

**ANALYSIS OF SOCIO-ECONOMIC IMPACT OF COMPREHENSIVE
AGRICULTURAL SUPPORT PROGRAMME ON AGRARIAN REFORM
FARMERS OF SEDIBENG DISTRICT MUNICIPALITY IN GAUTENG PROVINCE
SOUTH AFRICA**

By

MAGALANE DILLIS PHATUDI-MPHAHLELE

Submitted in accordance with the requirements for the degree of

MASTER OF SCIENCE

in the subject

AGRICULTURE

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF A S OYEKALE

SEPTEMBER 2016

TABLE OF CONTENTS	PAGE
DEDICATION	iv
DECLARATION	v
ACKNOWLEDGEMENTS	vi
ABSTRACT	vii
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ACRONYMS AND ABBREVIATIONS	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background	1
1.2 Background to the Comprehensive Agriculture Support Programme (CASP)	3
1.3 Problem Statement	5
1.4 Motivation for the Study	6
1.5 Aim of the study	7
1.6 Objectives of the study	7
1.7 Hypothesis	7
1.8 Significance of the study	8
1.9. Outline of the study	8
CHAPTER TWO	9

LITERATURE REVIEW	9
2.1 Introduction.....	9
2.2 Focus of South Africa on Land Reform versus Post- Settlement Support	11
2.3 Purpose of Post- Settlement Support in South Africa and its Sustainability	12
2.4 Status of Post-Settlement Support in international perspectives	13
2.5 Empirical Review of Literature	15
2.5.1 Factors that influence participation and behaviour of farmers in government sponsored programmes	15
CHAPTER THREE	20
METHODOLOGY	20
3.1 Introduction.....	20
3.2 Study Area	20
3.3 Climatic conditions	21
3.4 Spatial distribution of Agriculture in Gauteng Province	22
3.5 Sedibeng District Municipality	22
3.6 Sampling procedure	23
3.7 Data collection	24
3.8 Data analysis	25
3.9. Econometric model.....	25
3.9.1 Conceptual framework	25
3.9.2. Empirical specification of the Model.....	28
3.10 Conclusion	29

CHAPTER FOUR.....	30
4.1. Socio-economic characteristics.....	30
4.2. Institutional Characteristics	34
4.3. The factors that influenced farmers’ participation in CASP.....	38
4.3.1. Farmers’ participation in CASP	38
4.3.2 Perceptions of farmers on CASP	40
4.3.2. Determinants of farmers’ participation in CASP	43
4.4. Impact of CASP participation on farmers’ total farm income	46
CHAPTER FIVE	48
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	48
5.1. Summary	48
5.2. Conclusion	50
5.3. Policy recommendations.....	51
REFERENCES	52
APPENDIX.....	63

DEDICATION

This dissertation is dedicated to my blessed family of Maesela Phatudi-Mphahlele, two boys (Mashoto and Kgwerano) and two girls (Kgadi and Mmarena) who are lovely children that make me a proud mother. My gratitude goes to my mother, Mrs. Mahlasele and my late father, Mr. David Ngoana-Mosadi Mphahlele for ensuring that I got the pillar of my life by sacrificing so many parameters to give me care and support to the journey of my education, career and being a woman. I am honoured to have parents of their calibre that managed to support me to the height that I have attained today.

DECLARATION

I, Phatudi-Mphahlele Magalane Dillis, hereby declare that the research report for the “**ANALYSIS OF SOCIO-ECONOMIC IMPACT OF CASP ON AGRARIAN REFORM FARMERS OF SEDIBENG DISTRICT MUNICIPALITY IN GAUTENG PROVINCE**” is my research study that was conducted within the parameters of my own pattern of work, design and style. The published and unpublished references used in the study have been acknowledged by the author.

Name and Surname: Magalane Dillis Phatudi-Mphahlele

Student number: **4086-784-6**

Signature:.....

Date:.....

ACKNOWLEDGEMENTS

Firstly, I would like to thank the Almighty God who has provided me with the strength and opportunity to conduct this study. Thanks to my husband and my mother for their motivation and support during the period of my study.

I really appreciate UNISA Post Graduate Bursary for helping me with the funds to study. Let it be your culture to other upcoming researchers. A special thank is due to my supervisor, Professor. Abayomi Samuel Oyekale for spending his time at early hours of the morning reading the drafts and providing constructive comments and guidance for completion of the dissertation.

My sincere gratitude goes to Department of Agriculture and Rural Development and particularly the manager, of Gauteng provincial office; Eastern region Manager, Mr. Seabata Maoba. I am sincerely grateful to your office, for giving me the authority to conduct this research study and access information from Sedibeng agrarian reform farmers. I also very much acknowledge the Agricultural Advisors in Sedibeng District Municipality who helped in the distribution and completion of questionnaires during their commodity study groups and farm visitation with farmers.

I also want to express my sincere appreciation to Sedibeng agrarian reform farmers who participated and cooperated in answering the questionnaires. The valuable time consumed and thoughts that you shared with me during the undertaking of the study, led to its successful completion.

ABSTRACT

This study examined the impact of the Comprehensive Agricultural Support Programme (CASP) on the livelihood of land and agrarian reform farmers in Sedibeng District Municipality of Gauteng Province, South Africa. The programme serves as a post settlement support to agricultural projects. Post settlement support is very critical to achieving many projects of South Africa and other neighbouring countries. The study diagnosed the key variables that could be used in reforming, correcting and tightening in order to have a sustainable agricultural project. The study also indicated the variables that could have positive and negative contributions on the effects of obtaining the socio-economic deliverables of the CASP agrarian reform farmers.

A comprehensive structured questionnaire was designed and used to collect data from 300 agrarian reform farmers in Sedibeng District Municipality. The study employed Probit Regression model and Propensity Score Matching to estimate the impact of CASP on farmers' income. The key findings were that CASP promoted the livelihood of the rural economy by increasing farmers' incomes. CASP had a high impact on the income of agrarian reform farmers who benefited on it than non-benefited. Socio-economic and institutional factors were found to influence participation in CASP. The survey data indicate that the majority of respondents who participate in CASP (74.4%) were males while 25.6% were female. About (32%) of CASP participants had attained primary school education, 28.3% had secondary school education, and 23.3% had education at the college level while 16.4% acquired high school education. For non- CASP participant, 71.6% was male and 28.4% was female. About (32.1%) of non-CASP participants had acquired primary education, 23.5% had secondary school education, 25.9% had education at the college level while 18.5% acquired high school education. About 53.9% representing the CASP participants was married while only 6.8% was single, 19.2% was divorced and 20.1% are widowed. The percentage of non-CASP participant that were married was about 51.9% and 8.6% are single, 23.5% are divorced while 16.0% are widowed. About 22.8% of the CASP participant indicated that their household heads were employed while 77.8% are unemployed. About 16.9% of CASP participants had obtained qualification in agriculture while the majority (83.1%) did not have any qualification in agriculture. Only 18.5% of non-CASP participant obtained qualification in agriculture while 81.5% have not obtained any qualification in agriculture.

The study recommended that CASP be extended to more agrarian reform farmers and it will promote food security and sustainable strategy to achieve the post 2015 development agenda (2030 agenda-succeed the Millennium Development Goals) for sustainable development goals targets ending poverty and hunger. In order to achieve more participation, factors identified to influence CASP participation needed to be given more attention critical in policy formulation.

Keywords: Impact, CASP, Socio-economic, Post-settlement support, Propensity Score Matching, Sedibeng, South Africa.

LIST OF TABLES

Table 4.1:	Socio-economic characteristic of farmers	37
Table 4.2:	Descriptive statistics of the socio-economic characteristic of the farmers	38
Table 4.3:	Descriptive statistics of the socioeconomic characteristics of Non-CASP Participants	39
Table 4.4	Descriptive statistics of the socioeconomic characteristics of all farmers..	40
Table 4.5:	Market support and contract market	41
Table 4.6:	Extension and farmer based organisation	42
Table 4.7:	Irrigation and land title	42
Table 4.8:	Constraints faced by farmers in their production	44
Table 4.9:	Farmer's participation in CASP	45
Table 4.10:	Farmer's perception of CASP.....	49
Table 4.11:	Determinants of farmers' participation in CASP.....	52
Table 4.12:	Farm income for participants and non-participants of CASP.....	54
Table 4 .13:	Estimates of the propensity score matching.....	55

LIST OF FIGURES

Figure 3.1:	District municipalities of Gauteng Province.....	21
Figure 3.2:	Map of the study area	23

LIST OF ACRONYMS AND ABBREVIATIONS

ADB	Agricultural Development Bank
AFC	Agricultural Finance Corporation
CASP	Comprehensive Agricultural Support Programme
CCHP	Comprehensive Council Health Plan
CDE	Centre of Development and Enterprise
CHMT	Council Health Management Team
CHSB	Council Health Service Board
CRP	Conservation Reserve Program
DoA	Department of Agriculture
DORA	Division of Revenue Act
DLA	Department of Land Affairs
FAO	Food and Agriculture Organization
GDARD	Gauteng Department of Agriculture and Rural Development
GMB	Grain Marketing Board
HSRC	Human Science Research Council
HFGC	Health Facility Governing Committees
IFSNP	Intergraded Food Security and Nutrition Programme
LRAD	Land Redistribution and Agricultural Development
NDA	National Department of Agriculture
NGOs	Non-Government Organisations
PAAN	Poverty Alleviation Agency for Nigerians

PLAS	Proactive Land Acquisition Strategy
PLAAS	Programme for Land and Agrarian Studies
PLRRD	Provincial Land Reform and Rural Development
SA	South Africa
SADC	South African Development Community
SIS	Settlement and Implementation Support
SLAG	Settlement Land Acquisition Grant
SSA	Statistics South Africa
SPFS	Special Programme on Food Security
SPSAA	Strategic Plan for South African Agriculture
SPSS	Statistical Package for Social Sciences
QOLS	Quality of life Survey

CHAPTER ONE

INTRODUCTION

1.1 Background

South Africa is one of the developing countries with a high prevalence of socio-economic challenges due to rural-urban migration (Tacoliet *al.*, 2015). These challenges include a high level of joblessness, poverty, food insecurity and malnutrition. Food security remains an elusive goal though it occupies a centre stage of discussion, for many in the world are poor; thus Human Science Research Council (HSRC) (2004) noted the fact that there must be adequate food for all citizens. Drimie and Mini (2003) indicated food security as a critical matter such that every citizen and government must ensure that there is sufficient food for all (Bonti-Ankomah, 2001).

In Africa, Agriculture is positioned in a manner that portrays development and growth due to the recognition of the fact that there are indeed abundant natural resources in the face of high poverty levels especially in rural areas. Makhura and Wasike (2003) submitted that the rate of poverty in the rural areas in South Africa is 70.9%, while in the urban area it is 28.5%. They also emphasised further that there is high population in rural areas at 50.5% compared to urban areas that have a slightly lower population density that is estimated at 49.6%. Currently, the pervasiveness of poverty is more acute particularly in rural economy. Van Zyl and Kirsten (2010) indicated that 21% of the urban population and 63% of rural population in South Africa live below subsistence. This has critically drawn the attention of researchers, donors and policy makers since the post-era.

The persistent migration of people who migrate to urban areas is currently putting pressure on urban resources. The urban pull leads to an overwhelming percentage of rural immigrants seeking to better their lives through employment in the cities causing an urban influx. Due to the urban influx poverty rates increase in urban areas and this implies higher demand for food commodities (FAO, 2009).

South African policy makers have realized the key role to be played by the agricultural sector in ensuring food security, job and wealth creation (Sibanda, 2001). Similarly, the author noted that there is need for land reform. Land reform is one of South Africa's development initiatives since the new South Africa in 1994. Bienable and Vermeulen (2006) identified that 87% of agricultural land are controlled or owned by commercial farmers while 13% is managed by the Government and subsistence farmers (NDA, 2001). The government of the Republic of South Africa has been effective in prioritising food security (Kepe and Tessaro, 2012) and addressing the needs of previously disadvantaged people by providing easy channels to previous owners (Van der Elst, 2007).

The land reform is entitled to be the program that will reduce poverty level (Grigg, 1993, Boyle, 2003 and Asenso-Okyere et al., 1997) by improving livelihood, besides being the priority programme meant to control food insecurity (Du Toit, 2011). According to Anseeuw and Mathebula (2008), the land reform is expected to yield positive benefits and play a major role as most of the beneficiaries have maximum expectations from the programme. Ipso facto, most of farmers managed to acquire the land but it is not productive due to lack of post-settlement support. Subsequently, this has been a big challenge because although government introduced capacity building programmes such as training of new land owners, this initiative has not been sustainable and it was involving a lot of expenses (Kirsten *et al.*, 2005). According to SIS (2007) and Kirsten *et al.* (2005), 50% of the land that had been provided to land reform beneficiaries was not producing quality products that were suitable for the market. Further studies indicated that land reform projects have not had positive impact on land reform beneficiaries. This is reiterated by May and Roberts (2000) who indicated that 78% of land reform beneficiaries had expenditure which was below R476 per month and 47% were categorized as ultra-poor citizens.

According to Lahiff (2008), the products intergradations and services from national, provincial, local government and the private sectors are very crucial to the sustainability and success of the land and agrarian reform projects. This finding revealed that the purpose of land reform was not achieved; as such, there was a need to find ways of supporting the land reform beneficiaries as a way of sustaining and making the land and agrarian reform successful. The support service is required to improve agricultural production and promote economic development through adequate financial support, infrastructure, marketing and capacity building (Jordaan and Jooste, 2003).

Agricultural underdevelopment has been attributed to the systematic failure of post-settlement support on South African land reform beneficiaries (DOA, 2004). In addressing the post-settlement support and poverty level in the country, the Department of Agriculture introduced Comprehensive Agriculture Support Programme (CASP) in order to support the agricultural sector to deal with the situation of poverty in the country; the programme was launched in August 2004 (DOA, 2004). National Department of Agriculture initiated six priority development areas as a way of intervention. They were information and knowledge management, technical and advisory assistance, and regulatory services, training and capacity building, marketing and business development, on and off farm infrastructure and financial assistance.

1.2 Background to the Comprehensive Agriculture Support Programme (CASP)

In addressing some of the challenges experienced in the Agricultural Sector Strategy, the CASP was presented to the sector as a logical response to address the gaps that existed in the land and agrarian reform. Land and agrarian reform which in the form of redistribution; restitution and land reform were meant to lay a solid foundation for policy frameworks. The support programmes that were given in the form of labour, legislation, trade, technology transfer and development were created to enhance the land reform processes. However, the implementation of the support programmes had some challenges that were encountered by government. It is for this reason that CASP was launched in August 2004 by the Department of Agriculture (DOA, 2004). The primary aim of CASP is to make provision for agricultural support to targeted beneficiaries of the land and agrarian reform within six priority areas (CASP policy, 2004). CASP is a farmer support programme designed to enhance the provision of post-settlement support service to land and agrarian reform beneficiaries that enhanced and created an enabling environment for the development of agriculture business. The programme came about due to the recommendations by the Strauss Commission who identified a need to improve the conditions of the land reform. CASP is further mandated by other policies, such as the *White Paper on Agriculture* (1995) and the *Strauss Commission Report* (1996).

