

**THE IMPACT OF SMALLHOLDER IRRIGATION SCHEMES ON JOB CREATION:  
THE CASE OF MABUNDA, SELOANE AND MARIVENI IRRIGATION SCHEMES,  
MOPANI DISTRICT, LIMPOPO PROVINCE**

BY

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Mini-Dissertation submitted in partial fulfillment of the requirements for the

degree of

**MASTER OF AGRICULTURAL EXTENSION**

In the

**Faculty of Science and Agriculture**

**School of Agriculture and Environmental Sciences**

At the

**University of Limpopo**

**South Africa**

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**2014**

## ABSTRACT

The study was designed to establish the impact of irrigation schemes on job creation and also from the jobs created to differentiate permanent from temporary jobs. The focus of the study was on three smallholder irrigation schemes (Mabunda, Mariveni and Seloane, the irrigation schemes are located in Greater Giyani, Greater Tzaneen and Ba - Phalaborwa municipalities respectively). For the purpose of the study, Mabunda will be addressed as scheme 1, Mariveni as Scheme 2 and Seloane will be addressed as Scheme 3. The main crops cultivated in the three irrigation schemes are citrus, coupled with vegetables to generate funds when citrus is out of season.

The study employed a case study approach and used both qualitative and quantitative methods to collect data. The study was implemented in two phases: the first phase focused on irrigation scheme participants, while the second phase focused on the community structures (livestock committee, youth, water committee and tribal council) that have been affected by the establishment of the irrigation schemes.

Data was collected from the irrigation schemes beneficiaries and community structures by means of a structured questionnaire. No random selection method was used in the selection of irrigation scheme beneficiaries. This was influenced by the small number of beneficiaries in the three schemes (56). It was only the community structures that were randomly selected. One hundred and five (105) people were interviewed representing different structures in all three villages. Out of this figure thirty five (35) people were interviewed per village.

Data collected was organized into themes for analysis. Data was analyzed manually, where the coded questionnaires were recorded into a spread sheet. The process of analysis was carried out by using qualitative description and descriptive

statistics. Data was manually analysed and the output was discussed using tabulation and cross-tabulation of variables with percentages in descriptive statistics. From the spread sheet data was summarized manually.

For the period 2006 to 2009, the irrigation schemes anticipated to create 42 permanent job opportunities with the exception of 2006 where the projected jobs were 32. For the same period, the following temporary job opportunities were anticipated: 121 in 2006, 236 in 2008, 240 in 2010, 234 in 2012, 233 in 2014 and 232 in 2016. The irrigation schemes also anticipated to inject the monetary value into the community in the form of basic salaries. In 2006, R839,996.76 was injected into the community in the form of salaries, 2008 – R1,509,060.33, 2010 – R1,775,531.58, from 2012 – 2018 R2,045,130.36, R2,381,396.14 and R2,772,145.45 injected into the community respectively, while the divisional management team were expected to receive, R27,525, R36,800, R35,920, R43,857 and R54,118 in the form of performance bonuses, in 2008, 2010, 2012, 2014 and 2016 respectively.

The actual permanent jobs created for the period 2005 to 2009 in Scheme 1, an average of 64.6 (the anticipated was 42), while the actual temporary jobs created averaged 395. Scheme 2, managed to create an average of 86 permanent jobs and 197 temporary jobs, while the anticipated was 42 and 240 respectively. In Scheme 3, averages of 74 permanent jobs were created while 55.4 temporary jobs were created. The irrigation schemes created more jobs than anticipated. This was influenced by the high rate of unemployment in the villages located next to the irrigation schemes and the irrigation schemes as the only job providers closer to the villages.

Temporary workers are paid performance based salaries. For the period 2005 to 2009, they were paid as follows: in 2005, they were paid R0.35 per bag of oranges harvested. The actual salary earned per month was informed by the number of bags harvested for that particular month. The following years the salary

was increased by five cent per bag. Permanent workers were paid an average salary of R2400.00 per month.

The study recommended that the roads leading to the three irrigation schemes should be maintained to minimize fruit damage during transportation to the market. The schemes should also be financially assisted to acquire own farm equipment (tractors, trailers and trucks) and be trained on the maintenance of these equipment to reduce acquiring services from the private service providers. The three irrigation schemes use private transport to carry their produce to the market and they are charged for this service, hence, the acquisition of own transport is necessary.

## DECLARATION

I declare that the Mini-dissertation hereby submitted to the University of Limpopo, for the degree of Master in Agricultural Extension has not previously been submitted by me for a degree at this or any other university; and that all material contained herein has been duly acknowledged.

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**Sambo F.T (Mr)**

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**Date :**

## **ACKNOWLEDGEMENT**

The completion of this dissertation was made possible by the valuable assistance I received from many people.

I am thankful to my supervisors, Professor NM Mollel and Professor A Belete for their guidance and support throughout the dissertation writing and also the staff at the Centre for Rural Community Empowerment, especially Mr Letsoalo EM and Mr Mphahlele CK for their guidance at the initial stages of the dissertation preparation.

Acknowledgement is also given for the assistance I received from the students of Xitlakati and Seloane High Schools during data collection. I am thankful to the members of the tribal council of Xitlakati, Seloane and Mariveni for granting me permission to interact with the local structures.

I would also like to thank the Department of Agriculture for affording me the opportunity to further my studies at the University of Limpopo. This study would not have been completed, if respondents were not willing to participate in the interview process.

To my fellow students, I say thank you for being there for me when the going was tough and all hope seemed lost. It is your encouragement that kept me going.

Lastly, I would like to extend my gratitude to my family and Dr Zwane EM for encouraging me during difficult times.

May the good Lord be with them.

## **DEDICATION**

To my wife (Khumburisa Queen Sambo), late parents(Yingwani Johannes Sambo and Njhakanjaka Sambo), siblings(Mphephu, Elias, Elisa and Nkateko) as well as all the Committees in the three villages covered by the study.

## LIST OF TABLES

Table 1.	Full Time employment as a Percentage of labour-----	11
Table 2.	Wage and salary earners/paid employees as percentage of residents-----	12
Table 3.	Employees as percentage of residents 1981 - 2001-----	12
Table 4.	Self-employed as percentage of residents 1981 - 2004-----	13
Table 5.	Land utilization at Mabunda Irrigation Scheme-----	23
Table 6.	Land utilization at Seloane Irrigation Scheme-----	24
Table 7.	Land utilization at Mariveni Irrigation Scheme-----	25
Table 8.	Age distribution of respondents-----	31
Table 9.	Number of dependants-----	32
Table 10.	Age of dependants-----	34
Table 11.	Educational level-----	35
Table 12.	Language spoken-----	36
Table 13.	Production statistics-----	37
Table 14.	Previous production statistics-----	39
Table 15.	Anticipated job and financial impact for the three irrigation Schemes-----	41
Table 16.	Tribal council perception on the potential of irrigation schemes on job creation-----	42
Table 17.	Youth perception on the potential of irrigation schemes on job creation-----	43
Table 18.	Livestock committee perception on the potential of irrigation schemes on job creation-----	43
Table 19.	Water committee perception on the potential of irrigation schemes on job creation-----	44
Table 20.	Employment history in the irrigation schemes-----	45
Table 21.	Number of family members employed in the schemes(Community structures)-----	47



Table 22.	Knowledge of the Irrigation Schemes-----	48
Table 23	Community structures views on when jobs are created in the irrigation schemes-----	49
Table 24.	Salary scales in the last five years(2005 – 2009)-----	49
Table 25.	Butternuts and Babymarrow yield records(Scheme 1:Mabunda)-----	53
Table 26.	Butternuts sales records(10kg bags)-----	54
Table 27.	Butternuts sales records(sold in crates)-----	54
Table 28.	Babymarrow sales records (July 2009)-----	55
Table 29.	Extract of citrus export records-----	55
Table 30.	Citrus Income (Scheme 2 in Rands)-----	56

#### **LIST OF FIGURES.**

Figure 1.	Gender Composition-----	30
Figure 2.	Marital status-----	32

## **LIST OF ACRONYMS**

AGRITEX	: Agricultural Technical and Extension Services
ARDC	: Agriculture and Rural Development Corporation
BIC	: Bantu Investment Corporation
CPR	: Common Property Resources
FAO	: Food and Agriculture Organisation
GDC	: Gazankulu Development Corporation
GDP	: Gross Domestic Product
IDP	: Integrated Development Plan
IMT	: Irrigation Management Transfer
IPILRA	: Interim Protection of Land Rights Act
NAFU	: National African Farmers Union
RESIS	: Revitalisation of Smallholder Irrigation Schemes

## TABLE OF CONTENTS

	page
<b>ABSTRACT</b> -----	i
<b>DECLARATION</b> -----	iv
<b>ACKNOWLEDGEMENTS</b> -----	v
<b>DEDICATION</b> -----	vi
<b>LIST OF TABLES</b> -----	Vii
<b>LIST OF FIGURES</b> -----	viii
<b>LIST OF ACRONYMS</b> -----	ix
<b>CHAPTER 1: INTRODUCTION</b> -----	1
1.1 Background of the study-----	1
1.2 Problem Statement of the study-----	4
1.2 Motivation of the study-----	4
1.4 Aim of the study-----	5
1.5 Objectives of the study-----	5
<b>CHAPTER 2: LITERATURE REVIEW</b> -----	6
2.1 Introduction-----	6
2.2 Income-----	6
2.3 Sustenance of rural livelihood-----	7
2.4 Farmers employment-----	7
2.5 Labour Force status in New Zealand-----	10
2.6 Employment Status of Residents-----	11
2.7 Contribution to GDP-----	13
2.8 Project Approach to Smallholder Agricultural Development-----	15
2.9 Farming continuity and farmer decision with regard to irrigation-----	15
2.10 Ownership of Irrigation schemes-----	16
2.11 Irrigation Management Transfer-----	16
2.12 Constraints on smallholder Agriculture-----	17
2.13 Minor Irrigation-----	18

2.14	Smallholder Irrigation in Tanzania-----	19
2.15	The success and failure of irrigation schemes in Zimbabwe-----	19
2.16	Summary-----	20
<b>CHAPTER 3: RESEARCH METHODOLOGY-----</b>		<b>22</b>
3.1	Introduction-----	22
3.2	Description of the study area-----	22
	3.2.1 Mabunda Irrigation Scheme-----	22
	3.2.2 Seloane Irrigation Scheme-----	23
	3.2.3 Mariveni Irrigation Scheme-----	24
3.3	Design of the study-----	26
3.4	Data Collection-----	26
3.5	Pilot Testing-----	27
3.6	Interviews using a questionnaire-----	27
3.7	Setting Appointments for interviews-----	28
3.8	Data Analysis-----	28
3.9	Ethics-----	28
3.10	Summary-----	29
<b>CHAPTER 4: RESULTS AND DISCUSSION-----</b>		<b>30</b>
4.1	Introduction-----	30
	4.1.1 Gender Composition-----	30
	4.1.2 Age of Respondents-----	31
	4.1.3 Marital Status-----	32
	4.1.4 Number of Dependants-----	32
	4.1.5 Age of dependants-----	34
	4.1.6 Educational level of respondents-----	35
	4.1.7 Home language-----	36
4.2	Farming Information-----	36
	4.2.1 Crops Cultivated-----	36
	4.2.2 Land Ownership-----	37
	4.2.3 Size of the irrigation scheme-----	37

4.3	Production Information-----	37
	4.3.1 Production during 2008 season-----	37
	4.3.2 Production in the last five years-----	39
4.4	Employment Information-----	40
	4.4.1 Potential of schemes to create employment-----	40
	4.4.2 Feelings of community structures towards the potential of irrigation schemes on employment creation-----	42
	4.4.2.1 Tribal Council-----	42
	4.4.2.2 Youth-----	43
	4.4.2.3 Livestock Committee-----	43
	4.4.2.4 Water Committee-----	44
	4.4.3 Farming activities that create jobs-----	44
	4.4.4 Actual Number of Jobs created-----	45
	4.4.4.1 Permanent workers-----	45
	4.4.4.2 Workers employed in the last five years-----	45
	4.4.4.3 Number of family members employed in the irrigation schemes in the past five years-----	47
4.5	Knowledge of irrigation schemes by community structures-----	48
	4.5.1 Tribal Council-----	48
4.6	Views of Community Structures on how employment is created in the irrigation schemes-----	49
4.7	Salary scales in the last five years-----	49
4.8	Duration of temporary employment-----	51
4.9	Technical Information-----	51
	4.9.1 Extension Service-----	51
	4.9.2 Irrigation Water Source-----	51
	4.9.3 Maintenance of farm equipments-----	52
	4.9.4 Financial assistance-----	52
4.10	Marketing Information-----	53
	4.10.1 Markets and marketing strategy-----	53
	4.10.2 Citrus Income-----	56

4.11	Challenges faced by the three irrigation schemes-----	57
4.12	Summary-----	58
<b>CHAPTER 5:SUMMARY OF FINDINGS,CONCLUSIONS AND</b>		
<b>RECOMMENDATIONS-----</b>		<b>60</b>
5.1	Biasness towards males-----	60
5.2	Education level, age and main language spoken -----	60
5.3	Crops cultivated and land ownership-----	61
5.4	Production statistics and anticipated jobs-----	61
5.5	Technical support-----	62
5.6	Potential of the Irrigation Schemes to create employment-----	62
5.7	Actual jobs created and financial impacts-----	63
5.8	Salaries paid to workers-----	63
5.9	Challenges and Conclusion-----	64
5.10	Recommendations-----	64
	5.10.1 Roads-----	64
	5.10.2 Equipments-----	64
	5.10.3 Transport facilities-----	65
	5.10.4 Lease rental-----	65
	5.10.5 Strategic Partnership-----	65
	5.10.6 Financial Assistance-----	66
5.11	Formation of a Cooperatives-----	66
5.12	Low salaries paid to workers-----	66
5.13	Areas for future research-----	66
<b>REFERENCES-----</b>		<b>67</b>
<b>APPENDICES-----</b>		<b>72</b>

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the study

The study was aimed at establishing the potential of smallholder irrigation schemes on job creation in the Mopani district of Limpopo Province of South Africa. It was prompted by the high unemployment rate in the district and the fact that government institutions have provided financial support towards machinery and infrastructure. Although there are many studies done on the irrigation schemes none of them focused on the impact of irrigation schemes on job creation.

Mopani District is one of the five districts of the Limpopo Province (Vhembe, Capricorn, Sekhukhune, Waterberg and Mopani). The district is located on the Lowveld region of the Province and it is characterized by a high rate of unemployment, high infection rate of HIV/AIDS which has resulted in most families being headed by females and children (IDP, 2009/10:7, Schreiner and Naidoo, (Undated: 1) mentioned that South Africa is a middle income country, but a large proportion of the South African population is poor, or vulnerable to poverty. This confirms the high rate of unemployment in the Mopani District. Unemployment is caused by lack of industries in the area and as a result most males migrate to provinces that are highly industrialized for the purpose of employment, hence, in most areas farming is carried out by females. The only sources of employment are the government departments in the district, the local businesses and the local commercial farms, and these are unable to satisfy the employment needs of the district inhabitants.

In an attempt to alleviate the unemployment problem, the government established smallholder irrigation schemes that enable participants to work in these projects during the day and commute back home to care for their children. The irrigation schemes are in a position to generate employment that benefits community members. The number of employees is expected to increase during peak agricultural periods, for example, during harvesting and weeding.

The term smallholder requires some clarification as it means different things to different people. For some, the large irrigation schemes in Egypt and Sudan are smallholder schemes. These schemes are large in terms of area but they are made up of many small farms (often less than 2hactares). They are designed and constructed by government agencies that then take over the responsibility for managing the water supply system (FAO, 2004).

The three smallholder irrigation schemes considered for this study are located within the three municipalities in the district e.g. Greater Giyani, Ba-Phalaborwa and Greater Tzaneen Municipality.

The Mariveni irrigation scheme was initiated by the Bantu Investment Corporation (BIC) for job creation and personal gain in 1974. The BIC became part of the Gazankulu Development Corporation (GDC) in the early 1980's.

The scheme was managed by the GDC until 1995 when the Agricultural and Rural Development Corporation (ARDC) took over the management of the project in the new dispensation. The project is located on the Mohlaba's location 567LT (Agri-Business, 2006).

