

**An expenditure review of the agricultural extension system in  
South Africa**

**by**

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**Submitted in partial fulfilment of the requirements for the degree  
MInstAgrar in Rural Development Planning**

**in the**

**Department of Agricultural Economics, Extension and Rural Development  
Faculty of Natural and Agricultural Sciences  
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Pretoria**

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## DECLARATION

I declare that the dissertation, which I hereby submit for the degree of MInstAgrar in Rural Development Planning at the University of Pretoria, is my own work and has not previously been submitted by me for a degree to this or any other tertiary institution.

Name: Tozamile Lukhalo

Signed:.....

Date:.....

## DEDICATION

To:

My grandmother, Eunice Nomathamsanqa Lukhalo, whose affection, encouragement, and day and night prayers made me get such success and honour.

My sweet loving wife, Babalwa Cynthia Lukhalo, whose sacrificial care for me and our children made it possible for me to complete this work.

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All possible shortcomings that remain in this study are my sole responsibility and should not be directed at any of the acknowledged persons.

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**Supervisor:** Dr SE Terblanchè

## **ABSTRACT**

There is growing consensus on the importance of agricultural extension support services as an integral component of ensuring effective implementation of government policy interventions and efficient facilitation of development programmes in rural areas. Agricultural extension service provision is part of a wide range of services required to help producers acquire relevant knowledge and skills to increase and sustain the productivity and competitiveness of their enterprises. Agricultural extension support is viewed by many as an enabler on food security. Improved agricultural extension support leads to increased production and improved processing in all the sub-sectors of agriculture (i.e. crop, livestock, forestry and fisheries), improvement of quality of life and promotion of environmental friendly practices and other objectives. However, literature reveals that the public sector extension in South Africa is not yet geared to satisfy the needs of resource-poor smallholder producers to break away from the bondage of poverty and food insecurity.

This dissertation is aimed at reviewing public expenditure on agricultural extension support services so as to provide evidence-based recommendations to inform implementation of the newly developed national policy on extension and advisory services. The study also provides an initial baseline for future review and tracking of public expenditure on agricultural public extension support and the quality and

quantity of the human capital of agricultural extension personnel. The study was conducted using budget allocation and expenditure data collected through a survey questionnaire directed at provincial departments of agriculture.

Data analysis employed descriptive statistics, narrative interpretation and t-Tests of differences in means. Descriptive statistics focused more on counts of extension personnel according to qualifications, years of experience, age and gender. The narrative analysis focused on classifying the narrative information into similar themes and patterns. A Paired Samples t-Test was run to determine significance in differences between the mean of budget allocation and the mean of expenditure on Extension Practitioners and farmer programmes. Zero-based budgeting system was used to determine whether the current budget allocated was sufficient for implementation of the newly developed national policy on extension and advisory services.

Results of the survey revealed that although the ratio of Extension Practitioner to farmer is still low in South Africa, particularly for smallholder producers, there has been an increase in the number of Extension Practitioners since the implementation of the ERP in 2008. Recruitment of additional Extension Practitioners increased human capacity on the ground. More than 70% of current extension personnel complied with the minimum norms and standards of having at least a four year degree, which is a considerably good indicator of the quality of extension service rendered.

Budget execution rates were high for both the Extension Practitioners and the farmer programmes, with budget execution for farmer programmes better than Extension Practitioners. Such trends indicate an efficient system of budget execution for the benefit of the farmers. Furthermore, there were statistically significant differences between mean budget allocation for Extension Practitioners and farmer programmes. Differences between the mean expenditure on Extension Practitioners and mean expenditure on farmer programmes were also statistically significant. The mean budget for farmer programmes was greater than the mean budget for Extension Practitioners for the five years leading to the conclusion that farmer programmes received significantly more budget allocation compared to the budget

allocated to Extension Practitioners. Consistent to budget allocation, mean expenditure on farmer programmes was higher than mean expenditure on Extension Practitioners leading to the conclusion that expenditure on farmer programmes was significantly higher than expenditure on Extension Practitioners in the five financial years. Hence, it can be concluded that farmers received value for money.

The cost of implementing the newly developed national policy on extension and advisory services was found to be far higher than the current budget allocation. It is recommended that government allocates more funds to public extension service provision. The implementation process could be phased with short-term, medium- and long-term implementation plans. Provincial departments of agriculture should make available a percentage of funds through their equitable share. Additional financing to solve the problem of fiscal sustainability through a user-pay principle, co-financing of services and private funding is also recommended.

**Key words:** Budget, Expenditure, Extension Practitioner, Agriculture, Programme, Policy

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## ABBREVIATIONS AND ACRONYMS

AFAAS	- African Forum for Agricultural Advisory Services
AIAEE	- Association for International Agricultural and Extension Education
ANC	- African National Congress
AREEC	- Agricultural Research Extension and Education Council
ASCU	- Agricultural Sector Coordination Unit
ATA	- Agricultural Transformation Agency
ATMA	- Agricultural Technology Management Agency
CASE	- Community Agency for Social Equity
CASP	- Comprehensive Agricultural Support Programme
CDE	- Centre for Development and Enterprise
DA	- Development Agent
DAAS	- Danish Agricultural Advisory Service
DAFF	- Department of Agriculture, Forestry and Fisheries
DBSA	- Development Bank of Southern Africa
DoA	- Department of Agriculture
EDD	- Economic Development Department
EDP	- Extension Development Plan
ERB	- Extension Regulatory Body
ERP	- Extension Recovery Plan
ESP	- Extension Service Provider
FAO	- Food and Agriculture Organisation
FIAC	- Farm Information and Advisory Centre
GFRAS	- Global Forum for Rural Advisory Services
ICRAF	- International Centre for Research in Agroforestry
ICT	- Information Communication Technologies
IFPRI	- International Food Policy Research Institute
IFSNP	- Integrated Food Security Nutrition Programme
IGDP	- Integrated Growth and Development Plan
ILRI	- International Livestock Research Institute
ISRDS	- Integrated Sustainable Rural Development Strategy
JICA	- Japan International Cooperation Agency

LRAD	- Land Redistribution for Agricultural Development
MoARD	- Ministry of Agriculture and Rural Development – Kenya
NAEP	- National Agricultural Extension Policy – Kenya
NAEP	- National Agricultural Extension Project – India
NALEP	- National Agriculture and Livestock Extension Programme
NALEP-IF	- National Agriculture and Livestock Extension Programme Implementation Framework
NASEP	- National Agriculture Sector Extension Policy
NCOP	- National Council of Provinces
Nd	- No date
NDP	- National Development Plan
NECU	- National Extension Coordination Unit
NGO	- Non-Governmental Organisation
NGP	- National Growth Path
Np	No page
NPC	- National Planning Commission
NPO	- Non-Profit Organisation
PDA	- Provincial Department of Agriculture
PFAE	- Policy Framework for Agricultural Extension
PPPs	- Public-Private Partnerships
PRA	- Participatory Rural Appraisal
SADC	- Southern African Development Community
SASAE	- South African Society for Agricultural Extension
SIDA	- Swedish International Development Cooperation Agency
SRA	- Strategy for Revitalising Agriculture
SREP	- Strategic Research and Extension Plan
SSEPER	- Support to State Extension Programmes for Extension Reforms
T&V	- Training and Visit
US	- United States
WB	- World Bank

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# CHAPTER 1

## INTRODUCTION

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### 1.1 BACKGROUND

Agriculture is a source of livelihood for an estimated 86% of rural people in the world. The sector provides jobs for 1.3 billion smallholders and landless workers and a foundation for viable rural communities. Of the estimated 5.5 billion people in the developing world, 3 billion live in rural areas. Of these rural inhabitants, an estimated 2.5 billion are in households involved in agriculture, and 1.5 billion are in smallholder households (World Bank, 2008).

Rural areas still experience greater poverty and inequality than urban areas. Therefore, the eradication of poverty and increasing agricultural productivity are fundamental objectives of the agricultural extension support services in South Africa. Extension Practitioners must ensure broad based economic empowerment and poverty eradication in the rural areas, without compromising national agricultural production. These services must add value, especially for the poorest members of the society that are involved in any form of agricultural production (The Zimbabwe Institute, 2007).

According to Raabe (2008), the well-being of the rural population is invariably linked to the performance of the agricultural sector. Both the Economic Development Department, through its Economic Growth Path (2010) and the National Planning Commission in the National Development Plan (2012) identified agriculture, forestry and fisheries as among the sectors with the highest potential to make an immediate and sustainable contribution towards job creation in rural areas.

There is a growing consensus on the importance of agricultural extension support services as an integral component of ensuring effective implementation of

government policy interventions and efficient facilitation of development programmes in rural areas. Extension is part of a wide range of services needed to help producers acquire relevant knowledge and skills to increase and sustain the productivity and competitiveness of their enterprises (DoA, 2005). Koyenikan (2008) emphasized that the importance of agricultural extension support to the goal attainment of the agricultural sector and achieve increased production and improved processing in all the sub-sectors of agriculture (crop, livestock, forestry and fisheries), improvement of quality of life and promotion of environmental friendly practices and other objectives require extension effort.

Agricultural extension services must respond to a wide set of local, national and global pressures across agriculture value chains. Scott, Marshall, Aillery, Heisey, Livingston, and Day-Rubenstein (2012) noted that the changing economic scenario in various countries, including South Africa, and the need for appropriate agricultural technologies as well as the need for innovative and climate resilient production practices to respond to rising food prices, food and nutrition security, poverty eradication, diversifying market demands, export opportunities and environmental concerns, is posing a new set of challenges to technology dissemination systems.

According to the CDE (2008), farmers that have gained land are not benefitting from the land due to lack of government support services. Agricultural public extension services in South Africa is plagued with a number of structural and counterproductive challenges that limit the efficiency and effectiveness of efforts and investments in the development of smallholder producers in particular (DoA, 2005). One of the major challenges for extension relates to the lack of extension capacity. Cousins (2009) further argued that the capacity challenges have been highlighted as one of the reasons that led to small budget allocations by the National Treasury. Communities with a high number of producers on a subsistence level are currently serviced through a low extension: producer ratio, while market oriented large scale producers are serviced through a high extension: farmer ratio.



## 1.2 PROBLEM STATEMENT

It is commonly perceived that public agricultural extension support in South Africa is ineffective and inefficient. Cousins (2009), amongst others, argue that the government agricultural extension support is very weak. Extension Practitioner's efforts have not been able to make much impact on the overall picture of South African smallholder producers. There is insufficient personnel, many inadequately trained, and with a high staff turnover. Public extension services without adequately trained personnel and/or the pre-requisite extension working tools, therefore, adversely affect the quality of services offered.

Most black farmers in rural marginal lands depend on public sector extension services. Studies by several scholars reveal that the public sector extension in its current state is not adequate to satisfy the needs of resource-poor smallholder producers to break away from the bondage of dependency and poverty (Ngomane, 2000; Mpandeli, 2005; Ngomane, 2006; Worth, 2009).

Agricultural extension support is viewed by many as an enabler on food security. The current state of South African agricultural extension support in terms of public budgetary trends and expenditure, and the quality of personnel in the public sector is not yet known. However, there are empirical signs of insufficient staff members and many are not adequately trained. This has serious implications on extension service delivery and subsequent outcomes on food security and household income. As it is argued by DAFF (2013) that rural areas still experience greater poverty and inequality than urban areas. Thus, this research will be able to determine the budget allocation for agricultural extension support over five years (2010/11 – 2014/15); the proportion of budget allocated for producer's direct benefit over the five years; the quality levels and quantity of human capital of agricultural extension personnel; and determine whether the current budgetary trends are sufficient for the implementation of the newly developed national policy on extension and advisory services.

As a response to some of the problems illustrated above, the Department of Agriculture, Forestry and Fisheries (DAFF) recently developed a national policy on

extension and advisory services. It is not yet known how much budget the newly developed policy will require for its effective and efficient implementation.

### **1.3 RESEARCH OBJECTIVES**

The main objective of this study is to review public expenditure on agricultural extension support services so as to provide evidence-based recommendations to inform implementation of the newly developed national policy on extension and advisory services. The study also provides an initial baseline data for future review and tracking of public expenditure on agricultural extension support and the quality and quantity of human capital of agricultural extension personnel.

#### **1.3.1 Theoretical objectives**

The theoretical objectives of the study are:

- To review literature on problems of agricultural extension;
- To review literature on international best practices of agricultural extension; and
- To review literature on the quality of human resources for provision of agricultural extension support.

#### **1.3.2 Empirical objectives**

The study will focus on the following empirical objectives:

- To provide initial baseline data for future review and tracking of public expenditure on agricultural extension support services;
- To determine whether the citizens of South Africa get value for money on agricultural extension support services;
- To determine the current expenditure trends on agricultural extension support services;
- To determine the cost of implementing the newly developed national policy on extension and advisory services; and

- To assess and evaluate whether the current budgetary trends will be sufficient to implement the newly developed national policy on extension and advisory services.

#### **1.4 IMPORTANCE AND BENEFITS OF THE STUDY**

Successful implementation of the newly developed national policy on extension and advisory services depends largely on efficient and effective agricultural extension support with adequate funding and well trained competent extension personnel. In its current form, extension and advisory services indirectly limit rather than facilitate the implementation of agricultural development policies and programmes as instruments designed to eradicate poverty, food and nutrition insecurity, facilitate job creation and improve livelihoods and household income (Kimaro, Mukandiwa & Mario, 2010).

This justifies an urgent need for the development of a baseline on the current state of South African agricultural extension support in terms of public budgetary trends and expenditure, and the quality of personnel. This study also generates information to determine whether the current budget trends are adequate to implement the newly developed national policy on extension and advisory services. The study further determines the cost of implementing the newly developed national policy on extension and advisory services for an efficient extension system that can contribute to increased productivity and farm income while ensuring equitable and sustainable improvements and growth. Clients need assurance that the extension service they receive is of high quality.

The findings of the study will inform decision-makers to ensure that the scarce financial resources of the citizens of South Africa, with respect to agricultural development, are optimally applied. Such information will increase confidence, capacity and ensure appropriate advice is offered to producers efficiently and effectively through access to support services in order to initiate, plan, implement and manage their own sustainable development initiatives. Thus, contribute towards the National Development Plan (NDP) goal of ending hunger and poverty by 2030 (National Planning Commission, 2012).

## **1.5 RESEARCH DESIGN AND METHODS**

This section sets out the technique and mechanisms that were employed to ensure the validity and reliability of the data collected. It is a mechanism to ensure that the conclusion and recommendations made from the data analysis captures as accurately as possible the state of agricultural public extension support services in South Africa in terms of budget allocation, expenditure, the quality and quantity of personnel as well as the proportion of the budget allocated for producer programmes. This was done in relation to the objectives in Section 1.3.

### **1.5.1 Description of inquiry strategy and broad research design**

The study took the form of an explanatory, exploratory quantitative and qualitative research in its design. The study was based on secondary data sources. The study is empirical in nature because the research design and analysis involved the collection of secondary data.

### **1.5.2 Data collection**

Secondary data was collected by tracking government budget and expenditure over five years (2010/11 – 2014/15). The data was collected from both national and provincial spheres of government. This data included compensation of employees, goods and services as well as agricultural extension programmes for both personnel and producers. This database was formed on such a basis to allow for an analysis of the level of investment as well as efficiency in the allocation of resources. The nine PDA's and DAFF budget, finance and farmer support/extension directorates were key sources of data for the study.

The human resources directorates of the different PDA's and DAFF national extension support directorate provided data on the total number of agricultural extension personnel, their qualifications as well as age and gender. This data was used for the assessment and further analysis of the quality and quantity of human capital available in South Africa to support and provide agricultural public extension services.

The researcher made use of Microsoft Outlook through emails and telephones to collect data from various PDA's and DAFF separate directorates. Telephone calls were only used for explanatory purposes and follow ups with representatives of PDA's.