CASP beneficiaries were identified and grouped into four categories, which are referred to as: the hungry and vulnerable, the household food producers, and the beneficiaries of the land and agrarian reform programmes (DOA, 2004).

Gauteng Department of Agriculture and Rural Development (GDARD) receives the CASP grant annually in terms of the Division of Revenue Act (DORA), 2005 (Act No. 1 of 2006). The grant is applicable to previously disadvantaged farming communities, as a once-off assistance to enhance household food security. The kind of assistance the model would enable the province to have is an impact on a wider spectrum of projects. It has therefore been of utmost importance that the CASP was acted upon in supporting farmer's settlement that is sustainable and agricultural business developments that are feasible. For Gauteng Province, CASP provided on-farm and off-farm infrastructure, training and capacity building, provision of technical and advisory services, and marketing and business development. The beneficiaries were also encouraged to source out funding from financial institutions to sustain their businesses. The main aim of the model was to kick start the projects and beneficiaries will then be able to leverage more funding from other financial institutions to sustain their enterprises.

The implementation of sustainable Land Reform and Agrarian project as well as optimal agricultural production in the Gauteng Province remains the responsibility of Gauteng Department of Agriculture and Rural Development (GDARD) and the Provincial Land Reform and Rural Development Office. Co-operation between the two departments is integral to the agricultural development process in the Province. Therefore, the implementation of CASP cannot be separated from this progressive plan. This implementation guiding document serves to formalize such co-operation between the two departments and its joint effort to equitable distribution of the CASP grant allocations to the rightful beneficiaries.

The CASP development and division was equitable share targeted to support four different levels of clients within the farming communities, and they were:

- I. The hungry - provision of advisory service and food emergencies through the agricultural food packs and dealing with food crises.
- II. Subsistence and household food producers - facilitation of support through food production and include the Special Programme on Food Security (SPFS) and the Integrated Food and Nutrition Programme (IFNP) where the provision of starter pack is made.
- III. Farmers - provision of technical support through farm training and advisory services to land and agrarian reform beneficiaries.

- IV. General public - empowering them with business skills and development and the regulation of environmental conditions to support agricultural development and food safety.

Sedibeng agrarian reform farmers acquired land by means of private ownership and land reform in the form of Settlement Land Acquisition Grant (SLAG), Land Redistribution for Agricultural Development (LRAD) and Proactive Land Acquisition Strategy (PLAS). The objective of this study is to examine the impact of CASP which served as post settlement support to land and agrarian reform farmers in Sedibeng District Municipality.

1.3 Problem Statement

According to Mushunje (2003), poverty and food insecurity problems will not be addressed successfully without access to support services by land reform beneficiaries in order to maximise production. Tupy (2006) indicated that 60% of black South Africans want to live in towns and cities, to work in the manufacturing and services sectors. However, the land reform strategy will not contribute positively towards poverty alleviation and food security as initially hoped. This has been the dilemma facing most African countries in their attempts to redistribute land (Kirsten *et al.* 2005).

Increasing agricultural productivity requires addressing all problems simultaneously even in the non-agricultural sectors, e.g. health, education and physical infrastructure need to be concurrently tackled. Currently, CASP is running in South Africa with the aim of providing post-settlement support to targeted beneficiaries of the land and agrarian reform and other producers from the previously disadvantaged communities South African Government Information, (DOA, 2004). Therefore, this study seeks to determine the socio-economic impact of CASP on agrarian reform farmers in Sedibeng District Municipality.

1.4 Motivation for the Study

In South Africa, even though government is trying to provide post-settlement support services, often few of the services will be given rather than adopting a comprehensive approach. The Non-Governmental Organizations (NGOS) in South Africa augment the role of the government as they are involved in research and working with disadvantaged communities (Rogerson, 2000). It is important to note that some interventions have already been implemented. The associated criticisms are some of those factors that ultimately affect the success of the farmers. However, there are other problems and factors that affect the success of the farmers following interventions, which may be attributed to the farmers themselves. Consequently, the government and non-government organizations are limited in their influence after providing the support.

The collapse of many lands and agrarian reform projects is due to lack of appropriate skills, lack of understanding of agricultural concepts, inappropriate or inadequate business planning, lack of adequate farming implements, lack of road infrastructures, telecommunications, transport and lack of appropriate education in black owned co-operatives (SIS, 2007; Kirsten

and Machete, 2005). The problem experienced by South African beneficiaries of land and agrarian reform is also noted in other countries like Namibia where land reform is still not a straightforward matter. The failure of land and agrarian reform projects is not yet confirmed as to whether it is seriously caused by post-settlement support since some of these projects are more successful than others. The researcher in this study seeks to determine the real cause by analysing the situation in Sedibeng District Municipality of Gauteng Province, South Africa.

1.5 Aim of the study

The main aim of this study is to analyse the socio-economic impact of CASP as post-settlement support to land and agrarian reform farmers using data from Sedibeng District Municipality. It will also determine whether the CASP had any impact on income generated from the produce of land and agrarian reform farmers in Sedibeng District Municipality of Gauteng Province.

1.6 Objectives of the study

In order to achieve the aim of the study, the following objectives were developed for investigation and analysis. They are to:

- I. examine the socio-economic characteristics of the farmers;
- II. determine farmers' participation in CASP ;
- III. examine the factors that influence farmers' participation in CASP; and
- IV. determine the impact of CASP infrastructural development on income level of agrarian reform farmers.

1.7 Hypothesis

- I. CASP infrastructure development does not have impact on production and income of agrarian reform farmers.
- II. Socio-economic characteristic; land size in hectares, farmers age, literacy, gender, marital status, farming experience, family size, membership of farmers association, farm income or off-farm income, the number of visits by agricultural extension officer in the year do not have impact on CASP infrastructural development.

1.8 Significance of the study

The study is significant because it concentrates on the impact of CASP on the improvement of the quality of post-settlement support in agricultural projects which is accessible to emerging farmers. Post-settlement support should form an integral part of the policy output in order to achieve sustainable development outcome (Van der Elst, 2007). According to Deininger (2003), post-settlement support is a process of enhancing and broadening post-settlement services to land reform projects. The programme was implemented to agrarian reform farmers of Sedibeng District Municipality in Gauteng. Most of the farmers had higher hopes that the program would have significant impact on their farming business or activities.

1.9. Outline of the study

Chapter 1: This chapter focuses on the background and status of post-settlement support to agrarian reform farmers in South Africa and its development. It also presents motivations for the study and research objectives.

Chapter 2: Chapter two concentrates on literature review that is essential for the understanding of the impact of post-settlement support to agrarian reform farmers and its sustainability. The status of land reform in other African countries and internationally is equally discussed.

Chapter 3: It expounds fully on the study area, the research methodology, sampling methods and data collection procedures. It also indicates the econometric models used in the study.

Chapter 4: Chapter four covers the socio-economic impact of CASP programme on agrarian reform farmers and income generated. It also explicates the results and discussions of the study.

Chapter 5: This chapter summarizes, concludes and provides recommendations based on study findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

That South Africa has been having a vision of seeing agriculture playing an essential role in the improvement of the rural economy and for the socio-economic liberation of those that live in commonage cannot be gainsaid. Likewise, there has also been a need to increase black entrepreneurs by 5%. Hence, the South African government reaffirmed the government's commitment to provide agricultural support services (State of the Nation Address, 2008). In the meantime, the agrarian reform in South Africa was premised on the fact that very few black producers were actively involved in farming. Attempts were consequently made to correct this disparity through agrarian reform. However, several challenges such as inadequate and costly capacity building programmes were identified. According to Kirsten *et al.* (2005) and SIS (2007), about 50% of the land that was provided to land reform beneficiaries had not been producing substantial amounts of produce suitable for marketing.

As stated by Groenwald (2003); SDC (2007) and Machete (1990), lack of skills, lack of mentorship and training, and lack of extension services are the cause of the problem. In addition to the aforementioned factors, Williams and Van Zyl (2008) include the lack of capital and market access. Thus, the land reform strategy could not contribute positively towards poverty alleviation and food security as initially hoped. This has been the dilemma facing most of African governments in their attempts to redistribute land and increase market access as factors that can make land reform effective. Bradstock (2005) indicated that the amount that was given to land beneficiaries in form of grants to purchase the land contributed to the failure of the Land Restitution programme. His finding implied that the grants given to land reform beneficiaries were not enough and consequently, that forced aspiring farmers to purchase farm land jointly. Another problem that emanated was when a group of people bought a piece of land without common aims, it created conflicts within the group on how the land could be utilised. Subsequently, this resulted in unproductive farms with pronounced depreciation and unproductive capacity due to neglect and mismanagement, among other factors. These factors eventually contributed to the downfall of the programme that was meant to alleviate poverty. Studies by Samanyende (2005) confirmed this by indicating that the main objective of giving land to the poor had not been met.

Evidently, in South Africa, the land issue was not really prioritised as compared to other programmes, e.g. housing, job creation and infrastructure provision (Mushunje, 2003). It was also emphasised that the concept of giving beneficiaries land without settlement support was not a good strategy and the importance of providing post settlement support that would allow the land reform beneficiaries to make adequate use of their newly acquired land. For instance, Kirsten et al. (2005) pointed out the importance of providing access to additional capital and appropriate support services such as extension, technical service, infrastructure development and marketing support to land reform beneficiaries. Relatedly, Lahiff (2007) emphasised that in order for land reform to be sustainable, provisioning of land would have to be supported by other reform programs such as training, access to inputs, restructuring of produce markets, extension services, transport facilities and access to credit (Jacobs *et al.*, 2003).

Thus, it is quite obvious that there are more challenges generated by the land reform process that need urgent interventions. Prinsloo (2008) identified some factors such as inadequate proper technical skills, capacity building and mentorship programme as the causes of land reform failure; while Williams and Van Zyl (2008) included the inadequacy of capital and access to markets as the cause of the unsuccessful programme. In the end, the collapse of 50% of land reform projects was attributed to inappropriate skills, lack of understanding of agricultural concepts, inappropriate and inadequate business planning, adequate farming implements, poor road infrastructures, transport, telecommunications, and appropriate education in black owned co-operatives (SDC, 2007; Kirsten, 2005).

Hall *et al.* (2003), further reflected the post-settlement support services as constrained by the fact that high priority was given to land redistribution but little was done to give support services to those who had acquired that land and consequently, post-settlement support to beneficiaries was the weakest area of land reform and entirely absent in many projects. It was, therefore, concluded that the sustainability of land reform would be difficult to achieve without post settlement support. These authors further recommended a need for a comprehensive post-transfer support policy for agrarian reform in South Africa.

2.2 Focus of South Africa on Land Reform versus Post- Settlement Support

South Africa's land policy and delivery on agricultural development and implementation of post-transfer support have been highly ignored as there is no valid comprehensive policy on support services after land settlement (Jacob *et al.*, 2003). Post-settlement support critical matter with more challenges of the land reform and its failures resulted in conceptualisation of some land reform project which makes the whole system ineffective (Lahiff, 2007).

The Department of Land Reform and Rural Development is responsible for providing the post-settlement support services to the land reform beneficiaries in terms of constitutional and legislative obligations. According to Roodt (2003), land reform beneficiaries, land owners, government departments and various NGOs have since 1994 severely criticised the department. Hall *et al.* (2010) further lent credence to these criticisms against government for not being effective in providing post-settlement support as a complement to land reform process. It was remarked by the authors that the majority of beneficiaries are constantly in poverty, underdeveloped, and unskilled even after receiving the land through the land reform programme.

Meanwhile, Chapter 3 of the white paper on South Africa Land Policy indicated a need for effective post settlement support in the land reform programme. However, Jacobs (2003) argued that the problem lied in focusing on planning before the project of land reform with no consideration of planning for what needed to be done when the process of reform is finalised, i.e. lack of post project planning.

De Villiers (2003) added that land reform survey success was measured incorrectly because of the data that were collected from the wrong questioning such as; how many settled claims since 1994, and how many hectares of land had been transferred to needy land reform beneficiaries and communities. The author further stated that there was a need to identify proper post-restoration factors that could be dealt with and monitored.

Lumbambo (2012) conducted a study on the North West Province which expanded on and confirmed the study by Kirsten and Machete (2005) with the main aim of revisiting land reform beneficiaries who were part of the study during 2004/2005. The exercise was to analyse their performance and status, and also to verify whether the predictions made in 2005 review were upheld. The main objective of the study was to examine the socio-economic profile of land

reform beneficiaries over a period of five years after the previous study. The outcomes of the study revealed that land redistribution in the North West Province had not improved the performance and situation of beneficiaries because most beneficiaries relied on government grants. It was discovered that there was a 43% decrease in production by projects that showed potential and success when visited in 2004/2005 and increases of 27% in the number of project that were not active or in operation. The study reported poor infrastructure, lack of skills and inadequate information dissemination as most of the beneficiaries were not even aware of government support programmes such as CASP even though they had more than five years of experience in farming.

Hall (2004) opined that lack of provisions for post-settlement, which is government's responsibility, could render land reform ineffective. The transfer of land needed to go hand in hand with an effective support programme. Since 1994, there has been no reduction in poverty levels or any significant contribution to sustainable development. Therefore, literature confirms that the land reform programme lacks an effective, coordinated post-settlement management and implementation support structure.

Van der Elst (2007) emphasised that post-settlement services should not be the accountability of government alone. There is no disputing the fact that land reform might yield positive result through collective efforts and proper packaging models. The researcher stressed further that some organisations, agents and stakeholders of government must also come on board, as collective agreement and efforts of both government and private sector would assuredly yield positive result on the land reform. The main aim of this support service should be to transfer skills, empower the land users and enable them to eradicate poverty in a sustainable manner that will improve their livelihood. Therefore there is a need for effective poverty reduction procedures and sustainable strategies for damaged control.

2.3 Purpose of Post- Settlement Support in South Africa and its Sustainability

Post-settlement support in South Africa is meant to nurture the farmers that have received land through land reform. With reference to land reform, the South African context specifies the role of government in ensuring proper help to land and agrarian reform farmers after settlement (Molefe, 2004). There are still special needs for financial support, agricultural training and mentorship programme and environmental support. Sepaela (2006) equally posited that good post-settlement initiative and farming skills development programmes need to be conducted to

farmers so that they can effectively use the land to its maximum production and consequently eradicate poverty. Du Toit (2011) likewise submitted that it will further result in sustainable and improved quality of life for all.

There are more studies that allude to the underutilisation of land received through land reform. An instance is Makhabela's (2004) study; it articulated that the majority of beneficiaries who obtained ownership and access to land in rural areas through restitution, redistribution and tenure reform had not been able to utilise the land to its full potential. Du Toit (2004) added that achieving sustainable agricultural development and improved quality of life was never realised by land reform beneficiaries; while Sepaela (2006) observed that most land reform beneficiaries lacked the skill to farm. Samayende (2005) noted that economic growth from the country was not supported by the post settlement support programme. It was further underscored by Samayende (2005) that the failure of post settlement support was high since 1994 with 90% due to lack of farm management knowledge, marketing skills and access to development credit.

Cilliers (2000) and Du Toit (2003) asserted that a high percentage of the land in the country is still under the provision of white commercial farmers. Similarly, the principles of land reform are also recognized by most of the white commercial farmers. Howbeit, Jack (2004) avowed that 54% of white farmers were keen to assist beneficiaries of the land reform process in terms of agricultural support and improving their quality of life.