The Mabunda irrigation scheme was initiated by the ARDC in 1995. The project is located in the Dzumeri Tribal area in the Giyani Municipality and is situated some 80km East of Letsitele. It is on tribal land and occupation is secured under the Interim Protection of Land Rights Act (IPILRA) – (Agri-Business, 2006:10).

The Selokane irrigation scheme was established by the ARDC in the 1990's. Due to the government's repositioning on farming assistance after 1994 and the subsequent



collapse of the ARDC in 2001, the farm was largely deprived of financial assistance as well as technical and managerial support. Du Roi Precision Farming (DRPF) has been approached by the Seloane Farmers (Pty) Ltd to assist in the comprehensive rehabilitation of the project and to ensure long-term self-sufficiency (Agri-Business, 2006).

Focus will also be directed to communities adjacent to the projects. Attention will be put on when these projects were initiated, it was not only to benefit the project beneficiaries but also to benefit members of the communities through job creation. The communities in question are Xitlakati, which is next to Mabunda project, Seloane village next to Seloane Citrus project and Mariveni village which is supposed to be serviced by Mariveni project.

Samakande, Senzanje and Mjmba (Undated: 1) indicated that smallholder irrigation schemes are common property resources (CPR) faced with various challenges in the use of productive water. The schemes have different technologies that require different levels of organizational intensity, and offer varying challenges to operation and maintenance. In these irrigation schemes, water is regarded as the most limiting factor. The targeted projects also experience the same challenges. All these projects are within a walking distance from the adjacent communities where participants reside. The projects were initially managed by the dissolved Agriculture and Rural Development Corporation (ARDC). The projects have been handed over to the communities who jointly manage them with the strategic partner (Du Roi Precision Farming).

## 1.2 Problem statement of the study

The government has committed a substantial amount of development funds to the irrigation schemes with the aim of creating employment. It is not known whether this aim was achieved or not. The central question is “Are irrigation schemes (focusing mainly on Mabunda, Seloane and Mariven irrigation schemes) in the district creating enough jobs?

Many researchers such as Machete (2004), Perret (2002), Maganga(1998) and many more have done some work on irrigation schemes within the province and also outside South Africa. Their focus was on irrigation management; water allocation, formation of water user’s association, land ownership and irrigation management transfer (IMT). Less has been said about the number of jobs created within the smallholder irrigation schemes, either seasonally or on a permanent basis. This study attempts to fill that research gap.

## 1.3 Motivation of the study

The study is important since it determines whether or not jobs are being created by the irrigation schemes and also to determine the actual number of permanent as compared to the temporary or seasonal jobs created. If they are being created, then the department can assist in the expansion of the irrigation schemes and also develop policies on financial assistance to irrigation schemes.

The focused schemes were once granted an amount of R15million amongst them. This study seeks to establish if the amount was worth it as far as job creation is concerned. The irrigation schemes were also assisted with the irrigation equipments as well as mechanization (tractors and trailers for spraying and transportation of the produce to the packing house at Masalal). The strategic partner was also appointed and paid by the government to assist technically in the projects. This study will establish if the financial and technical assistance towards these irrigation schemes yielded any jobs to the

benefit of the adjacent villagers, as the projects only benefited few members of the community ( as participants in the irrigation schemes).

#### 1.4 Aim of the study

The aim of the study is to explore the potential of smallholder irrigation on job creation in Mopani District, Limpopo Province.

#### 1.5 Objectives of the study

The following are the research objectives.

1.5.1 To determine job creation potential of the schemes.

1.5.2 To determine the actual number of jobs created.

1.5.3 To differentiate between seasonal and permanent jobs.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

The objective of this chapter is to review the literature in relation to the following: income from smallholder farming, Sustenance of rural livelihood, farmers employment in the irrigation schemes, agricultural sector's contribution to GDP, transformation of the landscape, farming continuity, ownership of irrigation schemes, irrigation management transfer , Benefits of irrigated agriculture. It also describes water as a scarce and unevenly distributed resource. The issue of food security is highlighted in relation to agriculture.

#### 2.2 Income

FAO (2004:24) indicates that the development of smallholder irrigation schemes can result in substantially high incomes for the smallholder farmers. In Wenimbi irrigation scheme in Zimbabwe, incomes are as high as Z\$ 6 583 per farmer per month (each farmer having a 1.55 ha plot holding), while dry land incomes can be as little as Z\$ 1 250 per farmer per month(considering a 5 ha dry land plot holding).

Shah, van Koppen, Merrey, de Lange and Samad (undated: 30) reflected that irrigation farming can be very remunerative provided the following are present:

- High quality management
- Markets and infrastructure
- Sufficient equity capital

Africa's smallholder irrigation farmers have none of these. Machete (2004:1) mentioned that between 40 and 50 percent of South Africa's population can be classified as living in poverty, while 25 percent of the population can be categorized

as living in abject poverty. South Africa is classified as an upper middle-income country with one of the most skewed distribution of income in the world. The large income gap between the rich and poor is a matter that is receiving attention from the government. A number of policies which are aimed at bridging the income gap and promoting economic empowerment of previously disadvantaged communities are in place. These include the recently promulgated Broad-based Black Economic Empowerment Act of 2003. Machete *et al* (2004:7) stated that the number of farm workers employed in the commercial farm sector has also declined from more than a million and half in the 1970s to less than a million in the 1990s. The decline in the number of people employed in agriculture is attributed to the rapid mechanization and industrialization of agriculture in the late 1960s.

### 2.3 Sustenance of rural livelihood

Irrigation has long been seen as an option to improve and sustain rural livelihoods by increasing crop production. It can reduce dependency on rain fed agriculture in drought prone areas and increase cropping intensities in humid and tropical zones by "extending" the wet season and introducing effective means of water control , (FAO,2004:1). Machete, Mollel, Ayisi, Mashatola, Anim and Vanasche (2004: 10) indicated that to maximize the contribution of smallholder agriculture to poverty reduction, agricultural productivity must be raised and sustained. This must occur in such a way that environmental sustainability is promoted. Productivity and environmental sustainability must be pursued together.

### 2.4 Farmers employment

Irrigation affords farmers a means to be fruitfully employed away from urban centers. The earnings from the irrigation schemes far exceed the industrial minimum wage for unskilled labour in Zimbabwe of Z\$ 1400 per worker per month, thus giving every reason for the government to channel more resources to smallholder irrigation

development. Perret (2002:5) indicated that at present, South Africa has an estimated 1.3 million hectares of land under irrigation for both commercial and subsistence agriculture. He further indicated the Tomlison Commission report suggested that irrigated holdings of 1.3 to 1.7 hectares were adequate to provide a family with a living that would satisfy them. It is clear if more land can be acquired, external assistance will be required and in this way jobs will be created.

Barker, Van Koppen and Shah (2006:3) indicated that the benefits of irrigated agriculture are employment generated both on and off the farm providing entitlement or purchasing power for the poor. For landless labourers, increased cropping intensity has the greater impact on employment. Irrigation means more work in more days of the year. The employment impact is felt not only in the irrigated but also in the rain fed areas. Sometimes landless workers in the rain fed villages migrate long distances to take advantage of employment opportunities in the irrigated areas. Water security is an increasingly important element of any poverty eradication program.

Louw (2004:2) noted that the agricultural sector contributes nearly 13 percent of the total formal sector jobs in the Western Cape. Horticultural enterprises dominate agriculture's contribution to provincial value added, employment, and employee remuneration. Machete *et al* (2004:10) also mentioned that smallholder agriculture is important to employment, human welfare, and political stability in the Sub-Saharan Africa. In addition, smallholder agriculture can moderate the rural exodus, create growth linkages and can enlarge the market for industrial goods. Smallholder agriculture is also considered to be both a major cause of and potential solution to poverty reduction and economic growth. A further indication was also made that in South Africa, the number of smallholder farmers is estimated to be 3.24 million. At an average household size of five persons, this means that smallholder agriculture supports approximately 16 million persons, more than 30 percent of the total population.

Lankford (2002:3) indicated that irrigation secures crop productivity against short falls or breaks in rainfall. Irrigated crops often enjoy a cash margin and with more water, crop

productivity increases to profitable levels. Security of water improves the planning and timing of start of cropping season and can extend the season's length. Irrigation raises the number of paid jobs conducted on the land, for example, Irrigation, weeding.

Lastly, Lankford (2002:3) indicated that irrigation raises the value of land, attracting commerce such as renting of plots, which in Kilosa(Tanzania) have gone from 5000 to 20-30 000 Tsh/acre in 4-5 years.

Swamikannu and Berger (2009:3) mentioned that the emerging climate –change issues, combined with slow increase in food production and declining rate of yield growth in main food crops threaten world food security and the livelihood of millions of poor people in developing countries, especially in Sub-Saharan Africa. To achieve the millennium development goals, such as cutting hunger and poverty in half by 2015, more efforts be put into increasing the productivity in agriculture and value of products produced, since farming is the mainstay of the rural poor. In order to reduce the risks associated with rainfall variability and to increase the yields of food crops, more public investments in yield-enhancing technologies such as small-scale irrigation and irrigation management systems have been recommended as one important rural development and poverty reduction strategy.

The potential impact of irrigation projects is widespread, primarily because it affects some of the fundamental aspects of people's lives. The following points of which relate to positive impact of irrigation projects normally ensue:

- Creation of employment opportunities, especially for landless farmers, due to year-round cropping.
- Creation of temporary or permanent employment opportunities for construction, maintenance and operation of the irrigation facilities.
- Empowerment of farmers through training and participation in irrigation management.

Hope, Gowing and Jewitt (2008:174) mentioned that other commentators focus on positive linkages between irrigation and poverty reduction such as increased cash generation, local multiplier effects, benefits to vulnerable groups such as female-headed households and forwards linkages in the wider economy through job creation.

## 2.5 Labour Force Status in New Zealand

McClintock, Taylor and Little (2002:13) stated that the labour force status of residents of a particular area allows the quality of jobs in a particular area to be appraised. The classification of jobs into full-time and part-time provides a relatively un-sophisticated measure of the quantity of employment. A shift into part-time employment by residents with a concurrent loss of full-time jobs would indicate a decline in job quality, particularly in the current climate where part-time employment has become associated with unskilled and low paid work. Data about the labour force status of residents were obtained from supermap and statistics New Zealand for five years.



Table 1: Full Time employment as a percentage of labour force 1981-2001

	1981	1986	1991	1996	2001
<b>Lower Waitaki</b>	53.6	55	54.5	59	63
<b>Amuri</b>	61.8	59.5	54.6	54.4	58.3
<b>New Zealand</b>	51.9	54.3	49.3	45	46

Source: Statistics New Zealand (2002:13)

In terms of holding full-time jobs, residents of both Lower Waitaki and Amuri have fared relatively well as compared with other New Zealand citizens. Table 1 shows the proportion of Lower Waitaki's residents with full-time employment increased from 54 to 63 percent between 1981 and 2001. The share of full-time jobs held by residents of Amuri fell from 62 to 58 percent over this period, while at national level, the proportion of people employed full-time declined from 52 to 46 percent. Thus, Lower Waitaki's residents have benefited from major changes to the district's economy including the irrigation scheme and the shift to dairy production, through additional full-time employment.

## 2.6 Employment Status of Residents

McClintock *et al* (2002:12) noted that the employment status of residents provides information about the numbers of residents of a particular area who are wage and salary earners, employers, self-employed and unpaid family workers. This information can be used to assess changes in the scale of local enterprises and to ascertain if more jobs are being generated in the area whether they are on farm or in agricultural support industries. Employment status data were compiled from supermap and statistics New Zealand. Three categories of employment; wage and salary earners/paid employees, employers, and self-employed were selected and percentages of the number of

residents employed in each category were calculated for census as shown in tables 2, 3 and 4 respectively.

Table 2: Wage and Salary earners/paid employees as Percentage of Residents 1981-2001

	<b>1981</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>
<b>Lower Waitaki</b>	50.5	55	54.5	57	55.3
<b>Amuri</b>	68.5	61.5	57.8	50.3	56
<b>New Zealand</b>	81.7	75.7	70.1	68.6	69.7

Source: Statistics New Zealand (2002:13)

Table 3: Employers as Percentage of Residents 1981-2001

	<b>1981</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>
<b>Lower Waitaki</b>	19.7	17.1	15.9	21.2	24
<b>Amuri</b>	15.2	14.3	14.9	19.3	22.8
<b>New Zealand</b>	5.9	6.8	6.9	6.9	6.9

Source: Statistics New Zealand (2002:13)

Table 4: Self-Employed as Percentage of Residents 1981-2001

	1981	1986	1991	1996	2001
<b>Lower Waitaki</b>	23.1	19.8	17.4	11.3	12
<b>Amuri</b>	12.7	15.4	19.5	13.9	15.5
<b>New Zealand</b>	7	8.2	10.2	10.5	11.5

Source: Statistics New Zealand (2002:13)

An examination of table 2 to 4 reveals that Lower Waitaki had increasing proportion of wage and salary earners and employers among its residents between 1981 and 2001, whereas the proportion of self-employed residents was nearly halved from 23 to 12 percent. For Amuri, however, the proportion of wage and salary earners decreased from 69 to 56 percent and the proportion of employers grew from 15 to 23 percent while the proportion of self employed increased from 13 to 16 percent. These findings indicate that the scale of enterprises has increased in the Lower Waitaki as there are more employers and wage and salary earners among the population and additional jobs have been created in the area.

## 2.7 Contribution to GDP

Karanja (2003:1) indicated that the agricultural sector contributes about 55% of Kenya's gross domestic product (GDP), provides 80% of employment, contributes 60% of exports and generates 45% of government revenue. It is with this in mind that the National Development plans have continued to recognize the need for a well – developed agricultural sector.

Madebwe and Madebwe (2005:922) reflected that in Zimbabwe, agriculture's contribution to GDP ranges from 10 – 22%. Variability is determined by seasonal distribution of rainfall, which varies from year to year.

Agriculture provides 27% of total employment and more than 50% of the country's exports. *Per capita* income has declined steadily over the years due to high rates of inflation, high budget deficits and low levels of investment in the productive sectors. According to the United Nation Development Programme (UNDP: 2007) poverty assessment report, 73% of Zimbabweans is classified as poor. It is against this background that irrigated farmland is viewed as a premium resource because land and water form the basis of all farming systems. Machete *et al* (2004: 7) indicated that agriculture's direct contribution to GDP, employment and exports has declined significantly in the post war period. According to the Department of Agriculture, its share of GDP has dropped from 17 percent in the 1950s to around 4 percent in the 1990s. Manona (2005:32) mentioned that agriculture is one of the key sectors considered to be a major contributor to the GDP of a number of countries, both the developed and developing ones. One of the leading international development agencies, The World Bank, considers agriculture as an important economic sector. In support of the view of the importance of agriculture, particularly for developing countries, a large aspect of the development discourse around agriculture has historically focused on commercial agriculture, to the exclusion of smallholder agriculture.

Machete *et al* (2004: 1) noted that there is a positive relationship between food security and land size. Farmers with smaller plots tend to experience food insecurity while those with larger ones do not experience food insecurity problems. The pursuit of food security is a way of life for many in Africa, while subsistence agriculture is practiced by most, with no room to seek alternatives. The agricultural sector accounts for about 60% of the labour force, 20% of exports and 17% of the GDP (Sanawe and Dube, 2008:1). Mudau *et al* (undated: 293) indicated that smallholder irrigation schemes can play a tremendous role, especially in rural areas toward supplying job opportunities towards poverty alleviation. In order, to ensure these, it would be required that the position of smallholder irrigation scheme farmers is well understood. It would be a great error to stereotypically regard all farmers within the irrigation schemes as the same without looking at the diversity that exists within the farming community in the same area.

## 2.8 Project Approach to Smallholder Agricultural Development.

Machete *et al* (2004: 12) indicated that projects have been regarded as the most appropriate tools for promoting rural development in developing countries. The project approach to development has been embraced in many developing countries including South Africa. In particular, smallholder irrigation projects were established in the former homelands to promote food self-sufficiency and to contribute to rural development. In addition to creating employment opportunities, it was hoped that smallholder farmers would improve their productivity and, thus, produce not only for home consumption but also for the market. Although there have been some successes, the overall record of smallholder irrigation projects in achieving their intended objectives in the former homelands has been disappointing. In their research in Waitaki plains in North Otago in South Canterbury, McClintock *et al* (2002:1) indicated that irrigation can transform the land and landscape. It can also transform society. Research has traced the development and social impacts of community irrigation schemes, attitudes and adaptations for farm families and subsequent ownership changes. It is also indicated that irrigation and farm technology in the early days were insufficient to realize the full potential of water.

