI. [AO] www.iwmi_irrigation.pdf. Downloaded on 17/02/09.

Lipton, M, Litchfield, J, Blackman R, De Zoysa, D, Qureshy, L, Waddington, H. 2003. *Preliminary review of the impact of irrigation on poverty with special emphasis on Asia*. Land and water development division. Water Resources, Development and Management Service FAO of the United Nations, Rome.

Machethe, C L, Mollel, N M, Ayisi, K, Mashatola, M B, Anim, F D K , Vanasche, F (2004). *Smallholder Irrigation and Agricultural Development in the Olifants River Basin of Limpopo Province: Management Transfer, Productivity, Profitability and Food Security Issues.* Report to the Water Research Commission on the Project "Sustainable Local Management of Smallholder Irrigation in the Olifants River Basin of Limpopo Province". Water Research Commission, Pretoria.

Marais, H. 2001. *South Africa limits to change: the political economy of transition*. (2nd ed). Cape Town: University of Cape Town.

Marshall, C, Rossman, G. B. 1989. *Designing qualitative research.* Newbury Park, CA: Sage.

Mbanjwa, X. 2009. South Africa could soon run out of water, in the *Pretoria News*, 24 June 2009.

Mogane-Ramahotswa, SB. 1995. *A community-based approach to rural water supply and sanitation: three case studies*. Dissertation for Masters of Arts in Social Science. University of South Africa.

Moriarty, P, Butterworth, J. 2003. *The productive use of domestic water supplies: how water supplies can play a wider role in livelihood improvement and poverty reduction*. Thematic Overview Paper, IRC International Water & Sanitation Center.

Mouton, J. 1996. *Understanding social research*. Hatfield, Pretoria: J.L Van Schaik.

Mouton, J. 2001. *How to succeed in your masters or doctoral theses: a resource handbook*. Pretoria: Van Schaik.

Mtolo, J. 2008. *An overview of water for growth and development in South Africa*. International symposium on multiple-use water services. Addis Ababa, Ethiopia. 4-6 November 2008.

Mukherji, A. 2007. Water policy briefing; Issue 28. Pro-poor intervention strategies in irrigated agriculture: Lessons from the Asian experience. [AO]

www.iwmi.cgiar.org/Publications/Water_Policy_Briefs/PDF/wpb28.pdf Downloaded on 07/01/09.

Murphy, S. 2006. Concentrated market power and agricultural trade. *EcoFair trade dialogue discussion paper. No. 1. [AO]* www.**ecofair-trade**.org Downloaded on 04/03/10.

Narayan, D. 1999. Can anyone hear us? Voices from 47 countries. Washington, DC: The World Bank in Only study guide for GENDEV-Y, by Cornwell, L. 2003. Pretoria: University of South Africa.

Neuman, WL. 2006. Social research methods: qualitative and quantitative approaches. 6th edition. Boston; Pearson International.

Noor, KBM. 2008. Case study: a strategic research methodology. *American Journal of Applied Sciences* 5 (11)1602-1604. Science Publications.

Oates, C. 2000. The use of focus groups in social science research, in Research training for social scientists: a handbook for postgraduate researchers written by D Burton. London. New Delhi: Sage publications. Thousand Oaks.

Olsen, W. 2004. Triangulation in social research: qualitative and quantitative methods can really be mixed. Forthcoming as a chapter in Developments in Sociology, Holborn, M (ed), Ormskirk: Causeway Press.

Olsson, NOE, Johansen, A, Langlo, JA, Torp, O. 2008. Project ownership: implications on success measurement in measuring business excellence. 12(1).

Orozco, M, Welle, K. 2005. *Hometown Associations and Development: A Look at*

Ownership, Sustainability, Correspondence, and Replicability. Presentation prepared for the International Forum on Remittances.

Parker, L. 2004. Qualitative research, in Surviving your thesis edited by S Burton & P Steane. London: Routledge: 159-177.

Partnerships Central. 2002. Vukuzenzele. [AO] www.partnershipscentral.org/mainpages/country/sa/displayobject.phb?object_id=209&PHBSESSID Downloaded on 20/08/2008.