2.4 Status of Post-Settlement Support in international perspectives

According to FAO (2006), Agriculture remains essential to poverty reduction worldwide because rural households depend on it for livelihood and for productive employment whether they are employees of small scale, large scale or agricultural enterprises. The effective use of rural and urban land resources to grow enough food to support the world's still-growing population is vital to global food security (Makhura and Wasike 2003). Developing good practice model for service delivery and support systems will be a huge investment for better socio-economic potential and to the economy of the world (Roth *et al.*, 1989; Migot-Adholla, *et al.*, 1991). It will further improve the livelihoods of small-scale farmers by accelerating the level of production, improving income and ensuring decent work for those who are working in the large-scale farms and agricultural enterprises (Senyoloet *al.*, 2009). The research findings on land settlement operation from various countries affirmed that the transferring of land to

beneficiaries without necessary support service irrespective of political or historical background leads to the neglect of the land. Consequently, an unused land becomes unproductive, and ultimately such owners are at the risk of failure (Samayende, 2005).

The settlement support service in Zimbabwe was initialized by providing the start-up tillage services and production inputs for half a hectare per family as the first phase. The actual number of hectares that each family received was five hectares. In order to cultivate all hectares, the beneficiaries had to supplement by outsourcing funds from financial institutions or from their own pockets (Chiremba and Masters, 2010). During the phase 2 of the two year plan, the government proposed that the Agricultural Finance Corporation (AFC) provided credit for development and capital from its Farm Input Credit Scheme, and from Grain Marketing Board (GMB) through Agricultural Development Bank (AGRIBANK). The responsible Department was therefore accountable for reporting the implementation and progress after the project plan was being approved (Tilley, 2007). However, the strategic method for reporting and recording information was no longer active after appointment of extension officers. As such, there was persistent poor monitoring and evaluation of projects and automatically, the focus shifted from land redistribution to infrastructure support service.

The pattern in which land redistribution was conducted in Zimbabwe made reform programme a political game that benefited mostly the politicians at the expense of poor citizens. De Villiers (2003) claimed that no criteria were used in land allocation in Zimbabwe, as only five percent (5%) of land went to those with political connections and fifteen percent (15%) was allocated to civil servants or others who were already employed in the urban economy. Productive land was given to people with no agricultural experience, skills and lack of adequate resource to cultivate. In the Australian settlement programme support service became a serious challenge because of unviable or poor quality land that was not productive and also allocated to the beneficiaries that had inadequate skills and training in agriculture. Lack of commitment and conflicts among beneficiaries was also identified as a concern (Tilley, 2007; 25). These aroused a necessity for the Australian government to review its land reform and post- settlement programmes to cater for socio-economic benefits of previously disadvantaged people. In Namibia, land reform process was also not well facilitated. The pace of the process, management and post-settlement were reported to be slow (De Villiers, 2003).

Brazil was noted for having external settlement support services from various agencies like Food and Agriculture Organisation (FAO) which managed to provide technical support,

implementation of sustainable farming strategies through various projects in support of land and agrarian reform beneficiaries (Tilley, 2007;11). The World Bank helped in introducing market based land approach. It provided assistance in technical aspects and finance in an effort to assist the land reform beneficiaries with pre and post-acquisition of land. Nevertheless, the strategic approach that was introduced by government for land acquisition purposes was not effective, as beneficiaries ended up buying the land that was cheap and non-viable Borras (2003). In addition, the grant funding had also become insufficient because it was diverted to other functions such as water and electricity before the actual implementation and development of project feasibility study.

Quan (2006) disclosed that, local and international NGOs contributed to capacity building of farmers, technical support on their farming enterprises and marketing of produce in order to contribute to their livelihood. China has shown that, if land reform programs were strategized and planned properly, they could go a long way towards solving the land problems caused by European settlers in Africa and contribute significantly to the livelihood of agrarian and reform farmers.

2.5 Empirical Review of Literature

2.5.1 Factors that influence participation and behaviour of farmers in government sponsored programmes

The study conducted by Onianwa *et al.* (2004) examined the factor that influences the participation of farmers with limited resources in agricultural cost share programmes in Alabama. The outcomes of the study were that factors such as college education, age, ratio of owned to total acres, rented acres, gross value of sales and membership in a conservation organisation indeed had affected participation. The more educated farmers the higher the participation.

Nagubadi *et al.* (1996) averred that in Indian and United State of America, the commercial and land ownership, government source of information and forestry organization determined participation in the landownership programme. The authors further showed that factors such as property right loss, ages and first wooded period tract was acquired were the significant factors that promoted participation in the program. Bell *et al.* (1994) conducted a study on the effect of cost-share incentives on the participation in the Tennessee Forest Stewardship program.

Factors that influenced participation were also investigated in the above study. The forestry programmes were indicated as factors that could be more influential in a land owner's decision to participate than cash incentives. Norris and Batie (1987) also examined soil conservation decision by using survey data of farm operators in two Virginia counties. The observation was that financial factors (income and debt), perception for erosion, educational level, off-farm employment and tenancy had an impact on the sampled farmers. The findings also showed that age, race, and on-farm erosion were being significantly related to the use of conservation tillage.

Kalaitzadonakes and Monson (1994) conducted a study on factors that influenced potential conservation effort in Missouri using a sample of contract holders. It was quite clear that potential conservation effort were directly influenced by greater risk aversion, low discount rates while increasing debt load positively influenced conservation. Featherstone and Goodwin (1993) examined the effect of various factors on probability and expected level of long-term conservation improvement by sampling 541 Kansas farms. The results suggested that differences in farm sizes, incomes, and types of farming practices influenced conservation investment decisions. Larger conservation investments were done by corporately organised farmers than by old individual farmers. The outcomes indicated that Government programs participation does not affect investment in long-term conservation improvements.

The case study that was conducted in Ntfontjeni Rural Development Area (RDA) in Swaziland on factors affecting participation of farmers in small holder irrigation schemes indicated that distance to the irrigation scheme, age of participants, household head occupation, size of the farm, access to credit, and memberships in organised groups determined participation (Sithole *et al.* 2014). The relationship between age and choice to participate in small holder irrigation schemes was negative. According to Martey *et al.* (2013) the likelihood to participate in the irrigation scheme was a factor of a younger age. The younger the household head the more the participation due to their ability to be innovative in technology adoption and more tendencies to take risk than their older counterparts. However, other researchers like Etwire *et al.* (2013); Khalherili (2008) and Oladele (2013) revealed that age was not significant in the household head's decision to participate in agricultural projects.

The distance to the scheme significantly influenced house head's decision to participate but the relationship was negative, which meant that a one kilometre increase in distance significantly

decreased the likelihood of the household head to participate by 4.6%. However, Asayehegn (2011) indicated that distance had no impact on participation in Ethiopia.

Farm size and access to credit significantly influenced the probability of participation (Nxumalo and Oladele, 2013). A unit increase in farm size significantly increased the likelihood of the household head's participation in agricultural project by 3.8%. Asante *et al.* (2011) emphasised that those farmers who had access to credit managed to overcome the problem of finances that were related to production and innovation adoptions. This resulted as a source of motivation for group formation and learning.

Correspondingly, Kilowe and Frumence (2015) conducted a study to find out factors that hindered community participation in developing and implementing Comprehensive Council Health Plan (CCHP). The findings of the study evinced that, inadequate awareness of the CCHP among Health Facility Governing Committees (HFGC) members, poor communication and information sharing between Council Health Management Team (CHMT) and HFGC members, and inadequacy of financial resources for implementing HFGC activities were hindrances. Subsequently, the challenges found in the study serve as a mark to policy makers to revisit their developed strategies and engaged local governance on planning and managing of CCHP and health facility plans.

According to Ndoro et al. (2014) competition for natural resources such as land and water in rural areas of South Africa threatens the sustainability of cattle based livelihoods. The national and provincial government invest money in agricultural extension to improve productivity, and government safeguards the multi-functionality of cattle farming even though the effective and efficient livestock extension models remain a challenge. Ndoro et al. (2014) studied the effects and primary impacts of participation in livestock extension programmes in the KwaZulu-Natal Province. A total of 230 smallholder farmers from 13 communities were surveyed with the use of the propensity score matching method. The Probit model results indicated that the likelihood of participation in extension programme was inversely related to education and it was influenced by group membership, distance from the extension office, adoption of mixed breed, herd size and usage of forage and feed supplements. Furthermore accrued benefits from participating in livestock extension programmes for cattle production and input use were limited.

Zbinden and Lee (2005) conducted a study titled: Payment of environmental services in Costa Rica's Programme. Costa Rica served as a pioneer in policy innovation dealing with deforestation (World Bank, 2000) and as a long leader among developing countries in experimentation and designing of innovative environmental programs. A total of 4400 farmers and forest owners including both PSA ("*pagos por servicios ambientales*") participants and non-participants for reforestation, forest conservation and sustainable forest management activities received disbursements. Farm size, human capital and household economic factors as well as information significantly influenced participation in PSA program alternatives. The limiting factor in the study was large farmers and forest owners who were found to be unreasonably represented among programme participants.

As penned by Arogundade et al. (2011), poverty has earned status and recognition as a serious challenge in the whole world. The researchers researched the various government policies targeted towards poverty alleviation in Nigeria with an idea to determining the strategic models that would help in effective and efficient implementation to eradicate this dilemma. The survey found that government usually had power to introduce their own policy. Some policies inherited from successors are gradually either abandoned absolutely or rendered impotent. The authors submitted that the inadequacy of succession planning was the main factor but in later stage revealed that some government vividly watched their baby programmes dying prematurely to give birth to another. They further observed that each programme had different orientation and strategic focus but targeting one objective. Therefore the authors recommended that all policies should redirect and serve under the same umbrella, additionally, each unit should be accountable and responsible for its own activities. The outcomes of the investigation concluded on the name "Poverty Alleviation Agency for Nigerians (PAAFN)" derived to house other agencies and to be directly responsible for co-ordination with the Presidency office.

Mustaphan's (2014) study is a parallel to Arogundade et al. (2011) research. The study revealed that Nigeria had fought poverty since her independence; however various policy strategies had been implemented with the main goal of eradicating poverty. He noted that in spite of this, the set goals of poverty alleviation were not achieved. The investigation by Yunusa (2012) indicated that policy makers in Nigeria lacked adequate skills and knowledge about the culture of poverty, including the emotional preparedness that people needed to break family generation cycle of poverty and, ultimately, transition out of poverty. In line with the submissions of previous studies, Okosun et al., (2012) attributed the main causes of poverty in Nigeria to bad

governance, which stemmed from corruption, long period of military dictatorship, and large population with high level of illiteracy in the country. The outcomes of the studies cited above provide a comprehensive report on the basis of variable selection to empirically examined impact of programme and participation behaviour of limited resources farmers.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on study area by describing the province and the district municipality where the study was conducted. It highlights the economic status of the province; its ethnic population variance among the community within the province is indicated. The chapter also provides the map of Sedibeng District Municipality where the study was conducted as well as the agricultural and environmental patterns. It covers data collection, sampling and data analysis. The model used in research study is also presented.

3.2 Study Area

The study was conducted in Gauteng Province, Sedibeng District Municipality. Gauteng is known to be the smallest province and the richest province in South Africa (Stats SA, 2012). It is constituted by different types of tribes which made it the largest share of the South African population.

According to (Stats SA, 2012), 24.0% of the approximately 12.7 million people in South Africa live in Gauteng Province. Gauteng Province is situated in the north-east part of the country and is landlocked, bordered by Limpopo in the north, Mpumalanga in the east, Free State in the south and North West in the west. The main languages are IsiZulu spoken by 21% of the inhabitants, Afrikaans (14%), Sesotho (13%) and English (12%). The province is demarcated into three Metropolitan municipalities and three district municipalities, namely Johannesburg Metro, Ekurhuleni Metro, Tshwane Metro, Metsweding, Sedibeng, and West Rand District Municipalities.

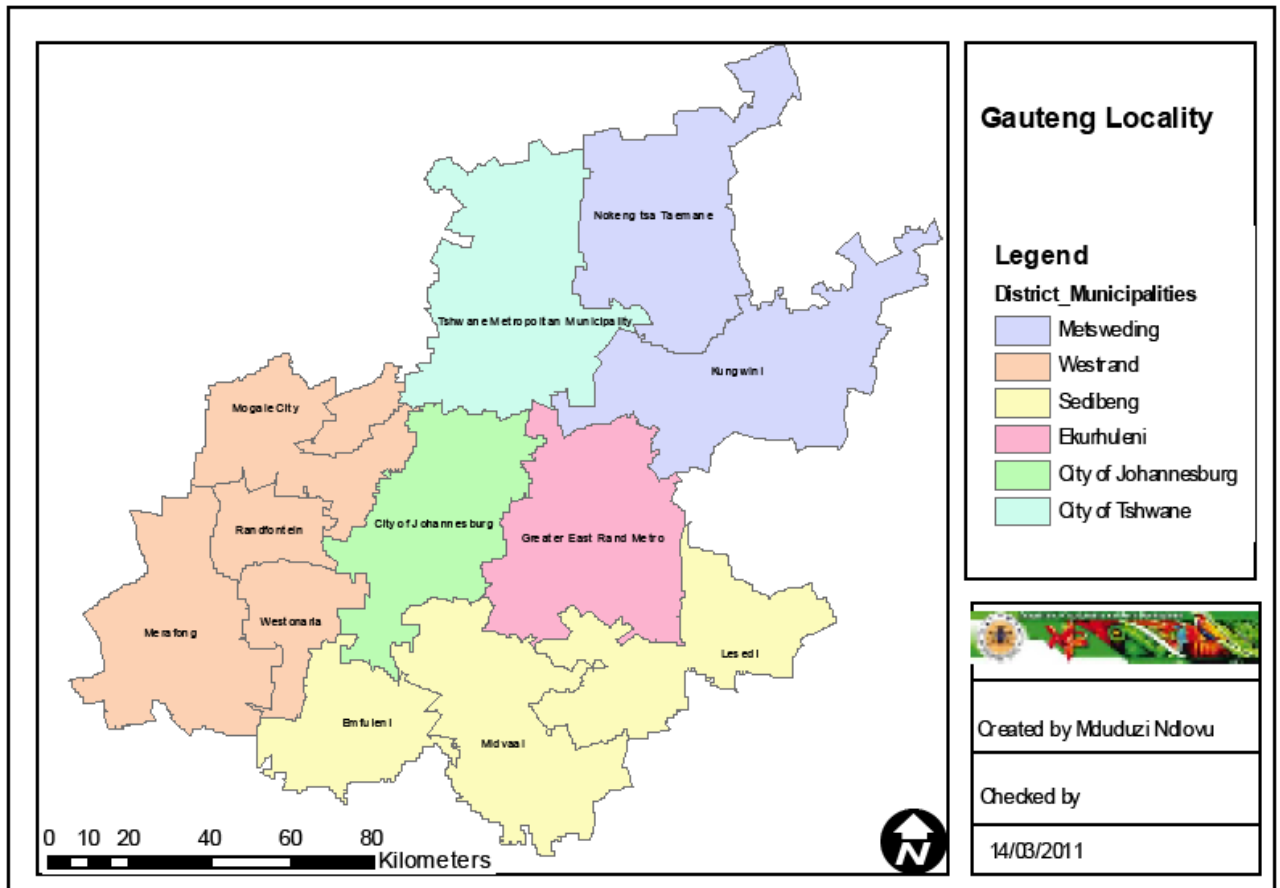


Figure 3.1: District Municipalities of Gauteng Province (Source: GDARD).