## 2.9 Farming continuity and Farmers decision with regard to irrigation

McClintock *et al* (2002:1) further indicated that in a general farming community area there is considerable continuity for farm families through the process of farm succession and this continuity flows through to the rural communities as well.

In his research in Tanzania, Lankford (2002:3) indicated that the social, economic and demographic content also affects farmer decisions regarding irrigation. Farmers may see no reason to invest in socially complex irrigation when rainfall meets their needs or when no market demand exists for their produce. Machete *et al* (2004:ii) indicated that farmers apply excessive amounts of water when it is their turn to irrigate their plots resulting in low water productivity.

## 2.10 Ownership of irrigation schemes

In his study conducted in Tanzania, Lankford (2003:818) indicated that farmers have to be trained to own irrigation schemes". He further indicates that those non- performing irrigators especially those who have received assistance in the past and now their irrigation schemes are either abandoned or running inefficiently, one could imagine of having a law that would govern irrigation development in this country. Farmers should be responsible for the support and assistance they receive from their government. This should be the case with the farmers in the three projects as they are receiving government support. Kamara *et al* (2001:119) indicated that secondary data were obtained from the Agriculture and Rural Development Corporation (ARDC) for most of the schemes in Arabie (South Africa). Due to the inconsistent and incomplete nature of the data, only six schemes were considered in the preliminary analysis of the ARDC data – aggregate crop budgets and estimation of cost functions, net income and gross margins. As the ARDC data did not have any socio-economic component, primary data was collected in two of the six schemes and intensive surveys further conducted in two of the only three schemes that are currently operational. This approach was successful because it managed to highlight that there is a significant relationship between having PTOs (Permission To Occupy) in the farmer's name and plot level performance.

## 2.11 Irrigation management transfer

Shah *et al* (undated: 30) indicated that irrigation Management Transfer can work if certain preconditions are met. These include a supportive legal-policy framework; secure water rights, local management capacity building and the presence of an enabling process to facilitate management transfer. Even with all these conditions fulfilled, it was found that IMT is unlikely to work for African smallholders. The constraints can be addressed in the following ways:

- African government must enhance the income-creation potential of smallholder irrigated farming by strengthening market access.

- Promoting high-value crops and improving systems for providing extension and technical support to smallholder irrigators

Kamara *et al* (2001:117) noted that irrigation Management Transfer has gained considerable attention in the last decade, with the broad objectives of increasing irrigation performance and reducing constraints on public budget. The process is a strategy to improve economic conditions by reducing the role of the state or its agents through privatization and empowerment of local communities. The increasing disenchantment with public support for small-scale irrigation and withdrawal of operations of the ARDC has left most of the schemes almost dysfunctional which hits hard at rural life in the province, especially the former homelands. At the scheme level, viability will largely depend on capacity to organize into water User Associations, manage the organization, make and force resource use rules and regulations and resolve emerging conflicts.

Mudau, Geyser and Nesamvuni (Undated: 286) mentioned that Irrigation Management Transfer (IMT) is the option chosen by the governments in many countries with no consideration on cost for providing water. In South Africa, the great concern is the viability of the irrigation schemes considering their proposed transfer to farmers. Farmers as water users are supposed to carry the cost of water. Machete *et al* (2004:11) indicate that irrigation management transfer process in Limpopo Province is proceeding before the necessary success factors are in place and this may result in failures. Emphasis seems to be on rehabilitation of the irrigation schemes with little attention paid to other factors which are necessary for raising productivity and making farming profitable.

## 2.12 Constraints on Smallholder Agriculture.

Machete *et al* (2004:11) indicated that increasing smallholder agricultural productivity requires that smallholder farmers gain access to reliable and good quality farmer support services such as extension, finance and marketing. Increasing smallholder

agricultural productivity is particularly important in view of increasing scarcity of land for cultivation which makes extensification (land increase) an ineffective response to the demand for increased agricultural production. Thus, smallholder farmers should be assisted to produce more from the existing land because prospects for increasing agricultural production through land expansion are not good. Hope et al (2008:173) cited that agricultural improvement is seen as essential for economic growth, poverty reduction and food security in Africa. However, with new and priority demands for water agricultural allocations have come under closer scrutiny, particularly under water scarcity. In post – apartheid South Africa equitable water allocation has become an emblematic policy goal consistent with the imperative to create a fairer society. Hope et al (2008:174) further mentioned that proponents of irrigation point to the prospect of substantial improvements in agricultural productivity and intensity.

Perret (2002:4) indicated that South Africa is a water scarce country due to its low average annual precipitation (less than 500mm) and the unevenness of surface and ground water distribution which are a result of climate and geography.

### 2.13 Minor irrigation.

Machete *et al* (2004:22) mentioned that in Limpopo, the average plot size is about one hectare. Working in such tiny plots, farmers cannot be held responsible for not committing resources and time to farming. The common tendency is for the farmer to embark on a variety of livelihood strategies to make ends meet. The small plots are simply kept as some form of ‘security’. Those that are fully utilized are mostly owned by pensioners who are too old for other livelihood activities. They further indicated that the smallholder irrigation schemes in the former homelands have a lot in common with those on the White Nile in Sudan. Both have a long history of dependency on parastatals, have extremely high levels of mechanization of smallholder cultivation, face poor infrastructure and institutional arrangement for input supply and output marketing for smallholder farmers.



## 2.14 Smallholder Irrigation in Tanzania

Maganga (1998:4) noted that the basic objectives of Tanzania's agricultural policy are self-sufficiency and food security from household level up to the national level. Irrigation development was seen as an important strategy for achieving these policy objectives. Unfortunately, for a long time most irrigation planners tended to think in terms of very expensive, capital intensive schemes, and paid minimal attention to the possibilities of traditional irrigation schemes. This line of thinking began to change in 1990 when ministry of Agriculture, assisted by FAO and UNDP reviewed the government's experience with irrigation and came up with the conclusion that the emphasis should be on rehabilitation and improvement of existing smallholder schemes and that future expansion should be based on staged improvement and expansion of existing local technology, which allows farmers to adapt at their own pace.

Maganga (1998:7) indicated that irrigation activities enabled Msanzi villagers to intensify and diversify their cropping patterns. Originally, villagers in Msanzi and the rest of Rukwa region cultivated millet and other grains, as well as *ntapila* (small, dry season garden) garden vegetables for home consumption. During the 1970's Rukwa region became famous for maize production because of government subsidies, but this did not last. In 1983 when government discontinued with its subsidy programmes, most farmers in the region, including Msanzi, cut back on maize production.

## 2.15 The success and failure of Irrigation schemes in Zimbabwe

FAO (2004: 4) noted that the success story of Zimbabwe's irrigated agriculture is the Chitora irrigation scheme; this is a small scheme irrigating only 9ha with drag-hose sprinklers. It is one of the most successful farmer managed irrigation schemes in the country. It is run by young people aged between 22 and 27 years who were without jobs and were dependent on their parents for everything. The parents felt they were too old to engage in irrigated agriculture and so 18 of their children accepted the offer of irrigation support from the Agritex the government irrigation development agency.

Agritex provided all the inputs for the scheme including those for the growing season. The cropping programme is essentially for high value horticultural crops grown for the market outside Harare where there is a demand for good quality vegetables. Farmers income averages Z\$60 000 per year compared with that of Z\$16 800 for unskilled labour wages in town. The scheme is entirely farmer managed through a system of byelaws enforced by an irrigation management committee that is responsible for coordinating all scheme activities including paying of bills for electricity, maintenance work and maintaining discipline.

As mentioned by FAO (2004:4), the failure of irrigated agriculture in Zimbabwe is represented by the Ngezi irrigation scheme. This is a communal scheme built at the same time as Chitora but on a larger scale as part of an aid project associated with dam construction. It is typical of a government built and run irrigation scheme that has run into difficulties in getting farmers to own the scheme originally constructed for their benefit. The scheme covers 216ha with 154 plots ranging from 0.5 to 1.5hactares. Irrigation is by sprinklers fed by gravity therefore avoiding the problems of pumping. Low value crops are grown with very few high value vegetables. Farmers claim that they were never consulted about the scheme and were afraid they would lose their land. It continues to be run by the government, which also pays for electricity, water and services. Farmers are reluctant to take over the responsibility of running and maintaining the scheme themselves and complain that the infield designs are inadequate, which leads to regular disputes between the farmers and government institutions.

## 2.16 Summary.

Irrigation secures crop production against shortfall or breaks in rainfall. Irrigated crops often enjoy cash margin and with more water, crop productivity increases to profitable levels. If production increases to profitable levels, this will create jobs during harvesting and packing of the farm produce. The availability of irrigation water will lead to sustenance of the irrigation schemes if other resources are taken care of and the benefits will be significant and this will attract more participants to irrigated agriculture.

As the scarce resource, Water will have to be managed by a legal body to ensure compliance to the rules and regulations that govern irrigation schemes.

Development of smallholder irrigation schemes can result in substantial high incomes for smallholder farmers. Irrigation has long been seen as an option to improve and sustain rural livelihoods by increasing crop production. Irrigation can reduce dependency on rain fed agriculture in drought prone areas and increase cropping intensities. Irrigation affords farmers a means to be fruitfully employed away from the urban centers. In some countries, the earnings from the irrigation schemes far exceed the industrial minimum wage of unskilled labour. Agriculture is one of the key sectors considered to be a major contributor to the GDP of a number of countries, both developed and developing ones. In South Africa, agriculture's direct contribution to GDP, employment and export has declined significantly in the post war period. Irrigation projects have been regarded as the most appropriate tools for promoting rural development in developing countries. Farmers should be responsible for the support and assistance they receive from the government and take responsibility to manage the irrigation systems. The benefits of irrigated agriculture are employment generated both on and off the farm, human welfare and political stability in the Sub-Saharan Africa. Land and water scarcity and land size are constraints that hinder smallholder agricultural productivity. The small plots are kept as some form of security and not for production purposes. There is a positive relationship between food security and land size. Farmers with small plots tend to experience food insecurity.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research methodology followed during the study. The description of the study area was done covering the following issues:

- Locality of the three irrigation schemes.
- Total number of beneficiaries and crops currently being cultivated within the three irrigation schemes

The design of the study was covered as well as the method used to collect and analyze the collected data. The issue of pilot testing the data collecting instrument was also entertained and lastly, the ethics followed when carrying out the study is described.

#### **3.2 Description of the study Area.**

The study was conducted on three irrigation schemes located in Mopani District. Mabunda irrigation scheme is located at Xitlakati village and Seloane irrigation scheme is located in Seloane village whereas Mariveni irrigation scheme is located at Mariveni village (See Appendix D and E). The total number of participants in all the three irrigation schemes is fifty six (56) members. The three irrigation schemes are described below;

##### **3.2.1 Mabunda irrigation scheme**

This irrigation scheme is located in the Giyani Municipality on the southern part of the Giyani town along the Great Letaba River. The Mabunda irrigation scheme is located in the area that receives summer rains coupled with mild winters. Rainfall ranges from 250 – 300mm per annum and this is an indication why the project relies on irrigation for survival(Agri-Business,2006:14). Maganga (1998:2) pointed out that there can be little doubt about the importance of irrigation that is small in extent, that is more or less

uninfluenced by government bureaucracy and technical expertise and that is conceived, designed, built and managed by farmers and their families.

Kamara, Innocencio and Fayse (2007:9) also mentioned that at the end of 2001, the National Department of Agriculture, Agri SA and National African Farmers Union (NAFU) released the strategic plan for South African Agriculture. One of the core strategies in the sector plan for agriculture is sustainable resource management, which also impacts on efficient water use. The project gets its water allocation from the Tzaneen water board and draws their irrigation water from the Nondweni weir. The Mabunda irrigation scheme is comprised of twenty five (25) members. Land utilization is indicated in Table 5.

Table 5: Land utilization at Mabunda Irrigation Scheme

<b>Land Usage</b>	<b>Area (hectares)</b>
1.Irrigated Mango Orchards	88
2.Irrigated Citrus Orchards	181
3.Undeveloped Irrigated Land	18
4.Open Area:Roads,Dams,Admin Buildings,etc	13
<b>Total Area</b>	<b>300</b>

Source: (Agri-Business, 2006:14)

### 3.2.2 Seloane Irrigation Scheme.

The scheme is located in the Ba-Phalaborwa Municipality on the western side of Phalaborwa town. The scheme is in the Seloane village which is characterized by high temperatures accompanied by low rainfall. The scheme is next to the Kruger Park fence which leads to crop damage by stray elephants and Hippos from the Letaba River. This area is famous for its cattle and game farming.

Agribusiness (2006) indicated that the area is characterized by high temperatures with the average temperatures being 37 °c. Rainfall is low, ranging between 270 and 300mm per annum. This makes irrigation important for any meaningful crop production. The project draws its irrigation water from the Great Letaba river with the apportionment being done by the Tzaneen water board. (Agri-Business, 2006:8).

This scheme deals mainly with permanent crops for example mangos and oranges. They also cultivate vegetable on a limited scale to generate extra income. Seloane irrigation scheme is currently managed by six (6) members. The land utilization is indicated in table 6 below.

Table 6: Land utilization at Seloane Irrigation Scheme

<b>Land Usage</b>	<b>Area(Hactares)</b>
1.Irrigated Citrus	30
2.Irrigated Mango	29.8
3.Cash crops	10
4.Buildings, and roads	30
<b>TOTAL AREA</b>	<b>99.8</b>

Source: (Agri-Business, 2006:15)

### 3.2.3. Mariveni Irrigation Scheme.

The scheme is located in the Tzaneen municipality on the eastern side of Nkowankowa Township. The project is in the Mariveni village under the chieftainship of Chief Muhlaba. It is along the Letsitele and Nkowankowa road. It benefits from the sub-tropical, frost free conditions and fairly good alluvial soil, (Peret, Lavigne, Stirer, Yokwe, and Dikgale, 2003:14).

As compared to the other two, this irrigation scheme is better situated in terms of rainfall and other weather conditions. Rainfall ranges between 300 and 500mm/annum coupled with cold winters. Like the other two, the irrigation scheme also draws its irrigation water from the Great Letaba River with the allocation controlled by the Tzaneen water Board,(Agri-Business,2006:22). This irrigation scheme is comprised of twenty five (25) members. The land utilization is indicated in Table 7.

Table 7: Land utilization at Mariveni Irrigation Scheme

<b>Land Usage</b>	<b>Area (hectares)</b>
1.Irrigated Banana Plantations	66.55
2. Irrigated Citrus Orchards	134.26
3. Dry Land	48.78
4. Undeveloped Irrigated Land (10 ha is under Papaya)	29.31
5.Open Area: Roads, Dams, Admin Buildings, etc	39.50
<b>Total Area</b>	<b>318.40</b>

Source: (Agri-Business, 2006:22)

Suleiman (2006: 71) indicated that Limpopo counts 154 smallholder irrigation schemes, which cover a total command area of 24 795ha. Among these 154 schemes, 78(50.6%) are canal irrigation schemes. Combined they cover a command area of 14 388 ha, which is 58.0% of the total smallholder irrigation area found in Limpopo Province.

### 3.3 Design of the study

The research has used a survey approach and used both qualitative and quantitative methods to collect data. The study was implemented in two phases. The first phase focused on the irrigation schemes participants, while the second phase focused on the community structures that have been affected by the establishment of the irrigation schemes.

### 3.4 Data Collection

Data was collected by means of a structured questionnaire (See Appendix I and J)) from project beneficiaries and community structures. Non-random method was used in selection of project beneficiaries. This was influenced by the small number of beneficiaries in all irrigation schemes. All irrigation schemes have fifty six (56) beneficiaries. It was only the community structures which were randomly selected .One hundred and five (105) people were interviewed representing different structures in all three villages, excluding the 56 beneficiaries. Out of this figure, thirty five (35) people were interviewed per village comprising of the following:

- livestock committee-10,
- Youth-10,
- water committees-10 and
- Tribal councils-5.