Pinstrup-Andersen, P. 2006. The Impact of Technological Change in Agriculture on Poverty and Armed Conflict. Charles Valentine Riley Memorial Lecture Series Inaugural Lecture. Cornell University Ithaca, NY 14853-6301 Texas A&M University March 2, 2006 College Station.

Pitchforth, E, Van Teijlingen, E. 2005. International public health research involving interpreters: a case study from Bangladesh, in BMC Public Health. [AO] http://www.biomedcentral.com/1471-2458/5/71. Downloaded on 17/09/2009.

Plummer-D'Amato, P. 2008. Focus group methodology Part 1: considerations for design. *International Journal of Therapy and Rehabilitation* 15(2)69-73 (Feb 2008). Mark Allen Publishing.

Postel, S. 1999. Pillar of sand: can the irrigation miracle last? New York. London: WW Norton & Company.

Ralo,T, Grinker, R, Kruger, V, Steele, L and Weitz, V. 2000. A study of current water policy in relation to rural people's experience of its implementation - case studies from the Eastern Cape. WRC Report No. 1066/1/00. Water Research Commission.

Rayner, E. 2008. What are the main ethical considerations in social research? What can researchers do to ensure that a research project is conducted ethically? [AO] www.essex.ac.uk/sociology/student.../2008SC242_Elizabeth**Rayner**.pdf Downloaded on 16/02/10.

Reid, E. 1995. Development as a moral concept: women's practices as development practices, in Heyzer, N (ed.), A commitment to the world's women: perspectives on development for Beijing and beyond New York: UNIFEM.

Robson, C. (2002). *Real world research* (2nd ed.) Massachusetts: Blackwell.

Rosengrant, MW, Ringler, C. 1999. Impact on food security and rural development of reallocating water from agriculture. International Food Policy Research Institute (IFPRI) Washington, DC, USA.

Rukuni, M. 1994. The evolution of agricultural policy, 1890-1990, in M. Rukuni and C. K. Eicher (eds), *Zimbabwe's Agricultural Revolution*. Harare: University of Zimbabwe Publications.

Samson, M, Lee, U, Ndlebe, A, Van Niekerk, I, Gandhi, V, Harigaya, T, Abrahams, C. 2004. *The social and economic impact of South Africa's social security system* Economic Policy Research Institute, University of Cape Town , Cape Town.

Scanlon, J Cassar, A , Nemes, N. 2004. Water as a human right? IUCN environmental policy and law paper No. 51. Gland, Switzerland and Cambridge, UK. IUCN.

Schreiner, B, Mohapi, N, Van Koppen, B. 2004. Washing away poverty: water, democracy and gendered poverty eradication in South Africa. Natural resources forum 28(3)171-178.

Schreiner, B, Van Koppen, B. 2001. Catchment management agencies for poverty eradication in South Africa. 2nd WARFSA/Waternet Symposium: Integrated Water Resources Management: Theory, Practice, Cases, Cape Town, 30-31October.

Sette, C. 2008. Impact evaluation-overview. The World Bank. [AO]. http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOV Downloaded on 20/06/2009.

Shao, X, Konovalchuk, V, Clark, B, Bruening, T. 2004. Identifying problems facing smallholder South African farmers through participatory rural appraisals: case studies

with smallholder farmers. AIAEE. Proceedings for the 20th annual conference. Dublin, Ireland.

Simmons, P. Women in development: a threat to development, in Majid Rahnema and Victoriam Bawtree (eds.), The Post-Development Reader, Halifax: Fernwood Publishing.

Smit, W. 2005. Forestry and poverty. 17th Commonwealth Conference, Colombo, Sri Lanka. DWAF, South Africa.

Soussan, S, Pollard, JC, De Mendiguren, P, Butterworth, J. 2002. Allocating water for home based productive activities in Bushbuckridge, South Africa. Water Research Commission.

South Africa. 1998. The National Water Act of 1998. Government of South Africa. Pretoria, South Africa: Government Printer.

Stats SA. 1999. Rural survey, 1997. Statistical release: P0360. Pretoria: StatsSA.