The people of Gauteng have the highest per capita income level in the country (Stats SA, 2012). The province has diverse cultures, colors together with first and third world traditions with a vast array of foreign languages such as English, Mandarin, Swahili, French, German and many more. With a total area of 16 548 square kilometers, Gauteng is slightly smaller than the US state of New Jersey (Stats SA, 2012).

3.3 Climatic conditions

The province has good environmental conditions with very cold winters and hot summer seasons. During summer, the province used to experience thunderstorms and frost in winter. The skies are very clear during the day in winter. The province has good summer rain falls and most of the farmers depend on rain water for their farm production activities.

3.4 Spatial distribution of Agriculture in Gauteng Province

Gauteng is situated in the centre of rapid urbanization within Southern Africa. There is a need for South Africa to develop strategies that will lead to feasible and sustainable agricultural development within the province. Currently the province has maize triangle hub that is zoned as the highest area where maize is produced. Sedibeng District Municipality is one of the municipalities within the potential zoned hubs. Gauteng Province is commonly known as the fourth producer of maize in the country (Stats SA, 2007). There is partial production of livestock and horticultural crops that still need to be catalysed by means of technical support programs in order to help the agrarian reform farmers to maximise the yield or production.

There is high level of industrialization in Gauteng Province. The province remains competitive in terms of development and agricultural potential land. It is categorised as highly intensive, diversified, commercial and subsistence agricultural zone. Four of the major fresh produce markets are located within the province. Thus, agrarian reform farmers are able to deliver their fresh produce straight to the market. The largest feedlots and millers are also found within the province with well-developed infrastructure and roads that access the country's largest airport.

3.5 Sedibeng District Municipality

Sedibeng District Municipality is located on the edge of Gauteng, and consists of three local municipalities, namely Emfuleni, Midvaal and Lesedi. The total population of Sedibeng is in the region of 800 000 people, of which 83% reside in Emfuleni, 8% in Midvaal and 9% in Lesedi (Stats SA, 2001). Figure 2 indicates the location map of the study area. The agrarian reform farmers are the sole agricultural food producers in the district municipality. The Provincial Department of Agriculture and Rural Development (GDARD) launched its strategic plan for agricultural hubs at Bronkorspruit in 2007 and Sedibeng District Municipality was one of the districts that have agricultural hubs in Gauteng Province.

The district is regarded as Maize Triangle and the main agricultural practices in the municipality are agronomic crops (e.g. maize rotated with sunflower), livestock (large and small stock e.g. beef, sheep, piggery and poultry production) and horticultural crops (e.g. intensive (hydroponics) and extensive vegetable production, herbs and medicinal plants). Commercial agriculture takes up the largest area within the district and makes up plus or minus

33% of total land usage (Source: GDARD). Agricultural activities in the district are dominated by small-scale entrepreneurs (Stats SA, 1998).

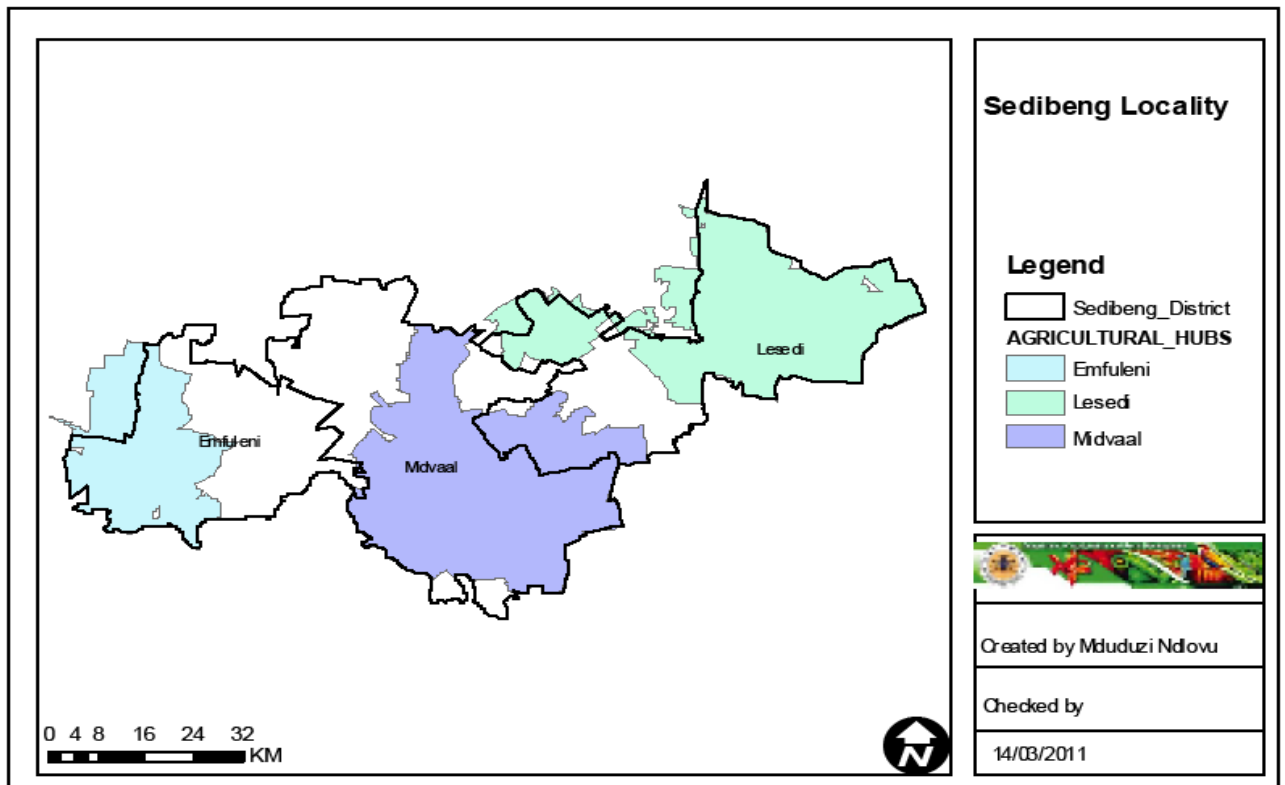


Figure 3.2: Map of the study area: Sedibeng District Municipality (Source: GDARD).

3.6 Sampling procedure

Three hundred (300) agrarian reform farmers in Sedibeng District Municipality were considered for the study without necessarily putting any selection criteria in place. However, during the analysis, farmers who participated and nonparticipants on CASP were considered to test the significance of the programme as post settlement support provided to agrarian reform farmers in Sedibeng District Municipality. While 219 farmers participated in the programme, 81 were non-participants. The Gauteng Department of Agriculture and Rural development, Eastern Region Manager accepted our proposal and granted permission to conduct the study within the region, as they were found to be at the forefront in providing the post-settlement support to farmers in the study area. The letter of permission was granted by the Eastern Region Manager to the researcher in order to conduct the study and to communicate with agricultural

advisor, and agrarian reform farmer in Sedibeng District Municipality. Most of the farmers were met during their commodity study groups that are facilitated by agricultural advisors on a monthly basis within various local municipalities while other farmers were visited on their plots and farms.

3.7 Data collection

A structured questionnaire was used to collect information from 300 agrarian reform farmers from Sedibeng District Municipality; out of 300 agrarian reform farmers, 219 were participant, while 81 were nonparticipants on CASP. The questionnaires were developed in English and simplified as a tool to collect data (Babbie, 2001). The interviews were conducted face to face with farmers during their commodity study group's sessions and farm visits. According to Bless and Smith (2000), emphasised an interviewer that administered interview is an important tool of data collection because it reduces omission of difficult questions by respondents. It further reduces the problem of word or question misinterpretation (misunderstandings) by respondents, who are farmers that can neither read nor write. The interpretation of the questions in the questionnaires was sometimes explicated in the local language to ensure better understanding, especially when relating with those farmers who had no formal schooling.

The questionnaires were sub-divided into sections in order to get structured logical approach of getting answers and also to avoid omissions of important questions. The questionnaire consisted of sections A, B, C, D, E, F, and G. Section A was set aside for Biographical information that required gender and marital status, age group, level of education and experience in farming. The questionnaire was anonymous as no personal questions like names; identity number and address were asked. Section B contained Household Assets, C- Farm Production and Income, D- Market and Contract, E- Agricultural Services and Infrastructure, F- Constraints in Farm Production and Management and G - Comprehensive Agricultural Support Programme (CASP).

3.8 Data analysis

Data were analysed with the use of the Statistical Package for Social Science (SPSS) Version 20 of 2012. SPSS was used to detect the existence of a relationship between the variables in order to make a meaningful prediction. Data of 300 filled in questionnaires was captured on SPSS. Results were in tabular form and the significant variables are indicated in Chapter four.

3.9. Econometric model

3.9.1 Conceptual framework

The Comprehensive Agriculture Support Programme (CASP) was initiated to promote food security by providing agricultural support to targeted land reform and agrarian beneficiaries within the six priority areas. The six priority areas were information and knowledge management technical and advisory assistance, and regulatory services, training and capacity building, marketing and business development, on-farm and off-farm infrastructure and production inputs and financial assistance. The study intends to evaluate the extent to which the CASP has contributed to the farmers livelihood. It employs two estimation procedures namely a probit model and propensity score matching.

It is assumed that before the farmer decides on whether to participate in the CASP, he/she first examines the benefit derived from the programme while considering socio-economic characteristics related to the them. The farmer is expected to participate in the programme if he/she obtains maximum net benefit from it. Let Y_{CPI}^* denote the i th farmer's net benefit from participating in CASP. The farmer is more likely to participate in the programme if the net benefit derived from participation is higher than that of non-participation (which is represented as Y_{CNI}^*).

Thus, $Y_{CPI}^* > Y_{CNI}^*$. Although, the researcher does not know the preference of the farmer, the characteristics and attributes of the choices are observed. That is Y_i^* , which is not an observable dependent variable, can be expressed as a function of observable elements in a latent variable model. The latent variable model can be related to a set of socio-economic characteristics (\mathbf{X}) as:

$$Y_i = \begin{cases} 1, & \text{if } Y_i^* > 0 \\ 0 & \end{cases}$$

(1)

$$Y_i^* = \mathbf{X}'\phi + u_i$$

(2)

Where Y is an observable dependent variable, u is the error term and ϕ is the parameter to be estimated.

The probability of adoption of chemical fertiliser can be expressed as:

$$\Pr(Y_i = 1) = \Pr(Y_i^* > 0) = \Pr(u_i > -\delta X_{ij}) = 1 - \Omega(-\delta X_{ij})$$

(3)

Where Ω is the cumulative distribution function for u_i . Standard probit model can normally be employed to estimate the parameters in equation (1).

It is relevant to determine whether there is a significant difference between incomes of participants and nonparticipants of CASP. One of the appropriate ways to do this is by employing propensity score matching which is a non-parametric approach. Propensity score matching indicates the pairing of treatment and control units with similar values on the propensity score and possibly other covariates, and the removal of all the unmatched units (Rubin, 2001). Propensity score matching (PMS) is employed to evaluate the impact of CASP participation on farmers' income. It is first specified by estimating the average treatment effect. Rosenbaum and Rubin (1983) defined the average treatment effect (Δ_i) in a counterfactual framework as:

$$\Delta_i = Income_{CP} - Income_{CN}$$

(4)

Where $Income_{CP}$ and $Income_{CN}$ denote total farm income obtained by CASP participants and non-participants of CASP, respectively. In estimating the impact from equation (4), a problem

that arises is due to the fact that either $Income_{CP}$ and $Income_{CN}$ is normally observed, but not both of them for each farmer. What is normally observed can be expressed as:

$$Income_i = D_i(Income_{CP}) + (1 - D_i)Income_{CN} \quad D = 0,1$$

(5)

Denoting Pr as the probability of observing a farmer with $D = 1$, average treatment effect, (ATE) can be specified as:

$$ATE = Pr[E(Fert_{AP} | D=1) - E(Income_{CP}|D=1)] + (1 - Pr)[E(Income_{CN} | D=0) - E(Income_{CN}|D=0)]$$

(6)

The main issue with the above equation is the problem of casual inference which comes from the unobserved counterfactuals $E(Income_{CP} | D=0)$ and $E(Income_{CN} | D=1)$. These unobserved counterfactuals cannot be estimated as pointed out by Smith and Todd (2005). The counterfactual problem can be addressed with the PMS method that summarises the pre-treatment characteristics of each subject into a single index variable, and then uses the propensity scores to match similar individuals (Rosenbaum and Rubin 1983).

The PSM which defines the probability of assignment to treatment conditional on pre-treatment variables is expressed as follows:

$$p(X) = Pr[D = 1 | X] = E[D | X]; p(X) = \Omega\{h(X_i)\}$$

(7)

Where $\Omega \{.\}$ can be normal or logistic cumulative distribution and X is a vector of pre-treatment characteristics. Once the propensity is computed, the (ATE) effect can be then estimated as:

$$ATT = E\{Income_{CP} - Income_{CN} | D = 1\},$$

(8)

$$ATT = E[E\{Income_{CP} - Income_{CN} | D = 1, p(X)\}]$$

(9)

$$ATT = E[E\{Income_{CP} | D = 1, p(X)\} - E\{Income_{CN} | D = 0, p(X)\} | D = 1]$$

(10)

A number of methods have been suggested in the literature to match similar participants and non-participants. The radius algorithm matching was used.

3.9.2. Empirical specification of the Model

Empirically, farmers' decision to participate in CASP can be specified as:

$$\begin{aligned}
CASP_i = & \phi_0 + \phi_1 FBO_i + \phi_2 Contract_i + \phi_3 Msupport_i + \phi_4 Education_i + \phi_5 Householdz_i + \phi_6 Farmz_i \\
& + \phi_7 Extension_i + \phi_8 Gender_i + \phi_9 Marital_i + \phi_{10} Hemployed_i + \phi_{11} Landtitle_i + \phi_{12} Qagric_i \\
& + \phi_{13} Market_i + \phi_{14} Employees_i + \phi_{15} Loc2_i + \phi_{16} Loc3_i + e_i
\end{aligned} \tag{11}$$

FBO_i denotes 1 if farmer belongs to farmer based organisation and 0 otherwise, $Contract_i$ represents 1 if farmer engages in contract market and 0 otherwise, $Msupport$ indicates 1 if farmer receives market support and 0 otherwise, $Marital_i$ indicates 1 if farmer is married and 0 otherwise, Age_i indicates farmer's age in years, $Education_i$ denotes number of years of formal schooling, $Extension_i$ denotes access to agricultural extension service (1 if farmer accesses extension services and 0 otherwise), $Gender_i$ equals 1 if farmer is a male and 0 otherwise, $Market_i$ indicates nearest market distance from the homestead in kilometres, $Hemployed_i$ denotes 1 if farmer's household head is employed and 0 otherwise, $Employee_i$ number of workers employed by farmer. ϕ_0 is the constant term while $\phi_1, \phi_2, \dots, \phi_{16}$ are the coefficient terms and e_i is the error term.