### **1.5.3 Data analysis**

Data was analysed using Ms Excel to get descriptive statistics on the general trends of expenditure on agricultural programmes and extension personnel over 2010/11 to 2014/15 financial years. In addition, financial and human capital information was interpreted in narrative and descriptive ways. Statistical indicators such as frequencies, percentages and the mean were computed. Descriptive statistics focused more on counts of extension personnel according to qualifications, years of experience, age and gender. The narrative analysis focused on classifying the narrative information into similar themes and patterns. These were analysed by contrasting the themes, identifying differences between themes and phrases, expounding on generalisation identified in the narrative and linking them with theory identified in literature (Robson, 2002). The themes and patterns were analysed in relation to the objectives of the study outlined in Section 1.3.

To address the two objectives of whether the citizens of South Africa get value for money on agricultural public extension support services and to determine the current expenditure trends on agricultural extension support services, a Paired Samples t-Test of differences between the mean of budget allocation and the mean of expenditure on Extension Practitioners and farmer programmes over the five financial years was run using the Statistical Package for Social Scientists (SPSS) software.

To address the objective of costing the policy implementation process, zero-based budgeting, a system used by the Government of South Africa for budgeting was adopted. Zero budgeting involves preparing a budget from scratch with a zero-base. The budgeting system involves re-evaluating every line item of cash flow statement and justifying all the expenditure that is to be incurred by the department. Thus, all the expenses for the new period are calculated on the basis of actual expenses that

are to be incurred and not on the incremental basis which involves just increasing the expenses incurred in the previous year at some fixed rate. Under this method, every activity needs to be justified, explaining the revenue that every cost will generate for the company. Zero-based budgeting lays emphasis on identifying a task and then funding these expenses irrespective of the current expenditure structure. In the literal sense, it is a method for building the budget with zero prior bases.

Advantages of zero budgeting are that it is an efficient allocation of resources, as it is based on needs and benefits rather than history. The budgeting system drives managers to find cost effective ways to improve operations and increases staff motivation by providing greater initiative and responsibility in decision-making. The disadvantages of zero budgeting, however, include resource intensiveness, the possibility of being manipulated by savvy managers and a bias towards short-term planning. Based on this system of budgeting, to estimate the cost of implementing the extension policy, the study compared the number of Extension Practitioners in the Eastern Cape Province to the ideal 1:500 ratio of Extension Practitioner to farmer. The cost of hiring an Extension Practitioner was pegged at entry level remuneration for Salary Level 8 within the DAFF of R359 312.64 per annum. To compute the cost for goods and services, proportional costing based on Eastern Cape Province data was used. The Eastern Cape Province had 680 Extension Practitioners in 2016. Based on this figure, cost per Extension Practitioner was calculated through dividing every item in goods and services by 680. Thereafter, the resulting figure was multiplied by the recommended number of Extension Practitioners required to service 2.82 million producers.

#### **1.5.4 The quality and rigour of the research design**

Validity of the data collected depends on the controls in place. The validity was attained through data and observer triangulation. Data triangulation involved the use of multiple sources to enhance rigour of the data collected and observer triangulation involved use of more than one observer in the study (Robson, 2002; Lincoln & Guba, 1985). Data triangulation in this case involved contrasting data on agricultural extension budgets given to PDA's compared to DAFF budget given to PDA's and those reflecting on PDA's actual budget systems.

The validity of the instrument was ensured through confirmation with other research experts within the field of agricultural economics and extension. The quality was also ensured through data cleaning which controlled errors committed during data collection. Before analysis of the data, further cleaning of the data was done.

### **1.5.5 Outline of the study**

This study involved a step-by-step logical, organised and rigorous sequence of identifying problems, literature review to benchmark international best practices, gathering of data, analysis and interpretation of collected data and drawing conclusions. The study consists of seven chapters with the contents as outlined below.

#### **Chapter 1: Introduction**

This chapter provides a background to the research. In particular, the chapter provides the conditions that have led to the research project, an explanation of the background of the problem, identified the main purpose of the study by providing its overview purpose. The research objectives, importance and benefits of the research project as well as the methodology to be followed for this study are briefly explained.

#### **Chapter 2: Literature review on problems on agricultural extension support**

This chapter reviews the relevant literature highlighting current problems on agricultural extension support services.

#### **Chapter 3: Global situational analysis**

Drawing from the review of theoretical and empirical literature, chapter three presents the global lessons on agricultural extension. These international best practices were drawn from Brazil, China, Denmark, Ethiopia, India, Kenya and Malawi to inform development of the South African extension policy framework.

#### **Chapter 4: Policy intervention measures**

In this chapter, the current national policy on extension and advisory services is outlined. This focused more on: objectives of the newly developed extension policy;

the role of extension; core extension methods; clients for extension and advisory services and policy intervention measures.

### **Chapter 5: Status of Human Capital in South African Public Extension Services**

Chapter five presents secondary data obtained from the nine provinces to understand the current budget and expenditure trends on extension. This data includes current status of human capital (both quality and quantity) in South African agricultural public extension support services. This chapter addresses amongst other things the number of Extension Practitioners with their current qualifications. The objective is to assess the quality of the available human resources and further respond to the research question of whether 'there is value for money'. An assessment as to whether the new policy can be implemented with the current workforce and budget is addressed in this chapter.

### **Chapter 6: Review of expenditure and budget allocation**

This chapter provides the current status on South African agricultural extension support programmes. This chapter follows the same approach as Chapter five but focusing on extension programmes. An evaluation/assessment was done on what gets to the farmer/producer. The budget of agricultural extension support in the last five years is presented and analysed further.

### **Chapter 7: Conclusions and Recommendations**

This chapter presents conclusions drawn from the research findings and the research objectives. Implications of the findings, recommendations, and future research directions are also discussed in this chapter. This may include proposals towards innovative new plans to review and/or supplement the national policy on extension and advisory services.



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## CHAPTER 2

# LITERATURE REVIEW ON PROBLEMS ON AGRICULTURAL EXTENSION SUPPORT

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### 2.1 INTRODUCTION

The rising population give enormous pressure to the agricultural sector. The ability of the agricultural sector to cope with the challenges associated with changing demand for food and agricultural products, resource scarcity, climate change, and greater production uncertainty will be used to measure its performance (Raabe, 2008). Agricultural extension support service is believed to be a vehicle towards addressing the problem of food insecurity. Agricultural public extension support is fundamental in resolving the underutilisation of the productivity and growth potential. Both low productivity and slow growth of the agricultural sector for development pose a severe threat for achieving food security and reducing rural poverty (World Bank, 2008).

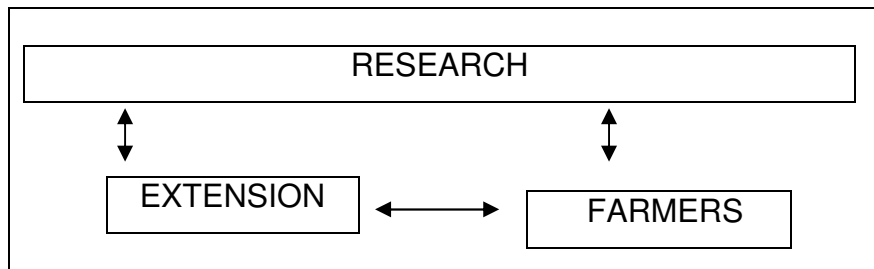
Shackleton (2012) argues that agricultural extension support services that “*do not offer knowledge, innovation and advice on how to reduce poverty in all its dimensions or improve livelihoods generally are doomed to fail since they are dealing with only a subcomponent at any one time.*” It is important for agricultural extension support to consider the land-based strategies of arable cropping, livestock husbandry and natural resource use. Such considerations should not be individually and sectorally or in ignorance of other livelihood needs and incomes. This is because the mix of the three land-based strategies will vary in relation to the magnitude, reliability and nature of other household income streams.

The DAFF is aware that, “*Beneficiaries of government interventions invariably identified agricultural extension support services as the weak link militating against the full impact of government agricultural programmes*” (DAFF 2011a: 1). Efficient and effective agricultural extension support can broker and facilitate information

sharing and skills development in support of agricultural development especially for smallholder farmers. In its current form, public extension support service cannot facilitate the accelerated capacity development of a range of producers that is desired to address, challenges of rural and economic growth, food and nutrition insecurity, inequality and unemployment. Agricultural extension support services in the country is plagued with a number of structural and counterproductive challenges that limit the efficiency and effectiveness of efforts and investments in the development of smallholder producers in particular. It is therefore, necessary for Extension Practitioners to be familiar with complex and dynamic overall conditions so that they can develop appropriate solutions to problems and take decisions competently (Gabathuler, Bachmann & Klay, 2011). The sections below highlight some of the major challenges in the delivery of agricultural extension support services in South Africa.

## **2.2 POOR LINKAGE BETWEEN RESEARCH, EXTENSION AND PRODUCERS**

According to DAFF (2014: 2), *“research is a major input and continuous improvement ingredient to cutting edge agricultural development innovation and is crucial in ensuring a diverse, resilient, productive and sustainable agricultural sector.”* Terblanchè (2008) noted that the traditional view of agricultural knowledge was assumed to stem from the results of agricultural research and the clients were the farmers. This approach changed during the late 1980's to a more liberal relationship between agricultural research, Extension Practitioners and producers. This can be expressed as follows:



**Figure 2.1: Research, extension and farmer linkages**

Source: Terblanchè (2008)

During the 1990's, Hayward and Botha (1995) found that there was no meaningful contact between extension and research given that most research capability remained targeted at the commercial sector. This scenario further complicated the flow of information between researchers and producers and is found not to be as efficient and effective as it should be. It has been argued by Scoones, Thompson and Chambers (2007) that the problem with conventional agricultural research and extension is with the processes of generating and transferring technologies, and that the solution lies with producers' own abilities and involvement in the research process. If research develops and transfers technology in a linear fashion to producers, these technologies are found to be inappropriate to the social, physical and economic setting in which producers have to operate. Ensuring effective and efficient flow of technological innovations between the researchers, Extension Practitioners and producers can only be achieved through the development of an effective and efficient researcher, extension and producer linkages. This, however, is also true for the need of the opposite flow of information.

In a holistic system, researchers, Extension Practitioners and producers are partners seeking solutions to problems facing producers (DoA, 1995). In South Africa Eicher (2007), found research, extension and producers to be disintegrated and the poor linkage still remains one of the major challenges within the agricultural sector. Gabathuler, Bachmann and Klay (2011), observed that the more successful extension and research are linked, the better knowledge management is organised as well as the best for everyone concerned. DAFF (2014: 2) emphasised that *“researcher-Extension Practitioner-producer interactions constitute triangular relationships, where information and innovation flows both ways. Extension Practitioners and researchers in particular need to continuously recognize and take*

*into account indigenous knowledge systems and the whole portfolio of livelihood strategies of the target groups when rendering services.”*

### **2.3 LOW EXTENSION TO PRODUCER RATIO**

The lack of extension capacity has a negative impact on the delivery of agricultural extension support services. According to Gabathuler *et al.* (2011), only a small minority of smallholder producers have access to agricultural extension support services and training. The DoA (2005:11) argued that, “*South Africa has approximately one-third of the required number of extension officers to meet its development targets and that 80% of the current extension staff are not adequately trained*”. According to Phuhlisani (2012: 16) agricultural extension have not yet made the effective impact and this is blamed to the many different groups of producers to be supported, few Extension Practitioners and some of them inadequately trained and mostly without the necessary work tools. There is also doubt that it would be practicable to hire sufficient numbers of capable Extension Practitioners (DAFF, 2012a).

Smallholder producers became more important under the new land reform and development policies (Terblanchè, 2008). The DAFF (2011b: 7) notes on its Integrated Growth and Development Plan (IGDP) that, “*Since 1994, State support has largely shifted away from the large-scale commercial farming subsector, in favour of smallholders and subsistence producers. However, due to the fact that the number of smallholders and subsistence producers is so vast relative to the extension corps, the actual support rendered to smallholders and subsistence producers has been patchy and generally inadequate*”. The demand for agricultural extension support services varies according to the nature of the farming practices (i.e. crop farming, livestock farming or mixed farming systems involving both crops and livestock) and farm size. Communities with a high number of producers on a subsistence level are currently serviced through a low extension: producer ratio, while market oriented large scale producers are serviced through a high extension ratio (DAFF, 2011a). The land redistribution and agricultural development policies worsened the ratio challenge, as it has made an increase on smallholder farmers. “*The poorly defined target group among farming communities leads to the*

*assumption that everyone that lives in rural areas is a producer. This creates more pressure for agricultural extension support services and the perception that public extension support service is ineffective and inefficient” (DAFF, 2014: 3).*

## **2.4 DISINTEGRATED EFFORTS FROM DIFFERENT EXTENSION SUPPORT AGENCIES**

In South Africa there are a number of state, private and civil society institutions that provide extension support to producers at different stages of the value chains (Phuhlisani, 2012: 14). This has been observed by DoA (2005: 2), where it confirmed that previous government initiatives for extension support simply ignored the availability of the necessary advisory services that are rendered by animal health technicians, veterinary surgeons, subject matter specialists, agribusiness advisors, as well as private consultants, Non-Governmental Organisations (NGOs), commodity groups (farmers’ associations) and farmers unions. These groups of extension and advisory services are further disintegrated by different classifications. These extension and advisory service groupings and/or institutions contribute in their own ways to the overall development of producers, either through capacity development of producers or by investment of funds. It is important to note that *“their efforts have not been able to make much impact on the overall picture of South African smallholder producers”* (DAFF, 2014: 3).

## **2.5 LACK OF A NATIONAL POLICY AND REGULATORY FRAMEWORK**

Worth (2012: xiii), argued that *“although there are a number of regulatory initiatives and strategies aimed at ensuring improved agricultural extension support services, the lack of a national policy framework means that the implementation of these strategies has been limited to provincial and individual stakeholder decisions. Agricultural extension support services in South Africa remain unregulated and fragmented. Although the Norms and Standards for Extension and Advisory Services in Agriculture and the National Framework for Extension Recovery Plan already present a good foundation for agricultural extension reform in South Africa, the lack of a national framework for agricultural public extension services created confusion over the roles and responsibilities of the different stakeholders on service delivery”*.

South Africa does not have an approved regulatory framework within which the delivery of agricultural extension support service takes place. The practice therefore, is for every Extension Service Provider to apply what they regard as appropriate. Consequently, some providers venture into extension services without adequately trained personnel and/or the pre-requisite extension working tools, thereby adversely affecting the quality of services offered (DAFF, 2012).

## **2.6 LIMITATIONS IN THE EXTENSION EDUCATION SYSTEM AND NARROW SERVICE FOCUS**

Agricultural extension is expected to be the primary vehicle for delivering on Government's agricultural agenda, although there is there is awareness that Extension Practitioners are not adequately equipped to deliver on this agenda (DAFF, 2012a). Agricultural extension support services lack a developmental and systems approach, where practitioners have a holistic view and understand the total value chain and linkages. According to Hayward and Botha (1995; in Phuhlisani, 2008), the ineffectiveness of agricultural extension support services is not due to lack of Extension Practitioners but rather to the low quality of their formal education and the lack of appropriate in-service training to meet the job requirements. "*Even the former homeland system agricultural parastatals were developed to compensate for the generally low level of skills among Extension Practitioners trained in the colleges, technicon's and universities*" (Worth, 1994; Machethe, 2004; DBSA, 2005). It has also been reported by CASE (2005), that technical assistance on 179 rural restitution projects, there was inadequate and inappropriate skills that were provided by government officials. Gabathuler *et al.* (2011) acknowledged that any new problems and opportunities, such as climate change, increasing population pressures, or global markets for capital, labour and goods can only be tackled to a limited extent with conventional knowledge and skills.