Still, D , Balfour, F. 2006. The use of key performance indicators in the benchmarking of rural water schemes: an aid to the development of meaningful local government capacity.WRC Report No. TT255/06. Water Research Commission.

Swanepoel, H. 1997. Rural development: towards a better quality of life for rural people in PDS Stewart & H Swanepoel's (compilers) Perspectives on development: development theory; urban and rural issues, reader for OAD201V/OAD205-3. Unisa, Pretoria.

Temple B, Young A. 2004. Qualitative research and translation dilemmas. *Qual Res.* 2004:161–78.

The Water Wheel. 2006. Natural wealth could lift Africa's poverty, in Getting to grapes with salinity. September/October Issue 2006. Water Research Commission. Gezina, Pretoria.

Timberlake, L. 1985. Africa in crisis: the causes, the cures of environmental bankruptcy. London. International Institute for Environment and Development.

Turton, A, Nicol, A, Allan, T, Earle, A, Meissner, R, Mendelson, S, Quaison, E. 2003. Policy options in water-stressed states: emerging lessons from the Middle East & Southern Africa. African Water Issues Research Unit (AWIRU) & Overseas Development Institute (ODI). South Africa & United Kingdom.

UNDP. 2003. Human development report 2003. Millennium development goals: a compact among nations to end human poverty. Oxford University Press.

UNDP. 2007. Tracking the millennium development goals. [AO] www.mdgmonitor.org/goal1.cfm. Downloaded on 2009/02/20.

United Nations Educational Scientific and Cultural Organization (UNESCO). 2003. World water development report. Water for people water for life. Paris, UNESCO.

UNESCO. 2004. Water Portal Weekly Update. No. 69. Brussels.

Van Koppen, B. 2007. The basin development trajectory of the Olifants Basin in South Africa before 1994. Draft, January 2007.

Van Vuuren, L, Nel, M, Van Damme, S, Braune, E. 2007. Our Water, our culture: a glimpse into the water history of the South African people. Pretoria: Water Research Commission.

Vink, N, Kirsten, J. 2000. Deregulation of agricultural marketing in South Africa: lessons learned. The Free Market Foundation. South Africa.

Vorhies, F. 1989. Hunger and famine in South Africa. [AO] www.theadvocates.org/freeman/8906vorh.html. Downloaded on 26/02/09.

Wakeman, W, Supply, W. Council, SC. 1995. Gender issues sourcebook for water and sanitation projects. The World Bank.

Wenhold, F, Faber, M. 2008. Nutritional status of South Africans: links to agriculture and water.WRC Report no. TT 362/P/08. Water Research Commission. Pretoria, South Africa.

The World Bank. 1994. Reducing poverty in South Africa: options for equitable and sustainable growth. The World Bank. Washington D.C, USA.

The World Bank. 2009. Impact evaluation-overview. The World Bank Group. [AO]

www.iwmi.cgiar.org/assessment/files_new/publications/Workshop%20Papers/WARFSA 2001_schreiner Downloaded on 13/07/09.

Yako, P. 2008. There'll be enough water, if we all look after it, in *Saturday Star*, November 15.

Zainal, Z. 2007. Case study as a research method. *Jurnal Kemanusiaan bil.9, Jun 2007.* Faculty of Management and Human Resource Development Universiti Teknologi Malaysia.

Interviews

Anon. 2009. Telephone interview with a Nokeng tsa Taemane Local Municipality's Infrastructure Department Officer. 25 August.

Hobyani, T. 2009. Telephone interview. Department of Agriculture. 10 August.

Mfolo, DD. 2010. Telephone interview. Tshwane University of Technology Crop Science Department. 27 & 28 January.

Refilwe Councillor. 2009. Telephone interview. 25 August.