The first three groups were randomly selected from a population of fifty (50). The livestock committee was selected using the cattle register. This is a register where all livestock owners are listed, reflecting the total number of livestock owned. (See Appendix: M), as for the tribal council, because of the limited and the varying number per tribal authority five(5) were interviewed The survey collected data from the three irrigation schemes focusing on personal and production information, technical and marketing information as well as employment information. On the part of community structures focus was on personal information, employment information and project details. The



production and employment information covers the periods 2005 to 2009. The completed questionnaires were coded, for example, A01 representing the first respondent in scheme 1.(See appendix: K and L). All the completed questionnaires were registered in a spread sheet against the questions asked during the interview, for example, all respondents in (Appendix :K) in question 1 their response was B.

### 3.5 Pilot testing.

Pilot testing was carried out at an irrigation scheme cultivating pepperdew to test the questionnaire. This crop is labour intensive during harvesting and scouting. The questionnaire was tested on ten (10) volunteer farmers. The average time taken to complete the questionnaire was 30 minutes. Blanche, Durrheim and Painter (2006:94) indicated that conducting research involves costs and it is always a good idea to conduct a pilot study before implementing the final research design. Pilot studies are preliminary studies on small samples that help to identify potential problems with the design, particularly the research instruments. Welman, Kruger and Mitchel (2005:148) also mentioned that when a new measurement instrument is developed, it is useful to “test it out” before administering it to the actual sample. This process of testing out is done by means of a pilot study. This was the case with the research instrument as corrective alterations were effected after pilot testing.

### 3.6 Interviews using a questionnaire

The purpose of the study was explained to project beneficiaries as well as the community structures which took part in the interviews. They were also told that they were not compelled to participate in the interview and they were at liberty not to answer some of the questions if they so wish. It was explained that the outcome of the study will be communicated to all persons who have taken part through reports or reporting back sessions (depending on what the respondents will have chosen). The information gathered during the interviews will be used only for the purpose of the study. Three days were allocated to interview the project beneficiaries with each project being allocated one day. The irrigation scheme beneficiaries were the ones who suggested

the dates on which the interviews would be conducted after looking at their daily farm schedules. Interviews were conducted by the researcher who was assisted by five enumerators from each village. The enumerators were paid an amount of R50-00 per day and this was agreed upon before the interviews were carried out. Lunch was provided by the researcher to the enumerators.

### 3.7 Setting appointments for interviews.

Telephone calls were made to Chairpersons of the three irrigation schemes, where appointments were secured to visit them on different dates for explanation of the purpose of the visit. The irrigation scheme beneficiaries were the ones who suggested the dates which the interviews will be conducted looking at their daily farm schedules. The enumerators and their tasks were introduced to the beneficiaries during the meeting. To the community structures appointment were secured through the assistance of local councilors, who in return made arrangement for presentation during the tribal meetings. After the tribal briefing a go ahead to conduct research was given (See appendix: O)

### 3.8 Data Analysis

Data collected from 105 participants representing community structures and 56 participants representing irrigation schemes beneficiaries was used for analysis. Data was organized into themes for analysis. Data was analysed manually where the coded questionnaires were recorded into a spread sheet. The process of analysis has been carried out by using qualitative description and descriptive statistics. Data has been manually analysed and the output has been discussed using tabulation and cross-tabulation of variables with percentage in descriptive statistics.

### 3.9 Ethics

The study was initially introduced to chairpersons of all three irrigation schemes, who organized a meeting where all members were briefed. This was also done to community structures through local councilors. The whole community was briefed in a tribal

meeting. During the conduct of interviews, informed consent was sought from all potential participants. At the beginning of the interview, respondents were informed that their participation was voluntary. Information provided will be used solely for the purpose of the study and their anonymity will be maintained. The outcome of the study will be communicated to the participants through reports and/or report back sessions. A request to conduct research was also forwarded to the local Department of Agriculture as the main custodian of the irrigation schemes within the District. (See Appendix: N)

### 3.10 Summary.

The first part of the study has focused on the description of the study which has highlighted the areas where the study was conducted, crops that are cultivated in the three irrigation schemes and lastly, the number of beneficiaries. The design of the study has described the approach used during the study as well as the method applied in collecting data. The data collection has covered the instrumentation method applied in collecting data and how it was analysed to achieve the objectives of the study. The technique and procedures used to secure appointments were fully covered. Last, the issue of ethics applied throughout the study has been explicitly explained.

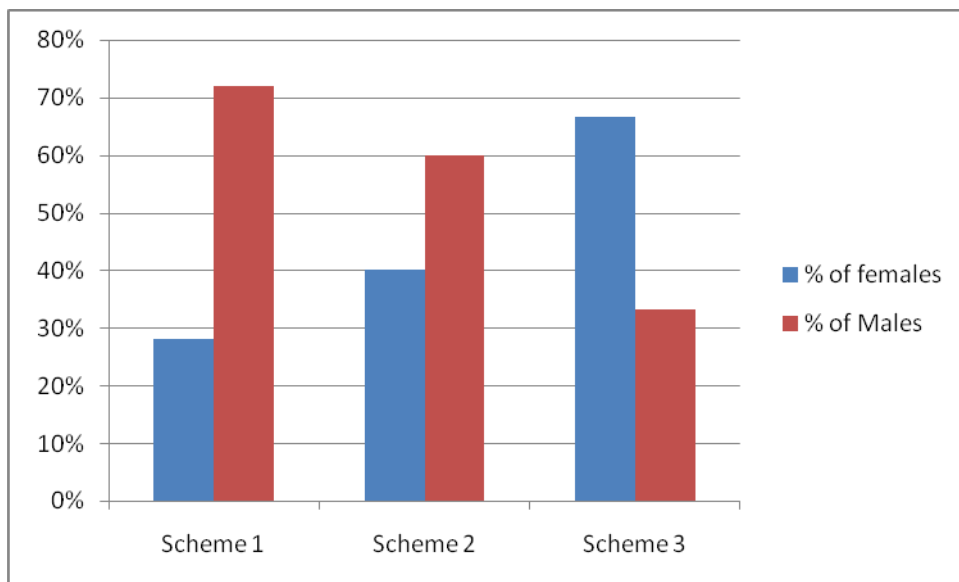
## CHAPTER 4

### RESULTS AND DISCUSSION

#### 4.1 Introduction

In this section, the following will be discussed, Personal information on respondents, gender and age of respondents, marital status and number of dependants, age of dependants and lastly the educational level and the home language of respondents as well as that of the community structures in the communities where the three irrigation schemes are located. The three schemes (Mabunda, Mariveni and Seloane will be addressed as Scheme 1, Scheme 2 and scheme 3 respectively).

##### 4.1.1 Gender composition



**Fig 1: Gender composition**

In the three schemes, gender composition is reflected as follows: 28% of respondents are females while 72% are males in Scheme 1. In Scheme 2 the gender composition is made up of 40% of respondents being females and the remaining 60% reflecting the male respondents. Lastly, in Scheme 3 nearly 67% of respondents are female while 33.3% are male respondents. Indication from the above figure is

that the majority of the respondents in Schemes 1 and 2 are males while the opposite is true in Scheme 3. Most of the agricultural activities in South African rural areas are carried out by female farmers, due to the fact that high ratio of males having migrated to urban areas to seek better remunerative employment. In the three schemes, it is not the case because the selection criteria used before the new dispensation was biased against women.

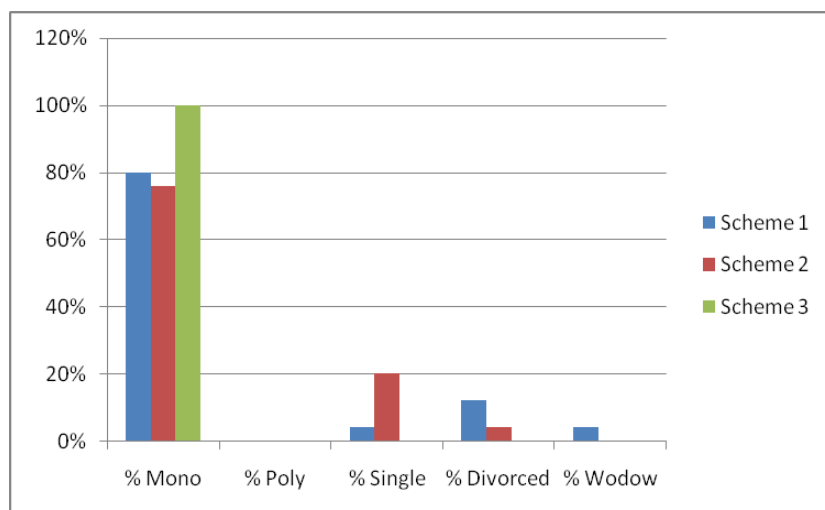
#### 4.1.2 Age of Respondents

Table 8: Age distribution of respondents

<b>Scheme</b>	<b>21 to 30 Years</b>	<b>31 to 40 Years</b>	<b>41 to 50 Years</b>	<b>51 to 60 Years</b>	<b>&gt; 60 Years</b>
<b>Scheme 1</b>	4%	20%	40%	28%	8%
<b>Scheme 2</b>	12%	28%	36%	12%	12%
<b>Scheme 3</b>	0%	0%	33.30%	66.70%	0%

Scheme 2 is the only one among the three with a high percentage (12%) of youth (aged between 21 and 30 years) actively involved in the scheme and it also has the highest percentage (12%) of farmers who are 60 years of age and above. In all the three Schemes, a larger proportion of respondents are aged between 41 and 60 years of age (middle to old age). When the above information is compared to the success of irrigated agriculture in Zimbabwe represented by the Chitora irrigation scheme, FAO (2004:4) it is understood that Chitora irrigation scheme was run by young people aged 22 to 29 years who were without jobs and were dependent on their parents for everything. Schemes 1 and 2 performed better than Scheme 3 in 2009 and have a high proportion of young people as compared to scheme 3 which has 66.7% of participants aged between 51 to 60 years. During the same period the two schemes (1 and 2) managed to export 1240, 1010 and 1100 cartons of citrus to overseas markets while for the same period scheme 2 generated R13m from export markets, R118.440 from local sales (juice) and R83 043 from farm gate sales.

### 4.1.3 Marital Status



**Fig 2: Marital Status**

All schemes (Scheme 1, 2 and 3) have the highest percentage of farmers who are monogamously married (80%, 76% and 100% respectively). Scheme 1 is the only scheme with farmers who are widows/widowers; Scheme 2 has the highest percentage of single farmers (20%), with none of the respondents engaged in polygamy. .

### 4.1.4 Number of dependants

Table 9: Number of dependants

Scheme	Total number of dependants	Min	Max	Mean
Scheme 1	130	1	9	5.2
Scheme 2	78	1	6	3.12
Scheme 3	36	4	10	6

According to Table 9, Schemes 1 and 2 have the highest total number of dependants (130 and 78 respectively).Scheme 3 has 36 dependants. Scheme 3 has the highest minimum and maximum number of dependants and this is caused by the fact that they are elderly. The highest average number of dependants is 6 and the lowest is 3.12.

#### 4.1.5 Age of Dependants

Table 10: Age of dependants

<b>Scheme</b>	<b>Age</b>	<b>Number of Respondents with beneficiaries</b>	<b>Total number of dependants</b>
<b>Scheme 1</b>	< 10	18	32
	11 – 18	21	37
	19 – 30	17	42
	31 – 40	9	13
	41 – 50	0	3
	>50	2	3
<b>TOTAL NUMBER OF DEPENDANTS</b>			<b>130</b>
<b>Scheme 2</b>	< 10	10	16
	11 – 18	17	24
	19 – 30	12	25
	31 – 40	2	4
	41 – 50	2	4
	>50	2	4
<b>TOTAL NUMBER OF DEPENDANTS</b>			<b>77</b>
<b>Scheme 3</b>	< 10	5	16
	11 – 18	4	5
	19 – 30	4	11
	31 – 40	3	4
	41 – 50	N/A	N/A
	>50	N/A	N/A



<b>TOTAL NUMBER OF DEPENDANTS</b>	<b>36</b>
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Scheme 1 has the highest total number of dependants 130 followed by Scheme2 with the total of 77. Scheme 1 has the highest number of dependants aged between 19 and 30 of age who total 42 followed by those aged between 11 and 18 who are 37 in number. In all the Schemes the highest number is registered in those aged between 19 and 30 years of age. This indicates that most of the dependants are still youth who rely on their guardians for material support.

#### 4.1.6 Educational level of Respondents

Modondo(Undated:2) indicated that there are three modes of education which people may go through in their careers. The first one is informal education. This is a life-long process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment. The second mode of education is formal education which is a highly institutionalized chronologically graded and hierarchically structured education system spanning lower primary school and the upper reaches of the university. The third form of education is non-formal education which is any organized form of learning focused on a specific profession. In this case agricultural extension takes a specific case in point covering farmer training programs, adult literacy programs, and occupational skill training outside the formal systems.

Table 11: Educational level

<b>Scheme</b>	<b>% Primary</b>	<b>% Secondary</b>	<b>% Tertiary</b>	<b>% No Formal Ed.</b>
<b>Scheme 1</b>	20%	56%	8%	16%
<b>Scheme 2</b>	12%	82%	6%	0%
<b>Scheme 3</b>	16.70%	50%	0.00%	33.30%

According to Table 11, Scheme 3 is the only scheme whose respondents have no tertiary education and has also a higher proportion of farmers with no formal education compared to the other schemes. Scheme 1 is the only scheme with the higher proportion of respondents with tertiary qualification. Scheme 2 is the only scheme with the higher proportion of respondents (82%) with secondary qualification, while the other two schemes 50% of respondents have acquired secondary education.

#### 4.1.7 Home Language

Table 12: Language spoken

<b>Scheme</b>	<b>% Xitsonga</b>	<b>% Sepedi</b>	<b>% Tshivenda</b>	<b>% Other</b>
<b>Scheme 1</b>	76%	24%	0%	0%
<b>Scheme 2</b>	96%	4%	0%	0%
<b>Scheme 3</b>	33.30%	66.70%	0%	0%

Xitsonga is the most common spoken language in the three schemes followed by Sepedi (Table 12). This can be attributed to the fact that the three irrigation schemes are situated in the areas that used to be under the former homelands of Gazankulu (Mariveni and Mabunda) and Lebowa (Seloana)

## 4.2 Farming Information

### 4.2.1 Crops cultivated

Some crops that are cultivated in one irrigation scheme are not cultivated in the other schemes. In scheme 1, crops that are cultivated are the following: Citrus, mango, Butternut, Pepper dew, scaletium and tomatoes. Scheme 2 cultivates the same crops as scheme 1 with the exception of mangoes while the last scheme (scheme 3) only cultivates citrus and mango. Scheme 1 and 2 cultivates more crops (vegetables) for the purpose of cash flow while waiting for the season of the main crops (Citrus and Mango). These crops enable the two projects to pay salaries of workers during the off season of the main crop. Currently Scheme 3 is focusing on the main crops; but plans are in place

to plant cash crops in the developed 10hactares to address the issue of cash flow during the off season of the main crops.

#### 4.2.2 Land Ownership

The three schemes lease land from the tribal authorities. From the informal discussion with farmers in Scheme 1 and 2, it was reflected that they are expected to pay R18 000.00 per year. The lease agreement entered into by Scheme 3 and the local tribal authority indicates that they are to pay R3 310.00 per annum

#### 4.2.3 Size of the Irrigation Schemes.

The size of the irrigation schemes are as follows: Scheme 1 is 300ha, scheme 2 is 318,40hactares and scheme 3 is 99.8hactares. They are both not satisfied with the allocated land size as they still need additional land. Scheme 1 needs additional 150hactares, scheme 2 needs 300ha and scheme 3 needs 10hactares.

#### 4.3 Production Information

##### 4.3.1 Production during 2008 season.

Table 13: Production statistics

<b>Scheme</b>	<b>Citrus(tons)</b>	<b>Mango(tons)</b>	<b>Banana(tons)</b>	<b>Butternut(bags)</b>
<b>Scheme 1</b>	16	N/A	N/A	700
<b>Scheme 2</b>	10	N/A	96	N/A
<b>Scheme 3</b>	N/A	900	N/A	N/A

From the scheme's records (Table 13), scheme 1 managed to produce 16 tons of citrus, while 10 tons were produced by scheme 2. Scheme 3 did not register any production. This was caused by the legal battle they were having with the strategic partner about the ownership of the scheme. The farmers have won the legal battle at the Supreme

Court and the partnership with the strategic partner has been legally terminated. When it comes to banana production, only scheme 2 registered some production (96 tons) were produced.