Other scholars are of the view that the South African agricultural institutions of higher learning should share the blame on the poor quality of Extension Practitioners. Worth (2009), for instance, observed that "*the mission statements of the various institutions in South Africa offering agricultural training indicates that the primary focus of training was to serve the interests of commercial agriculture. Universities trained in*

*agricultural science and research. Colleges and technikons trained in practical agriculture. Issues of smallholder agriculture, food security and rural livelihoods do not feature on the agricultural educational agenda.”* The DAFF (2012b) concurs with this finding and reported that the majority of the current cadre of Extension Practitioners were trained at the former ‘black’ agricultural colleges with varying levels of competence and deployed to the homeland services. Ngomane (2010: 59) further emphasised that: “... *the racial-based training programs for Extension Practitioners in South Africa have greatly compromised the profession. In a nutshell, graduates from the homelands received low quality training, and served only subsistence smallholder farmers. Competent University graduates supported the commercial farmers. The combination of these factors, namely, segregation policies and curriculum content weaknesses has contributed somewhat to the negative perception of public extension in South Africa. It is these factors that helped intensify the criticism against agricultural extension in the country, which permeated even the government policy-making process.*”

## **2.7 CHAPTER SUMMARY**

This chapter presented problems with the agricultural extension support in South Africa. Extension support faces major challenges in the areas of relevance, efficiency, accountability and sustainability. Agricultural extension support is believed to be a vehicle towards addressing the problem of food insecurity. A number of authors emphasised the following challenges that need to be addressed if the potential of agricultural extension is to be realised:

- a. research, extension and producers are found to be disintegrated and the poor linkage still remains one of the major challenges within the agricultural sector;
- b. poor extension capacity, (few Extension Practitioners that are inadequately trained and mostly without the necessary work tools).
- c. Facing up to and addressing human resource limitations;
- d. poorly defined target group among farming communities leads to the assumption that everyone that lives in rural areas is a produce;
- e. disintegrated efforts from different extension support agencies;
- f. unregulated and fragmented agricultural extension support services;
- g. lack a developmental and systems approach;

h. weaknesses associated with curriculum content and segregation policies had a negative impact on the quality of Extension Practitioners;  
Such a situation leads to entrapment in poverty for many families and puts achievement of Millennium Development Goals at risk.



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## CHAPTER 3

### GLOBAL SITUATIONAL ANALYSIS

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#### 3.1 INTRODUCTION

The Global Forum for Rural Advisory Services (GFRAS) (2012) observed that there is an increasing acknowledgement by several countries that the urgently needed reforms in addressing food security, market development, and climate change can only be effective if strong extension and advisory institutions are established to provide agricultural support to rural farming communities. To ensure effectiveness and efficiency in the delivery of extension services to farmers and improve rural livelihoods, it is essential for developing countries like South Africa to benchmark international best practices. Global situational analysis based on reliable information about the outcomes and impacts of agricultural extension support services are a foundation for structured learning experience.

This chapter sets out to review literature on practice, the design and delivery of agricultural extension support services. This is done to benchmark international best practices with particular reference to the experiences of Brazil, China, Denmark, Ethiopia, India, Kenya, and Malawi to identify lessons learnt for adoption on the development of South African policy options (DAFF & Phuhlisani, 2012).

#### 3.2 EXTENSION TRENDS IN BRAZIL

The Brazilian agricultural extension support services which were introduced after the Second World War focused more on linkages between teaching, research and extension. Similar to the South African agricultural extension support services, their agricultural extension support had challenges of poor coverage as they couldn't provide support to the whole Brazilian farming community. During the 1960s, Brazilian agriculture prioritised larger-scale commercial and export-oriented

agriculture and it was only in the 1970s that they started to focus to the poor, small-scale producers (Arboleya & Restaino, 2004: 16).

During the early years of 2000s, the Brazilian Ministry of Rural Development facilitated the development of a new National Policy for Rural Extension and Technical Assistance which was adopted in 2007. The policy is known by its Portuguese acronym, ATER. The policy is institutionalised in the Department of Family Farming. The new extension policy is more focused to the poor, especially those people who live and produce on a small-scale and household system in agriculture, handicrafts, fishing and other rural activities. The policy gets its mandate from both the Federal Brazilian Constitution of 1988 and the Agricultural Act of 1991. Both of these legislative frameworks require the State to provide free ATER services to small-scale farmers (Brazil Ministry of Rural Development, 2007).

The Brazilian extension policy advocates for a pluralistic as well as systemic approach on the delivery of extension support services. It's Ministry of Rural Development (2007: np) believes that to address Brazil's challenges, public services of ATER should be delivered by both the State and non-state agencies using participatory methods. The systemic approach is encouraged to address challenges of equity and social inclusion. Extension Practitioners do not necessarily provide technology transfer but rather serve an educational role, acting as coordinators and facilitators of sustainable rural development processes. The ATER services in Brazil were used as an instrument of support for rural development. The extension policy takes into cognisance the indigenous knowledge of farmers and community members that live and work in the field in a small-scale system, and encourage the sustainable use of local resources.

### **3.3 EXTENSION TRENDS IN CHINA**

According to Zhang and Kempenaar (2009: 3) China's agricultural extension support is based on the communist model system. This system prioritised collective farms and communities. Pluralistic approach initiatives were evident during the late 1980s. The public sector work in collaboration with private sector, agricultural research as

well as development institutes and producer associations in the delivery of agricultural extension support services.

During the early 1990s, the Chinese government categorised extension providers into fully funded, partially funded and self-funded (Turner & de Satgé, 2012). Programmes of *“strategic importance and strong public good character were declared to be fully funded by the government, those that focused on commercial activities were to be stimulated to commercialisation. Partially funded agents were placed somewhere between the two categories. The national government does not define which sub-sector to which category. In most cases, crop protection stations were categorized as fully funded agents while input supply stations such as seeds and pesticides were classified as self-funded agents. Sub-sectors, such as livestock and aquaculture, were often classified as partially funded agents”* (Zhang & Kempenaar, 2009: 4 as quoted by Turner & de Satgé, 2012).

The Chinese government facilitated a major decentralisation campaign in order to establish integrated agro-technical crop extension centres at county level, under the authority of county governments. These efforts were intended to strengthen a pluralistic delivery system in provision of agricultural extension support services and promote extension priority setting by organised groups of producers specialising in different high value crops and products (Swanson & Rajalahti, 2010: 103).

China’s agricultural extension support service experienced a number of challenges. Hu, Cai, Chen, Cui, and Huang (2010) and Phuhlisani (2012), observed that these challenges were due to partial commercialisation of agricultural extension support which required government extension agents to increase their sales of pesticides and fertilisers to farmers. This resulted in the total collapse of many township-level extension organisations and millions of small-scale farmers couldn’t access agricultural extension services. It was reported that decentralisation reforms meant that government extension workers had to spend more time on administration and less on contact with farmers. To mitigate the situation and improve the service of the public agricultural extension to farmers, the government of China developed an agricultural policy which separated commercial activities from extension services and this was viewed as a step in the right direction and expected to be expanded.

Phuhlisani (2012) reported that an initiative was launched in 2005 to promote a more demand-driven public agricultural extension system. The main goal of the initiative is “to meet the diverse technology and marketing information needs of farmers at the village level by implementing better mechanisms for identifying their technology needs and by establishing an accountability system to encourage the extension staff to provide targeted services” (Hu *et al.*, 2010: 1).

### **3.4 EXTENSION TRENDS IN DENMARK**

Danish agricultural extension support service is not provided by government but rather by Danish farmers. In the 19<sup>th</sup> century, Chipeta (2010) argues that the Danish farming co-operatives were established which laid the foundation for the largely decentralised agricultural extension system that operates in Denmark. An estimated 45,000 Danish farmers own a network of some 38 advisory centres that are based at local co-operatives. The Danish Agricultural Advisory Service (DAAS) employs about 3,500 staff (Pedersen, 2008). The DAAS services to their farmers is needs-driven and is mainly focused on production, legislation, banking, insurance, taxation, environmental impacts and accounting. There are effective linkages between their agricultural extension support and research as the national centre co-ordinates research programmes to back up their services. Various commodity groups and/or agricultural unions are members of the oversight system and board of directors at the national centre (for example the Cattle Federation, Poultry Council, Committee of Organic Farmers and the National Committee on Fur Animals).

*“The ‘Danish Way’ is now pursued in the context of a growing emphasis on rural development in European Union agricultural policy. The Common Agricultural Policy increasingly emphasises its ‘second pillar’ of rural development, and not just the process of agricultural production. A small but growing number of Danish agricultural extension agents now perform broader rural development functions alongside their more conventional roles”* (Turner & de Satgé, 2012).

### 3.5 EXTENSION TRENDS IN ETHIOPIA

The Ethiopian Government dedicated the function of agricultural extension support to the Ministry of Agriculture and Rural Development. The districts serve as the main delivery centres of agricultural extension and service delivery at local level is carried out through the *woreda* (known as the third-level administrative divisions of Ethiopia) office of Agriculture and Rural Development (Turner & de Satgé, 2012: 68). Spielman, Kelemwork and Alemu (2011: 25, 27) observed that although extension has been decentralized to the district and local levels of government, instructions and oversight on targets continued to be driven from the higher levels of government. This top-down approach and weak local capacity compromised the emergence of a dynamic demand-driven system. These intergovernmental relations between the different government levels underlying the agricultural extension system does little to encourage and exploit the inherent resourcefulness of extension agents that work closely with farmers and rural communities.

Agricultural extension system performance problems were not limited to hierarchical challenges only, as the Ethiopian extension system has generally been conceptualised with no participation of the farmers and rural communities; insufficient attention to livestock production; and with absolutely no reach to farmers residing in deep rural areas. This poor performance of the agricultural extension system in Ethiopia is caused amongst other issues by: failure to involve farmers in research problem identification, problem prioritization and extension programme planning, and lack of relevant research results; inadequate planning and coordination, lack of interaction with research and the formulation of extension programmes and policies without due consideration to the farmers' opinion and traditional knowledge system; the distraction of Extension Practitioners by their involvement in input supply, collection of taxes and loan repayments; the limits of standardised packages, and the emphasis on input targets rather than affordability and profitability; extension agents' ignorance of farmers' traditional and experience-based knowledge system (Kassa, nd: 7).

To address such challenges, Ethiopia introduced several reform initiatives. According to Spielman *et al.* (2011: 25, 27) Ethiopia made an “*effort to get beyond a*

*focus on cereals, new packages have been developed to support other crop and livestock enterprises, improve post-harvest technology adoption, and encourage natural resource management. In recognition of the diversity of smallholder farming systems in Ethiopia, classifications have been developed to divide the country into several distinct agro-ecological zones to aid in the development of more appropriate zone-specific packages. Input distribution was being shifted away from extension services to co-operatives, thus freeing extension agents to provide more technical advice. Initiatives are being made in Ethiopia to strengthen and diversify the curriculum provided by the 25 Agricultural Technical and Vocational Education and Training Colleges that are responsible for preparing Development Agents (DA's) for deployment throughout the country.”*

One of the key reform initiatives of the Ethiopian Government was the establishment of the Agricultural Transformation Agency (ATA) in late 2010. The ATA was created as an implementation institution to assist government to achieve the targets defined in the national Five Year Growth and Transformation Plan of 2011-2015. Two of the ATA Key Result Areas is firstly, an annual growth rate of at least 8.1% in the agricultural sector and secondly, to triple the number of farmers receiving relevant agricultural extension support services (ATA, 2012). According to Turner and de Satgé (2012: 32) extension and research is one of the ‘system programmes’ of the ATA. Emanating from the Ethiopian agricultural extension support study of 2009, ATA programme is *“redoubling efforts to increase extension capacity and performance, including a revision of the DA training syllabus, strengthening the services offered at Farmer Training Centres, improving the incentives to DAs and introducing better monitoring and performance evaluation. Linked to these efforts are measures to strengthen agricultural research and make it more relevant”* (Turner & de Satgé, 2012: 32).

### **3.6 EXTENSION TRENDS IN INDIA**

During the 1930s to 1940s, India prioritised village self-sufficiency and the promotion of co-operative farming for local food security (Maredia, 2007). Since the early 1950s, the public sector agricultural extension system in India has changed significantly. Firstly, there was the Community Development Programme in 1952

which was followed by the National Extension Service in 1953. Human and Community Development were the key focus areas of these two programmes. In 1961-62 Agriculture District Programme started, followed by the Intensive Agriculture Area Programme in 1964-65. The High Yielding Varieties Programme was introduced in 1966-67, the Farmers Training and Education Programme in 1966-67, and the Small and Marginal Farmers Development Programme in 1969-70 (Government of India, 2010: 2).

During the mid-1970s, the transfer of technology through Training and Visit (T&V) approach was introduced. The T&V extension approach started at an opportune time when broad-based crop management practices for the high yielding wheat and rice varieties that were released since the mid-1960s. The Government of India (2010: 2) confirmed that *“the T&V system profoundly influenced extension practices and registered impressive gains in irrigated areas, because of the similarity between the agro-ecological conditions where technologies were generated and where they were ultimately used, and the favourable socio-economic situations and developmental infrastructure for their wider uptake. Indeed, the T&V system played an important role in ushering the Green Revolution in 1979.”*

Anderson and Birner (2007) confirmed that the Indian Government has made some strides on the transformation initiatives to change extension support system from *“supply driven top down intervention to a service which is responsive to local farmer needs”*. On their study, which focused more on ‘how to make agricultural extension demand driven’, they found that access of agricultural extension support services by producers were still extremely limited.

There was growing concern in India that the T&V extension approach needed to be reviewed in meeting the technology needs of farmers during the early 1990's. This coincided with the completion of the third National Agricultural Extension Project (NAEP). It was observed that farming systems approach should be utilised to broad base programmes of agricultural extension. *“Farming systems research was part of a gradual shift to extension approaches which aimed to recognise complex and diverse production settings in which the farmer and their knowledge of local conditions were the key element”* (Government of India, 2000: 4). Turner and de



Satgé (2012: 36) acknowledged that the extension policy framework of the Government of India made emphasis that research and extension programmes should understand and define farmers' needs, and existing farming systems rather than perceptions by research scientists or extension functionaries.

According to the Government of India (2010) Policy Framework for Agricultural Extension (PFAE), emphasis is more on the following measures: farming systems approach; pluralistic approach and/or a multi-agency extension service; promotion of farmer participatory approaches; promotion of demand-driven and farmer-accountable extension; thrust on marketing extension; enabling farmers for problem solving skills; availability of public funds for private extension and adoption of cost recovery and co-financing through commodity groups; employing more subject matter specialists; restructuring of institutional implementation mechanisms; development of strategic research and extension plans; improvement of research-extension-farmer linkages; strengthening of women's access to technology; wider use of information technology; promotion of market information and agro-processing initiatives.

In India, decentralization is being pursued through a new model of extension – the Agricultural Technology Management Agency Model (ATMA). An autonomous organization that was initially set up in the late 1990s with the World Bank support (Singh & Swanson, 2006). The ATMA model shown in Figure 3.1 combines decentralisation with a focus on agricultural diversification and increasing farm incomes and employment. Decisions on extension are made by a Governing Board with equal representation between the heads of the line departments, including animal husbandry, horticulture, etc., and key people in the State Department of Agriculture; research units within the districts and stakeholder representatives; and a cross-section of farmers, women, disadvantaged groups and the private sector. The ATMA model is considered as a major success in India because after only five years of operation (2001 to 2006), it has been adopted in 60 districts (about 10% of all districts in India). The model is planned to be extended to all 600 districts in the medium to long term plans of the Government of India (Anderson, 2007 citing Swanson, 2006: 14).