Appendix A

Vukuzenzele Interview Questions

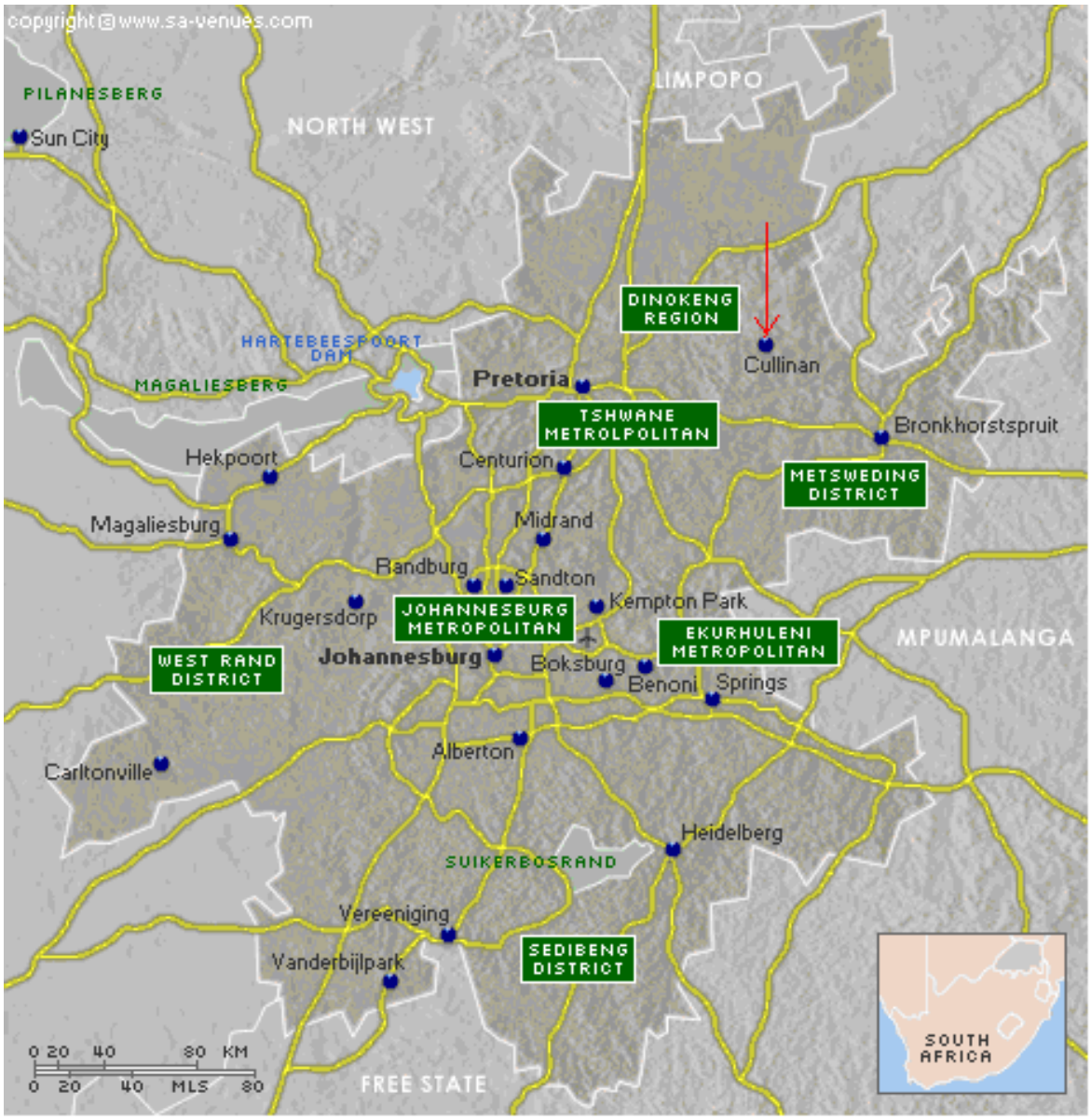
1. What made you start your project?
2. What do you do in your project?
3. How many people were involved at the beginning of the project?
4. What are the reasons for the reduction in number?
5. Are all members involved in the project full-time or do some work elsewhere as well?
6. Do any of you receive pensions or unemployment benefits?
7. Do you still have the same aspirations that you had at the beginning?
8. Are you achieving what you set out to achieve through this project?
9. Give reasons for your answer to question 8.
10. This project uses water. Where does your water come from?
11. Were you given any help with the setting up of the irrigation?
12. Is the water adequate for the activities that you need it for?
13. Would you have managed to obtain water from elsewhere had the irrigation not been set up?
14. The sign at your gate says *Vukuzenzele/De Beers*. What role does De Beers play in your project?
15. Are there any other institutions that are involved in any way in your project?
16. In what way are they involved?
17. Are things working out the way you planned for your project?
18. What do you see as the reason for the progress or its lack?
19. Do you employ people to help you with the work?
20. Have there been any changes in your lives as a result of the project?