3.10 Conclusion

The study employed two estimation procedures, namely, a probit model and propensity score matching on primary data collected from the study area in Sedibeng District Municipality of Gauteng Province. Three hundred (219 participants and 81 nonparticipants) agrarian reform farmers were interviewed. Variables and the results of the study are further defined in details in Chapter Four

CHAPTER FOUR

RESULT AND DISCUSSION

4.1. Socio-economic characteristics

The socioeconomic characteristics of the farmers are presented into CASP participants and non CASP participants in the Table 4.1 below. The survey data indicate that the majority of respondents who participate in CASP were males (74.4%) while 25.6% were female. About 32% of CASP participants had attained primary school education, 28.3% had secondary school education, and 23.3% had education at the college level while 16.4% acquired high school education. For non- CASP participants, 71.6% were male and 28.4% female. About 32.1% of non-CASP participants had acquired primary education, 23.5% had secondary school education, 25.9% had education at the college level while 18.5% acquired high school education. About 53.9% representing the CASP participants were married while only 6.8% were single, 19.2 were divorced and 20.1 widowed.

The percentage of non-CASP participant that were married was about 51.9% and 8.6% single; 23.5% are divorced while 16.0 are widowed. About 22.8% of the CASP participant indicated that their household heads were employed while 77.8% are unemployed. About 16.9% of CASP participants had obtained qualification in agriculture while the majority (83.1%) did not have any qualification in agriculture. Only 18.5% of non-CASP participant obtained qualification in agriculture while 81.5% have not obtained any qualification in agriculture. The survey data showed that 61.6% of the CASP participants cultivated on their own private lands while 38.4% acquired their lands through land reform for the non-CASP participants 76.8% cultivated on their own private lands while 23.5% acquired their lands through land reform.

Table 4.1. Socioeconomic characteristics of the farmers (CASP&NON-CASP Participants)

Variable	Category	CASP Participant		Non -CASP Participant	
		Frequency	Percent (%)	Frequency	Percent (%)
Gender	Male	163	74.4	58	71.6
	Female	56	25.6	23	28.4
Education	Primary	70	32	26	32.1
	Secondary	62	28.3	19	23.5
	High	36	16.4	15	18.5
	College	51	23.3	21	25.9
Marital status	Married	118	53.9	42	51.9
	Single	15	6.8	7	8.6
	Divorced	42	19.2	19	23.5
	Widowed	44	20.1	13	16
Household head employed	Yes	50	28	22	27.2
	No	169	77.8	59	72.8
Qualification in Agriculture	Yes	37	16.9	15	18.5
	No	182	83.1	66	81.5
Land acquisition	Private	135	61.6	62	76.8
	Land reform	84	38.4	19	23.5

Source: Survey data, 2015

Table 4.2 presents the descriptive statistics of the socioeconomic characteristics of the CASP participants. The survey data indicated that the average age of the farmers was 56.5 years with minimum and maximum of 15 years and 98 years, respectively. The average household size was 4.8 persons. The minimum household size was 3 persons with maximum of 7 persons.

The household size indicates availability of family labour. In terms of farming experience, the farmers have been in the farming business for about 9 years averagely with minimum and maximum of 3 years and 30 years. The average farm size cultivated by the farmers was 132.78ha with maximum and minimum of 600ha and 2ha, respectively. The average number of people employed by the farmers to work on their farms is approximately one person. The minimum and maximum number of employee falls between the range of 0 and 4 persons.

Table4.2. Descriptive statistics of the socioeconomic characteristics of CASP Participants

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	219	15.00	98.00	56.56	16.0
Household size	219	3.00	7.00	4.8	1.2
Experience in farming	219	3.00	30.00	9.0	4.3
Farm size	219	2.00	600.00	132.7	193.4
Number of employers	219	00	4.0	.881	1.08

Table 4.3 also presents the descriptive statistics of the socioeconomic characteristics of the non-CASP participants. The survey data indicate that the average age of the farmers was 56.9 years with minimum and maximum of 25 years and 90 years, respectively. The average household size was 4.7 persons. The minimum household size was 3 persons with maximum of 7 persons. The household size indicates availability of family labour. In terms of farming experience, the farmers have been in the farming business for about 8.5 years averagely with minimum and maximum of 3 years and 30 years. The average farm size cultivated by the farmers was 93.8ha with maximum and minimum of 560ha and .00ha, respectively. The maximum number of employees is 4 persons.

Table4.3. Descriptive statistics of the socioeconomic characteristics of Non- CASP Participants

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	81	25.00	90.00	56.9	14.5
Household size	81	3.00	4.7	4.7	1.2
Experience in farming	81	3.00	30.00	8.5	4.7
Farm size	81	.00	560.00	93.8	169.7
Number of employees	81	.00	3.00	.43	.72

Table 4.4 below presents the descriptive statistics of the socioeconomic characteristics of all farmers. The survey data indicate that the average age of the farmers was 56.9 years with minimum and maximum of 15 years and 98 years, respectively. The average household size was 4.8 persons. The minimum household size was 3 persons with maximum of 7 persons. The large household size indicates availability of family labour. In terms of farming experience, the farmers have been in the farming business for about 8.9 years averagely with minimum and maximum of 3 years and 30 years. The average farm size cultivated by farmers was 122.1ha with maximum and minimum of 600ha and .2ha respectively. The minimum and maximum number of employees falls between the ranges of 1 to 4 persons.

Table 4.4. Descriptive statistics of the socioeconomic characteristics of all farmers

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	300	15.00	98.00	56.9	15.6
Household size	300	3.00	7.00	4.8	1.1
Experience in farming	300	3.00	30.00	8.9	4.4
Farm size	300	2.00	600.00	122.1	187.8
Number of employees	300	1	4.00	0.7	1.0

4.2. Institutional Characteristics

This section presents discussions on institutional characteristics related to the farmers. These include market support, contract market, extension services, farm based organisation and irrigation. The responses of the farmers regarding these institutional characteristics are shown in Tables 4.3 and 4.4. The survey data revealed that majority (78%) of the farmers did not get any market support for their production activities while only 22% obtained support in marketing their food commodities. Moreover, 44% engaged in market contract for their produce while 56% had no market contract. Among those who engaged in market contract, 48% had written contracts, 42% secured verbal contracts while 10% had both verbal and written contracts. The farmers further indicated that they received inputs, technical assistance, financial and transport support.

Table 4.5. Market support and contract market

Variable	Category	Frequency	Percent (%)
Market support	Yes	66	22
	No	234	78
Contract Market	Yes	132	44
	No	168	56
Contract type	Verbal	71	42
	Written	81	48
	Both	16	10
Contract support	Provision of inputs	25	6.3
	Provision of technical assistance	17	5.6
	Provision of financial support	15	5.0
	Transport support	13	4.3
	Buy product	22	7.3

Results on extension contact and farm based organisation are presented in Table 4.6. The table showed that most (89.3%) of the farmers got the services of extension officers thus indicating the visibility of extension services in the province. Extension agents served as intermediaries between farmers and researchers as well as policy makers. Forty eight percent (48%) of those who had contacted extension agents received information on farm production and management while 31% had information regarding marketing and finance. Only 21% obtained assistance on preparation of business plans. In addition, 90.7% indicated that they belonged to farm based organisations while the remaining (9.3%) did not join any farm based organisation. Farm based organisations serve as platforms for extension agents to channel relevant information to farmers. This arrangement makes the work to be easier. Instead of visiting the individual farmers, they get to provide advisory services to the groups of farmers.

Table 4.6. Extension and farm based organisations

Variable	Category	Frequency	Percent (%)
Extension contact	Yes	268	89.3
	No	32	10.7
Type of information received	Farm production and management	129	48
	Marketing and finance	84	31
	Preparation of business plan	55	21
Membership of Farm based organizations	Yes	272	90.7
	No	28	9.3

There was limited access to irrigation facility among the respondents. About 34.70% was found to have irrigation facilities on their farms. Drip irrigation system was common among the farmers followed by sprinklers and the least was furrow irrigation. The study further shows that most (58.3%) of the farmers had land titles while 41.7% did not have any land titles.

Table 4.7. Irrigation and land title

Variable	Category	Frequency	Percent (%)
Irrigation system	Yes	104	34.7
	No	196	65.3
Type of irrigation system	Drip	42	40.38
	Furrow	29	27.88
	Sprinklers	33	31.73
Land title	Yes	175	58.30
	No	125	41.70

Table 4.7 showed the various constraints faced by farmers in their farming. Kendall's Coefficient of Concordance was employed to rank those constraints. The farmers rated inadequate labour as the major constraint they faced in their farming business. This was the case because most of the vibrant youth had migrated to the various towns and cities to look for white collar jobs. It is observed that the youth had limited interest in agricultural production. Poor/declining soil fertility was rated as the second challenge in their agricultural production.

Low yield was indicated as the third constraints. Generally, the fertility level of most South African soils is low. Consequently, without any soil improvement technologies, farmers receive low yields. The farmers also claimed that there was limited access to agricultural lands. Thus, limited access to land was rated as the 4th challenge. Limited access to credit was ranked by the farmers as the 5th challenge. The high labour and intensive nature of agriculture as well as high requirement of soil improving measures makes capital an essential component in agricultural production. Erratic rainfall pattern was recognised by the farmers to be the 6th constraint. Climate change has been a great issue as far as agricultural production is concerned in South Africa. The last constraint was low commodity prices. The Chi-square statistic of the Kendall's coefficient of Concordance is statistically significant at 1% level suggesting that there is agreement among the farmers in rating the listed constraints.

Table 4.8. Constraints faced by farmers in their production

Constraints	Mean Rank	Rating
Inadequate labour	9.68	1 st
Poor/declining soil fertility	7.52	2 nd
Low yield	7.00	3 th
Limited access to land	5.80	4 th
Limited access to credit	5.72	5 th
Erratic rainfall pattern	5.67	6 th
Low commodity prices	5.01	7 th
Kendall's Coefficient of Concordance	0.314	
Chi-square	1128.386***	

*** denote 1% significance level

4.3. The factors that influenced farmers' participation in CASP

In this section, farmer's participation in CASP, their perceptions on CASP and the factors that influenced their participation in CASP are presented and discussed.

4.3.1. Farmers' participation in CASP

Table 4.9 showed farmers' participation in CASP. The survey data revealed that 73% of the farmers participated in CASP, an indication that majority of them did participate; while the remaining 27% did not participate or did not benefit from participating from CASP. This implied that the programme is extending its beneficiaries. Table 4.9 further showed that 78% of the beneficiaries applied for CASP grant through Gauteng Department of Agriculture and Rural Development (GDARD). Ten percent (10%) applied to Department of Agriculture Forestry and Fisheries (DAFF) which in turn directed the application to GDARD. In addition, 38% indicated that it took them about 4 years to receive the CASP grant. About 11% and 9% took 2 years and 6 years respectively to receive the CASP grant. Twenty seven percent (27%) mentioned that they received the full CASP package while the majority did not obtain the full package. Only 4% sent their application to Gauteng Provincial Land Reform and Rural Office

(GPLRO) which directed it to GDARD. Eight percent (8%) of the beneficiaries indicated that they applied to GDARD through the Municipality Local Economic Development (LED) office. Lastly, only 1% applied to GDARD through the WARD councillor.

Table 4.9: Farmer’s participation in CASP

Variable	Category	Frequency	Percent (%)
CASP participation	Yes	219	73
	No	81	27
Mode of CASP application	GDARD to apply for the CASP	171	78
	DAFF and DAFF direct to GDARD	22	10
	GPLRO to GDARD	8	4
	Municipality LED office and the municipality direct to GDARD	18	8
	WARD councillor and direct to GDARD	3	1
Length of time taken for the grant to be released.	2	25	11
	3	28	13
	4	83	38
	5	63	29
	6	20	9
Obtain the entire CASP package	Yes	82	27
	No	137	45.7

4.3.2 Perceptions of farmers on CASP

Hundred and ninety three which is (64%) of respondents agreed with the perception statement that CASP grant application process was very cumbersome whilst 18 (6%) disagreed with the statement indicating the respondents had a strong perception about the CASP application process as being cumbersome. Moreover, 156 (52%) of the respondents agreed with the perception statement that CASP grant was insufficient; whereas 49 (16%) of the respondents disagreed with the statement which reveals a positive perception about CASP grant by the respondents. The study also showed that 144 (48%) of the respondents agreed with the statement that CASP provided adequate training and workshops for farmers. Conversely, 30 (10%) of the respondents disagreed with the perception statement that CASP provided adequate training and workshops for farmers. This implied that the respondents had a negative perception about the statement that CASP provided adequate training and workshops for farmers. Also, 55 (19%) of the respondents agreed that CASP gave them adequate production inputs and farm implements while the majority (131), that is (44%) of the respondents disagreed with the perception statement that CASP gave them adequate production inputs and farm implements. This evidently depicts that the respondents had a negative perception about the statement that CASP gave them adequate production inputs and farm implements.

The respondents had a negative perception about the statement that CASP provided them with adequate marketing facilities such as sorting, packaging, and storage facilities. As indicated, 13% of the respondents agreed that CASP provided them with adequate marketing facilities whilst majority (55%) of the respondents disagreed with the perception statement that CASP provided them with adequate marketing facilities. The results also indicated that the respondents had a strong negative perception about the statement: CASP assisted in the establishment of farmer associations. As shown in Table 4.10 12 (4%) respondents agreed with the statement that CASP assisted in the establishment of farmer associations whilst 199 (67%) of the respondents disagreed with the statement. This was a negative perception about the statement that CASP assisted in establishment of farmers associations by the respondents. The result also revealed that majority, precisely 44% of the respondents agreed with the perception that CASP provided technical services on farm production and management. However, 17% of the respondents disagreed that CASP provided technical services on farm production and management. The respondents had positive perceptions about the perception statement - CASP provided technical services on farm production and management.

From the recordings of Table 4.10, there was a strong negative perception about the perception statement that, CASP provided farmers with adequate market information. About 4% of the respondents agreed with the statement that: CASP provided farmers with adequate market information whilst majority (58%) of the respondents disagreed with the statement. Furthermore, 40% of the respondents agreed with the perception statement that: CASP had improved their farm productivity, efficiency and income whilst 19% disagreed with the statement. Most of the respondents had a positive perception about the report that CASP had improved their farm productivity, efficiency and income.

A greater number of the respondents (45%) agreed with the opinion that CASP had increased their food security level; whilst 14% held a contrary view. The respondents had a positive perception on the standpoint that, CASP had increased their food security level. Then again 27% of the respondents agreed with the perception statement that CASP had reduced levels of crime and violence in the community. However, majority of the respondents, a ratio of 26%, disagreed with the statement. The respondents had a negative perception about the avowal that CASP had reduced levels of crime and violence in the community. The Table 4.10 also indicated that majority (50%) of the respondents agreed with the submission that CASP had reduced poverty level whilst 12% of the respondents disagreed. Most of the respondents had a positive perception about the statement that CASP had reduced poverty level. In general, the respondents had a positive perception about CASP as indicated by a perception index of 0.0497.