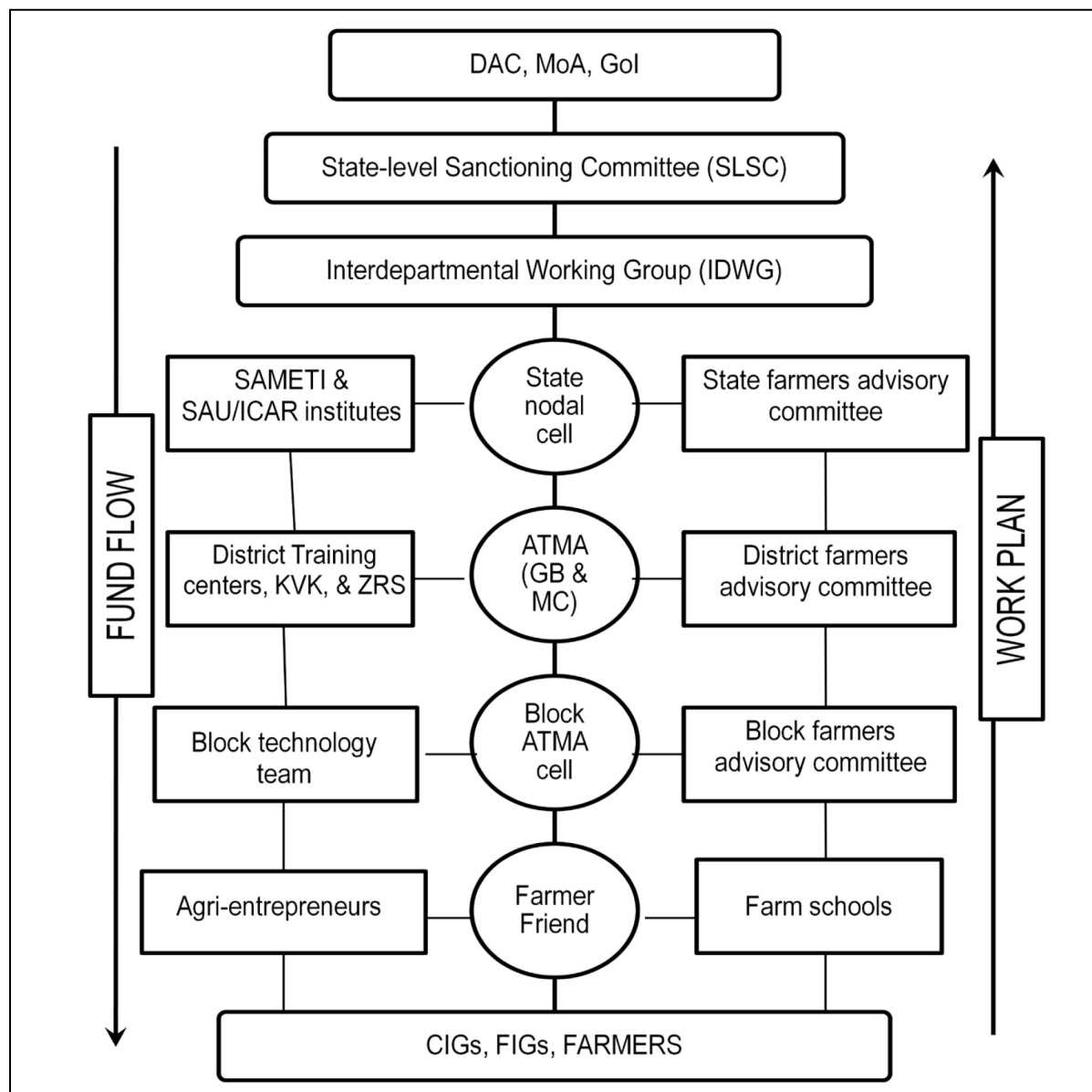


All agricultural extension oriented schemes are scheduled to come under one umbrella of ATMA at district level. Technology dissemination at the district, block, and village levels was institutionalised in the ATMA. The ATMA manage technology dissemination, facilitate decentralisation in planning and implementation, and promote interdepartmental coordination and demand-driven service provision at the district, block, and village levels by bringing together district administrative entities, line departments, NGOs, and local farmer representatives. Being autonomous, the ATMA has full discretion over its budget and was thus flexible to respond to changing technological and environmental requirements (Government of India, 2010).

According to Swanson, Singh and Reddy (2008), the “*ATMA model represents a shift away from transferring technologies for major crops to diversifying output. The ATMA model is a central government initiative of the 2005-06 Support to State Extension Programmes for Extension Reforms (SSEPER) scheme, which was designed to be implemented by each state at the district level*”. In 2005 the Government of India expanded the ATMA model to 252 districts under SSEPER, and then in 2007 to all districts of the country (Reddy & Swanson, 2006; Working Group on Agricultural Extension, 2007). The Government of India has released plans to revise the scheme, invest a further US\$630 million over a predetermined period of time and add an additional 20,000 extension staff exclusively for the ATMA program (Government of India, 2010).

Figure 3.1 shows a reviewed extension institutional mechanisms for implementation of Indian new extension policy. These proposed State, District and Block level structures set out the institutional arrangements for the management of public sector agricultural extension support services. The Government of India (2010: 17) indicates that ATMA represents a platform for integrating extension programmes across line departments, such as animal husbandry, fisheries, and forestry; linking research and extension units in a district; and inviting farmer participation in decision making. Extension intervention is based on the Strategic Research and Extension Plan (SREP) prepared after a Participatory Rural Appraisal (PRA) in each district. The Farm Information and Advisory Centre (FIAC) is the physical platform at the block level where farmers, members of the private sector, and extension field staff

members from each line department meet to discuss, plan, and execute extension programmes (Swanson, 2008a).



**Figure 3.1: Revised structure of the ATMA**

Source: Government of India (2010)

### 3.7 EXTENSION TRENDS IN KENYA

Turner and de Satgé (2012: 46) summarised the agricultural extension support services during the colonial period as authoritarian and regulatory. The colonisers tried to prevent smallholder farmers to produce certain crops (for an example coffee). During the late 1960's, Extension Practitioners were recruited and employed by

District Councils. Development policies and priorities of different external organisations influenced the management of agricultural extension support systems in many various ways. In the 1970s, a World Bank led focus on Integrated Rural Development which set out to address constraints of smallholders “*by working synergistically in health, nutrition, agriculture, and education ...(but)... the focus was all technical, however, and left out crucial issues such as training, linkages with research, and management*” (Davis, 2008: 18).

Van't Land, Steffensen and Naitore (2007) argued that Kenya's T&V system experienced many of the same problems as the Government of India. Extension support services neglected smallholder producers and were mainly directed to better resourced producers. The T&V system was a government driven approach. After reviews discovered that the T&V system was ineffective and inefficient, it was dropped in 1998. This was due to the systems' poor fit between the offerings of the service and producers' needs. The Indian Government farmer to farmer agricultural extension strategy also failed.

The Kenyan Government collaborative efforts with private donors had some positive spinoffs. Their donor funded partnerships created opportunities for the development of more innovative and demand led extension approaches. SIDA supported a National Soil and Water Conservation Programme. The Ministry of Agriculture and Rural Development (MoARD) operated programmes with SIDA were implemented based on more participatory approaches in the identification of the local farmers needs. In the year 2000, the National Agriculture and Livestock Extension Programme (NALEP) commenced its operations and adapted participatory approaches for crop and livestock extension. These included “*stakeholder inclusion, bottom up planning and the development of farmer common interest groups (CIGs)*” (Davis, 2008: 20).

In 2001, the National Agricultural Extension Policy (NAEP) was developed. The policy's goals focused on the promotion of demand-driven agricultural extension systems and delivery of high quality services. This created a clear role for the private sector in the delivery of agricultural support services. This was also the

commencement of progressive commercialisation and privatisation of public sector agricultural extension support services (Government of Kenya, 2007).

According to Turner and de Satgé (2012: 47) the NAEP advocates for both pluralistic and demand led extension approaches. In Kenya agricultural extension support service recognise the role of the private sector. This is done under the supervision of a regulatory body which accredit and oversee the operations of registered Extension Service Providers. Emphasis is made that the public sector agricultural extension caters for marginal groups of farmers which remain un-serviced by the market.

Although NAEP advocates for demand-driven and pluralistic approaches, the Strategy for Revitalising Agriculture (SRA, 2004: 14) viewed *“the extension system to be ineffective and inadequate, and was considered as one of the main causes of poor performance in the sector.”* The general sense of many farmers was that the extension service system is non-existent, as the farmers are no longer in-contact with extension workers as they would wish. The NAEP operational framework was envisaged to be weak and with poor linkage with the research. Nyoro (2002: 34) reported that the lack of coordination between various Extension Service Providers led to beneficiaries receiving contradictory messages. The discussion document led by Turner and de Satgé (2012: 47) confirmed that the *“SRA attributed the national decline in agricultural productivity to an inadequate legal framework, poor governance in agricultural institutions, inappropriate technologies and lack of adequate expenditure for research and agricultural extension support services.”* The weakness of the public sector to implement the agricultural extension support services strengthened the profile of private companies, producer organisations and non-governmental organisations. This raised interest of commodity groups in the provision agricultural extension services. These Extension Service Providers provided agricultural extension services to producers and were compensated by deducting costs from the payments due to the producers (Turner & de Satgé, 2012: 47).

The challenges associated with the implementation of NAEP and slow progress led to the policy review. One of the key review proposals by the SRA was that *“government would continue to provide extension services for smallholder producers*

*in the medium term but partial privatisation would be encouraged to complement government services. It also promised reform of agricultural extension systems to facilitate multi-stakeholder participation”* (Government of Kenya, 2007: 13). The SRA further prioritised the legislative rationalisation and institutional reorganisation which amalgamated about 60 regulating statutes of the agriculture sector into a single Act.

It is important to note that agricultural extension system in Kenya is managed through different service delivery levels which are similar to the South African three spheres of Government. They have a province, district and division *“in a very traditional/hierarchical de-concentrated model, with staff at the various levels in assigned roles”* Van’t Land *et al.* (2007: 74). The review process of NEAP resulted into two policy documents followed in quick succession: The draft National Agriculture Sector Extension Policy (NASEP) 2005 and the draft NASEP Implementation Framework (NASEP-IF) (Turner & de Satgé, 2012: 48).

NASEP-IF provides a clear summary of the proposed approach to extension and research services: *“The Government will continue to provide extension services to subsistence and smallholder producers, and for public good services. Agricultural extension services will be commercialised if the enterprises are market-oriented, commercial in nature and competitive enough to create demand for extension services at full cost recovery. Some public services will be contracted out to the private sector on a competitive basis. Services and clientele will be categorised to determine which services will remain free and which clients will continue to receive free extension services. To ensure seamlessness in agricultural research, extension, education and training institutions, linkages will be enhanced by Agricultural Research Extension and Education Council (AREEC). The Council will be established under the Agricultural Sector Coordination Unit (ASCU) and will operate through committees. A National Extension Coordination Unit (NECU) will be established under the Council Secretariat”* (Government of Kenya, 2007).

The Government of Kenya (2007) further emphasised on its NASEP-IF that an *“Extension Regulatory Body (ERB) will register and license Extension Service Providers (ESPs). A code of practice will be developed, which will include principles governing choice of extension methods, approaches and content. ESPs will be*

*required to be members of a relevant professional association. A participatory monitoring and evaluation framework will also be established.”*

Similar to the Indian ATMA model, Kenya established stakeholders’ fora at the location, division, district, provincial and at national levels to coordinate the planning and delivery of extension services. This approach was introduced with the hope that producers will be empowered through participation in government activities to improve their access to information and funding facilities. It is also anticipated that *“stakeholders will also set up information resource centres at village, location, division, district and provincial levels in order to improve access to information and knowledge relevant to clients’ enterprises. Research institutions will establish technology dissemination units to improve access to new research-based knowledge and information. Training and capacity building for ESPs will improve knowledge and skills in value addition and marketing. This will support the SRA’s aim of producers increasingly recognising farming as a business and improving enterprise management”* (Government of Kenya, 2007: 10).

Turner and de Satgé (2012: 49) noted that the review of lessons and practices which were derived from Kenyan agricultural extension by Muyanga and Jayne (2006: ii) argue that high agricultural potential regions and high-value crops are generally preferred by private Extension Service Providers at the expense of poor producers that reside in remote areas. They further propose that Government of Kenya should consider engaging the private sector to provide agricultural extension support services in the poorly developed areas. Such an engagement will enhance the talent and experience existing in the field but doesn’t take away the government role which includes funding, quality assurance, oversight, and provision of training and information to contracted services providers. As it has been observed by Davis (2008: 21) that the more the number of role-players increases, the more it makes it crucial for government to remain involved in the co-ordination and regulation of agricultural extension support.

### 3.8 EXTENSION TRENDS IN MALAWI

Malawian agricultural extension support service prioritised farmers that were deemed to be 'progressive'. The resources and advice focused more on this group of farmers and other producers which could be smaller in terms of their farm operations were expected to emulate. The Extension Practitioners made use of these progressive smallholder farmers to demonstrate best agricultural production methods (Mapila, Makwenda & Chitete, 2010: 146).

The agricultural extension system of Malawi is based on technology transfer as it puts initial emphasis on technical solutions and models being passed from agricultural research institutions to Extension Practitioners and to the farmers. The evolution of the Malawian extension system includes variations of the T&V system, which firstly focused on individuals and secondly, on groups through a block extension approach. According to Mapila *et al.* (2010) the T&V method had a better success rate in engaging with groups of farmers but had serious challenges of local conflicts due to competition on securing the benefits and free inputs associated with demonstration plots. "*Generally, the reach of the agricultural extension service remained ineffective, with the majority of resource poor farmers unable to access extension advice*" (Turner & de Satgé, 2012: 49).

Mapila, Makwenda and Chitete (2010: 151) observed that Malawi's rural and agricultural development strategies implementation mechanisms were centred on farmer organisations. The farmer organisations were identified to play a key role on the creation of an enabling environment. This led to the formation of an independent national farmers' union which has been in place since 2006. This approach had its own setbacks as it was observed that opinion leaders were prioritised for training to provide advice instead of the extension officers, which laid a foundation for commencement of a farmer to farmer agricultural extension system. Mapila *et al.* (2010: 151) further emphasised that "*the erosion of public agricultural extension service systems has placed rural elites as a linkage between technocrats and farmers*".



Turner and de Satgé (2012: 68) confirm that the Malawian Government has preferred a pluralistic and demand driven agricultural extension system. Similar to Ethiopia, Malawian agricultural extension management method is adapted to local conditions. This explains why local farmer organisations are important and the government chose a decentralised extension model where agricultural extension support services have close links with District Assemblies, Area Development Committees and Village Development Committees. The pluralistic and demand driven agricultural extension approach is conducive for farmer organisations to play a greater role in determining the development of their communities as they have representation in the District Development Committees, which are responsible for allocating district development funds and for formulating district level development programmes (Mapila *et al.*, 2010: 146).

Officials engage with district stakeholder panels which bring together: service providers; agro dealers; farmer representatives; and traditional leaders. The panels are tasked with undertaking local situation analysis, which sets the agenda for a more demand-driven agricultural extension support service (Turner & de Satgé, 2012: 68).

### **3.9 CHAPTER SUMMARY**

This chapter set out to review literature on the key international thinking and practice around the design and delivery of agricultural extension support services. The country case studies were designed to reveal different development settings and identify issues of relevance to the development and targeting of sustainable and effective agricultural extension support services. International best practices were reviewed with particular reference to experiences of Brazil, China, Denmark, Ethiopia, India, Kenya, and Malawi. These experiences were meant to benchmark international best practices and inform the development of South African policy options on the future of public agricultural extension support services.

It is clear that for an efficient and effective extension support service, a decentralised management model should be followed where agricultural extension support services have close links with commodity associations, local development



committees and other Extension Service Providers. Such an approach enables pluralistic and demand-driven agricultural extension systems that are adapted to local conditions.

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## CHAPTER 4

### POLICY INTERVENTION MEASURES

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#### 4.1 INTRODUCTION

This chapter presents a review of the process leading to the development of the extension policy and contributes to a review of literature on policy interventions to address and respond to the problems of public agricultural extension support in South Africa. The chapter is an outcome of provincial consultative workshops across a broad spectrum of actors with diverse stakeholders. Provincial consultative workshops were held in all nine provinces of the Republic of South Africa from the 2<sup>nd</sup> to 26<sup>th</sup> October 2012. Various stakeholders such as Provincial Departments of Agriculture, Department of Rural Development and Land Reform, Public Entities, commodity groups, farmers unions, individual farmers/producers, individual agricultural Extension Practitioners, researchers, academics and regional and/or international experts from various organisations such as GFRAS, AFAAS, etc., were invited and indeed participated in almost all nine consultative workshops. Some of the representatives were appointed by the Director-General of the Department of Agriculture, Forestry and Fisheries to serve on the Reference Group. The Reference Group's role was on providing practical guidance and oversight on the development of the policy. Worth (2015), noted "*the aim was to engage stakeholders for creating a research-led framework for drafting agricultural extension policy to guide a pluralistic system including public, private, non-profit and producer based agricultural extension.*" To achieve this, face-to-face focus group discussions were held at strategic venues around the country; and social media fora employing online chat sessions as well as document sharing (in particular invited opinion pieces) (Phuhlisani, 2012).