Appendix B

Refilwe councillor interview questions

1. Do you know of the Vukuzenzele project?
2. The Vukuzenzele members say that they have asked for an additional borehole from the municipality so they can access more water. Nothing has been done to date. Is there anything you can do to help them?
3. There is a well-watered lawn (picture provided) by the side of the cemetery close to the Vukuzenzele project. Should the municipality not make plans to provide more water for a vegetable project rather than beautify a cemetery?
4. Are there any development plans for children and the youth in Refilwe?

Annexure 1 Gauteng Province Map



Annexure 2: Emails requesting assistance with project identification

Thursday, December 4, 2008 10:19am
From:
"Beatrice Maphosa" <beamaphosa@yahoo.com>

Dear Madam

Request for assistance with project identification for use as case study in a Masters degree research

I had a telephone conversation this morning with Ms X and she referred me to you.

I am a student with UNISA and am studying towards a Masters degree in Development Studies. The topic for my dissertation is AN EVALUATION OF THE IMPACT OF STATE WATER PROVISION ON RURAL DEVELOPMENT.

A study of human development would be incomplete without a close assessment of a typical case study. I need assistance in identifying any such project(s) in Mpumalanga where one of the project packages is water provision. I require instances where the project is focused on farming and caters for at least ten or more households.

Your assistance will be greatly appreciated.

Yours sincerely

Beatrice Maphosa

Fw: Request for assistance with project identification for use as case study in a masters research

Tuesday, January 20, 2009 11:57am
From:
"Beatrice Maphosa" <beamaphosa@yahoo.com>

Dear Sir

Following our telephone conversation this morning, please find below the letter requesting assistance from Ms Y.

Thank you

B. Maphosa

Date: Thursday, December 4, 2008, 10:19am

Dear Madam

Request for assistance with project identification for use as case study in a Masters degree research

I had a telephone conversation this morning with Ms X and she referred me to you.

I am a student with UNISA and am studying towards a Masters degree in Development Studies. The topic for my dissertation is AN EVALUATION OF THE IMPACT OF STATE WATER PROVISION ON RURAL DEVELOPMENT.

A study on human development would be incomplete without a close assessment of a typical case study. I require assistance in identifying any such project(s) in Mpumalanga where one of the project packages is water provision. I require instances where the project is focused on farming and caters for at least ten or more households.

Your assistance will be greatly appreciated.