### 4.3.2 Production in the last five years.

Table 14: Previous production statistics.

<b>Scheme</b>	<b>Year</b>	<b>Citrus (tons)</b>	<b>Mango (tons)</b>	<b>Butternut (Bags)</b>	<b>Tomato (tons)</b>
<b>1</b>	<b>2005</b>				
	<b>2006</b>	22			
	<b>2007</b>	28		3944	350
	<b>2008</b>	28		2947	451
	<b>2009</b>			2900	460
<b>2</b>	<b>2005</b>	28	67		
	<b>2006</b>	30	67		
	<b>2007</b>	27	67		
	<b>2008</b>	30	67		
	<b>2009</b>	30	67		
<b>3</b>	<b>2005</b>	22			
	<b>2006</b>	22			
	<b>2007</b>	22			
	<b>2008</b>	22			
	<b>2009</b>				

In Scheme 1, the records reflect an increase in terms of citrus production from 2006 to 2007 but from 2007 to 2008 the production records reflect a constant figure. The constant figure is the figure that they managed to send to the export market, while the ones that were sold locally were not reflected. In Scheme 2; the production records reflect that the yield of citrus varied between 27 to 30 tons for the period between 2005

and 2009. The production of mango was constant at 67 tons for the period under review. Scheme 3 production records reflected that 22 tons of citrus were produced and marketed each year.

#### 4.4 Employment Information

##### 4.4.1 Potential of Irrigation schemes to create employment.

Khando (Undated:5) indicated that the objective of the government for establishing the three irrigation schemes was to settle farmers in order to promote the development of entrepreneurial skills of the farmers, optimal utilization of existing infrastructure and the generation of socio-economic benefits for the communities adjacent to the schemes. The tangible objectives are to provide employment, generate income for the local communities, thereby alleviating poverty and stimulating economic growth and development. All participants interviewed indicated that they believe that the schemes have the potential to create employment. From the business plans, the anticipated financial impacts on the communities adjacent to the schemes are as follows;

Table 15: Anticipated job and financial impact for the three irrigation schemes.

	<b>2006</b>	<b>2008</b>	<b>2010</b>	<b>2012</b>	<b>2014</b>	<b>2016</b>
Permanent Employees	32	42	42	42	42	42
Temporary employees	121	236	240	234	233	232
Monetary value in rands (Basic salary input into the community)	839,997	1,509,060	1,775,552	2,045,130	2,381,396	2,772,145
Performance bonus in rands (Divisional management and employees)		27,525	36,800	35,920	43,857	54,118

Source: Khando(Undated)

Projected jobs to be created are as reflected in the table above, with the high proportion of temporary jobs expected to be created during the years 2008 and 2010. The permanent jobs are projected to increase by 76% between 2006 and 2008 and the number is expected to remain constant from 2008 to 2016. Temporary jobs are as well expected to increase from 2006 and reach the peak (at 240 jobs) in 2010, from there it is expected to decrease until 2016. The reason for the decrease could be that some plots will need replanting ( as some trees will be old) and this will reduce the number of workers needed. Collective salaries of both permanent and temporary workers are expected to be the highest from 2012 to 2016.

#### 4.4.2 Feelings of community structures towards the potential of irrigation schemes on employment creation.

The community structures interviewed reflected their feelings as follows towards the potential of the irrigation schemes in creating employment.

##### 4.4.2.1 Tribal Council

Table 16: Tribal Council perception on the potential of Irrigation schemes on job creation.

<b>Village</b>	<b>Yes</b>	<b>No</b>	<b>Total Percentage</b>
1	80%	20%	100%
2	100%	0%	100%
3	0%	100%	100%

According to Table 16, in village 1, eighty percent (80%) of the Tribal Council members indicated that the Irrigation scheme does create employment, while 20 percent were negative, when asked further why they think the irrigation scheme is not in a position to create employment, the reason given was that none of their family members were employed in the irrigation schemes In Village 2 (Mariveni) all the tribal council members were positive about the ability of the irrigation scheme to create employment. Lastly, in village 3 all council members were negative about the irrigation scheme. They indicated that the scheme is not capable of creating employment citing that the members are not technically equipped to run such a scheme. They also indicated that at the time when the scheme was run by the government many people were employed, forgetting the people working there were not paid from the money generated from the scheme as they were civil servants.



#### 4.4.2.2 Youth

Table 17: Youth perception on the potential of irrigation schemes on job creation.

<b>Village</b>	<b>Yes</b>	<b>No</b>	<b>Total Percentage</b>
1	100%	0%	100
2	50%	50%	100
3	40%	60%	100

Youth in village 1 (Table 17) believe that the irrigation schemes have the potential of creating employment, while in village 2, half the respondents are positive about the potential of irrigation schemes on job creation and the half are negative. The reasons given for their negative attitude was that it was a waste of time working in the irrigation schemes as the salaries are low. In village 3, only 40% are positive that the irrigation scheme can create employment with the remainder being negative.

#### 4.4.2.3 Livestock Committee

Table 18: Livestock Committee perception on the potential of Irrigation schemes on job creation.

<b>Village</b>	<b>Yes</b>	<b>No</b>	<b>Total Percentage</b>
1	100%	0%	100%
2	60%	40%	100%
3	30%	70%	100%

According to Table 18, mixed feelings were reflected when it came to issues of the irrigation schemes' ability to create employment. The highest percentage in villages 1 and 2 indicated that the irrigation schemes are able to create employment, though the employment criteria are biased, as the beneficiaries are employing their relatives and friends. Livestock committee members in village 3 were negative on the potential of

irrigation schemes on job creation. They are negative as the irrigation schemes are established in areas that used to be the grazing areas for their livestock.

#### 4.4.2.4 Water Committee

Table 19: Water Committee perception on the potential of irrigation schemes on job creation.

<b>Village</b>	<b>Yes</b>	<b>No</b>	<b>Total Percentage</b>
1	100%	0%	100%
2	0%	100%	100%
3	10%	90%	100%

Village 2 (Table 19) does not believe that the scheme can create employment while village 1 says the opposite. In village 3 ninety percent are negative with the remainder being positive. Village 3 community members have a bad relationship with the scheme, because most of the people interviewed are negative about the scheme.

#### 4.4.3 Farming activities that create jobs.

All the scheme respondents interviewed agreed that most of the jobs are created during spraying, harvesting, packaging and weeding, because these activities are labour intensive and few during irrigation as all the schemes use the drip irrigation system, which requires few workers to check if the drips are delivering water to the right place and also to check for blockages. The checking of the irrigation system can be handled by four to six workers depending on the size of the plot.

#### 4.4.4 Actual Number of Jobs Created

##### 4.4.4.1 Permanent workers.

Schemes 1 and 2 have above 60 permanent workers, while scheme 3 has between 31 and 40. Schemes 1 and 2 have the highest number of permanent workers because beside the main crops citrus and mango, they are also in vegetable farming. Some of the crops planted like peppedew are labour intensive more especially during harvesting.

##### 4.4.4.2 Workers employed in the last five years.

Table 20. Employment history in the irrigation schemes.

<b>Scheme 1 (2005 to 2009)</b>				
	<b>Total</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>
<b>Permanent</b>	323	60	70	65
<b>Temporary</b>	1987	258	447	397
<b>Scheme 2 (2005 to 2009)</b>				
	<b>Total</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>
<b>Permanent</b>	430	86	86	86
<b>Temporary</b>	985	165	250	197
<b>Scheme 3 (2005 to 2009)</b>				
	<b>Total</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>
<b>Permanent</b>	296	32	42	74
<b>Temporary</b>	777	59	240	155

Scheme 1 for the period 2005 to 2009 (Table 20) managed to employ a maximum of 70 people on a permanent basis per year and a maximum of 447 workers on temporary basis. On average, scheme 1 employed 65 people on permanent basis and 397 as temporary workers. For the same period scheme 2 managed a maximum of 86 and 250 as permanent and temporary workers per year respectively which led to an average of 86 and 197 permanent and temporary employees respectively. Among the three irrigation schemes, scheme 3 is the only one which registered the lowest number of people employed. It registered a maximum of 42 and 240 permanent and temporary workers respectively. The average number of workers absorbed in this scheme per year was 74 for permanent and 155 for temporary. The reasons given by the respondents in scheme 3 for the low number of jobs created are that during the period in question they had conflict with the strategic partner. Instead of focusing on production they were most of the time engaged in legal battles with the strategic partner.

4.4.4.3 Number of family members employed in the irrigation schemes in the past five years (2005-2009)

Table: 21 Number of Family members employed in the schemes (Community Structures).

<b>Structure</b>	<b>Village</b>	<b>Number of Family members employed</b>
<b>Tribal Council</b>	2	11
<b>Youth</b>	1	30
	2	3
	3	4
<b>Livestock Committee</b>	1	6
	2	5
	3	4
<b>Water Committee</b>	1	10
	2	8
<b>TOTAL</b>		<b>81</b>

In all the three Schemes, it is only eleven family members from the tribal council who benefited from employment in the three irrigation schemes for the 2005 to 2009 (Table 21). The highest number of family members who got employed in the irrigation schemes was reflected by Youth in the three villages, as collectively reflected that 37 family members got employed during 2005 to 2009. This is also confirmed by Table 10 that reflected 42 number of dependants as youth (aged between 19 and 30 years of age). Six family members from Livestock Committee in village 1 benefited through employment in the irrigation schemes, while village 2 and 3 reflected five and four family members

who benefited from employment. From the Water Committee it is only village 1 and 2 that benefited from employment, as collectively they registered 18 family members.

#### 4.5 Knowledge of Irrigation schemes by community structures.

##### 4.5.1 Tribal Council

Table 22: Knowledge of the irrigation schemes

<b>Village</b>	<b>% member of family is a beneficiary</b>	<b>% member of family employed there</b>	<b>% Relative employed there</b>	<b>% Neighbour beneficiary</b>	<b>% Neighbour employed</b>	<b>% Other</b>
<b>Village 1</b>	<b>0%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	20%
<b>Village 2</b>	<b>0%</b>	<b>0%</b>	<b>60%</b>	<b>20%</b>	<b>20%</b>	0%
<b>Village 3</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	100%

Village 3 did not reflect anything on the issue of knowledge of the Irrigation scheme. This is because they are not satisfied with the existence of the irrigation scheme as it does not contribute anything towards the development of the village. Village 1 participants mentioned that they know the project as family members and neighbours are employed in the irrigation scheme and some of their neighbours (20%) are beneficiaries in the irrigation scheme.

IFPRI (2002:4) mentioned that irrigation farming is one of the most important elements of rural development that can have both direct and indirect impacts on poverty and food security in semi-arid tropical countries. This is true because the respondents mentioned that they knew the scheme as family members, relatives and neighbours are employed and making a living from the scheme.

4.6 Views of community structures on how employment is created in the irrigation schemes.

Table 23: Community structures' views on when jobs are created in the irrigation schemes

Community Structure	Farm activities during which jobs are created				
	Soil Preparation	Planting	Spraying	Harvesting	Others
<b>Tribal Council</b>	0%	20%	0%	80%	0%
<b>Youth</b>	0%	0%	0%	90%	10%
<b>Livestock Committee</b>	10%	10%	0%	60%	20%
<b>Water Committee</b>	0%	0%	20%	50%	30%

According to Table 23, twenty percent (20%) of the tribal council members indicated that employment is only created during planting while 80% mentioned that jobs are mostly created during harvesting. Youth believes that 90% of jobs are created during harvesting with only 10% during weeding. Livestock and water committee members also indicated that the larger portions of jobs are created during harvesting.

#### 4.7 Salary scales in the last five years (Rands)

Table 24: Salary scales in the last five years (2005-2009).

	Total(R)per month	Min(per month)	Max(per month)	Mean(Per month)
<b>Permanent</b>	12 000	1800	3000	2400
<b>Temporary</b>	243.25	348.95	548.35	448.65

In the past five years (2005 to 2009), the salary scales in the three schemes were the same, as they were all being managed by the same corporation (ARDC). In 2005 temporary workers in all the schemes were paid R0.35 cents per bag of oranges harvested, with an annual increment of five cent. The maximum bag per worker per month is 997. It means that temporary workers were paid a minimum of R348.95 (0.35 cents x 997 bags/month = R348.95. Some workers managed to harvest more than the 997 bags per month, and they received more than the R348.95 per month. In 2006 the temporary workers were paid 0.40 cents per bag. The minimum salary was 0.40 x 997= R398.80. Temporary workers are each given a bag for harvesting oranges and a tag to register the number of bags harvested. When the bag is full it is offloaded in a trailer and also registered by means of a tag. (See appendix C) which is tag and it is tagged on the equipment reflected in appendix A). The equipment reflected in appendix A is fitted into the computer. The number of bags harvested per person will be reflected. The person will then be paid according to the number of bags harvested. The average salary paid to permanent workers is R2400 per month (table 24), while the temporary workers are paid R 448.65 per month. The salaries of temporary workers are performance based. The higher the number of bags filled, the higher the salary. On top of the salaries both workers also have the opportunity of purchasing the produce at the staff price. (See appendix: P)

FAO (2004:4) mentioned that farmers income in Zimbabwe averaged Z\$60 000 per year as compared with that of Z\$16 800 for un-skilled labour wages in town. The beneficiaries in the three irrigation schemes earn far more than their counter parts in Zimbabwe. This confirms that agriculture pays better than what the unskilled workers are being paid in towns.

Perret(2002:5) noted that irrigated holdings of 1.3 to 1.7ha were adequate to provide a family with a living that would satisfy them. The three irrigation schemes have (in terms of size) exceeded what was mentioned as the adequate hactarage to provide a family with a living, hence, their capacity to cater for local and export markets.



#### 4.8 Duration of temporary employment.

Scheme 1 and 2 employ temporary workers over a period of 12 months. This is caused by the introduction of cash crops which keep the workers busy throughout the off season of the main crops (Citrus and Mangoes) while scheme 3 employ workers over a period of 6 months. The reason for keeping temporary workers only for six months is that currently, there is no cash crop being cultivated at scheme 3, but plans are underway to establish cash crops on a 10Ha plot. Their salaries are performance based and they were selected through a process of interviews.

#### 4.9 Technical Information

##### 4.9.1 Extension Service

Extension, as defined by Bembridge (1993:268), is a form of conscious social influence. The conscious communication of information to help people form sound opinions and make good decisions. Extension is provided in all the irrigation schemes by government officials as well as by strategic partner. The extension service is offered on all aspects of agriculture.

Machete et al (2004:32) noted that extension officers generally have limited training in irrigation and water users association. Training and support that the extension officers can provide will be limited to the individual farmer level. This is the case in the three irrigation schemes as extension officers attached to these schemes are lacking on certain aspects of irrigation management.

##### 4.9.2 Irrigation Water Source

Water for irrigation is drawn from the Groot Letaba river. It is controlled by the Letaba Water board, where the schemes are represented. The schemes then draw water from the river by means of pump station (see Appendix B).

#### 4.9.3 Maintenance of Farm Equipments

The beneficiaries have allocated themselves departments within the scheme and have been trained in accordance to those departments. Those that are managing the office have been trained on office administration issues, while those who are responsible for pest control have been exposed to scouting of pests as well as calibration of spraying equipments. The issue of maintenance of irrigation system and farm mechanisation is done by the farmers themselves. There is a workshop where all farm equipments receive mechanical attention when there is a need for such. This activity is done (in house) as there are some farmers who have been trained on farm equipment maintenance. It is only the major repairs that are sourced outside the schemes. The three schemes share expertise among themselves eg if there is one farmer who is good in fixing hydrants, he /she shares the expertise with other schemes.

#### 4.9.4 Financial Assistance

The schemes received financial assistance from the Department of Agriculture, Local Municipality, Land Bank and also from commercial banks. The assistance was provided as follows:

- Assisted the three schemes (Scheme 1, 2 and 3) to acquire a loan to a tune of R 16.m from the Development Bank of Southern Africa.
- Assisted Scheme 1 to acquire a grant amounting to R1.5m from Greater Giyani Municipality (GGM) through the Local Economic Development (LED) funding for the purchase of implements as well as inputs.
- A grant amounting to R 2, 689,830.00, R 1, 450,470.00 and R 2,168,558.00 for scheme 1, 2 and 3 respectively for the upgrade of the irrigation system through Revitalisation of Smallholder Irrigation Schemes (RESIS) funding.
- ARDC and Letaba Water user Association, provided a grant to a tune of R 462 408.00 for upgrading of water pump and electricity installation.