According to FAO's global consultation process held in 1990 on agricultural extension, all governments should have a national agricultural extension policy. This

consultation process resolved that a national agricultural extension policy must contain a statement with the following components: objectives and role of extension services; target coverage and clients for different extension activities; organisation, funding and financing structure - whether centralised or decentralised; this can be implemented by government or other agencies or even in partnership through a unified extension system or independent agencies; etc.; the policy should include planning procedures, priority setting, and governance structure at various levels of service delivery; role of different extension service providers; role of the research and development organisations; clear extension methods and approaches; and arrangements for support services for field Extension Practitioners, technology support, mass media, and monitoring and evaluation. Extensive consultations with stakeholders provide important input to and build political support for a national extension strategy (Phuhlisani, 2012; Alex, Zijp & Byerlee, 2002: 25).

## **4.2 POLICY INTERVENTION MEASURES**

As argued by Ngomane (2010), the policy should transform the structure and approach. If the public agricultural extension support is to improve its image, ensure effectiveness in the delivery of services by improving rural livelihoods and be better valued by the producers and the rural poor, the role of its practitioners should be redefined. The policy intervention measures indicated in this section are fundamental to respond to problems outlined in chapter two and for further attainment of goals, objectives and core principles aimed in ensuring that *“all actors in the agriculture value chains enjoy equitable and optimum access to knowledge and skills, and have the capacity to explore opportunities for the advancement of their enterprises and livelihoods”* (DAFF, 2014). The policy sets out a number of ‘core policy actions’ which give an indication of what the policy is intending to put in place.

### **4.2.1 Effective and Efficient Linkage Mechanism between Research, Extension and Producers**

The flow of information between researchers and producers is not as efficient and effective as it should be. Ensuring effective technological transfer and efficient flow of technological innovations between the researchers, extension and producers can

only be achieved through the development of an efficient researcher, producer and extension linkages. Acunzo and Protz (2010) concur that agricultural extension is no longer about technology transfer and diffusion of research findings only, but also involves a process of communication for innovation. The governance structure of state institutions at all spheres of government that are involved in agriculture and resource availability are the main pillars influencing the linkages. Strengthening these linkages requires representation and participation of all relevant stakeholders. This may include producers and Extension Practitioners where decisions about research priorities are being made. This means that researchers should actively involve Extension Practitioners and producers in identifying research problems, adapting the recommendations to local conditions and providing feedback to research. Such a participative approach will ensure that production technologies are relevant to local needs. This should also include the active engagement of private and non-profit organisations. *“A strong and integrated linkage (which includes joint planning and review processes; collaborative professional activities; resource allocation procedures; structural linkage mechanisms; and communication devices) between research, extension and the producer is needed if the agricultural sector is to achieve effectiveness, efficiency and a wide scale sustainable impact”* (DAFF, 2014).

The core policy actions as indicated by DAFF (2014) include the following:

- Design participatory and integrated institutional structures that bring together extension, research and producers at national, provincial and district levels.
- Design user-friendly ICT knowledge sharing platforms (such as social networks), to effect mass communication amongst actors, which ensures free accessibility to research outcomes.
- Facilitate demand-driven research and extension services by promoting action-based and producer-led research processes by supporting programmes based on participatory on-farm trials, research-station based research processes, to ensure inclusion of producers and Extension Practitioners in all research processes.
- Organise smallholder producers into commodity groups to ensure that they have a voice in all research processes.

- Develop a multi-linguistic approach in line with the dissemination of information process, to enable open access to information by all actors across the value chain.
- Promote the adoption of local viable technologies and indigenous knowledge systems by producers.

#### **4.2.2 Improved Access to Quality Extension and Advisory Services that is Professional, Reliable, Relevant and Accountable**

The successful implementation of producer programmes depends largely on improved access to quality agricultural extension support services that is professional, reliable, relevant and accountable. Several development programmes have been developed by DAFF to respond to urgent priority issues such as food security, poverty eradication, food safety, economic growth and environmental conservation. These include: Integrated Sustainable Rural Development Strategy (ISRDS), the Land and Agrarian Reform Programme, the Integrated Food Security Nutrition Programme (IFSNP), the National LandCare Programme, Marketing and Entrepreneurship Development and Comprehensive Agriculture Support Programme (DoA, 2005).

Worth (2012: 35), reported that since 1994 the South African Government prioritised the smallholder and subsistence producers as a way of increasing their participation in agricultural sector in line with the principle of equality. This called for transformation of public agricultural extension support to meet the various needs of large numbers of producers. Hence the development the Extension Recovery Plan (ERP) in 2008/9 as an overall strategy to revitalise extension services in the country to effectively address prevailing socio-economic conditions owing to the inequalities of the past. The five pillars of the programme are; ensuring visibility and accountability of extension, promoting professionalism and improving image, recruitment of extension personnel, re-skilling and reorientation of extension and provision of information communication technology (ICT) and other resources. Building on the progress achieved through the ERP, DAFF have to develop an Extension Development Plan (EDP) which will give effect to the aims, objectives and

principles of the National Policy on Extension and Advisory Services. The EDP will supersede the Extension Recovery Plan and set out an integrated strategy for the enhancement and maintenance of agricultural extension (DAFF: 2014).

The Agricultural Extension Norms and Standards (DoA, 2005) document made emphasis that the major part of access to quality agricultural extension services depends on the extension to farmer ratio which is viewed to be very low for smallholder producers as compared to large scale commercial producers. The Agricultural Extension Norms and Standards recommend the extension: farmer ratios as according to Table 4.1 below, but local conditions, circumstances and realities must dictate the application of the ratios.

**Table 4.1: Extension practitioner to producer ratios**

Scale of operation	Nature of operation/farming		
	Crops	Livestock	Mixed
Subsistence and Smallholder	1:400	1:500	1:500
Semi-commercial	1:250	1:250	1:300
Market oriented and large scale commercial	1:500	1:500	1:500

Source: DoA (2005)

The former Department of Agriculture (2005) made it a requirement for extension and advisory services to be rendered “*at the minimum, with a common understanding of competence as defined in the Public Service Regulation (Republic of South Africa, 2001), which states the need for a blend of knowledge, skills, behaviour and attitude that can be applied in the work environment. Among others the Extension Norms and Standards identify the following as the invaluable package of skills for extension practitioner: Client Orientation and Customer Focus, Communication, Project Management, Knowledge Management, Service Delivery Innovation, Problem Solving and Analysis, Honesty and Integrity, People Management and Empowerment. Furthermore, the professional registration of Extension Practitioners will ensure the establishment and maintenance of high quality (professional, reliable, relevant and accountable) extension and advisory services.*”

The core policy actions as indicated by DAFF (2014) include the following:

- Recruit competent Extension Practitioners to augment the current human capital.
- Certify and ensure the competence of extension professionals through registration with a recognised and credible professional body.
- Develop a National Extension Development Plan (EDP).

#### **4.2.3 Advance the Extension Education System and Broaden Service Focus**

Agricultural extension support services must respond to a wide set of local, national and global production and market pressures across value chains. When the African National Congress (ANC) came to power in 1994, it identified agricultural extension support as necessary to realising the aims of transforming agriculture and ensuring that previously excluded farmers are positioned to be fully engaged in the agricultural value-chain (ANC, 1994). The concern raised by the DAFF and confirmed by the University of KwaZulu-Natal is that Extension Practitioners are not equipped to deliver on this agenda (Worth, 2009). *“This justifies the need for appropriate and innovative technologies that respond to environmental and socio-economic challenges in support of diverse rural livelihood initiatives. Agricultural extension is part of a wide range of services needed to help producers acquire relevant knowledge and skills to increase and sustain the productivity and competitiveness of their enterprises. Currently agricultural extension lack a developmental and systems approach, where practitioners have a holistic view and understand the total value chain and linkages with sustainable development goals”* (DAFF, 2014). In addition, according to Worth (2006), there is a need for educational institutions to review the content of the curricula for training of agricultural scientists and Extension Practitioners and refocus them with the expectations needed to address the challenges and needs of the South African reform. DAFF (2014) do acknowledge that *“the education and training curriculum of Extension Practitioners is currently inadequate to address the new competencies required for comprehensive producer development support and further calls for a multidisciplinary approach for the capacity development of Extension Practitioners with the relevant and diverse knowledge and tools.”* This view is further emphasised by GFRAS (2013), through

the 'New Extensionist' vision which implies changes in extension and advisory services organisations, systems, and enabling environments, more importantly reskilling all types of individuals to better contribute to increasing the productivity and effectiveness of agricultural systems to improve the livelihoods of smallholder producers.

The core policy actions as indicated by DAFF (2014) are:

- Support producers on diverse rural livelihood initiatives based on a wider understanding of the overall development context and socio-economic objectives.
- Review and develop multidisciplinary training curriculum for Extension Practitioners to enable Extension Practitioners to be registered as professional scientists with SACNASP.
- Ensure continuous professional development through systematic maintenance, improvement and broadening of knowledge and skills, and development of personal qualities necessary for the execution of professional and technical duties of Extension Practitioners.

#### **4.2.4 Registration of Extension Practitioners with a credible Professional Body**

DAFF and the South African Society for Agricultural Extension (SASAE) had successful negotiations with the South African Council for Natural Scientific Professions (SACNASP) to review and amend Act No. 27 of 2003 for inclusion of Extension Science as a Field of Practice. The Minister of Science and Technology, as a custodian of Science and Technology in South Africa approved the substitution of Schedule 1 to the Act on the 3<sup>rd</sup> of December 2013. The Extension Science Field of Practice was published on Government Gazette Notice No.: 36 on 24 January 2014 (SACNASP, 2015). The registration categories on the Extension Science field of practice as approved by SACNASP are as illustrated in Table 4.2.



**Table 4.2: Categories of extension science for professional registration**

<b>Category</b>	<b>Qualifications and experience required</b>
1. Professional Extension Scientist (Pr. Ext. Sci.)	Persons with at least a four year degree plus Honours degree in agricultural extension; or equivalent qualification and/or Masters qualification in Extension with 120 Extension credits at postgraduate level; and three years relevant experience in agricultural extension.
2. Candidate Extension Scientist (Cand. Ext. Sci.)	Persons with all qualifications indicated on Professional Extension Scientist above but with less than three years of appropriate relevant experience in Extension.
3. Certificated Extension Technologist Level A (Cert. Ext. Tech. A)	Persons with at least a three year B Agric degree or National Agricultural Diploma or B Tech degree or BInst Agrar degree or Advanced University Diploma in agricultural extension with 60 to 119 extension credits; and three years appropriate relevant experience in agricultural extension.
4. Candidate Extension Technologist Level A (Cand. Ext. Tech. A)	Persons with same qualifications as in Category 3 but with less than three years appropriate relevant work experience.
5. Certificated Extension Technologist Level B (Cert. Ext. Tech. B)	Persons with at least a three year B Agric degree or National Agricultural Diploma or B Tech degree or BInst Agrar degree or Advanced University Diploma in agricultural extension with 10 to 59 extension credits; and three years appropriate relevant experience in agricultural extension.
6. Candidate Extension Technologist Level B (Cand. Ext. Tech. B)	Persons with same qualifications as in Category 5 but with less than three years appropriate relevant work experience.
7. Associate Extension Technologist (Assoc. Ext. Tech.)	Persons who lack the appropriate extension training or qualification, but with at least ten years appropriate relevant work experience in extension.

Source: DAFF (2013)

#### **4.2.5 Facilitate a Pluralistic and Integrated Approach to provide Extension and Advisory Services**

According to Worth (2015), many stakeholders that were consulted during the policy development process agreed that all key role players should actively participate in the South African extension delivery system. It has been acknowledged by DAFF that *“a major part of reforming extension will include a greater coordination and collaborative efforts between the different institutions that provide extension services. This kind of collaboration and co-ordinated approach must equally apply to research, technology development and innovation processes such that a pluralistic ‘complex’ of researchers and Extension Practitioners from public, private and NPOs exist.”* According to Van Niekerk, Stroebel, Van Rooyen, Whitfield and Swanepoel (2011), the conceptualisation of agricultural innovation systems (AIS) was meant to provide a platform from which various stakeholders can interact for resolving challenges that emanate from the delivery of extension services. These scholars further described AIS, following a World Bank definition, as *“involving a network of organisations, enterprises and individuals focused on bringing new products, new processes and new forms of organisation into economic use, together with the institutions and policies that affect the way different Extension Practitioners interact, share, access, exchange and use knowledge”* (World Bank, 2006). Liebenberg (2014) concluded that the solution should be on creative partnerships with other extension service providers.

The provision of agricultural extension services to a broad spectrum of producers and the rural poor in South Africa justifies the need for a pluralistic approach that is inclusive of all relevant agricultural extension service providers. This approach will benefit the public sector from human capacity and intelligence, funding and other available resources within the stakeholder-base. The government of South Africa should promote institutional pluralism and provide oversight on the quality enhancement and assurance necessary for rural development (DAFF, 2014).

The core policy actions as indicated by DAFF (2014) include the following:

- Identify and establish pluralistic and integrated extension and advisory services partnerships with private and non-profit organisations (at national, provincial and local levels).

- Establish provincial directorates for agricultural extension support services.
- Establish extension forums at national, provincial and district levels.
- Design and implement provincial strategies for agricultural extension support services.

#### **4.2.6 Promote a Commodity Value Chain Approach**

Smallholder producers in South Africa are still experiencing difficulties to access markets, fully participate in a commodity value chain and increase their value-add. A greater access to agricultural commodity value chains will improve quality and increase efficiency for competitiveness, incomes and reduce poverty. As noted by Panhwar (2014), value chain actors include input suppliers, producers, processors and buyers which are supported by a range of technical, business and financial service providers. The DAFF (2014) National Extension Policy took note that market-oriented agricultural support services require a diverse range of services to all role-players in the chain. Market-oriented agricultural support services should focus on all stakeholders in the system for it to run efficiently and effectively (Chipeta, Christoplos & Katz, 2008).

Although the developing countries still value technology transfer extension system, extension support should also enhance the skills and knowledge for both production and processing. This approach will facilitate access to markets and trade. The South African agricultural extension policy asserts a *“serious shift towards a value chain approach and Extension Practitioners have a major role to play in promoting the value chain approach to agricultural development. Such a shift calls for intensive investments in capacity building among Extension Practitioners to ensure effective and efficient support to producers”* (DAFF, 2014).

The core policy actions as indicated by DAFF (2014) include the following:

- Integrate marketing and value chain aspects into agricultural extension services activities. Extension Practitioners must become champions of the value chain approach to integrate comprehensive value chain aspects into farming operations.

- Support market access opportunities for producers (especially smallholders) by negotiating for marketing outlets including preferential procurement opportunities by state agencies, and others.

### 4.3 INSTITUTIONAL DELIVERY MECHANISMS

The South African public sector delivery system is based on three spheres of government. These spheres of government are expected to work co-operatively in a coordinated and integrated manner so as to improve governance (Republic of South Africa, 2005). The South African Government recognise that agricultural extension is a national and provincial competency. The lessons learnt from the benchmarking of best practices recommend a pluralistic and demand-driven system of extension. Its implementation should be multipronged and pluralistic such that it includes the three spheres of government, private sector and non-profit organisations. Worth (2015) confirmed that the policy implementation mechanism should be a well-coordinated partnership between *“public sector; private sector; NGOs; farmer organisations; and commodity organisations – specifically national, provincial, local governments, farmer organizations, other statutory bodies such as public entities, SETAs, and the private sector.”*

Forums are expected to be established at different spheres of government as institutional implementation mechanisms of the South African extension policy. There will be a National Extension Coordinating Forum, Provincial Extension Coordinating Forum and District Extension Coordinating Forum. These extension forums will be established in consultation with all relevant stakeholders to bring together all extension and advisory service providers. *“These forums are expected to identify priorities, develop a coordinated action plan for extension in the area, and ‘help local interest groups secure advice and support from higher levels”* (DAFF, 2014: 16 as cited by Worth, 2015).