Yours sincerely

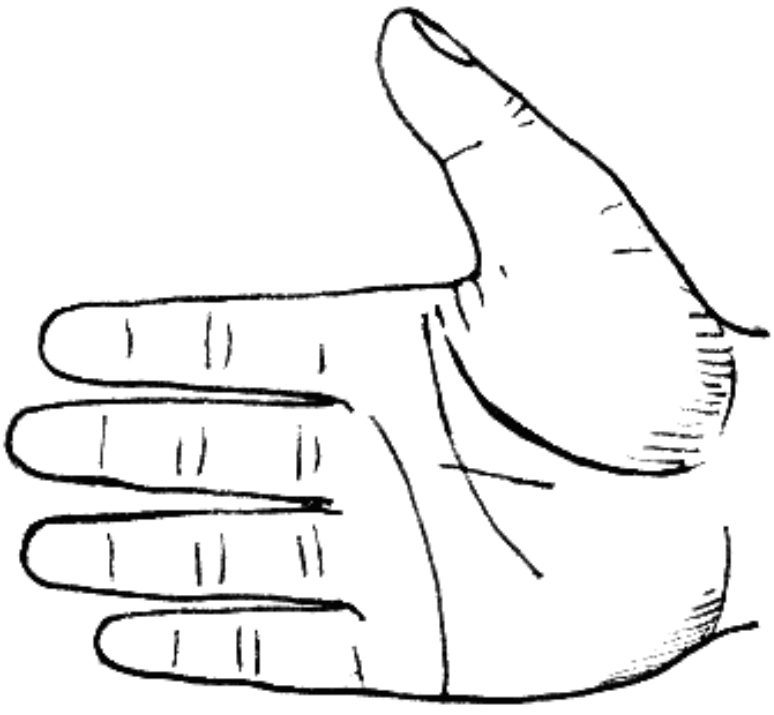
Beatrice Maphosa

Annexure 3: Vukuzenzele Agricultural Project Document

VUKUZENZELE

AGRICULTURAL

PROJECT



1. INTRODUCTION

Unemployment, hunger and malnutrition remain the major challenges facing the lives of our communities both rural and urban. The main challenge to these communities is to intensify their struggle against poverty. It is within this context that women are beginning to relent their kitchen roles in favour of agricultural initiatives aimed at improving the country's economy at grass root level. Many of them have been abandoned by their husband, some widowed whereas others have love for farming.

The Gauteng Department of Agriculture has poverty relief program namely; household food security aimed at helping the poor to help themselves. It was through this poverty alleviation program that Vukuzenzele agricultural project had its origin.

2. PROJECT BACKGROUND

The project is situated at Refilwe, Cullinan, and 45km east of Pretoria. Memories of the project origin relates back in 1977 when groups of women often converged at regular intervals to seek alternative ways of job creation and income-generating initiatives.

Such meetings emanated from women who were unemployed, neglected by their husbands, some their husbands were jobless and were thus faced with a mammoth no longer confine themselves in food insecure kitchen when their children were hungry for food.

The group consists of twenty members of which four are males. The year 1998 was a year of pain and hardship for the groups as they had to clear the 2ha piece of land donated by the local TLC, fence it off and put up the irrigation system.

Departmental approach towards the project was that of infrastructure support and members had to ensure the installation part of it. Dedication and perseverance kept the project united until their first actual planting in May 1999.

3. PROJECT PLANNING AND MANAGEMENT

3.1 PLOT LAYOUT

For efficient and effective operation, the group partitioned their land into four equal plots. Each plot has a team leader with four members. The team leaders are members of the executive committee with two more additional members.

3.2 SIGNIFICANCE OF DIVIDING THE LAND

- Four members at once are accorded responsibility role hence making them prospects for future managers
- Tensions within members in the project are eased by changing them within groups rather than explosion
- Improve production as one team would like to be above the other in terms of production.

PLOT ONE

The plot is mainly for vegetables and like other plots covers 3800m2.

PLOT TWO (intercropping with peach trees)

This is an orchard plot; however the system of intercropping ensures that members can still gain from the piece of land as they wait for normal harvest from peach trees which is normally in three years time. Vegetables are planted between the trees and by the time the trees up space (in three years time) cash shall have been generated through vegetables.

PLOT THREE

Although vegetables are planted, the plot has been designed specifically for reintroduction of traditional leaf and seed crops because of their nutritional status and medicinal value. Pigeon pias, cleame gynandra (Lerotho) and there were introduced. The agricultural research council is also assisting with the program.

PLOT FOUR

The plot has been set aside for dry land cropping however since recently poultry structures are being constructed on the site, as part of project expansion by members.

4. TECHNICAL SUPPORT

The department of Agriculture through the extension officer ensures that the members receive relevant training on vegetable production aspect and the specialized support service within the department ensures that extension officers are backed up.

5. OTHER ACTIVITIES

5.1 DEMONSTRATION PLOTS

The idea has been developed to demonstrate traditional farming methods compared to modern farming techniques, compare cultivator variation and performance, spacing effects, influence of fertilizers on crops, etc. Presently the group is trying to establish the number of leaves the spinach can yield over a growing period. That will give the members an indication of their own return on a particular number of spinach plants.

5.2 BURIAL SOCIETY

Each plot has set aside 360m2 for burial society. The idea emanated from the members often one of their members lost two children within ten months. The pain and suffering she went through prompted the members to open an account where all proceed from the d1440m2 will be directed into it. A constitution has been drawn detailing the operation of the society. R900.00 has been put into the project account.