Table 4.10. Farmers' perception towards CASP

Statement	Strongly agree (1)	Agree (0.5)	Neutral (0)	Disagree (-0.5)	strongly Disagree (-1)	Mean score	Percent (%)
1. CASP grant application process is too cumbersome	145 (48%)	48 (16%)	8 (3%)	5 (2%)	13 (4%)	0.7009	73
2. CASP grant was insufficient	72 (24%)	84 (28%)	14 (5%)	49 (16%)	0	0.4087	73
3. CASP provided adequate training and workshops for farmers	76 (25%)	68 (23%)	45 (15%)	30 (10%)	0	0.4338	73
4. CASP gave us adequate production inputs and farm implements	23 (8%)	32 (11%)	33 (11%)	57 (19%)	74 (25%)	- 0.2900	74
5. CASP provided us with adequate marketing/preparation facilities such as sorting, packaging, and storage facilities	15 (5%)	24 (8%)	14 (5%)	85 (28%)	81 (27%)	- 0.4406	73
6. CASP assisted in establishment of farmers' association	7 (2%)	5 (2%)	8 (3%)	56 (19%)	143 (48%)	- 0.7374	74
7. CASP provided technical services on farm	48 (16%)	84 (28%)	38 (13%)	23 (8%)	26 (9%)	0.2397	74

production and management							
8. CASP provided farmers with adequate market information	7 (2%)	5 (2%)	33 (11%)	81 (27%)	93 (31%)	- 0.5662	73
9. CASP has improved your farm productivity, efficiency and income	38 (13%)	82 (27%)	41 (14%)	27 (9%)	31 (10%)	0.1575	73
10. CASP has increased your food security level	44 (15%)	89 (30%)	45 (15%)	24 (8%)	17 (6%)	0.2717	74
11. CASP has reduced levels of crime and violence in the community	13 (4%)	68 (23%)	58 (19%)	64 (21%)	16 (5%)	- 0.0046	72
12. CASP has reduced poverty level	70 (23%)	82 (27%)	30 (10%)	37 (12%)	0	0.4224	72
PERCEPTION INDEX						0.0497	

4.3.2. Determinants of farmers' participation in CASP

The probit regression model was employed to examine the factors that influenced farmers' participation in CASP. The estimates of the probit model were presented in Table 4.11. Wald Chi-square value (55.07) was statistically significant at 1% suggesting that the explanatory variables included in the model jointly influenced farmers' participation in CASP. Among the variables included in the model, FBO, contract, market support, extension, loc2, loc3, gender, age, household size, and household head employed, market distance and number of employees significantly influenced farmers' participation in CASP. The coefficient of FBO showed positive effect on participation in CASP and was statistically significant at 1% level, indicating

that farmers who belonged to farmer based organisations had higher probability to participate in CASP. Contract market positively related to the probability of participating in CASP and was significant at 1% level.

The implication is that farmers who engaged in contract markets were more likely to participate in CASP. The results also showed that market support was significant at 10% and positively correlated with CASP participation, accentuating that farmers who received market support had a tendency of having higher probability to be part of CASP. Extension contact had a tendency of having positive effect on CASP participation and was significant at 1%, implying that farmers who had contact with extension agents had higher likelihood to participate in CASP. Extension agents were used as avenue to promote social programmes. The coefficients of Loc2 and Loc3 had significant positive effect on CASP participation.

This result signified that farmers who were located in Loc2 and Loc3 had higher probability to participate in CASP as compared to those in Loc1. In addition, the variable – Gender had positive effect on CASP participation and was significant at 1% level, suggesting that male farmers had higher probability to participate in CASP compared to their female counterparts.

The coefficient of Age showed positive and significant effect on CASP participation, meaning that older farmers had higher probability to participate in CASP. It was noted that the youth had lower interest in agricultural production and they migrated to towns and cities to look for white collar jobs. Therefore, they had lower willingness to engage in programmes associated with agriculture. Household size positively influenced the participation of farmers in CASP and was significant at 5% level. The implication of this finding is that farmers having large households had higher likelihood to participate in CASP. Large households serve as a major source of family labour needed for agricultural production. The result also showed that farmers whose household heads were employed had less probability to participate in CASP probably because they received some income from the employed household heads.

Market distance was negatively related to CASP participation and was statistically significant at 1% level. This suggested that the longer market distance discouraged farmers from participating in CASP since they needed to travel longer distances to buy farm inputs as well as to sell their farm commodities. Employee number had positive significant influence on CASP participation. This indicated that farmers who had more employees had higher probability to engage in CASP.

Education, farm size, land title and qualification in agriculture did not have any significant effect on CASP participation. Marital status had negative effect on CASP participation and was not significant.

Table 4.11. Determinants of farmers' participation in CASP

Variable	Coefficient	Standard error	z-value	p-value
FBO	3.109***	0.918	3.39	0.001
Contract	3.397***	0.971	3.50	0.000
Market support	1.556***	0.943	1.65	0.099
Extension	6.450***	1.304	4.94	0.000
Loc2	2.413***	0.767	2.79	0.005
Loc3	2.328***	0.804	2.89	0.004
Gender	2.524***	0.717	3.52	0.000
Education	0.019	0.065	0.30	0.767
Age	0.028*	0.015	1.82	0.069
Household size	0.642**	0.260	2.47	0.014
Farm size	0.130	0.216	0.60	0.548
Marital status	-0.908	0.839	-1.08	0.279
Head employed	-2.467***	0.883	2.79	0.005
Land title	2.511	0.870	-2.89	0.004
Qualification in agriculture	0.940	0.587	1.60	0.109
Market distance	-0.109**	0.054	-2.02	0.043
Number of employees	1.909***	0.693	2.75	0.006
Constant	-16.450***	4.317	-3.81	0.000

4.4. Impact of CASP participation on farmers' total farm income

The total farm incomes of participants and non-participants of CASP are presented in Table 4.12. The farmers derived their farm incomes from three main farm enterprises namely, livestock, vegetable and cereal. The results illustrated that the average income derived from livestock was R50 630.952 and R48 465.100 for participants and nonparticipants. There was no significant difference between livestock incomes for participants and nonparticipants. In terms of vegetable production, participants obtained an average income of R181 899.698 which was relatively higher than that of non-participants with average income of R61 858.182. The mean difference was R120 041.50 and was statistically significant at 1% level.

In addition, participants were associated with higher income (R255 000) from cereal production. The nonparticipants obtained an average income of R136 210.526 from cereal production. The mean difference (R146 257.8) was found to be significant at 1% level. Based on the total income, it can be seen that the participants had higher average income of R487 530.700 while nonparticipants had average total farm income of 246 533.800. The mean difference is R240 996.900 which is statistically significant at 1% level. It can be inferred that farmers' participation in CASP has impacted positively on their farm incomes.

Table 4.12. Total farm income per annum for participants and nonparticipants of CASP

Variable	CASP participant		CASP non-participant		Mean difference	t-value
	Mean	SD	Mean	SD		
Livestock income	50 630.952	23 107.548	48 465.100	23 107.548	2165.852	0.721
Vegetable income	181 899.698	196 878.186	61 858.182	97 999.642	120041.5***	5.248
Cereal income	255 000	183 762.680	136 210.526	192 602.016	146257.8***	4.906
Total income	487 530.700	256 554.643	246 533.800	177 226.121	240996.9***	7.790

*** denotes 1% significant level.

It is insufficient to use just the conventional t-test to make comparative conclusion regarding the total farm incomes obtained by participants and non-participants due to selection bias. To account for selection bias, PSM was employed. The estimates of the PSM are presented in Table 4.13. Two matching algorithm methods namely nearest neighbour and radius were used. From the nearest neighbour, the participants had R186 821.173 total income higher than nonparticipants. On the other hand, the radius estimates indicated that participants received R174 558.036 more than nonparticipants. It can be concluded that participation in CASP increased farmers' total income between R174 558.036 and R186 821.173.

Table 4.13: Estimates of the propensity score matching

Outcome variable	Matching algorithm	Treated (Participants)	Control (Non-participants)	ATT	t-value
Total income	Nearest neighbor	283300.255	96479.0816	186821.173***	3.96
	Radius	283300.255	108742.219	174558.036***	9.13

*** denotes 1% significant level.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary

South Africa is constrained with high prevalence of socio-economic challenges such as poverty, unemployment, food insecurity and malnutrition which tend to result in higher rates of rural-urban migration. Agricultural development has been targeted as a channel to stimulate economic growth and development. This has led to implementation of agricultural programmes including the Comprehensive Agricultural Support Programme (CASP) to particularly address the systematic failure of post-settlement land reform which is regarded as one of the constraints to agricultural development in the country. CASP had six main pillars namely, information and knowledge management, technical and advisory assistance, and regulatory services, training and capacity building, marketing and business development, on and off-farm infrastructure and financial assistance. After the implementation of CASP, no research has been done to determine the impact of CASP on the incomes of the beneficiaries. It is upon this background that this study analysed the socio-economic impact of CASP on incomes of beneficiaries. Specifically, the study sought to achieve the following sub-objectives.

The study was conducted in the Sedibeng district municipal of Gauteng Province of South Africa. Three hundred (300) farmers comprising 219 beneficiaries and 81 non-beneficiaries of CASP constitute the data for the study. The Propensity score matching method was employed to determine the impact of CASP on the incomes of the farmers while factors influencing farmers' participation in CASP was determined using the probit regression model. The probability scores (or propensity score) were used to match the incomes of the farmers using matching method such as radius in order to address selection bias. Kendall's Coefficient of Concordance was employed to rank constraints faced by farmers regarding application of CASP grant.

With the socio-economic characteristics, the survey data indicated that most of the respondents were males and married. Majority had attained at least primary education with few having qualification in agriculture. The average age for the farmers was 56.9 years with household size of 4 persons. The farmers had been in the farm business for an average of 8.9 years. Only few states the proportion of the respondents interviewed were employed. In terms of land

acquisition, the survey data showed that most of the farmers cultivated on their own private lands. The average land holding was 122.1 ha with average of one worker operating on the land. It was discovered in the survey that the farmers had limited access to market support. However, 44% engaged in contract markets with the contracts being written, verbal or of both types. The farmers further indicated that they received inputs, technical assistance, financial and transport supports. The survey also said that there was adequate access to extension contact where farmers were provided with information on farm production, management, marketing, finance and preparation of business plans. In addition, 90.7% of the farmers indicated that they belonged to farmer based organisations. Farmers were found to be constrained with access to irrigation system and the drip irrigation system was more commonly used by the few farmers that used irrigation.

The farmers rated inadequate labour as the first major constraint they faced in their farming business. Poor/declining soil fertility was ranked as the second challenge in their agricultural production. Low yield was valued as the third constraint. The farmers also indicated that there was limited access to agricultural lands and that was graded as the 4th challenge. Limited access to credit was ranked by the farmers as the 5th challenge. Erratic rainfall pattern was averred by the farmers to be the 6th constraint. Kendall's Coefficient of Concordance suggested that there was agreement among the farmers in rating the constraints. The survey showed that participation of the CASP was higher with the majority applying through GDARD. In general, the respondents had a positive perception about CASP as indicated by a composite perception index of 0.0497.

The probit estimates showed that farmers who belonged to FBO and had access to extension contact had higher probability to participate in CASP. Market support also promoted participation in CASP. The result suggested that female farmers had limited participation in CASP. The coefficients of FBO, market support, extension contact and sex of farmers showed positive effect on participation in CASP and were statistically significant at 1% level, emphasizing that there is a direct relationship between these variables and participation in CASP. Contract market was positively related to the probability of participating in CASP and was significant at 1% level. The implication was that farmers who engaged in contract market were more likely to participate in CASP. Older farmers with large households were associated with higher participation in CASP while farmers with employed household heads were less likely to participate in CASP.

5.2. Conclusion

Based on the key findings of the study, the following conclusions are drawn.

- Majority of farmers participation of the CASP applied through and GDARD.
- The rural farming households in the study area had positive perceptions about the CASP.
- FBO, contract, market support, extension, location differential gender, age, household size, household head employment status, market distance, number of employees were factors that significantly influenced farmers' participation in CASP.
- The farmers derived their household incomes from three main activities namely livestock, vegetable and cereals.
- There was no significant difference between the average incomes derived from livestock for participants and non-participants of CASP. However, the mean income differences derived from vegetable and cereal production for participants and non-participants were statistically significant.
- Generally, participation in CASP has significant impact on the income of the farmers.

5.3. Policy recommendations

The following recommendations were made from the study:

1. The CASP programme should be extended to other parts of the country where land ownership has become problematic.
2. To promote higher participation in the CASP;
3. More farmer based organisations should be established and the already existing ones need to be equipped with adequate support for them to function properly.
4. Extension services need to be continually equipped with adequate infrastructure particularly transport facilities that will enable them to contact the farmers on frequent basis.
5. Farmers should be provided adequate market support through contractual agreements and market support.
6. Location differential should be taken into consideration by policy makers in designing land related reforms.
7. More vulnerable groups including females, old farmers, large households, unemployed household heads should be targeted and included in the designing of land reforms intervention.

REFERENCES

- Anseeuw, W. and Mathebula, N. (2008).** Evaluating Land Reform's Contribution to South Africa's Pro-poor Growth Pattern. Available from: <http://www.tips.org.za/files/ANSEEUW-MATHEBULA-evaluating-land-reform-24-Oct-2008-tmp5296ct33.pdf>. (Accessed 25 August 2013).
- Arogundade, K.K., Adebisi, S.O., and Ogunro, V.O. (2011).** Poverty Alleviation Programmes in Nigeria: A Call for Policy Harmonisation. *European Journal of Globalisation and Development Research, Vol. 1, No. 1.*
- Asante, B.O., Villano, R.A., Battese, E.G. (2011).** The Effect of the Adoption of yam Minisett Technology on the Technical Efficiency of Yam Farmers in the Forest savanna Transition Zone of Ghana. *African Journal of Agricultural and Resource Economics; Volume 9, Number 2 pages 75-90.*
- Asayehegn, K., Yirga, C. and Rajan, S. (2011).** Effect of Small - scale Irrigation on the Income of Rural Farm Households: The Case of LaelayMaichew District, Central Tigray, Ethiopia *Journal of Stored Products and Postharvest Research.* 2(10): pp 208-215.
- Asenso-Okyere, W.K., Benneh, G. and Tims, W. (1997).** Sustainable Food Security in West Africa. Boston: Kluwer Academic Publishers.
- Babbie, E. (2001).** The Practice of Social Research. Belmont, CA: Wadsworth/Thomson Learning.
- Bell, C.D., Roberts, R.K., English, B.C. and Park, W.M. (1994).** "A Logit Analysis of Participation in Tennessee's Forest Stewardship Program." *Journal of the Agricultural and Applied Economics* 26 (2): 463-472.
- Bienable, E. and Vermeulen. (2006).** New trends in supermarkets procurements systems in South Africa. The case of local procurement schemes from small-scale farmers by rich-based retail chain stores.
- Bless, C. and Smith, H. (2000).** Fundamentals of Social Research Method: An African Experience (3 rcl Edition). Juta. Cape Town.