Indication is that the financial assistance received is not enough; they would like to be further financially assisted by the government with the amount of R30m for the purpose of settling the loan received from the commercial bank.

#### 4.10 Marketing Information.

##### 4.10.1 Markets and marketing strategy.

The Trade Chain of the South African Fresh Fruit Export Industry (2004:5) mentioned that approximately 50% of all fruit produced in South Africa is exported. Although the percentage that is exported varies according to the fruit kind, overall gross export income from fruit exports for South Africa is substantial. The Free On Board value (FOB) of all deciduous fruit types exported in 2002/3 season was more than R4 billion. The three irrigation schemes are no exception and they target export and local markets. For the export market they sell their produce to UK, Russia, Far East, Iran, Lithuania, Middle east and Vietnam. They have a standing contract with export markets; which enables them to know in advance the prices their produce is going to cost even before they receive the payments. They have marketing agents who assist them in getting their produce to export markets. Since they don't have transport of their own they are compelled to utilize the services of transport agents. The production statistics of Scheme 1 for July to September 2009 are listed in table 25 and 26.

Table 25: Butternuts and Baby marrow yield records (Scheme 1: Mabunda).

<b>Butter Nuts</b>		<b>Baby Marrows</b>	
Land under cultivation(ha)	Yield(Tons/ha)	Land under cultivation(ha)	Yield(Tons)
1	17.20	0.5	6.73

The butter nuts were marketed locally and packaged in 10kg and 20kg bags, while the Baby marrows were packaged in 2kg and 4kg bags. The 10kg bag was selling at

R17.94 while the 20kg bag was selling at R40.00 per bag. Their records reflect the following on the 10kg bags production:

Table 26: Butternuts sales records (10kg bags)

<b>Number of 10 kg bags packaged</b>	<b>Selling price®</b>	<b>Amount Received (July 2009 in Rands)</b>
605	17.94	10.855

Some were sold in crates and graded as follows:

- Crate 1 (grade 1) selling for R20.00,
- Crate 2 (grade 2) selling for R 10.00
- Crate 3 (grade 3) selling for R5.00

The production statistics for the butternuts sold in crates are as listed in Table 27.

Table 27: Butternuts sales records (sold in Crates).

<b>Grade</b>	<b>Number of crates produced</b>	<b>Price Rands/crate</b>	<b>in</b>	<b>Amount received in Rands</b>
Crate 1	178	20.00		3560
Crate 3	26	5.00		130
Crate 2	N/A	N/A		
<b>TOTAL AMOUNT RECEIVED IN JULY 2009</b>				<b>3690</b>

The production statistics of the Baby marrows are reflected in Table 28.

Table 28: Baby marrow sales records (July, 2009).

<b>Size of bag(Kgs)</b>	<b>Quantity</b>	<b>Price in Rands/bag</b>	<b>Amount Received(Rands)</b>
2kg bags	301	18.49	5,564.00
4kg bags	263	40.74	10,714.62
<b>TOTAL</b>			<b>16 278.62</b>

The citrus export statistics for July 2009 is reflected in table 29.

Table 29: Extract of Citrus export records (Scheme 1).

<b>Market</b>	<b>Cartons</b> <b>1Carton = 16kg</b>	<b>KG</b>	<b>Tons</b>
Russia	1240	19840	19,8
Middle East	1010	16160	16,1
Luthania	1100	17600	17,6
UK	840	13440	13,4
Vietnam	765	12240	12,2
Far East	898	14368	14,4

Machete *et al* (2004:33) noted that Thabina irrigation scheme lacks marketing arrangement, organisation and sustainability. Only a few farmers engage in contract marketing with buyers and most marketing is done through hawkers. It is not the case with the three smallholder irrigation schemes as they have established overseas markets as it is reflected in table 29 above.

#### 4.10.2 Citrus Income

Table 30: Citrus Income (Scheme 2 in Rands).

	2007/2008	2008/2009	2009/2010	TOTAL 2007 -2010
Export	13, 817, 467	13, 441, 252	11, 584, 996	38, 843, 715
Juice(Local Sales)	710, 818	118, 441	1, 635, 500	2, 464, 759
Local Market(farm gate sales)	183, 938	83, 045	390,570	657, 553
<b>Financial Year Total</b>	<b>14, 712,223</b>	<b>13, 642, 737</b>	<b>13, 611, 067</b>	<b>41, 966, 027</b>

The income generated from the export market was less by R376, 215 in 2008/2009 as compared to 2007/2008. In 2009/2010 the income generated from the export market went down by R1, 856,255 as compared to 2008/2009 financial year. The decline in income was caused among other things by produce which were disqualified due to failure to meet the prescribed market standards. The disqualification of the produce as reflected by the farmers was caused by bruising of fruits due to poor road conditions. As for the produce sold for juice for the period reflected above, there was an increase in income per year. The lowest income generated from the local market was during 2008/2009 period. During this period, the schemes had conflicts with the strategic partner, hence, the low income generated from the local markets. Though the production cost figures were not provided, for the period under review, the collective income generated from all markets was R41, 966,027. FAO (2004:6) mentioned that in Zimbabwe incomes obtained from the different crops grown are very low. The reason for such low incomes is the marketing problems farmers face because of their poor quality produce. It is not the case in the three smallholder irrigation schemes as the incomes (Table 30) are high and the quality of the produce is of international standards, hence, exporting to overseas markets.

#### 4.11 Challenges faced by the three irrigation schemes.

King *et al* (2005:18) indicated that suppliers of high value food – farmers, manufacturers, or retailers face challenges in creating and preserving the unique characteristics of their products and conveying information about those characteristics to consumers. Often, suppliers must rely on numerous members of the food supply chain, such as farmers, for raw products and key services required for production, and they must work through downstream market intermediaries, such as processors and distributors, as their products move to consumers. This configuration of food chain members complicates information sharing and the coordination of activities, product monitoring and quality assurance, and the provision of incentives to supply chain members to ensure equitable and efficient allocation of costs and returns.

The Trade Chain of the South African Fresh Fruit Export Industry (2004:4) stated that transport is an important element in the supply chain of export fruit as it is the link that moves the fruit from the production areas right through to the point of distribution in overseas markets. They use various forms of transport such as road vehicles, marine containers, ships, rail wagons and air craft .Transport is the first challenge faced by the three irrigation schemes. They do not have transport of their own; they rely mostly on the transport companies to assist in transporting their goods to the harbour for export market. These companies charge them exorbitant prices which affect their net profit.

The other challenges faced by the three irrigation schemes are poor roads as this compromise the quality of produce before they reach the market. This leads to some produce being disqualified because of the bruises acquired through the trip on poorly maintained roads. They are currently using the private packhouse for preparing their produce for the market. This arrangement has complications as well, as the pack house is only made available when the owners have completed packing their goods. Lack of own equipments, such as harvesting trailers is a challenge the irrigation schemes have to deal with. They rely on the local commercial farmers for assistance. Transport is provided by the transport agents, who charge them high prices. The high lease rentals are a challenge that the irrigation schemes face every year. Machete *et al* (2004:31)

observed that access to mechanization services is a thorny issue. Most of the smallholder irrigation schemes used heavy equipments before the withdrawal of the government from managing the scheme. When government withdrew, the equipment fell into disrepair. The same happened in the three irrigation schemes. When ARDC withdrew all the mechanization fell into disrepair, hence, the utilization of private farmer's equipments. The bad relationship between farmers and the strategic partner did not help the irrigation scheme, but has affected the production seriously. There is no policy that governs the relationship between the two parties. Lack of finance has also hindered the development of the three irrigation schemes in many ways, as they failed to acquire the required inputs due to lack of funds.

#### 4.12 Summary.

The irrigation schemes managed to create more than the anticipated jobs for the period 2005 to 2009. The majority of respondents concur that the irrigation schemes have the potential of creating employment as some of their family members are employed in the irrigation schemes. The crops planted in these irrigation schemes are citrus, mangoes and bananas. Most of the jobs are created during harvesting of citrus and weeding of all cultivated crops.

The three smallholder irrigation schemes do not have own transport to transport their produce to the market, they rely on transport agents who charge them high fees for the services. Poor road condition and lack of own pack house facility is another challenge faced by the three schemes.

Scheme 1 managed to produce 93.5 tons of citrus for the export market in July 2009, 17.20 tons of butternuts and 6.73 tons of baby marrow. The low production of butternuts and baby marrow is that they are not the main crop but only cultivated to generate income when oranges are out of production. The produce is marketed locally and in foreign markets, with the assistance of marketing agents, with a larger proportion marketed to Far East markets.



Scheme 2 managed to generate R14, 712,223 in 2007/2008; R13, 642,737 in 2008/2009 and R13, 611,067 in 2009/2010

The irrigation schemes are technically supported by extension officers from the government and the strategic partner. The irrigation water is controlled by the Letaba Water Board and each scheme has its own water allocation.

## CHAPTER 5

### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions and recommendations of the study according to the study objectives, which were to:

- Determine the job creation potential of the irrigation schemes.
- Determine the actual jobs created , and lastly
- Differentiate between seasonal/temporary and permanent jobs.

#### 5.1 Biasness towards males

Women play a critical role in agriculture in the developing world accounting for about 70-80% of household food production in Sub-Saharan Africa, 65% in Asia and 45% in Latin America, managing land, water and livestock resources in the absence of men, they are not always recognised as farmers. The gender composition in the three irrigation schemes is biased towards males. The reason behind this is that before 1994, the issue of gender was not considered.

#### 5.2 Educational level, age and main language spoken

Scheme 3 has a high proportion of its respondents with no formal education. Madondo(Undated) defines education as a continuing process spanning from the years from earliest infancy through adulthood and necessarily involving a great variety of methods and sources. There are three modes of education which people may go throughout their careers. The first is one is informal education. This is a life long process by which every person acquires and accumulates knowledge and skills. The second mode of education is formal education which is a highly institutionalized and the third form of education is non-formal education which is any organized form of learning focused on a specific profession. Most of the respondents are aged between 20 to 40

years of age. The majority of respondents speak Xitsonga and less than 30% are those who speak Sepedi. This is caused by the fact that the three irrigation schemes are located in the former Gazankulu and Lebowa homelands.

### 5.3 Crops cultivated and land ownership

The main crops cultivated in the three schemes are Citrus, Mangoes and Bananas. The other crops cultivated are tomatoes, cabbages, butternuts, baby marrows, scaletium and peppedew, they are cultivated to generate cash flow during off season of the main crops. Land is leased from the local tribal authorities. The lease agreements differ in the three schemes with scheme 1 and 2 paying the highest lease of (R18000.00 per annum).

### 5.4 Production statistics and anticipated jobs

The production statistics reflect that from 2005 to 2009 there was an increase of 77% in production in scheme 1. When ARDC took over the management of the three irrigation schemes, the anticipation was to create 32 permanent jobs in 2006 and 42 jobs from 2008 up to 2016. As for the temporary employment, they anticipated 121 in 2006, 236 in 2008 and 240 in 2010 from there they anticipated a drop in the number of temporary jobs. This will be influenced by the age of the trees as some plot will need to be replanted and this will affect the number of people employed during harvesting.

The actual jobs that scheme 1 managed to create are on average 65 of permanent workers and 397 of temporary workers. Scheme 2 managed to create an average of 86 and 197 of permanent and temporary employment respectively. Lastly, scheme 3 managed to create an average of 74 and 155 of permanent and temporary jobs respectively.

The community structures interviewed in relation to the potential of irrigation schemes on employment creation had mixed feelings, with the tribal council members in village 1 and 2, youth in all the villages and water committee in village 1 believed that the irrigation schemes had the potential to create employment.

They also indicated that most of the employment is created during harvesting, packaging weeding and spraying.

#### 5.5 Technical support.

The extension support is provided by the extension officers from the government and the strategic partner. The irrigation water is controlled by the Letaba Water Board and is sourced from the Groot Letaba river. The water is pumped from the river by means of pumps. The farmers are trained in the maintenance in repair of most farm equipments and this has minimized the sourcing of expertise from outside the schemes. Financial assistance was received from both government and private banks. Marketing of produce is done locally and also exported overseas.

#### 5.6 Potential of the irrigation schemes to create employment

The irrigation schemes in the Mopani District have a high potential of creating employment. It was found that most of the activities carried out in the irrigation schemes are labour intensive, hence, the potential of the irrigation schemes in job creation. Jobs are created during harvesting time, weeding and when they remove dead branches from citrus trees. Machete et al (2004:12) mentioned that smallholder farmers can increase productivity and production significantly. For example, smallholder farmers in Zimbabwe (average farm size of between 2 and 3 hectares) doubled maize and cotton in the 1980s when extension, marketing and credit services were provided. The extension service is provided by government and strategic partners officials, hence, the increase in production in the three irrigation schemes which led to job creation.

Machete (2004:1) further indicated that poverty is more pervasive in rural areas particularly in the former homelands, where the three irrigation schemes are located. Majority (65%) of the poor is found in rural areas and 78% of those likely to be chronically poor are also in rural areas. In the light of the above, as soon as it is mentioned that there is employment in the irrigation schemes, people will turn in big numbers at the tribal offices where employment often take place.

### 5.7 Actual Jobs created in the irrigation schemes.

The previous management team of the irrigation schemes anticipated to create a specified number of jobs during a particular period (2006 to 2016). The management underestimated the number of jobs that will be created as the irrigation schemes created more than what was anticipated (see Table 15). Majority of jobs were on temporary basis as most workers are needed during harvesting and weeding times. This means that more families benefited from the salaries earned from the irrigation schemes. According to Mopani District Municipality IDP representative forum document (2011:1) 48% of the population are without income, so immediately the opportunity of employment is mentioned, the majority of people make themselves available irrespective of salaries they are going to earn. Machete (2004:1) contended that between 40 and 50% of South Africa's population can be classified as living in poverty. Although the country is self sufficient in food production, about 14 million people are said to be vulnerable to food insecurity and 43% of households suffer from poverty.

### 5.8 Salaries paid to workers.

Machete (2004:1) argued that South Africa is classified as an upper middle – income country with one of the most skewed distribution of income in the world. The country's Gini Coefficient is estimated at 0.68 calculated from the 1996 population Census data. The large income gap between the rich and the poor is a matter that is receiving attention from the government. A number of policies aimed at *inter alia* bridging the income gap and promoting economic empowerment of previously disadvantaged communities are in place. The three irrigation schemes are no exception. The salaries paid to workers are very low as compared to those working in the local mines and government service. This is influenced by the fact that the employers have a large pool of potential workers to choose from. When workers resign due to low salaries, they are quickly replaced as there are a lot of people who seriously need employment. Temporary workers are paid lower salaries as compared to those in the permanent employment. Salaries of temporary workers are determined by performance.

## 5.9 Challenges and Conclusion.

It is clear that when the irrigation schemes were established, there was no integrated planning. All stakeholders who have a role to play were supposed to have been incorporated in the planning of the irrigation schemes. If this was done the irrigation schemes would not be experiencing the challenges they are facing. For example, the issue of bad roads would be attended to by the local municipality, while the issue of lack of transport and farm equipment, lack of financial assistance would be addressed by linking the irrigation schemes to financial institutions. The high lease rentals was supposed to have been negotiated with the local tribal authorities as these irrigation schemes are benefiting local people, so there is no need for the tribal authorities to ask for high rentals. The role of the strategic partner was supposed to have been clearly defined at the initial stages of the partnership.

In conclusion it is clear that despite all the challenges faced by the smallholder irrigation schemes, the irrigation schemes are able to create employment for the local people, this being the purpose of their establishment.

## 5.10 Recommendations.

### 5.10.1 Roads.

For the three irrigation schemes to continue creating employment, they need support from the local municipalities in maintaining the roads. These roads need serious attention as they have a detrimental effect on the quality of produce transported along these roads. The roads need to be tarred or regularly maintained through grading. Currently none of the three irrigation schemes have a grader; the grader should be made available to each scheme for the purpose of road maintenance.