5.3 CONTRIBUTION TO DISABLED AND CRECHES

Part of their produce is donated to crèches and disabled groups. According to statistics 1.5 million children under the age of 15 suffer from malnutrition implying therefore that their health status is retarded at an early stage. According to the group the health of their children remains a priority.

5.4 INDIVIDUAL PLOTS

Part of the area surrounding the plots has been allocated to members by the executive committee. This is mainly for home consumption purpose, as they would not like to interfere with their production.

6. CURRENT INITIATIVE

Part of their poultry construction is nearing completion. The structure has been funded through their sales.

7. MARKETING STRATEGY

Pension days are being targeted however the local community of Refilwe remains their important market. Hawkers from as far as Ekangala (30km) from the project often buy on bulk to resell at their areas. Members often take orders from their neighbours for afternoon delivery.

8. FINANCIAL STATUS

The first seedlings were planted on the 17 May 1999 on plot one and their harvest was on the 11 August 1999. Summer planting was toward the end of October on plot 2, 3 and part of plot 4. By March 2000 the project had managed to raise R10 000.00 which has been fixed.

9. RECORD KEEPING

A record keeping system consisting of four books has been designed. Records on attendance, sales, production and expenditure are kept separately by the secretary who makes the information available on request.

10. FUTURE PLAN

- An office structure is envisaged by the group to ensure smooth management of the project.
- Brick making initiative is on the pipeline. The purpose is to improve the member's homes from shacks to brick made homes. The procedure would be to make and share bricks amongst themselves. It will be up to the individual member to improve his/her home.

CONCLUSION

Given the effort and dedication of the members, the project stand a chance of success if more emphasis could be put on training the members on basic management skills.

Annexure 4: Status for Exited Projects

STATUS FOR EXITED PROJECTS

Project name	Refilwe/ Vukuzenzele
Grant	R60438.00
Geographic Area	Cullinan
Location	Refilwe
Size	2ha
B/plan approval	1998
Original membership	F25 M12
Infrastructure/ production inputs	Irrigation system, borehole, fencing, container, electricity installation, fertilizers, seeds
Implementation date	May 1999, official launch- August 1999
Number of members 1999	F15 M6
Current membership	F9 M2
Initial crops	Indigenous crops and vegetables
Present crops	Poultry and vegetables
Rewards	Monthly dividends
Any other assistance	DeBeers mining
Kind of assistance	Seedlings, chicks and chicken feeds, training – organic farming and basic course on vegetable production with Technikon Pretoria
Awards won	Impumelelo commendation certificate, Female farmer of the year 2000, Bronze medal from
	visiting French minister of Agriculture, Botle ke Botho (R10 000.00)
Own created structures from generated income	Two poultry structures, piggery structure and burial society
Funding status	Funds exhausted
Types of accounts	Project saving account

Annexure 5: Questionnaire for the extension officer

Dear respondent

My name is Beatrice Maphosa and I am studying towards a Masters degree in Development Studies with UNISA. My research focus is on the impact of water provision on rural development. I have identified the Vukuzenzele project as an important study area as it will help with practical ideas and examples of the impact of water provision.

The responses to this questionnaire will prove valuable in establishing the impact of water provision on rural development. Government departments and non-governmental organisations working with agricultural projects have always included water availability as part of the project scheme. This questionnaire seeks to establish the extent to which water availability has helped in improving livelihoods. The findings of this research will be put together into a thesis which will be available in local university libraries. Copies will be made available on request.

I thank you in anticipation of your valuable contribution.

Yours sincerely

Beatrice Maphosa

The Questionnaire

Section 1: Your Personal Information (high level confidentiality)

(Highly confidential information will not be included in my study. However, I have included a confidentiality indication box to ensure that your wishes are adhered to if the need to use some of this information arises.)