It is the National Extension Policy requirement that *“extension and advisory services directorates will be established at provincial spheres of government. These directorates are envisaged to focus and co-ordinate state services in an effective, harmonised and recognised manner. They will be responsible for the design and*

*implementation of the respective provincial extension and advisory services strategies for the advancement of the agricultural development agenda. This will ensure provision of professional, financial and administrative support to personnel and the overall extension and advisory function” (DAFF, 2014).*

#### **4.4 MONITORING AND EVALUATION**

According to GFRAS (2012), to improve efficiency and effectiveness of extension and advisory services contribution to rural livelihoods, it is essential to monitor and evaluate its achievements. Monitoring and evaluation enables improved management of the outputs and outcomes while encouraging the allocation of effort and resources in the direction where there will be the greatest impact. Reliable information on outcomes and impacts of extension support services are a foundation for learning from experience. Monitoring and evaluation ensure that the strategic interventions and targeted support to improve agricultural extension support is made accountable to the beneficiaries of these services as well as to governments, farmer organisations, and other investors.

#### **4.5 CHAPTER SUMMARY**

Policy intervention measures necessary to respond to identified problems in the public agricultural extension support were outlined in this chapter. These measures are essential for further attainment of goals, objectives and core principles aimed at ensuring that all actors in the agriculture value chains enjoy equitable and optimum access to knowledge and skills, and have the capacity to explore opportunities for the advancement of their enterprises and livelihoods. Several core policy actions, which indicate intentions of the policy were also outlined in the chapter.

A decentralised and inclusive approach is recommended, where local district extension forums would be established in consultation with relevant stakeholders, i.e. private, social, public actors and researchers, to bring together all extension and advisory service providers in a coherent geographic grouping with similar structures being created provincially and nationally. However, for improved, effective and efficient contribution to rural livelihoods, it is essential to monitor and evaluate the

achievements of the agricultural extension support. High quality monitoring and evaluation based on reliable information about the outcomes and impacts of extension support are a foundation for structured learning from experience. Such efforts are essential to ensure that the strategic interventions and targeted support to improve agricultural extension support is made accountable to the clients of these services as well as to governments, farmer organisations, and other investors.

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## CHAPTER 5

# STATUS OF HUMAN CAPITAL IN SOUTH AFRICAN PUBLIC EXTENSION SERVICES

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### 5.1 INTRODUCTION

The quality, effectiveness and efficiency of agricultural public extension support service is often questioned. This chapter presents data obtained from the nine Provinces on the current status of human capital in South African agricultural extension support services. This is done to understand the number of Extension Practitioners and their current qualifications. The number and quality of Extension Practitioners in South Africa relates to the lack of capacity. In this study, quality refers to the qualifications obtained by individual Extension Practitioners as prescribed on the Norms and Standards for Agriculture (DoA, 2005).

This chapter includes the current budget and expenditure trends on Extension Practitioners. The objective is to assess the quality of available human resources and further respond to the research question of whether ‘there is value for money’. This is an assessment of whether the new policy on extension and advisory services can be implemented with the current workforce and budget.

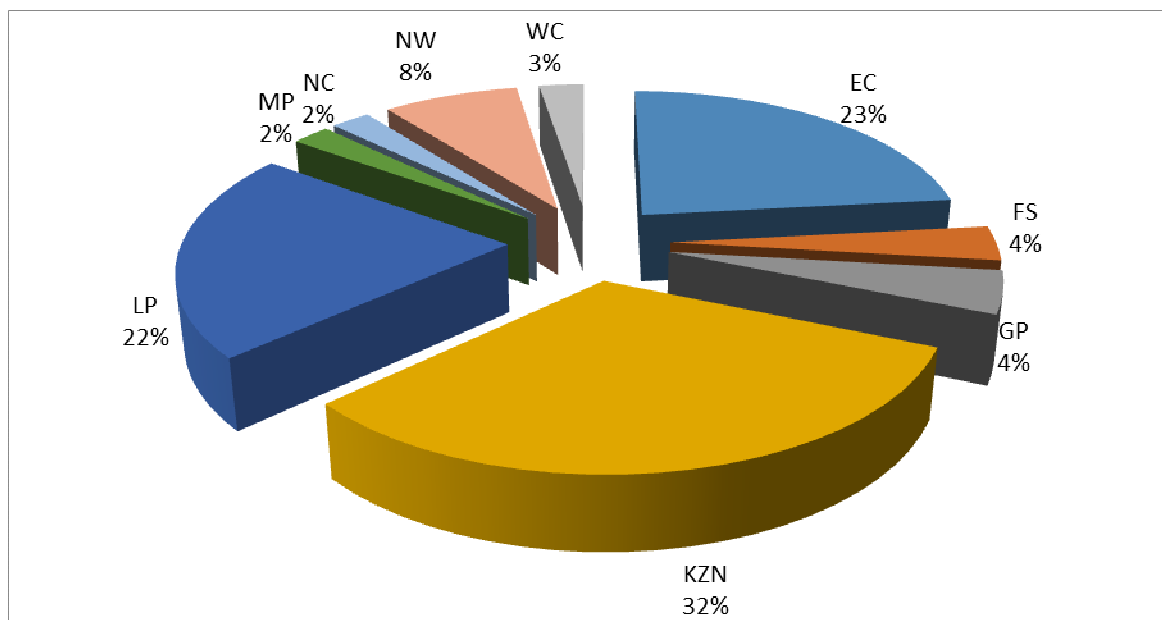
### 5.2 NUMBER OF PUBLIC EXTENSION PRACTITIONERS

#### 5.2.1 Distribution of Public Extension Practitioners by province

The mandate of the agricultural public extension support services in South Africa is to facilitate effective and efficient extension and advisory services to ensure knowledge transfer and skills development as the foundation for equitable, productive, competitive, profitable and sustainable agriculture sector. The goal is to ensure that all actors in the agriculture value chains enjoy equitable and optimum access to knowledge and skills, and have the capacity to explore opportunities’ for

the advancement of their enterprises and livelihoods (DAFF, 2014). The main objective of the agricultural extension function in Government is to eradicate poverty, build a strong economy and strengthen food security through increase in diverse production. However, the capacity of the agricultural public extension support services is always questioned by various stakeholders, role players and clients.

The Department of Agriculture, Forestry and Fisheries has a concurrent function with Provincial Departments of Agriculture (PDA's) on Extension and Advisory Services. DAFF is responsible for policy formulation, provision of frameworks and guidelines, funding advocacy and coordination. PDA's are responsible for ensuring success and productivity of the agricultural sector, providing funding and support to programmes and implementation mainly. DAFF in its profiling study of government-employed Extension Practitioners conducted in 2007 revealed the extension: farmer ratio was unrealistic. In predominantly rural provinces (especially former homelands), one extension officer was servicing more than 1 700 producers. The distribution of Extension Practitioners as at end 2014/15 by province is shown in Figure 5.1.



**Figure 5.1: Distribution of Extension Practitioners by province (n=3 030)**

Source: Research survey (2016)

According to the information supplied, there were 3 030 employed Extension Practitioners. The largest number of Extension Practitioners were in KwaZulu-Natal



Province constituting 32% of the total; followed by Eastern Cape Province at 23% and Limpopo Province at 22%. Mpumalanga and Northern Cape Province had the smallest number of appointed extension personnel, at 2% of the overall population.

### **5.2.2 Extension Practitioner: Producer ratio**

One of the key pillars of Extension Recovery Plan is recruitment of Extension Practitioners (DAFF, 2011a). Spielman *et al.* (2011: 25) reported that similar extension programmes in Ethiopia increased the number of extension personnel almost threefold over the five years to 2011. The drive behind the recruitment of Extension Practitioners is to attain an ideal extension to producer ratio as recommended by DoA in 2005 on the Norms and Standards for Extension and Advisory Services in Agriculture. IFPRI (2012) made emphasis on this where they observed that Ethiopia planned for one of the strongest extension agent-farmer ratios found in the world today through its target of one Extension Practitioner for every 476 farmers and today Ethiopia has more than 75 000 Extension Cadre. The demand for agricultural extension support services varies according to the nature of production practices as well as the state of advancement. The recommended South African ratios are as indicated in chapter four under Section 4.7.2.

Compared to the number of Extension Practitioners in 2007 (2 210 profiled in 2007), there has been a 37% increase in the number of Extension Practitioners to 3 030 in 2016. Such an increase could be attributed to the Extension Recovery Programme. Recruitment of additional 820 Extension Practitioners increased human capacity on the ground. The Statistics South Africa 2013 General Household Survey (Stats SA, 2013) indicates that there is a total of 2.82 million farmers actively practicing agriculture which implies that 3 030 Extension Practitioners are responsible for rendering agricultural extension support services to those farmers. Although the number of Extension Practitioners has increased in the past five years due to the recruitment drive through ERP, producers at subsistence and smallholder levels are still serviced through a low extension producer ratio. Taking the 2.82 million farmers being serviced by only 3 030 Extension Practitioners means that a ratio would be 1:965 which stretches the capacity of Extension Practitioners to the limit. If a ratio of 1:500 is to be used as a benchmark for implementation of agricultural extension

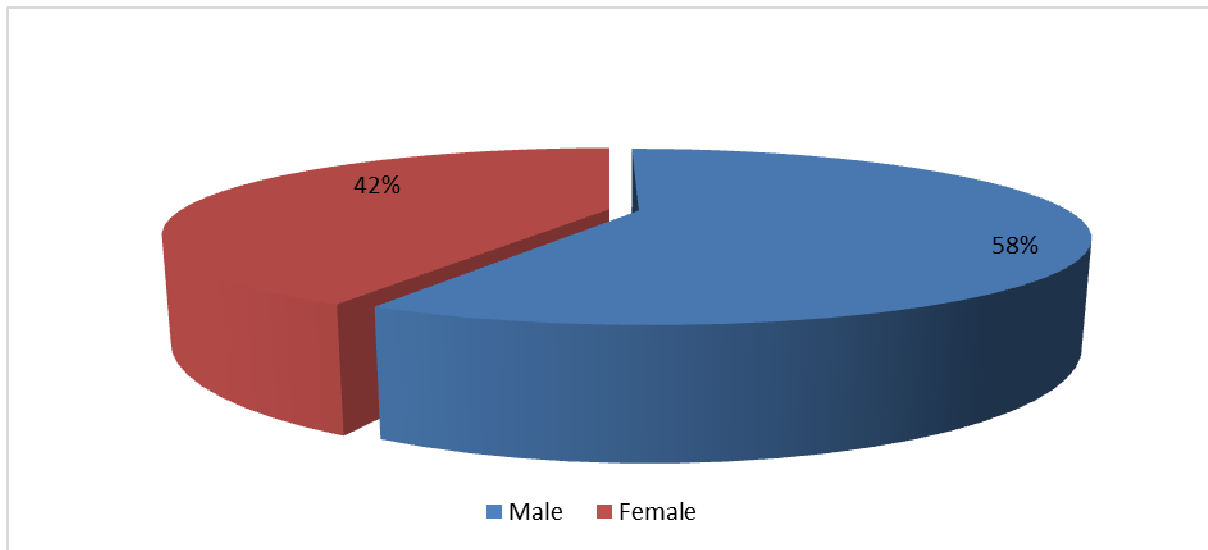
support services to an estimated total number of 2.82 million farmers effectively and efficiently, DAFF needs a total of 5 640 Extension Practitioners. Based on 2014/15 data, to achieve the recommended ratio as per DAFF norms and standards of 2005, an additional extension personnel of about 2 718 should be recruited.

### 5.3 SOCIO-ECONOMIC INFORMATION

This section presents the socio-economic characteristics of extension personnel at a national level. An analysis of the composition of extension personnel by gender, age and race reflects the agricultural sector's level of compliance with the relevant national policies.

#### 5.3.1 Gender composition

The gender composition of the extension personnel in this study is reflective of the male dominance in the agricultural sector. As shown in Figure 5.2, the majority of Extension Practitioners were male at 58% compared to 42% representation of women.



**Figure 5.2: Gender composition of Extension Practitioners**

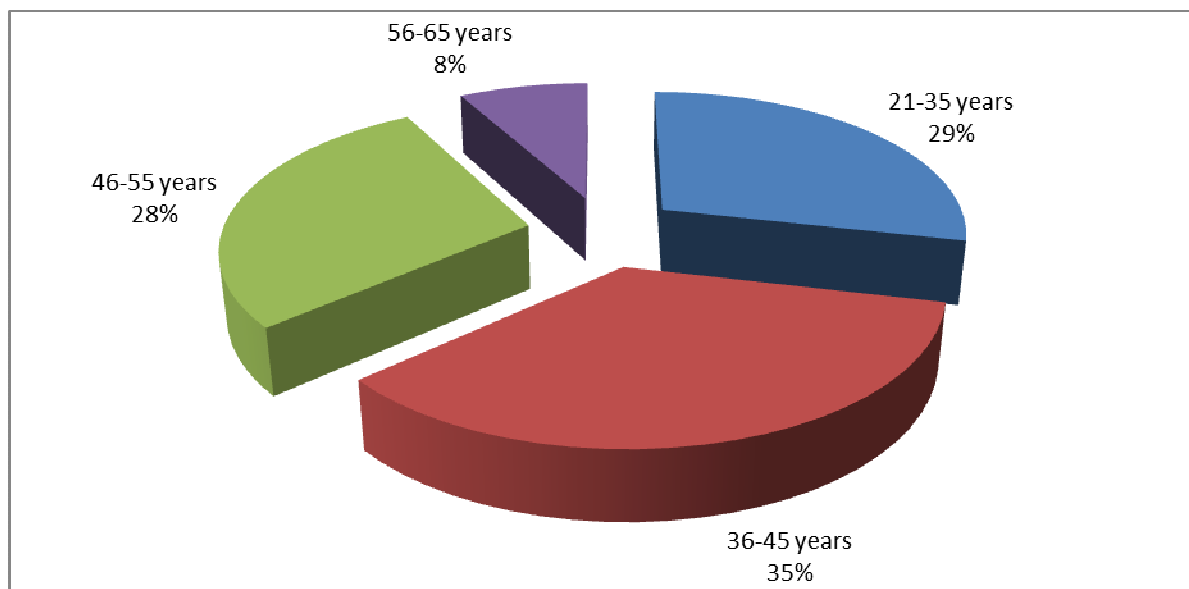
Source: Research survey (2016)

Gender mainstreaming in the agricultural sector should meet the commitment made by Government of South Africa to accelerate the empowerment of women and

address the triple burden challenges of unemployment, poverty and inequality. The need to mainstream gender and women’s issues into the implementation of the National Policy on Extension and Advisory Services is that of working towards women’s economic empowerment.

### 5.3.2 Age distribution of Extension Practitioners

The purpose of this section is to determine whether South African agricultural sector has young inexperienced extension personnel; or old aging work force that needs to be replaced by fairly young and middle aged Extension Practitioners. The age distribution of Extension Practitioners for the nine provinces of South Africa is shown in Figure 5.3.



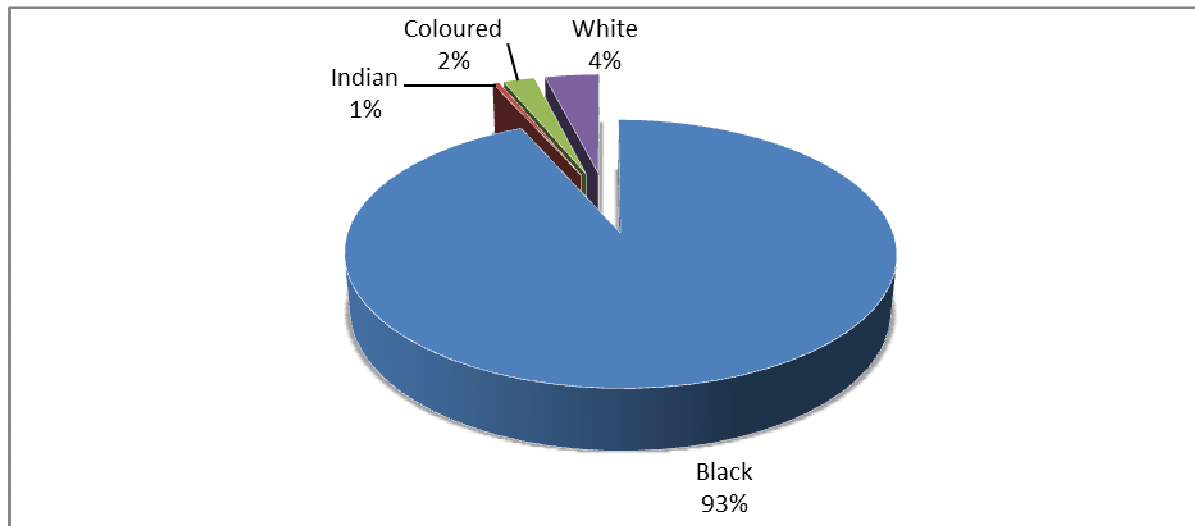
**Figure 5.3: Distribution of Extension Practitioners by age group**

Source: Research survey (2016)

According to Figure 5.3, the majority (35%) of Extension Practitioners fall in the age group between 36 to 45 years, followed by 29% of them in the age group of 21 to 35 years. Only 8% of Extension Practitioners fall in the age group of 56 to 65 years. These findings depict extension personnel that are generally fairly young and middle aged. This group is generally regarded as energetic and mostly willing to learn more on research and developmental issues to be innovative in their sector, if age alone is considered.