### 5.10.2 Equipments.

It would be beneficial to the irrigation schemes if they are assisted to acquire their own equipments among others such as tractors, boom sprayers and trailers and also be exposed to training on the operation and maintenance of such equipments. This will

minimize sourcing out external expertise when the equipments are out of order. It would be beneficial to the irrigation schemes if the local municipalities can assist in acquiring the required equipments.

#### 5.10.3 Transport facilities.

Currently, the irrigation schemes source out the trucks used to transport produce to the market and this has an impact on the gross margin as they are charged high rates by the transport agents who happen to be the local commercial farmers. The trucks are only made available when the commercial farmers have finished transporting their goods to the market. This practice renders the three irrigation schemes to failure in honouring their delivery agreements. The local municipalities need to assist the irrigation schemes to acquire their own transport facility.

#### 5.10.4 Lease Rental.

The lease rental paid by the irrigation schemes is high, as scheme 1 and scheme 2 are expected to pay R18, 000.00 per annum while scheme 3 pays R4, 200.00 per annum. The Mopani District Municipality (MDM) needs to assist the three irrigation schemes, by either assisting in the payment of the lease rental or negotiate on behalf of the schemes with the local tribal authorities for the reduction in the rental tariffs.

#### 5.10.5 Strategic Partnership.

The Department of Agriculture came up with the system of appointing strategic partners for the purpose of mentoring emerging farmers. This relationship needs to be formed and governed by a policy which will detail the role of role players. Scheme 3 experienced challenges with their strategic partners, where their differences had to be solved through the courts of law. If a policy was in place, detailing the responsibilities of all the stakeholders, this could not have happened. The farmers nearly lost their crop during the period of the legal battle as their focus was more on the legal battle than on their crops.

#### 5.10.6 Financial Assistance.

The three irrigation schemes need financial injection from the local municipalities. The exact amount will be informed by the business plans of the three irrigation schemes, which they have compiled. They are currently unable to extend their level of operation by developing the new areas due to shortage of funds.

#### 5.11 Formation of a Cooperative.

The farmers in the three irrigation schemes travel long distances to acquire agricultural inputs. To alleviate this challenge they should be advised to form an agricultural cooperative. This will not only solve the problem of acquiring agricultural inputs but will enable them to access funding. The funding will go a long way as it will address some of the challenges that the irrigation schemes are currently facing.

#### 5.12 Low salaries paid to workers.

The salaries paid to workers are very low as the permanent worker earns an average of R2 400 per month while the temporary worker earns R449 per month. The government should intervene to address the issue of low salaries. The workers need to be advised to join workers unions.

#### 5.13 Areas for future research.

The area for future research would be the *strategic partnership in agricultural projects, focusing on the roles of partners*. The three irrigation schemes experienced challenges in the partnership with the selected commercial farmer. The other area would be *operation of the marketing agents focusing on how they should be remunerated for the services rendered*, as all the projects were not satisfied with the charges they pay their marketing agents. The agents are not transparent on the money generated from foreign markets.



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Appendix: A Tagging Equipping.



Appendice B: Irrigation System



### Appendix C: Tag Equipment





Appendix D: Seloane Sign Board



Appendix E: Mariveni Sign Board



Appendix F: Packhouse



Appendix G: Harvesting Oranges at Scheme 2





Appendix H: Weighing Bananas.

Appendix : I

**GENERAL SURVEY: QUESTIONNAIRE**

**THE IMPACT OF SMALLHOLDER IRRIGATION SCHEMES ON JOB CREATION: THE CASE OF MABUNDA, SELOANE AND MARIVENI PROJECTS, MOPANI DISTRICT.**

Date : .....

Enumerator : .....

Name of Respondent : .....

Province : .....

District : .....

Municipality : .....

Project : .....

Village : .....

Tribal Authority : .....

Headman : .....

1. The purpose of this research is to establish if these three projects have the potential to generate employment.
2. The respondent is not forced to participate in the interview and is at liberty not to answer some of the questions if he/she is not comfortable with them.
3. The outcome of the research will be communicated to the respondents in the form of reports or reporting back sessions (depending on what the respondents will have chosen).
4. The information gathered will be used for the purpose indicated above only.
5. Multiple questions should be answered by ticking the appropriate answer.

**1. GENDER OF RESPONDENT.**

A: Female

B: Male

**2. AGE OF RESPONDENT**

A: < 20

B: 21 – 30

C: 31 – 40

D: 41 – 50

E: 51 – 60

F: > 60

**3. MARITAL STATUS**

A: Monogamous

B: Polygamous

C: Single

D: Divorced

E: Wodow/er

**4. Number of dependents**

A: 0 – 3

B: 4 – 7

C: 8 – 11

D: 12 - 15

**5. Age of dependents**

A: < 10

B: 11 – 18

C: 19 – 30

D: 31 – 40

E: 41 – 50

F: > 51

**6. Educational Level of Respondent**

- A: Primary
- B: Secondary
- C: Tertiary
- D: No Formal Education

**7. Home language**

- A: Tsonga
- B: Pedi
- C: Venda
- D: Other (Specify)

**II. FARMING DETAILS**

**1. Are you a farmer in this project**

- A: Yes
- B: No

**2. If yes what crops are you cultivating**

- A: Citrus
- B: Mango
- C: Banana
- D: Butternut
- E: Pepper dew
- F: Scaletium
- G: Tomato
- H: Other (Specify)

**3. If No, How are involved**

- A: Service provider
- B: Other(Specify)

**4. Who owns the land on which the project is established**

- A: Own
- B: Lease
- C: Tribal



D: Other (Specify)

**5. Size of your plot**

A: < 5Ha

B: 6 – 10Ha

C: 11 – 20 Ha

D: 21 – 30 Ha

E: 31 – 50Ha

F: > 60Ha

**6. Are you able to utilize the allocated plots in one cropping season**

A: Yes

B: No

**7. If yes are you satisfied with the allocated hactorage**

A: Yes

B: No

**8. How many extra hactores would you need**

A: < 5Ha

B: 6 – 10Ha

C: 11 – 20Ha

D: 21 – 40Ha

E: >50Ha

**9. If No, what factors hinders the full utilization of the allocated plots**

A: Lack of finance

B: Lack of mechanization

C: Other (Specify)

**III. PRODUCTION INFORMATION.**

**1. How much did you produce this season**

A: Citrus

- B: Mango
- C: Banana
- D: Butternut
- E: Tomato
- F: Pepper dew
- G: Scaletium
- F: Other

**2. What was the production in the last five years**

Year	Citrus	Mango	Banana	Butternut	Tomato	Pepper dew	Scaletium	Other(Specify)
2005								
2006								
2007								
2008								
2009								

**IV. EMPLOYMENT DETAILS.**

**1. Do you think the scheme has the potential to create employment**

- A: Yes
- B: No

**2. If yes, when are the jobs created.**

- A: Soil preparation
- B: Planting
- C: Spraying
- D: Harvesting
- E: Packaging

3. If no, what are the factors hindering job creation within the scheme.

- A: No capacity
- B: Lack of finance
- C: Other (Specify)

4. How many people have you employed on permanent basis

- A: < 5
- B: 6 – 10
- C: 11 – 20
- D: 21 – 30
- E: 31 – 40
- F: 41 – 60
- G: > 61

5. How many workers did you employ in the last five years

Year	Permanent workers	Temporary workers
2005		
2006		
2007		
2008		
2009		

6. For how many months are the temporary workers employed

- A: < 3 months
- B: 3 – 6 Months
- C: 12 months
- D: Other (Specify)

7. What activities are they employed to perform

- A: Soil preparation
- B: Planting

- C: Spraying
- D: Harvesting
- E: Packaging

**8. How was the salary scales in the last five years.**

Year	Salary of Permanent workers	Salary of Temporary workers
2005		
2006		
2007		
2008		
2009		

**9. How do you pay them**

Payment system	Permanent workers	Temporary workers
Performance based		
Fixed salary		
Other (Specify)		

**10. How were they selected**

- A: Interviews
- B: Hand picked
- C: Other (Specify)

**V. TECHNICAL INFORMATION.**

1. **Do you receive extension service?**  
  
A: Yes  
B: No
  
2. **If yes , who provide extension services**  
  
A: Government Officials  
B: Private  
C: Strategic partner  
D: Other (specify)
  
3. **On what aspects of farming do you receive extension services?**  
A: Soil preparation.  
B: Planting  
C: Spraying techniques  
D: Harvesting  
E: Other (Specify)
  
4. **If no, how do you manage without technical support**  
  
A: Experience on farming  
B: Family member experienced on farming  
C: Other (Specify)
  
5. **Where do you draw irrigation water**  
  
A: River  
B: Dam  
C: Weir  
D: Canal  
E: Borehole
  
6. **Are you registered with the Water Users Association**  
  
A: Yes  
B: No
  
7. **If Yes, what is the monthly/yearly contribution**

- A: R 5000.00
- B: R 10 000.00
- C: R18 000.00
- D: R 30 000.00

**8. If no, why are you not registered**

- A: Don't know where to register
- B: See no reason to register
- C: Other (Specify)

**9. Who maintains the irrigation systems**

- A: Government officials
- B: Private company/person
- C: Own
- D: Other (Specify)

**10. Do you receive financial assistance**

- A: Yes
- B: No

**11. If yes, who is the financier**

- A: Government
- B: Commercial banks
- C: MAFISA
- D: Other (Specify)

**12. Are you satisfied with the financial assistance you receive**

- A: Yes
- B: No

**13. If No, how much additional will meet your financial needs**

- A:R 10m
- B: R15m
- C: R30m
- D: Other (Specify)

## VI. MARKETING INFORMATION.

### 1. What do you do with your produce

- A: Home consumption
- B: Home consumption and marketing
- D: Market
- C: Process and market
- D: Other (Specify)

### 2. Where do you market your produce

- A: Local
- B: Export
- C: Other (Specify)

### 3. How do you market your produce

- A: Self
- B: Marketing agent
- C: Other (Specify)

### 4. How do you transport your produce to the market

- A: Own means
- B: Transport agent
- C: Other (Specify)

### 5. How much did you charge for the produce

- A: Contract rates
- B: Market related
- C: Other (Specify)

### 6. Do you experience problems during marketing process.

- A: Yes
- B: No

### 7. If yes, what are the problems

- A: Bad roads
- B: Lack of own transport
- C: Other (Specify)

**8. How much do you pay the transport agent**

- A: R5000.00
- B: R10 000.00
- C: R 15 000.00
- D: R 20 000.00
- E: Other (Specify)

**9. Do you process your produce**

- A: Yes
- B: No

**10. If yes, what value do you add**

- A: Juice
- B: Dried Fruit
- C: Livestock feed
- D: Medicinal
- E: Other (Specify)

**11. If no, why are you not adding value**

- A: No facilities
- B: No Skills
- C: Other (Specify)

**12. What is the other information you would like to share which was not covered.**

**12.1 :PERSONAL DETAILS**

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.....

**12.2 FARMING DETAILS**



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.....

**12.3 PRODUCTION INFORMATION**

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**12.4 EMPLOYMENT DETAILS**

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**12.5 TECHNICAL INFORMATION**

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**12.6 MARKETING INFORMATION**

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Appendix: J

GENERAL SURVEY: QUESTIONNAIRE

**THE IMPACT OF SMALLHOLDER IRRIGATION SCHEMES ON JOB CREATION: THE CASE OF MABUNDA, SELOANE AND MARIVENI PROJECTS, MOPANI DISTRICT.**

Date : .....

Enumerator : .....

Name of Respondent : .....

Province : .....

District : .....

Municipality : .....

Community Structure Represented : .....

Village : .....

Tribal Council : .....

Headman : .....

1. The purpose of this research is to establish if these three projects have the capacity to generate employment.
2. The respondent is not forced to participate in the interview and is at liberty not to answer some of the questions if he/she is not comfortable with them.
3. The outcome the research will be communicated to the respondents in the form of reports or reporting back sessions (depending on what the respondents will have chosen).
4. The information gathered will be used for the purpose indicated above only.
5. Multiple questions should be answered by ticking the appropriated answer.

**I. PERSONAL INFORMATION**

**1. Gender of Respondent**

- A: Female
- B: Male

**2. Community structure represented**

- A: Livestock forum
- B: Youth
- C: Tribal Council
- D: Policing Forum
- E: Water Committee

**3. Marital status of Respondent**

- A: Monogamous
- B: Polygamous
- C: Single
- D: Divorced
- E: Widow/widower

**4. Number of dependents**

**5. Age of dependents**

- A: < 10 yrs
- B: 11 – 20yrs
- C: 21 – 30yrs
- D: 31 – 40yrs
- E: 41 – 50yrs
- F: > 51yrs

**6. Educational level of respondent**

- A: Primary
- B: Secondary
- C: Tertiary
- D: No formal education

## II. EMPLOYMENT DETAILS

1. Are you employed

A: Yes

B: No

2. If yes, where are you employed

A: Government sector

B: Self employed

C: Private

D: Other (Specify)

3. If no, what is the source of income?

A: Grant

B: Pension

C: Support from family member

D: Other (Specify)

4. What is the percentage contribution of the following people to the total household income

Household Members	Percentage
Head of Household	
Spouse	
Children	
Any other members living in the household	
Non family member living in the household	
Any other not mentioned above	
Total	100%

### III. PROJECT DETAILS

1. Do you know the scheme in your village?

A: Yes

B: No

2. If yes, how do you know it?

A: Member of family is a beneficiary

B: Member of family employed there

C: Relative employed there

D: Neighbour is a beneficiary

E: Neighbour is employed there

F: Other (Specify)

3. Does the scheme create employment to members of the community

A: Yes

B: No

4. If yes, how does it create employment

A: Soil preparation

B: Planting

C: Spraying

D: Harvesting

E: Other (Specify)

5. How many people in your family were employed in the past five years

Year	Number of family members employed in the scheme
2005	
2006	
2007	
2008	

2009	
TOTAL	

**6. If no, what do you think are the reasons of not creating employment**

- A: Lack of capacity
- B: Lack of finance
- C: Poorly managed
- D: Lack of technical skills
- E: Other (Specify)

**7. What need to be done to address the above challenges?**

- A: Financial support from government
- B: Capacity building with regard project management
- C: Other (Specify)

**8. What are the other issues you would like to share with me**

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## Scheme 1 Responses

### PERSONAL INFORMATION

NO	1	2	3	4	5					6	7
					A	B	C	E	F		
<b>A01</b>	B	C	A	4	2	1	N/A	N/A	N/A	B	B
<b>A02</b>	B	D	A	4	2	1	1	N/A	N/A	A	B
<b>A03</b>	B	E	A	5	N/A	2	3	N/A	N/A	A	B
<b>A04</b>	B	C	A	1	1	N/A	N/A	N/A	N/A	C	B
<b>A05</b>	B	E	A	8	2	3	2	N/A	1	B	B

APPENDIX :L  
FARMING INFORMATION

<b>NO</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>A01</b>	A	ABDEFG	N/A	C	F	A	B	E	N/A
<b>A02</b>	A	ABDEFG	N/A	C	F	A	B	E	N/A
<b>A03</b>	A	ABDEFG	N/A	C	F	A	B	E	N/A
<b>A04</b>	A	ABDEFG	N/A	C	F	A	B	E	N/A
<b>A05</b>	A	ABDEFG	N/A	C	F	A	B	E	N/A



# XITLAKATI STOCK INFORMATION

NAMES	ID NO	CELL NUMBER	CATTLE	GOATS	DONKEYS	PIGS	DOGS	CHICKENS
1. MAKHUBELE MOSES KENNETH	640325 5662 08 2	072 6554 335	8					
2. PILUSA MAKWILE DALTON	650618 5439 08 0	078 6419 320	10					
3. MABUNDZA MISLAI ANNA	320423 0227 08 9		17	17	4			
4. MASHAKENI VERSE CALSON	570221 5485 08 3			14				
5. NKUNA TOPIA	621205 0726 08 7	076 9901 799	10					
6. NGOBENI SHINYATA MUDJADJI	430212 0214 08 1			6	3			
7. MAHOMANE MAMOLATELO	420613 0200 08 1			5				
8. NGOBENI KHIYASI MPHEPHU	420613 0200 08 1			5				
9. SELEMATSELA MOJAJI MAMAROPENG	490701 0168 08 8			6				
10. MALULEKE MBAZIMA CHAMPION	540518 5347 08 1		6					
11. MALATJI MULA WO ALPHEUS	591223 5606 08 5		6	12				
12. RIKHOTSO DAINA ANNAH	531111 0392 08 7		20	6				
13. NGHOMANA DLAYANE MACKSON	480928 5281 08 5	079 3982 472	11					
14. MASHIMBYE YINGWANA JOSEPH	570602 5402 08 9	076 0373 423	2	5				
15. CHAUKE MAGUMBI JOHN	360731 5154 08 7		12					
16. MANYIKE GEORGE	330913 5097 08 8		7					
17. MABUNDA MANYAO PATSON	350619 5147 08 0		2	24	3			
18. MUSHANA THOMAS JOHN	520115 5800 08 8		17					
19. NYATHI SAMUEL	480301 5618 08 8	078 6829 985		17	1			
20. NDLOVU CARLOS	561110 5269 18 6			13				
21. MANYIKE GRANGOETJIE WILSON	480117 5234 08 4	073 6379 707	46	11				
22. MALATJIE BOROMANI VERJOEN	560304 5422 08 7			9				
23. NYATHI NTITHABINI VIOLET	300406 0234 08 4	076 0254 276	10					
24. MALATJIE STANLEY VICTOR	830706 5437 08 0	078 7029 193	7					
25. BALOYI MARIA	500324 0239 08 6				14			10
26. PILUSA MOHALE JAMES	400523 5167 08 2	084 6300 392	4	8				10
27. MASHALE KININI MAGGIE	620313 0422 08 5	079 3124 620	5					2
28. JOHN MUSWANA								
29. MHLONGO SHALATI EMA	600121 0710 08 5							
30. MONGWE GINA NELSON	480502 5246 08 1	076 2088 134	3					20

CHIEF / KGOSI MALATJI T.P. BA-SELWANA TRADITIONAL COMMUNITY
2009 -10- 07
P O Box 1049, SELWANA 1394 BA-PHALABORWA BA-SELWANA COMMUNITY

to whom it may concern

Dear Sir/Madam.