1.1 Full name and title:	
1.2 Occupation:	
1.3 Key Responsibilities in this Occupation:	
1.4 Company name, institution:	

1.5 Confidentiality agreement You can use my name in your study report			
YES	Yes	NO	

Section 2: Insight into water-based agricultural schemes

2.1 Please explain the role that you as an extension officer play in agricultural development projects
2.2 In your opinion, do project beneficiaries need agricultural skills to be part of the project? If so, which skills would these be?
2.3 Are you aware of any training activities that are taking place to assist rural farmers? Which ones do you know of?
2.4 How often do you visit projects to check on progress? Please give details.
2.5 Who is responsible for the maintenance of infrastructure at the farming project site? Please give details.

Section 3: **Water provision methods**

3.1 Please explain the way in which water is supplied to the Vukuzenzele project and why this method of supply was chosen.
3.2 To your knowledge, which other water provision methods are mostly used in communal water schemes such as the Vukuzenzele one?
3.3 What in your opinion is the most viable water provision method for a scheme such as the Vukuzenzele? (Will the use of that method last and will it be affordable?)

Section 4: **Impact on community**

4.1 How long have you been involved with the Vukuzenzele project? Explain if it is from time of inception or well after the project had already started.
4.2 Are you aware of any interest by other community members to become involved in agricultural projects such as Vukuzenzele? What do you see as the reason for the interest (or lack thereof)?
4.3 In your opinion, have there been any changes in the quality of life of those involved in water-based poverty-reduction schemes? If yes, please explain the indications of the changes.
4.5 In your opinion, were the changes a direct result of the project or would they have happened anyway?
4.6 How important is water availability in the lives of the project beneficiaries? Please give reasons.
4.7 Were the costs incurred for the project worthwhile? Please give details.

Section 5: Participation of project beneficiaries

5.1 Are project proposals written by officers or by would-be recipients? Give details.
5.2 Who is involved in decision making, for example, how the project is run, which crops to plant etc. and why?
5.3 Does the project still require any assistance from outside organisations? Please explain.
5.4 Did beneficiaries see the project as a job creation initiative?

Section 6: **General comments**

6.1 Are there any specific reasons why Refilwe was chosen as a site for one of the Department of Agriculture's food security projects?
6.2 Were there any specific objectives on the part of the Department of Agriculture for having such a project?
6.3 Has anyone from the community with knowledge of water usage been helping the beneficiaries manage the water system?

Thank you for your assistance.

Annexure 6

VUKUZENZELE QUESTIONNAIRE

The purpose of this questionnaire is to find out from project members if there have been positive changes in their lives as a result of their involvement in the project and also to ascertain whether they were able to maintain the project's gains from the early years.

1. How long have you been with the Vukuzenzele project?
□ Since it started □ Five years and more
□ Fewer than five years
□ Other: _____

2. Please circle the **highest** year of school completed:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23+
(primary) (high school) (college/university) (graduate school)

3. Are you currently (check □**only one**):
□ Married □ Separated □ Widowed
□ Single □ Divorced

4. In general, would you say your health is: (circle one)
Excellent.....1
Very good.....2
Good.....3
Fair.....4
Poor.....5

5. Is the project working better now that there are few members or was it better when there were many?
□ Yes □ No □ Don't know

6. Are you able to send your children to school with the money you earn from the project?
□ Yes No □ Sometimes

7. How many meals can you manage per day as a family?
□ 1 □ 2 □ 3
Other_____

8. Can you afford to go to the clinic/hospital when you are sick?
□ No □ Yes

9. Do you only sell your produce or do you also give to the poor?
□ Sell only □ Sell and also give to the needy

10. Is your burial society still operational?
□ Yes □ No □ Not sure
Other_____

11. How do you sell your fruit?
□ Canned □ Straight from the trees □ Keep them for own consumption

12. Do you have fruit canning facilities?
□ Yes □ No Intend to buy
Other_____

13. How often do you employ people to work in the garden?
□ Every day Once a week □ Once a month Rarely
Other_____

14. Where do you obtain information about farming and markets?

□ Extension officers □ Self □ Friends □ Radio/Television □ No one

15. How do you compare your life now with your life before you joined the project?
□ Much better □ Better □ Worse Have no choice

16. What do you think is the best way to make this project work?
_____
_____
_____
_____
_____
_____
_____

Thank you for your help!