- Bonti-Ankomah, S. (2001).**Addressing Food Insecurity in South Africa. Paper presented at the SARPN Conference on Land Reform and Poverty Alleviation in Southern Africa. Available from: <http://www.sarpn.org/documents/e0000008/20010605Bonti.pdf>. (Accessed 20 October 2013)P.15.
- Borras, S.M. (2003).** Questioning Market-Led Agrarian Reform: Experience from Brazil, Colombia and South Africa *Journal of Agrarian Change, Volume 6*.373-380.
- Bradstock, A. (2005).** Land Reform and its Impact on Livelihoods: Evidence from Eight Land Reform Groups in the Northern Cape Province of South Africa, *Farm-Africa*.
- Boyle, M.A. (2003).**Community Nutrition in Action, an Entrepreneurial Approach. 3rd ed. United Kingdom: Thomson Wadsworth, Press.
- Comprehensive Agricultural Support Program Policy.(2004).** Department of Agriculture. Pretoria. DAFF.
- Chiremba, S and Masters, W. (2010).**The Experience of Resettled Farmers in Zimbabwe 7 number African Studies Quarterly<http://web.africa.ufl.edu/asq/v7/v7i2a5.htm>. (Accessed 30 November 2013).
- Deininger, K. (1999).** Making Negotiated Land Reform Work: Initial Experience from Colombia, Brazil and South Africa, *World Development*, 27(4):651-672.
- Deininger, K. W. (2003).** *Land policies for growth and poverty reduction*. World Bank Publications
- Department of Agriculture. 2002.** The Integrated Food Security Strategy for South Africa. Pretoria: Department of Agriculture.
- Department of Agriculture (2004).**Design of Financial Instruments for Broadening Financial Services. Pretoria: National Department of Agriculture.
- Department of Land Affairs. (2007).** Annual Report 1 April 2006-31 March 2007.
- De Villiers, B.(2003).** Land Reform: Issues and Challenges. A Comparative Overview of Experiences in Zimbabwe, Namibia, South Africa and Australia KAS.

Dismukes, R., Harwood, J. and Bentley, S. (1997).“Characteristics and Risk Management needs of Limited-resource and Socially Disadvantaged Farmers.”Agricultural Information Bulletin No. 733, USDA/ Economic Research Service, Commercial Agricultural Division, and Risk Management Agency, Washington, DC.

Drimie, S and Mini, S. (2003).Food Security and Sustainable Development in Southern Africa.Human Science Research Council. South Africa. Available from: www.hsrapress.ca.za.(Accessed 12 July 2014).

Du Toit, D.C. (2011).“Food Security”.Department of Agriculture Forestry and Fisheries. South Africa. Available from: www.nda.agric.za/docs/GenReports/FoodSecurity.pdf. (Accessed 23 September 2013).

Ellis, F. (1993). Peasant Economics: Farm Households and Agrarian Development: Cambridge: Cambridge University Press. 3rd edition.

Elst van der, M. J. (2007).Post-Settlement Support as Key Contribution to the Success of the South African Land Reform Programme.*Politela Volume 26. No 3 @ Unisa Press Pp 287-305.*

Etwire, P., Dogbe, W., Wiredul, A., Martey, E., Robert, K. and Wahaga, E. (2013).Factors Influencing Farmer’s Participation in Agricultural Projects: The Case of the Agricultural Value Chain Mentorship Project in the Northern Region of Ghana.*Journal of Economics and Sustainable Development 4(10), ppl-9.*

Featherstone, M. and Goodwin, K. (1993).Factors Influencing a Farmers ‘Decision to Invest in Long-term Conservation Improvements.*Land Economics. Madison: Volume.69 (1); 67-81.*

Food and Agriculture Organization (FAO). (2006).The State of Food and Agriculture. Economics and Social Development. FAO, Rome: FAO.

Food and Agriculture Organization of the United Nations (FAO). (2009). World Health Organization." *FAO*. World Health Organization.

Food and Agriculture Organization of the United Nations (FAO).(2010). Ethiopia country brief. Retrieved from: www.fao.org/countries/55528/en/eth/.

Food and Agriculture Organization of the United Nations (FAO). (2012). The State of Food Insecurity in the world. FAO, Rome: Retrieved from: www.fao.org/countries/55528/en/eth/.

French, J. H. (2007).Farm Household Decision Making and Extensive Framework for Understanding Farm Household-level Decision Making and Design of Agro-forestry Extension Strategies.Asia-Pacific Agro-forestry Network, FAO-APAN, Bognor. Available on webpage: <http://www.fao.org/docrep/x02226e/x02226e00.HTM>. (Accessed 16 July, 2013).

Grigg, D. (1993).The World Food Problem. 2nd ed. Oxford and Cambridge: Blackwell.

Groenewald, J.A. (2003).Conditions for successful land reform in Africa. Paper Presented at Pre-IAAE Conference on Africa Agricultural Economics, Bloemfontein, RSA, pp 1-15.

Hall, R. Jacob, P. and Lahiff, E. (2003).Evaluating Land and Agrarian Reform in South Africa. An occasional Paper Series. *Final Report 10.Pp.15*.

Hall, R. (2004).Land and Agrarian Reform in South Africa. A Status Report 2004, Research Report: Programme for Land and Agrarian Studies. Cape Town: University of Western Cape.

Hall, R. and Aliber, M. (2010).The Case for Re-strategizing Spending Priorities to Support Small-Scale Farmers in South Africa. Working Paper 17, Institute for Poverty.

Hart, T.G.B. (2003). Land Reform: What have we Learned? *S.Afri.J.Agric.Ext./S.Afri.Tydskr. Landbouvoortl. Volume.32*.

Human Sciences Research Council. (2004). Human Resources Development Review: Education, Employment and Skills in South Africa. Cape Town: HSRC Press.

Jack. 2004. See NEWS 24

Jacobs, P. (2003).Post-transfer Support in South Africa's Land Reform Programme PLAAS University of the Western Cape (2003).

- Jacobs, P. and Lahiff, E. Hall, R. (2003).***Evaluating Land and Agrarian Reform in South Africa*. Land Redistribution 1. Pp. 27.
- Jayawardane, S. N. (1996).**Socio-economic Constraints and Future Prospects for Crop Diversification in Minor Irrigation Schemes.Workshop on Crop Diversification, Colombo, Sri Lanka.
- Jordaan, A. J. and Jooste, A. (2003).** Strategies for the Support of Successful Land Reform: A Case Study of QwaQwa Emerging Commercial Farmers. *S.Afri.J.Agric.Ext./S.Afri.Tydskr. Landbouvoorl.* Volume.32.
- Kalaitzandonakes, N.G., Mason, M. (1994).** “An Analysis of Potential Conservation Efforts of CRP Participants in the State of Missouri: A Latent Variable Approach.” *Journal of Agricultural and Applied Economics* 26(1): 200-208.
- Kepe, T. and Tessaro, D. (2012).**Integrating Food Security with Land Reform: A More Effective Policy for South Africa.Africa Initiative.
- Khaikherili, T. and Zamani, G.H. (2008).** Farmer Participation in Irrigation Management: The Case of Doroodzan Dam Irrigation Network, Iran. *Agric. Water Manage.*doi:10.101/j.agwat.2008.11.008.
- Kilewo, G. and Frumence, G. (2015).**Factors that Hinder Community Participation in Developing and Implementing Comprehensive Council Health plans Manyoni District, Tanzania.*Glob Health Action* 2015, 8:26461-<http://dx.doi.org/10.3402/gha.v8.26461>.
- Kirsten J, Machete, C. (2005).** Appraisal of Land reform projects in Northwest Province. Report for the National Department of Agriculture.
- Kirsten, J., Machete, C. and Fischer, A. (2005).** Appraisal of Land Reform Projects in Northwest Province. Report for the National Department of Agriculture. March 2005
- Lahiff, E. (2007).**Business Models in Land Reform. Program for Land and Agrarian Studies (PLAAS), August 2007.
- Lahiff, E. (2008).** “Land Reform in South Africa: A Status Report 2008” The Programme for Land and Agrarian Studies (PLAAS).

- Lahiff, E. (2008).** “Land Reform in South Africa: Status Report. Research Report 38. Programme for Land and Agrarian Studies. University of Western Cape. South Africa. Available from: http://www.plaas.org.za/pubs/rr/PLAAS_RR38_Lahiff.pdf. (Accessed on 11 May 2014).
- Lahiff, E., Maluleke, T., Manenzhe, T. and Wegerif, M. (2008).** Land Redistribution and Poverty Reduction in South Africa: The Livelihood Impacts of Smallholder Agricultural Under Land Reform. Programme for Land and Agrarian Studies Research Report no. 36. University of Cape Town. South Africa.
- Land and Agrarian Studies (PLAAS):** University of the Western Cape. Available from <http://www.plaas.org.za/sites/default/files/publications-pdf/WP17.pdf>. (Accessed 12 June 2013).
- Larson, D.W., Zaque, F. and Graham, D.H. (1994).** Why Users Prefer Informal Financial Market Services: The Case Study of Mozambique. Int. Assoc. Agric. Econ (IAAE). Harare, Zimbabwe.
- Levin, R. (2000).** Toward a National Implementation Strategy for Land Redistribution. In Cousins, B. (ed.). *At the Crossroads: Land and Agrarian Reform in South Africa into the 21st century*. Cape Town: PLAAS, p.292.
- Lubambo, P.T. (2012).** An Appraisal of Post-Transfer Production Trends of Selected Land Reform Projects in the North West Province, South Africa <http://repository.up.ac.za/handle/2263/27631>. University of Pretoria. (Accessed 08 August 2015).
- Machete, C.L. (1990).** Factors Contributing to Poor Performance of Agricultural Co-operation in less Developed areas. *Agrekon*: 29(4). Pp 305-309.
- Makhura, M.N. and Wasike, W.S.K. (2003).** Patterns of Access to Rural Service Infrastructure: The Case of Farming Households in Limpopo Province *Agrekon*, 129-143.

- Martey, E., Asante O., Al-Hassan, R., and Dogbe, C. (2013).** Factors Influencing Participation in Rice Development Projects. The Case of Small Holder Rice Farmers in Northern Ghana. *International Journal of Department and Economic Sustainability* 1 (2) Pp 13-27.
- May, J. and Roberts, B. (2000).** Monitoring and Evaluating the Quality of Life of Land Reform beneficiaries 1998/1999. Summary Report prepared for the Department of Land Affairs, 19 June.
- Mbeki, T. (2008).** State of the Nation Address of the President of South Africa, Thabo Mbeki: Joint Sitting of Parliament, February 8. Pp.1-13.
- McLean-Meyinsse, P. E., Hui, J. and Joseph, R. Jr. (1996, December).** An Empirical Analysis of Louisiana Small Farmers' Involvement in the Conservation Reserve Program. *Journal of Agricultural and Applied Economics* 26 (2):379-385.
- Migot-Adholla, S., Hazel, P., Blarel, B. and Place, F. (1991).** Indigenous Land Rights Systems in Sub-Saharan Africa: A Constraint of Productivity? *Journal the World Bank Review*, 5 (1): 155-175. Available from: <http://www-wds.worldbank.org/external/default>. (Accessed 26 June 2015).
- Mkhabela, M. (2004).** Didiza Requires Plan to Settle Land Claims'' City Press 7 June.
- Molefe, R. (2004).** "Land Claims Face Series of Obstacles" City Press 21 September 2004.
- Molnar, J. J., Bitto, A., Brant, G. and Hoban, T. (2000).** "Core Conservation Practices: Paths and Barriers Perceived by Small and Limited Resources Farmers." Staff paper, Department of Agricultural Economics and Rural Sociology, Auburn University, Auburn, AL.
- Mushunje, A. and Belete, A. (2001).** Efficiency of Zimbabwean Small-scale Communal Farmers. *Agrekon* 40 (3): Pp 345-359.
- Mustaphan, H. (2014).** Poverty Alleviation Programs in Nigeria: Issues and Challenges. *International Journal of Development Research*. Volume 4. Issue, 3, Pp.717-720.
- Nagler, J. (1994).** Interpreting probit analysis. New York University. Webpage: <http://www.nyu.edu/classes/nagler/quant2/notes/probit1.pf>. Accessed 20 March, 2013.

- Nagler, J. (2002).** Interpreting probit analysis. New York University. Webpage: http://www.nyu.edu/classes/nagler/quant1/probit1_post.pdf. Accessed 20 March, 2013.
- Nagubadi, V., McNamara, K., Hoover, W. and Mills, W. Jr, (1996, December).** “Program Participation Behaviour of Non-industrial Forest Landowners: A probit analysis.” *Journal of Agricultural and Applied Economics* 28 (2): 323-336.
- Ndoro, T. J., Mudhara, M. and Chimonyo, M. (2014).** Livestock Extension Programme Participation and Impact on Smallholder Cattle Productivity in Kwazulu-Natal: A Propensity Score Matching Approach. *S. Afri. Tydskr. Landbouvoorl. /S. Afri. J. Agric. Ext.*, Volume. 42, Number.2, 2014: 62-80.
- Norris, P.E. and Batie, S.S. (1987, July).** ‘Virginia Farmers’ Soil Conservation Decisions: An Application of Tobit Analysis.” *Southern Journal of Agricultural Economics* 19 (1): 79-90.
- Nxumalo, K. and, Oladele, O. (2013).** Factors Affecting Farmers’ Participation in Agricultural Programme in Zululand District, Kwazulu Natal Province, South Africa. *Journal of Social Science. Volume 34, Pp 83-88.*
- Okosun, I., Siwar, C., Hadi, A. and Nor, A. (2012).** Urban poverty in Nigeria and approaches to poverty alleviation: A review. *African Journal of Political Science and International Relations. Volume.6 (1), Pp.8* -<http://www.academicjournals.org/AJPSIR>.
- Onianwa, O., Wheelock, G., Gyawali, B., Gan, J., Dubois, M. and Schelhas, J. (2004).** An Analysis of Factors Affecting Participation Behaviour of Limited Resource Farmers in Agricultural Cost-Share Programs in Alabama. *Journal of Agribusiness* 22, 1 (Spring 2004): 17-29. Agricultural Economics Association of Georgia.
- Prinsloo, A. P. (2008).** A critical analysis of the LRAD Sub-Programme in the Gauteng Province of South Africa. MInstrAgrar dissertation, University of Pretoria, Pretoria.
- Quan, J. (2006).** Land Access in the Early 21st Century: Issues, Trends, Linkages and Policy Options FAO Livelihoods Support Programme Working Paper no 24.