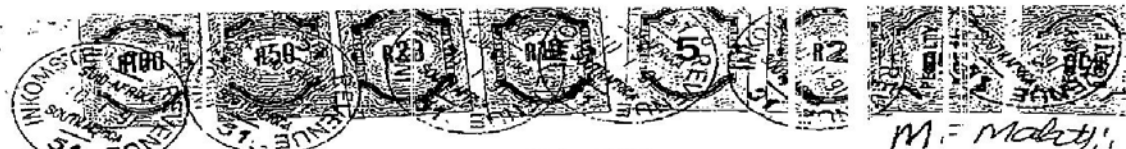
The above TIC Office visited by Mr Sambo Titi from Dept Of Agriculture Gijera.

The Traditional Council enen kgosi allow Mr Sambo to visit Selwana Community door to door concerning the Selwana project

Thanks

Yours faithfully





LEASE AGREEMENT

BETWEEN

SELOANE LOCAL GOVERNMENT

Herein represented by MAPULA FLORA MALATJI in his capacity as KGASIGAPI and duly authorised thereto.

(Hereinafter referred to as the "LESSOR")

AND

LEBOWA AGRICULTURAL CORPORATION LTD

(Hereinafter referred to as the "LESSEE")

WHEREAS the LESSOR is prepared to let the premises as specified in this agreement to the LESSEE and the LESSEE is prepared to hire the premises from the LESSOR.

NOW THEREFORE IT IS HEREBY AGREED AS FOLLOWS:

ONE

CLAUSE HEADINGS:

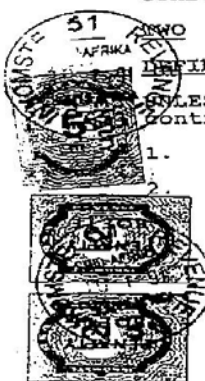
THE headnotes to the clauses of this agreement are inserted for reference purposes only and shall not affect its construction or interpretation.

DEFINITIONS:

UNLESS the context of this agreement clearly indicates a contrary intention-

- the singular shall include the plural, and vice versa;
- reference to one gender shall include reference to the opposite gender;
- the following words and expressions shall bear the meanings set opposite them -

"Land"	The land described in THREE 1.
"Buildings"	All buildings of whatever



*M. F. Malatji*  
*S. D.*  
*M. F. Malatji*  
*S. D.*

*whatever*  
*M. F. Malatji*  
*S. D.*

nature erected on the land.

"Improvements" All fixed and permanent improvements other than buildings, erected on the land

"Premises" The land and all buildings and improvements erected and/or affixed thereon.

"The Business" The business or trade which the LESSEE binds himself to undertake on the premises and is inclusive of all assets used and all liabilities incurred in connection therewith.

THREE

THE PROPERTY

1. THE LESSOR hereby leases to the LESSEE who hereby lets, subject to the occupational rights the LESSOR has or may have in regard to the land the following premises:  
 AGRICULTURAL LAND MEASURING 66,2HA ON THE LEECWA PROJECT, NAMAKGALE AS PER ATTACHED PLAN MARKED ANNEEXURE "A"
2. SUCH buildings and improvements erected or to be erected on the land in terms of this agreement.

FOUR

STRUCTURAL ALTERATIONS:

1. THE LESSEE shall not effect any structural or other alteration whatsoever to the premises unless the prior written consent of the LESSOR has been obtained which consent shall not be unreasonably withheld.
2. IN the event of the LESSOR giving the approvals referred to in FOUR, 1, such alterations or additions shall, in the absence of any written agreement to the contrary, be effected at the LESSEE'S costs under the supervision and control of the LESSOR or his nominee. The fees of any architect or other consultant employed by the LESSOR for that purpose shall be borne and paid by the LESSEE.
3. NOTWITHSTANDING the foregoing, should the LESSOR so require, the LESSEE shall, at the termination of this agreement, whether by effluxion of time or otherwise, restore the premises to the condition in which it was at

17/11/2011  
 S-P  
 [Handwritten signatures and initials]

the commencement date. Should the LESSOR not require such alterations and/or additions which may have been effected by the LESSEE to be restored to its original condition, it shall become and remain the property of the LESSOR without any right of recourse by the LESSEE from the LESSOR.

FIVE

OWNERSHIP

NO rights of ownership or any other rights, other than provided for in this agreement, in respect of the premises shall pass to the LESSEE as a result of this agreement.

SIX

SUPPLY OF ELECTRICAL POWER

THE supply of electricity shall not form part of this agreement save as may be provided for or agreed upon in a separate written agreement. In the absence of such written agreement the LESSOR shall not be responsible for the supply of electricity, and does not guarantee the supply of electricity to the premises. No warranty is further given by the LESSOR that the electricity supply to the PREMISES will be uninterrupted nor that it will be adequate for the LESSEE'S purposes. It is specifically agreed between the parties that the LESSOR shall in no way be liable for any damages of whatsoever nature which the LESSEE may suffer as a result of the interruption or inadequacy of the supply of power.

SEVEN

SUPPLY OF WATER:

NO warranty is given by the LESSOR that the water supply to the premises will be uninterrupted nor that it will be at all adequate for the LESSEE'S purposes. It is specifically agreed between the parties that the LESSOR shall in no way be liable for any damages of whatsoever nature which the LESSEE may suffer as a result of the interruption or inadequacy of the supply of water.

EIGHT

MAINTENANCE AND REPAIR:

1. THE LESSEE shall at his own expense be responsible for the normal maintenance, repair and upkeep of the premises. Structural defects in the buildings and improvements shall be the responsibility of the LESSOR. It shall however be the duty of the LESSEE to notify the

*M.F. McKay*

*on J R  
S-P [Signature]*

LESSOR in writing of any structural defects coming into existence as soon as the LESSEE acquires knowledge thereof. The LESSEE shall authorize and allow such repairs to be done by the LESSOR and accept any inconvenience or disruption caused by such repairs without any claim for any reason against the LESSOR and without any reduction in rental payable for the period of such operation.

- IF the buildings be damaged, but nevertheless remain substantially tenable, then this agreement shall not be terminable, but the rental payable by the LESSEE in respect of the premises shall be abated pro rata, having regard to the extent to which the LESSEE is able to enjoy the beneficial occupation of the buildings. In such event the LESSOR shall proceed with reasonable expedition to restore the buildings. Should such repairs necessitate the temporary vacation of the premises by the LESSEE, the LESSEE shall within 30 (THIRTY) days after the LESSEE has vacated the premises, be entitled to give written notice to the LESSOR to the effect that such occupation is required. If such occupation is not tendered to the LESSEE by the LESSOR within 30 (THIRTY) days after receipt of such notice by the LESSOR, this agreement shall terminate and be cancelled on the last day of such second term of 30 (THIRTY) days.

NINE

COMMENCEMENT AND DURATION:

- THE term of this lease shall commence on 1st DECEMBER 1990 (the commencement date) and shall continue for a period of 10 (TEN) YEARS to terminate on 30th November 2000. Rental shall however only be charged from 1st DECEMBER 1990.
- THE LESSEE, having faithfully and meticulously observed and adhered to all the terms and conditions of this lease, shall at the conclusion of the above mentioned period have a right of first refusal to renew the lease for a further period of 10 years.
- SHOULD the LESSEE be in default of this agreement during the initial period of 10 years which default causes this lease to be cancelled the LESSEE shall be obliged to pay the remainder of the rental payable under this agreement to the LESSOR as are liquidated damages.

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 S-P  
 OM J A  
 S-P  
 S-P

TEN

CESSION OF SUB-LEASE

- THE LESSEE shall not be entitled to cede or assign any

MFM  
 OM J  
 S-P  
 S-P

of his rights in terms of the agreement without the prior written consent of the LESSOR.

2. THE LESSEE shall not be entitled to sublet or otherwise part with possession of the premises or any portion thereof or give occupation to any other person or permit any other person on the premises or any portion thereof save as may be required in the normal course of the LESSEE'S business as stipulated in clause TWELVE or save with the written consent of the LESSOR first having been obtained.

ELEVEN

RESTRICTION OF USE:

1. THE premises shall be occupied by the LESSEE for purposes of exercising the following business only, namely-

AGRICULTURE

2. THE LESSEE shall not be entitled to utilise the premises without the prior written permission of the LESSOR for any other business or trade. Nor shall the LESSEE be entitled to utilise the premises contrary to provisions contained in the title deeds of the land.
3. THE LESSEE shall not change the nature of the business in any material respect without the prior written consent of the LESSOR.
4. THE LESSEE will at all times hold whatever licence or licences which may be required in respect of the business and such licence or licences shall at all times for the duration of this agreement be current and valid.
5. THE premises will at all legally permissible times be kept opened and the said business conducted therein.

TWELVE

RENTAL

1. THE annual rental for the currency of this lease agreement shall be R3 310.00.
2. THE annual rental determined in terms of THIRTEEN 1, shall be payable annually in advance in 10 (TEN) equal instalments on or before the 7th day of January each and every year at the Head Office of the LESSOR or at such other place within the Republic Of South Africa as the LESSOR may from time to time indicate in writing.

*MF Makg...*  
*J*  
*SS-P*  
*MT*

- 3. EACH year of this agreement shall commence on the anniversary of the commencement date.
- 4. WITHOUT prejudice to the LESSOR'S right in terms of clause THIRTY ONE the LESSOR shall be entitled to charge interest at whichever rate is the higher from time to time of 2% (TWO PER CENTUM) per month or Prime Bank overdraft rate of Volkskas Ltd PLUS 3% (THREE PER CENTUM) per annum on any arrear rental not having been paid on the 7th day of such month, calculated from the first day of the month during which such monthly instalment of rental fell in arrear.

THIRTEEN

DAMAGE TO PREMISES:

- 1. THE LESSEE shall be liable for damages in respect of all damage to or destruction of the premises as a result of his own act or the act or neglect of his employees, guests, agents or invitees.

FOURTEEN

NO PERSUASION/SOLE CONTRACT:

THIS agreement contains all the terms and conditions of the contract between the parties and no representations, warranties, undertakings or promises of whatsoever nature which may have been made by any of the parties their agents or servants other than those herein contained, shall be binding or enforceable against them.

FIFTEEN

SUITABILITY

THE LESSOR does not expressly, tacitly or otherwise guarantee that the premises are suitable for undertaking the business, and it shall be the obligation of the LESSEE to satisfy himself that he may lawfully use the premises for the said purpose.

SIXTEEN

THE LESSOR NOT LIABLE FOR CERTAIN CLAIMS

THE LESSOR shall not be liable to the LESSEE or any other person for damages arising out of delict caused by the negligence of the LESSOR or any person for whose acts the LESSOR is in law liable, provided such damage does not arise from wilfulness or gross negligence.

MF Makg  
 2007  
 J  
 P  
 2007



Seloane		Orange Picking 2005								Total	Gross Pay	UIF	Nett Pay
No	Name	Date:	12	13	14	15	16	18	19				
	Block:	5	5	5	5	5	8	8	8				
1	Vincent Malatji	50	80	113	122		78	8	61	502	175.70	1.76	173.94
2	Melita Mokgalaka		50	56	50	70	71	32	45	374	130.90	1.31	129.59
3	Celia Ramoshaba	22		80	36	118	58	31		325	113.75	1.14	112.61
4	Tsakani Machete		20							20	7.00	0.07	6.93
5	Maria Mokgalaka □		41	56	61	58			43	259	90.65	0.91	89.74
6	Alice Mokgalaka	71	100	112		100	115	50	84	632	221.20	2.21	218.99
7	Nomsa Mokgalaka	36	50	50	66	90	76	31	50	449	157.15	1.57	155.58
8	Florence Mdaka	40	50	50	70	65	88	44	57	464	162.40	1.62	160.78
9	Maria Mokgalaka □	50	60	65	80	80		48	65	428	149.80	1.50	148.30
10	Jane Mokgalaka	61	100	100	150	95	111	49	84	730	255.50	2.56	252.94
11	Esther Machele □	41	50	16	50	50	65	32	43	347	121.45	1.21	120.24
12	Meriam Mabunda	27	50	49	100	57	78	45	33	439	153.65	1.54	152.11
13	Peter Sithole	50	50	50	53		60	41	50	354	123.90	1.24	122.66
14	Enos Ndlovu	62	87	85	50			50	59	393	137.55	1.38	136.17
15	Girly Mokgalaka	35	50	64	71	50	100	45		415	145.25	1.45	143.80
16	Khomukata Machele	28	53	63	76	50	71	41		382	133.70	1.34	132.36
17	Thomas Sithole		50	50	50	50	50	50	48	348	121.80	1.22	120.58
18	Maita Musharo		41	45	50	50	65	38	47	336	117.60	1.18	116.42
19	Salphina Mojela		50	100	117	160	78	64	72	641	224.35	2.24	222.11
20	Moore Makwale		29	29	5	30	50	25	27	195	68.25	0.68	67.57
21	Maria Sekhwela		38	27	61		55	24	31	238	82.60	0.83	81.77
22	Rama Malatji		65	65	65	65	70	35	43	408	142.80	1.43	141.37
23	Selina Malatji		90	113	100	100	115	39	55	612	214.20	2.14	212.06
24	Esther Machele □		60	100	169	126	150	74	61	740	259.00	2.59	256.41
25	Mavis Monyela		50	45				26		121	42.35	0.42	41.93
26	Robby Mokgalaka		50	50	50	50	67	26	50	343	120.05	1.20	118.85
27	Thandi Malatji		18	50	60	11				139	48.65	0.49	48.16
28	Wisie Mokgalaka			37	50		58	24	43	210	73.50	0.74	72.76
29	Maitte Malatji			65	75		78	45	50	313	108.55	1.10	108.45
30	Alice Machele			73	62	75	41	54		305	108.75	1.07	105.68
31	Aubrey Hlongwani			11	47					58	20.30	0.20	20.10
32	Hlekani Ngobeni			15	50	58	83	50	52	308	107.80	1.08	106.72
33	Portia Ngobeni			8						8	2.80	0.03	2.77
34	Peter Seemela				100		103	43	63	309	108.15	1.08	107.07
35	Mmabothakga Malatji					50				50	17.50	0.18	17.32
36	Modjadji Seemea				43	43	40			126	44.10	0.44	43.66
37	Josephina Mokgalaka				68	65	81	34	50	298	104.30	1.04	103.26

## Appendix P: Salary Sheet