### 5.3.3 Race distribution of Extension Practitioners

The distribution of Extension Practitioners by race is shown in Figure 5.4. The racial distribution of Extension Practitioners in this study is reflective of the Black Africans dominance of Black Africans (93%) followed by whites (4%), coloureds (2%) and Indians (1%).



**Figure 5.4: Distribution of Extension Practitioners by race**

Source: Research survey (2016)

The data collected showed a strong racial mix distribution in Northern Cape and Western Cape Provinces only.

## 5.4 ACADEMIC QUALIFICATIONS OF EXTENSION PRACTITIONERS

The purpose of this section is to assess the quality of the available human resources that provide agricultural extension services in South Africa. The Norms and Standards for Extension and Advisory Services in Agriculture that were published in 2005 recognised the dynamic nature of the agricultural extension and advisory services profession due to the changing policy environment and clients' needs. This confirmed the notion that agricultural extension services should be provided by well-trained, motivated and dedicated staff that is skilled in agricultural production, business and communication techniques. It further prescribed that for anyone to practice as an Extension Practitioner in South Africa should have a four year

Bachelor's Degree. This, therefore, became a minimum qualification requirement (DoA, 2005). The question to be asked is 'what is the qualification status of the current cadre of Extension Practitioners as at 2014/15 financial year?' Table 5.1 shows the percentage compliance to the Norms and Standards for Extension Services in Agriculture per province. The data in Table 5.1 shows an increase from 20% in 2007 to 72% (only 438 Extension Practitioners from 2 210 profiled in 2007 had the minimum required four year qualification or more) since the implementation of the extension recovery plan in 2008.

**Table 5.1: Status on qualifications of Extension Practitioners by province**

Province	No. of Extension Practitioners	Qualifications		Percentage Compliance to Norms and Standards
		Less than a degree	Degree or more	
EC	680	334	346	51
FS	105	19	86	82
GP	129	4	125	97
KZN	933	244	689	74
LP	635	146	489	77
MP	173	43	130	75
NC	67	9	58	87
NW	232	42	190	82
WC	76	8	68	89
<b>Total</b>	<b>3 030</b>	<b>849</b>	<b>2 181</b>	<b>72</b>

Source: Research survey (2016)

According to Table 5.1, there is about 2 181 employed Extension Practitioners with the required minimum requirement of a four year degree. The highest compliance to this minimum requirement is found in Gauteng Province constituting of 97%, followed by Western Cape Province at 89% and Northern Cape Province at 87%. Eastern Cape Province has the lowest compliance at 51% which is the only province below the overall provincial average compliance percentage of 72%. These findings imply

that 849 Extension Practitioners need to enroll and upgrade their qualifications through the available funds of the Extension Recovery Plan.

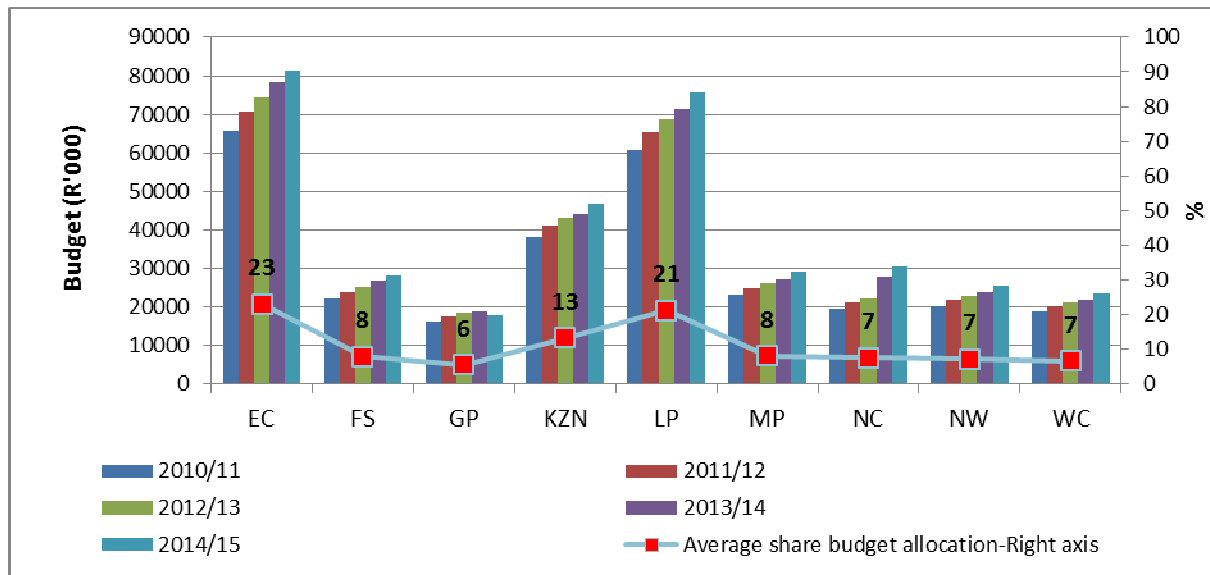
## **5.5 PUBLIC EXPENDITURE TRENDS ON EXTENSION PERSONNEL**

The purpose of this section is to track the public expenditure on Extension Practitioners over the last five years (2010/11 – 2014/15 financial years). For this study the public expenditure on this group of personnel could only be tracked successfully within the available time includes the funds provided through the Extension Recovery Plan. This formed the basis of expenditure review as the only harmonized provincial perspective that will provide pointers to the execution of the budget.

Just like the practice of the Government of India (2010), the ERP recognises the importance of developing a professional extension cadre. The ERP is visualized to have a significant impact on the capacitation, transformation and re-orientation of agricultural extension service to make a meaningful contribution towards the realization of food security for all South Africans. ERP funding has been provided by National Treasury in the form of a grant since 2008/9. The provincial budget allocation is detailed in Section 5.5.1.

### **5.5.1 Budget allocation by province (R'000)**

Figure 5.5 shows the budget allocation per province for 2010/11 to 2014/15 financial years. Eastern Cape Province had a bigger share of the total budget allocated during the period of the expenditure review (23%). The second highest is Limpopo Province (21%) and KwaZulu-Natal is the third province that received a better share (13%). Gauteng Province had the lowest share of the total budget allocation (6%). Eastern Cape, Limpopo and KwaZulu-Natal Provinces were identified on the profiling report of Government Extension and Advisory Services in 2007 for having an acute human resource capacity gap. The trend on budget allocation could also be based on these three provinces being the poorest in South Africa. Both Eastern Cape and Limpopo Province remain trapped in structural poverty that negatively affects the provincial society's health and socio-economic profile (HSRC, 2011).

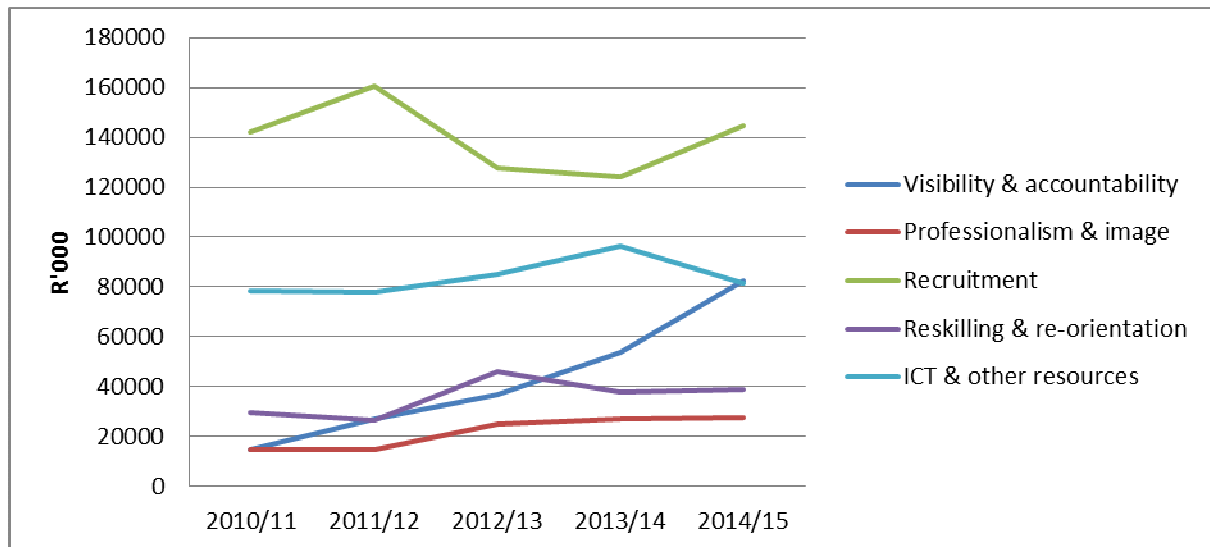


**Figure 5.5: Budget allocation for 2010/11 to 2014/15 financial years by province**

Source: Research survey (2016)

### 5.5.2 Budget allocation per pillar (R'000)

The allocated grant funds to provinces were further broken down per pillar. This measure was put in place to standardize the allocation and spending of funds into the prioritized deliverables. Figure 5.6 shows budget allocation per pillar for 2011/12 to 2014/15 financial years. There is an indication of compliance to the recommended funding range per pillar whereby visibility and accountability was required to be budgeted within a range of 3-10%; image and professionalism a range of 2-10%; recruitment on a range of 45-55%, reskilling and re-orientation on 5-8% and ICT provision within a range of 30-32% of the available funds.



**Figure 5.6: Budget allocation per pillar for 2010/11 to 2014/15 financial years**

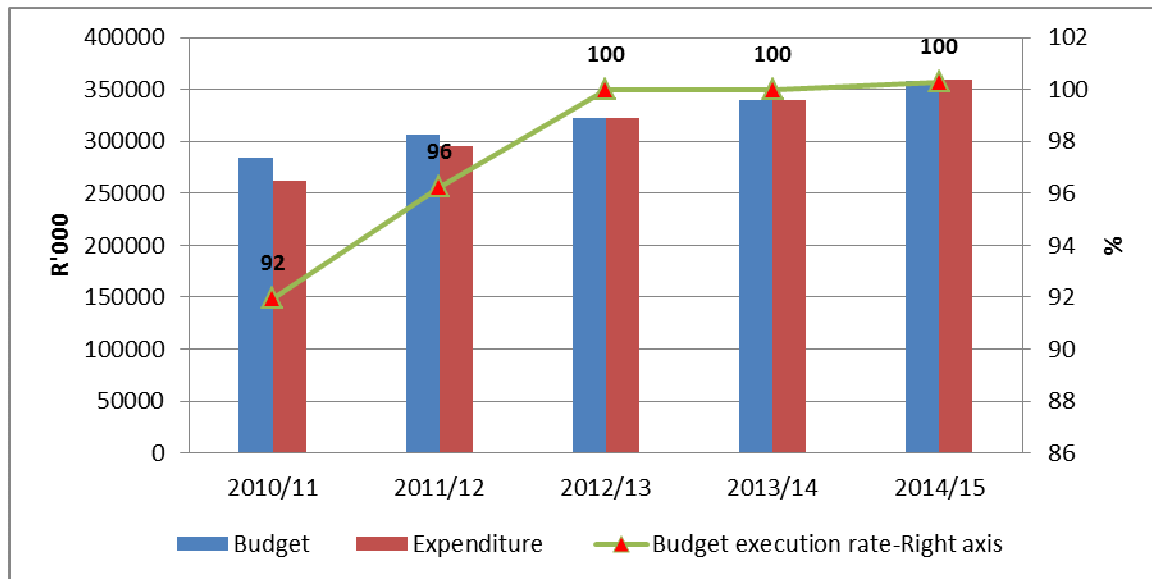
Source: Research survey (2016)

Figure 5.6 is reflective of the standardized measures of allocation and spending of funds according to the prioritized deliverables. It is, therefore, significant for recruitment to receive the biggest share of the budget during the period under review to ensure that agricultural extension support service is delivered within the recommended extension to producer ratio. The ICT and other equipment or necessary tools received a bigger share of the budget and is the second highest after recruitment. This was meant to ensure that Extension Practitioners have the necessary tools and equipment (such as laptops, 3G cards, vehicles, decision support system and digital pens) and are well capacitated to be able to deliver effective and efficient agricultural extension services. The promotion of professionalism and improvement of image received the lowest share of the budget. Associated costs, such as cost of travel and meetings are covered in another SCOA item of government budget and are not part of the pillars' budget allocation.

### 5.5.3 Total budget compared to actual total expenditure on extension personnel for nine provinces

A comparison between the actual total expenditure and budget allocation for extension personnel is shown in Figure 5.7.





**Figure 5.7: Total budget VS total expenditure for nine provinces of South Africa**

Source: Research survey (2016)

According to Figure 5.7 from 2012/13 to 2014/15 financial years, there was 100% utilization of budgeted funds allocated. Whilst it could also be observed that during 2010/11 and 2011/12 financial years, under-spending of budgeted fund was experienced. Unspent funds could either be rolled-over to the subsequent financial years or returned back to the National Treasury. The former is subject to approval of a submission by the Director General. The average expenditure is 98% for the duration of the five year review period. The assumption is that during the first two financial years the personnel implementing the programmes were less as the department was still learning the programme implementation mechanisms hence lower budget execution rates. However, as the years progressed, additional personnel were employed as the department became more accustomed to the programmes leading to higher budget execution rates. This shows a strong need for this financial resource to improve the state of agricultural extension support services in the country. This funding had a significant impact on improved capacity of the service in terms of human resources, skills development and ICT tools and equipment.

#### 5.5.4 Funding mechanism to capacitate and revitalise agricultural extension

The extrapolation that could be deduced from the above results of public expenditure on extension personnel is characterised into four distinct but interacting phases. These are phases at which the funding mechanism to capacitate and revitalise agricultural extension needs to be followed. These phases include the Framework; Funding; Capacity development and Empowerment; and Accountability. This funding mechanism focuses on the revitalisation of public agricultural extension which is expected to result in improved and effective service delivery. Figure 5.8 illustrates the overall funding mechanism followed by the South African Government to capacitate and revitalise agricultural public extension services.



**Figure 5.8: Funding mechanism to capacitate and revitalise agricultural extension**

Source: Research survey (2016)

The phases outlined in Figure 5.8 resemble the steps to be followed in designing effective revitalisation of agricultural extension.

**Framework:** this is the first phase. It's a guiding document to justify the need for the programme on the basis of its expected benefits. It can also be referred to as a turnaround strategy to revamp agricultural public extension services. The framework

provides a snapshot of the strategic objectives, mode of implementation, institutional mechanisms and monitoring and evaluation. The framework seeks to address institutional internal challenges of agricultural public extension services in developing countries. It displays what informed formation of the objectives and outlines the expected outcomes on improving human capital of extension personnel who, in turn, will realise the true meaning of agricultural extension services.

**Funding:** this is the phase where decisions regarding the investment of public funds from National Treasury (or any other National Department) are taken, and where large amounts of funds are administered and allocated. The second phase is largely concerned about interactions between National Departments, Provincial Departments of Agriculture and relevant service providers (which might include institutions of higher learning).