- Rogerson, C. M. (2000).**Emerging from Apartheid's Shadow: South Africa's Informal Economy. *Journal of International Affairs*, 673-695.
- Roodt, M. J. (2003).** Land Restitution in South Africa'' in Leckie S (ed) Returning Home: Housing and Property, Restitution, Right of Refugees and Displaced Persons Transnational.
- Rosenbaum, P. R. and Rubin, D. B. (1983).** The Central Role of the Propensity Score in Observational Studies for Causal Effects.*Biometrika*, 70(1), 41-55.
- Roth, M., Barrows, R., Carter, M. and Kanel, D. (1989).** Land Ownership Security and Farm Investment: Comment. *American Journal of Agricultural Economics*, Vol. 71 Feb., 1989). Available from: <http://www.jstor.org/pss/1241790>. (Accessed 04 August 2014).
- Rubin, D.B. (2001).**Using Propensity Scores to help Design Observational Studies: Application to the Tobacco Litigation.*Health Services and Outcomes Research Methodology*, 2:169-188.
- Rubin, D.B. and William G. (1983).**Cochran's contributions to the design, analysis and evaluation of observational studies. In *Research work of William G. Cochran*, Eds. S. Rao and J. Sedransk. New York: Willey.
- Samayende, S. (2005).**Land Reform a Dismal Failure'' City Press July 14:7.
- Sasson, A. (2012).** Food security for Africa: An Urgent Global Challenge. *Agriculture & Food Security*, 1(1), p.1.
- Sebopetji, T.O. and Balete, A. (2009).** An Application of Probit Analysis to Factors Affecting Small-scale Farmers 'Decision to take Credit: A Case Study of the Greater Letaba Local Municipality in South Africa. *African Journal of Agricultural Research Volume. 4 (8)*, Pp 718-723.
- Senyolo, G.M., Chaminuka, P., Makhura, M.N and Balete, A.(2009).** Pattern of access and utilization of output markets by emerging framers in South Africa: Factor Analysis approach. *Africa Journal of Agricultural Research*, 4(3):2008-214.Available from <http://www.academicjournal.org/AJAR>.(Accessed 28 October 2013).

- Sepaela, P. (2006).** Nkuzi has its say. In Land news. Pretoria. Government Printer: 14-16.
- Settlement and Implementation Support (SIS). (2007).** Strategy for Land and Agrarian Reform in South Africa, Chapter 10. Pp. 328-358.
- Sibanda, S. (2001).** Land reform and poverty alleviation in South Africa. Paper Presented at the SARPN Conference on Land Reform and Poverty Alleviation in Southern Africa held at the Human Science Research Council, Pretoria. Pp.5.
- Sithole, L. N., Lagat, K. J. and Masuku, B.M. (2014).** Factors Influencing Farmers Participation in Smallholder Irrigation Schemes: The Case of Ntfontini Rural Development Area. Department of Agricultural Economics, Egerton University, Kenya. Department of Agricultural Economics, University of Swaziland, Faculty of Agriculture Luyengo campus, Swaziland.
- Smith, J. A. and Todd, P.E. (2004).** Does Matching overcome LaLonde's Critique of Non-experimental Estimators? *Journal of Econometrics*, 125:305-353.
- South Africa Department of Land Affairs. (1997).** White Paper on Land Policy. Pretoria: Government Printers. Pp 1-139.
- Stats, S. A. (1998).** Census in brief.
- Stats, S. A. (2001).** Statistics South Africa. URL: [www. statssa. gov. za](http://www.statssa.gov.za).
- Stats, S. A. (2007).** Community Survey 2007. *Statistics South Africa, Pretoria*.
- Stats, S. A. (2012).** General Household Survey. *Statistical release P, 318*.
- Strauss Commission. (1996).** Final Report of the Commission of Inquiry into the Provision of Rural Financial Services. *Pretoria: Government Printer*.
- Sustainable Development Consortium (SDC).(2007).** Settlement and Implementation Support (SIS) Strategy for Land and Agrarian Reform in South Africa. Cape Town: SDC.
- Tacoli, C., McGranahan, G., and Satterthwaite, D. (2015).** *Urbanisation, Rural-Urban Migration and Urban Poverty*. Human Settlements Group, International Institute for Environment and Development.

- Tilley, S. (2007).** International Comparative Study of Strategies for Settlement Support Provision to Land Reform Beneficiaries, Poverty, Land and Agrarian Studies, University of the Western Cape, South Africa. Pp.11-33.
- Van der Elst, M. J. (2007).** Post-settlement Support as key Contributor to the Success of the South African Land Reform Programme *Politela, Volume 26, Number 3, Pp. 287-305.*
- Van Zyl, J. and Kirsten, J. (2010).** Food security in South Africa. *Agrekon. Volume 31, Number 4 (December 2010).*
- White paper on South African Land Policy (1997).** Department of Land Affairs. Pp 1-139.
- Williams, C. and Van Zyl, N. (2008).** Capital and Market Access Constraints in Land Reform Projects. Three Case Studies from Mpumalanga.
- World Bank (2000).** Costa Rica: Forest Strategy and the Evolution of Land Use. Operations Evaluation Department, Washington, DC: World Bank.
- Yunusa, R.J. (2012).** Factors that Influences the Effectiveness of Poverty Alleviation Programme in Nigeria. A thesis Submitted to the Faculty of Miami University in partial fulfilment of Masters of Science Degree. Department of Family Studies and Social Work. Oxford, Ohio.
- Zbinden, S. and Lee, D.R. (2005).** Paying for Environmental Services: An Analysis of Participation in Costa Ricas Pago por Servicios Ambientales Programme. *World Development, Volume. 33, Number. 2, Pp. 225-272.*

APPENDIX

**ANALYSIS OF SOCIO-ECONOMIC IMPACT OF COMPREHENSIVE
AGRICULTURAL SUPPORT PROGRAMME ON LAND AND AGRARIAN
REFORM FARMERS IN SEDIBENG DISTRICT MUNICIPALITY OF GAUTENG
PROVINCE, SOUTH AFRICA**

**QUESTIONNAIRE FORMATTED FOR THE RESEARCH PURPOSE IN
FULFILMENT OF A MASTER'S OF SCIENCE IN AGRICULTURAL ECONOMICS
AT THE UNIVERSITY OF SOUTH AFRICA (UNISA).**

.....

SURVEY QUESTIONNAIRE

Dear farmer, it would be a great pleasure if you could take part in assisting in this research by answering this questionnaire. The main purpose of the study is to analyse the socio-economic impact of CASP program in your farming activities. Information provided will help a great deal in the study.

Many thanks for your interest and time.

QUESTIONNAIRE REFERENCE NUMBER

--	--	--	--	--

RESEARCHER: Magalane Dillis Phatudi-Mphahlele

DISTRICT MUNICIPALITY	MARK WITH X
Lesedi	
Emfuleni	
Midvaal	

SECTION A: BIOGRAPHICAL INFORMATION

1. What is the gender of household head? [1]___Male [2]_____ Female
2. What is the age of the household head? _____Years
3. What is the highest level of education of the household head? [1]_____ Primary [2] _____ Secondary [3] _____high school [4] _____ College [5] Other Specify
4. Number of years of schooling_____
5. Marital status of household head? [1]___Married [2] __Single [3] ___ Divorced [4] ___Widowed
6. Is the household head formally employed? 1. Yes [] 2. No []
7. What is the number of people in your household.....
8. Do you have any qualification in agriculture? 1. Yes [] 2. No []
9. How many years of practical experience in agriculture.....
10. What is size of the land (in hectares)?
11. How was the land acquired? 1. Private land [] 2. Communal land [] 3. Land reform []

SECTION B: HOUSEHOLD ASSET ENDOWMENTS:

B1. Assets

Types of Assets and implements	Numbers	Value of assets
Brick house		
Car		
Tractor		
Plough		

Cultivator		
Scotch cart		
Shovels		
Harrow		
Seed planter		
Others (specify)		

C. FARM PRODUCTION AND INCOME PER ANNUM

1. Do you apply fertiliser on your crop? 1. Yes [] 2. No []
2. If Yes ; what type of fertiliser do you apply? 1. Chemical fertilizer [] 2. Organic fertilizer [] 3. Both []
3. What quantity of fertiliser do you apply? 1. Chemical [.....] 2. Organic [.....]
4. Do you apply pesticides to control disease and pest? 1. Yes [] 2. No []
5. How much did you spend on pesticides?
6. How many employees do you have on your farm?.....
7. What is your total farm income for the cropping season? [amount in rand].....

C1. Kindly provide the following information where applicable

Farm produced	Quantity produced in number	Price/unit in rand	Total amount in rand/ production cycle
Livestock			
Broilers			
Layers			
Goats			

Sheep			
Cattle			
Pigs			
Others (specify)			
Vegetables	Quantity produced in kg	Price/kg in rand	Total amount in rand/ production cycle
Spinach			
Beetroot			
Carrots			
Tomatoes			
Pumpkin			
Beans			
Garlic			
Green pepper			
Grain crops	Quantity produced in tons	Price/ ton in rand	Total amount in rand/ production cycle
Maize			
Sunflower			
Wheat			
Others (specify)			

SECTION D: MARKET AND CONTRACT

1. Do you receive support to market for your products? 1. Yes () 2. No ()
2. Do you have access to ready market? 1. Yes () 2. No ()
3. Where do you sell your products? 1. Formal market in SA [] 2. Informal market in SA [] 3. International Market [] 4. Others (specify)
4. What is the market distance from your farm to the nearest market centre in kilometres?....
5. Do you have contract with your market/customers? 1. Yes () 2. No ()
6. What type of contract do you engage in? 1. Verbal contract [] 2. Written contract [] 3. Both []
7. Indicate the nature of contract by responding Yes/No to the following questions

Nature of contract	1=Yes 2 = No
Provision of input	
Provision of technical assistance	
Provision of finance/credit	
Buy product	
Provide transport	
Terms of contract	1=Yes 2 = No
Clearly specifies the product under consideration	
States the time of delivery	
Specifies responsibilities of both parties	
Clearly established prices, payment obligations and other financial issues	
Price adjustment for variations in quantity and quality of produce	

E. AGRICULTURAL SERVICES AND INFRASTRUCTURE

1. Do you receive extension services? 1. Yes () 2. No ()
2. How many times in the cropping season do you usually receive extension services?.....
3. What type of extension services do you receive? [**Multiple response**] 1 Farm Production and Management []
2. Marketing and Financial information [] 3. Preparation of business plan 4. Others [specify].....
4. Are you member of any farmer based cooperative? 1. Yes () 2. No ()
5. What kind of assistance do you receive from the association?
6. For how long have you been a member of this association?
7. What is the name of this farmer based cooperative or association?.....
8. Do you receive credit for your farm production? 1. Yes () 2. No ()
9. If Yes where do you obtain the credit? 1. Formal credit [] 2. Informal credit [] 3. Both credit sources []
10. Indicate the various sources you receive the credit from? 1. Commercial banks 2. Rural banks [] 3. Microfinance institutions [] 4. Family/friends 5. Money lenders [] 6. Farmer based association 7. NGO [] 8. Government agency []
11. What is the total amount of credit received? [in rand].....
12. What is the interest rate paid per annum?.....
13. Was the loan giving to you on time? 1. Yes () 2. No ()
14. What did you use the loan for? 1. Infrastructure [] 2. Production inputs [] 3. Both []
15. Do you have irrigation system in your farm? 1. Yes () 2. No ()
16. If Yes what type of irrigation systems do you have?
17. Do you have adequate flow of water throughout the year? 1. Yes () 2. No ()

5. Did you participate/benefit in Comprehensive Agricultural Support Programme (CASP)?
 1. Yes [] 2. No []

6. If NO give reason:

Do not answer the subsequent questions if responded NO

7. How long did you apply for the CASP grant?

8. Do you think the time duration was sufficient? 1. Yes () 2. No ()

9. Did you manage to get the entire infrastructure you have applied for? 1. Yes () 2. No ()

10. If No, why?.....

GDARD to apply for the CASP grant =1	
DAFF and DAFF directed them to GDARD =2	
GPLRO directed them to GDARD =3	
Municipality/LED officer and the Municipality directed them to GDARD =4	
Ward Councillor and directed them to GDARD = 5	
Other (Specify) =6	

11. How did you apply for the CASP grant?

12. Do you have any suggestion on procedures of CASP grant

13. Did GDARD or any other institution assist you in compiling a business /production plan?
 1. Yes () 2. No ()

14. Have you received training from the programme? 1. Yes () 2. No ()

15. If **Yes**, What kind of training did you receive? 1 Farm Production and Management []
 2. Marketing and Financial information [] 3. Preparation of business plan 4. Others
 [specify].....

16. Kindly fill where applicable the table below

Item	Which of these did you receive; 1 = Yes and 2 = No	Amount received	Were packages received on time; 1 = Yes and 2 = No
Cash			
Infrastructure			
Fertilizers			
Seeds			
Feeds			
Other implements			

17. Indicate your opinion regarding the following perception statements on CASP grant.

5 = Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly disagree

Statement	1	2	3	4	5
1. CASP grant application process is too cumbersome					
2. CASP grant was insufficient					
3. CASP provided adequate training and workshops for farmers					

4. CASP gave us adequate production inputs and farm implements					
5. CASP provided us with adequate marketing/preparation facilities such as sorting, packaging, and storage facilities					
6. CASP assisted in establishment of farmer association					
7. CASP provided technical services on farm production and management					
8. CASP provided farmers with adequate market information					
9. CASP has improved your farm productivity, efficiency and income					
10. CASP has increased your food security level					
11. CASP has reduced levels of crime and violence in the community					
12. CASP has reduced poverty level					

UNIVERSITY OF IBADAN, IBADAN, NIGERIA

DEPARTMENT OF ENGLISH

E-mail: akinsola.odebunmi@mail.ui.edu.ng
Papaabnm2@gmail.com



+234-803-378-6713

21 September, 2016.

Prof. M. Masafu,
Department of Agriculture,
Animal Health and Human Ecology,
University of South Africa.

Dear Prof. Masafu,

EDITORIAL REPORT ON THE MANUSCRIPT: “Analysis of Socio-economic impact of Comprehensive Agricultural Support Programme on Agrarian Reform Farmers of Sedibeng Municipality in Gauteng Province South Africa”

The above manuscript was received for editing on Saturday, 17 September, 2016 with the following details:

Type of manuscript: MSc project

Author: Magalane Dillis Phatudi-Mphahlele

Institution: University of South Africa

Number of pages: 91 (out of which 60 pages constituting the main chapters were contracted for editing)

Total word size: 19,303 (for 91 pages)

The manuscript was thoroughly edited for grammatical and stylistic errors by Ms Taiye Odionkhere, a specialist in English who holds BA and MA degrees in English, and who is currently an end-stage PhD research student in the Department of English, University of Ibadan. The changes/corrections made were vetted by me. The details of the corrections are provided below:

Categories of errors found: Concord, spelling, omission and wrong use of grammatical words, omission of linking verbs, wrong use of possessives, redundant use of articles, tautology, wrong word choices, wrong phrasing of expressions and inappropriate punctuation.

Broad report on the corrections done: Corrections were effected on spelling; grammatical words (mainly articles) and punctuation marks that were omitted were inserted, and the wrong ones were equally corrected. Wrong/inappropriate nominal, adjectival and connecting items were corrected. Errors of concord, including subject-verb agreement and pronominal agreement, were also corrected. Several expressions were rephrased in consistency with English language rules. Finally, a number of collocations were reviewed.

Method of correction: All corrections are effected as track changes in the manuscript, and are attached as a document, in addition to a clean, submittable copy of the same document. In other words, two versions of the edited works are prepared: a version showing the changes made, and a clean version in which the changes have been accepted.

Concluding Remarks

Generally, the candidate demonstrates a slightly above-average level of competence in English. With the errors corrected, the manuscript reads well and can be submitted for examination.

Thank you.

Sincerely yours,

SAO

Prof. Akinola Odebunmi.