**Capacity development and empowerment:** according to GFRAS (2010) this involves a process whereby people, organisations, and society as a whole unleash, strengthen, create, adapt, and maintain capacity over time. This includes improving individual skills and abilities, strengthening an organisation's vision and mission or its organisational capabilities, developing more effective and dynamic relationships among the actors, and helping to promote collaboration and alliances.

Phase three on this funding mechanism is regarded as the core phase on capacitation and empowerment of Extension Practitioners. Extension Practitioners need skills in building social capital, facilitating discussions (such as Farmer to Farmer, Farmer Field School participatory tools, etc.), and coaching stakeholders in natural resource management and commodity value chains. Effective advice is no longer a matter of simply providing messages about set technological packages to rural people. There is a shift from technical approaches to those that are organisational, cultural, and social. Extension Practitioners must shift from telling producers to empowering clientele to deal with uncertainties and variability such as climate change and market trends. These tasks require professional soft skills in critical thinking, problem solving, organisational development and negotiation. For Extension Cadre development, state budget allocation is needed. Funding mechanisms and plans must reflect the human resource crisis and include concerted and sustainable investment strategies to address it. This phase provides an opportunity to equip Extension Practitioners with appropriate skills to deal with the ever-changing and complex arena in which they operate.

**Accountability:** much is still unknown about the effectiveness of agricultural extension programmes. This, therefore, involves reporting on output. All Provincial Departments of Agriculture (in the case of South Africa) provide a portfolio of evidence. The various provincial reports should be consolidated to give a national picture on the progress turnaround strategy implementation. Accountability in this case will be towards National Treasury (or any other National Department). It is expected that this phase will further improve access and governance of financing through better information, simplification of procedures and monitoring results with greater transparency.

## 5.6 CHAPTER SUMMARY

This chapter presented characteristics of extension personnel. Budget allocation and expenditure on extension personnel was also presented. The need to mainstream gender and women's issues into the implementation of the National Policy on Extension and Advisory Services was clear since the majority of Extension Practitioners were male. Racial distribution of Extension Practitioners was reflective of the Black Africans dominance except in the Northern Cape and Western Cape Provinces. Noteworthy is that the Extension Practitioner: producer ratio remains low in South Africa. There is a total of 2.82 million farmers actively practicing agriculture, implying that 3 030 Extension Practitioners are responsible for rendering agricultural extension support services to those farmers. Although the number of Extension Practitioners has increased in the past five years due to the recruitment drive initiated through ERP, producers at subsistence and smallholder levels are still serviced through a low extension producer ratio. DAFF needs a minimum of 5 640 Extension Practitioners if a ratio of 1:500 were to be used as a benchmark for implementation of the agricultural extension support services to an estimated total number of 2.82 million farmers. Regarding budget allocation, the analysis shows that provinces were variably funded for delivery of extension support services. However, provinces were able to execute their budget up to an average 100% each financial year.

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## **CHAPTER 6**

### **REVIEW OF EXPENDITURE AND EXTENSION BUDGET ALLOCATION**

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#### **6.1 INTRODUCTION**

Since the dawn of democracy in 1994, the Department of Agriculture (currently known as the Department of Agriculture, Forestry and Fisheries since 2009) had a vision of delivering effective agricultural support services to the agricultural community, particularly previously disadvantaged subsistence, smallholder and commercial producers. Several policy reforms and support programmes were designed, developed and implemented in order to ensure access to agricultural support and service delivery to the beneficiaries of land reform, farmers in communal areas and other vulnerable groups.

This chapter presents budget allocation and expenditure data obtained from the nine provinces and the Department of Agriculture, Forestry and Fisheries (DAFF) on farmer support programmes for 2010/11 to 2014/15 financial years. An evaluation/assessment was done on budgeted amounts that get to support farmers to produce. The budget of agricultural producer programmes for 2010/11 to 2014/15 financial years were presented and analysed further. This was done to determine the current expenditure trends on farmer agricultural support services; provide initial baseline for future review, track public expenditure, assess and evaluate whether the current budgetary trends will be sufficient to implement the newly developed national policy on extension and advisory services.

#### **6.2 FARMER SUPPORT PROGRAMMES**

This section illustrates 2010/11 to 2014/15 budgetary trends on the five farmer support programmes, namely, the Comprehensive Agricultural Support Programme

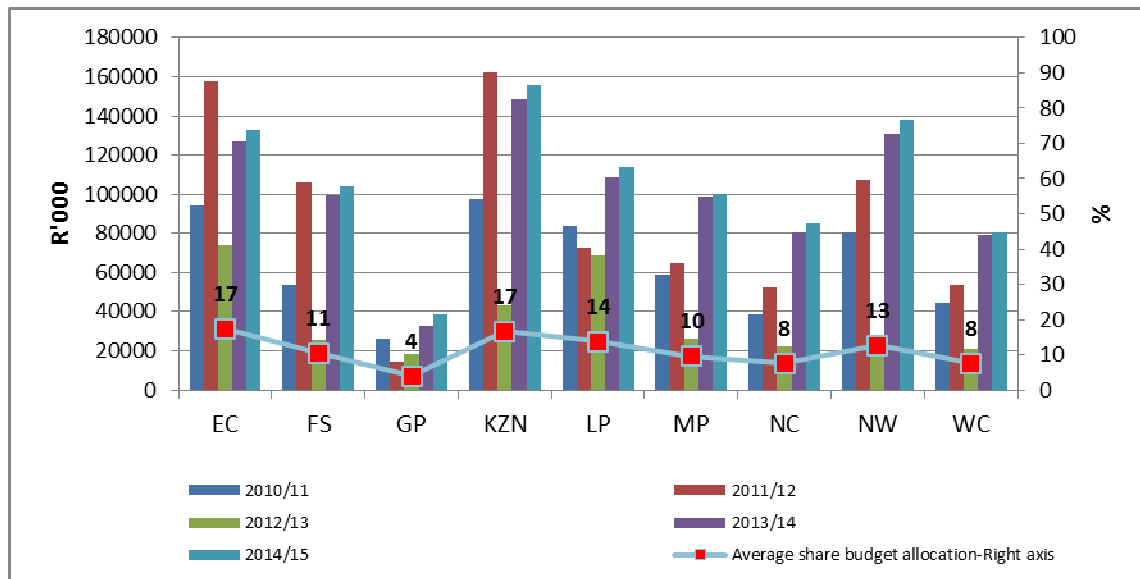
(CASP), Ilima/Lestema, the Integrated Food Security and Nutrition Programme (IFSNP), the National LandCare Programme (NLP), and the Disaster Assistance Scheme to the producers.

### **6.2.1 Comprehensive Agricultural Support Programme**

CASP was introduced in 2003 and launched in KwaZulu-Natal in 2004 (FAO, 2009). CASP is a schedule 4 grant with its main aim being to enhance the provision of support services to promote and facilitate agricultural development. Within CASP, service provision is streamlined to the targeted four different levels of clients within the farming continuum, namely, the hungry (supported through advice and food emergencies through the agricultural food packs and dealing with food crises); subsistence and household food producers (supported through food production and include the special programme on food security (SPFS) and the Integrated Food and Nutrition Programme (IFSNP) where the provision of starter packs is made); farmers (supported through farm level support and include the beneficiaries of the Land Redistribution for Agricultural Development (LRAD) programme and other strategic programmes e.g. the rehabilitation of the irrigation schemes); and general public (to ensure that business and the regulatory environment is conducive to support agricultural development and food safety). The purpose of CASP is, therefore, to establish financing mechanisms - the 'sunrise' subsidies and to streamline and align service delivery within the three tiers of government by creating enabling conditions for beneficiaries through the 'sunrise' package. CASP support is funded and organised into six pillars, namely, information and knowledge management; technical and advisory assistance, and regulatory services; marketing and business development; training and capacity development; facilitating access to appropriate on-and off-farm infrastructure and production inputs; and financial assistance (DoA, 2004: 5).

CASP contributes to the achievement of the Government's Outcome 4 of "decent employment through economic growth"; Outcome 7 of "comprehensive rural development and land reform" and Outcome 10 of "sustainable natural resources management" (DAFF, 2015a: 18).

Figure 6.1 shows CASP budget allocation for 2010/11 to 2014/15 financial years for the nine provinces of South Africa.



**Figure 6.1: CASP budget for nine provinces of South Africa**

Source: Research survey (2016)

It is evident in Figure 6.1 that the 2014/15 financial year received the highest budget allocation of about 27%. The financial year of 2013/14 received the second highest budget allocation of about 26% of the total allocated budget from 2010/11 to 2014/15 financial years. The 2012/13 financial year was allocated the lowest budget for CASP projects at 9% of the total budget allocation for the 2010/11 to 2014/15 financial years.

The highest percentage change in budget allocation of about 64% was observed in 2013/14 financial year. The second highest percentage change in budget allocation of about 26% was in 2011/12 financial year. It was only in 2012/13 financial year where there was a negative percentage change as the amount of budget allocated was less than the amount allocated in 2011/12 financial year.

A trend can also be observed that KwaZulu-Natal, Eastern Cape, Limpopo and North West Provinces received higher budget allocations of CASP grant compared to the other five provinces. It was only during 2011/12 financial year that the Free State

Province rated forth in budget allocation replacing Limpopo Province in the top four provinces that received higher allocation during the period of study.

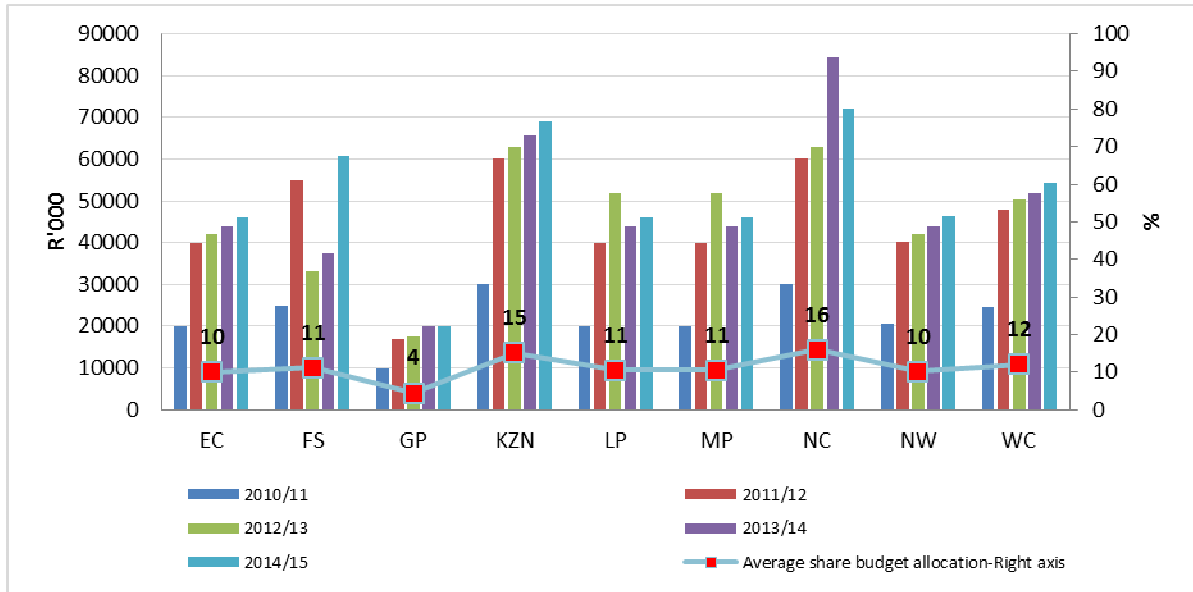
The average share of budget allocation by province for the financial years 2010/11 to 2014/15 ranged between 4 and 17% with Eastern Cape and KwaZulu-Natal Provinces having the highest share of 17% each. Gauteng Province had the least average share of the budget (4%).

### **6.2.2 Ilima/Letsema Conditional Grant**

The Ilima/Letsema Programme was initiated by the Department of Agriculture in 2008. The goal of the grant is to reduce poverty through increased food production initiatives. The primary aim of the programme was to address the triple challenges of poverty, unemployment and inequality. This is done through the provision of starter packs, production inputs and mechanization services. The programme also invests in farming infrastructure so as to unlock the agricultural potential, for example, revitalization of irrigation schemes. This is one of the key poverty eradication initiatives of Government through increased food production particularly for vulnerable households with more emphasis on women, youth and smallholder producers (DAFF, 2015b: 1).

Since inception, the programme has been allocated a conditional grant of R1, 674 billion (DAFF, 2015b: 1) but this research study focuses only on Ilima/Letsema budget for 2010/11 to 2014/15 financial years in the nine provinces of South Africa. Trends in the budget allocation are presented in Figure 6.2.





**Figure 6.2: Ilima/Letsema budget for nine provinces of South Africa**

Source: Research survey (2016)

According to Figure 6.2, the Ilima/Letsema grant funding increased as the years progressed from 2010/11 to 2014/15 financial year. The 2010/11 financial year was granted the lowest budget of only 10% of the total allocation during the five year review period. The 2014/15 financial year received the highest budget allocation of about 24% and 2013/14 was the second highest with 23% of the total allocated budget for 2010/11 to 2014/15 financial years.

A 50% increase in budget allocation was experienced in the 2011/12 financial year and this was the highest percentage change during the years under investigation. The second highest percentage increase of 6% was in the 2014/15 financial year whilst the lowest percentage increase of 4% was in the 2012/13 financial year.

In contrast to the trend observed on CASP funding, the four provinces that received higher budget allocations of Ilima/Letsema conditional grant funding as shown in Figure 6.2 were Northern Cape, Western Cape, Free State and KwaZulu-Natal compared to other five provinces. It was only during the 2012/13 financial year that both Limpopo and Mpumalanga Provinces came second in budget allocation replacing Free State Province in the top four provinces that received higher budget allocation. However, it should be noted that in both CASP and Ilima/Letsema

conditional grant funding, Gauteng Province received the lowest budget allocation than all other provinces.

Regarding average share of budget allocation over the five years, Northern Cape Province had the highest average share of 16% while Gauteng Province had the least average share of Ilima/Lestema budget allocation (4%).

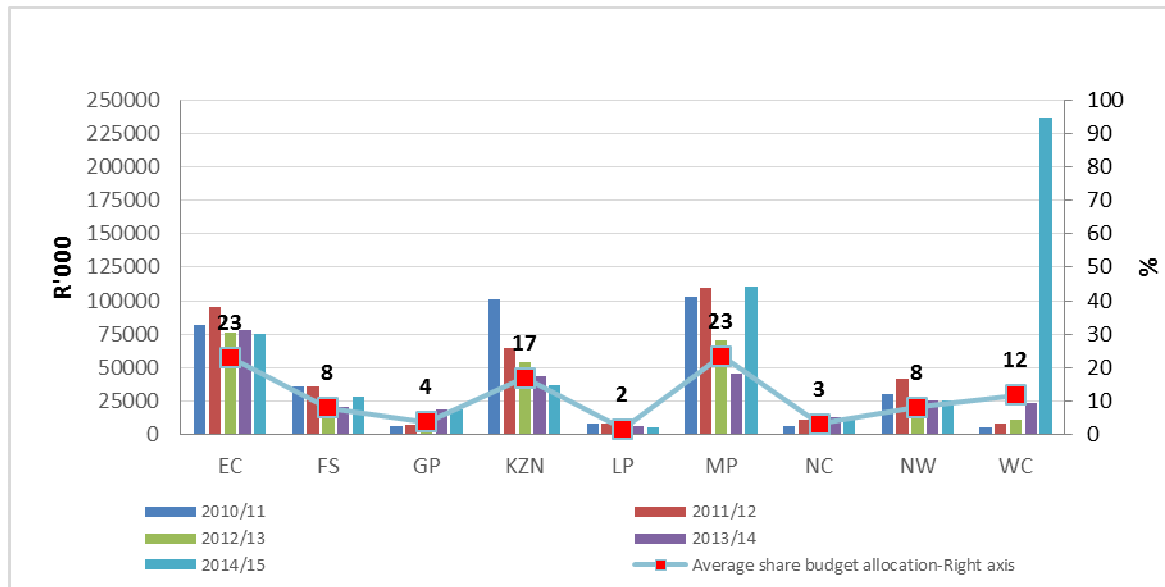
### **6.2.3 Integrated Food Security and Nutrition Programme**

Food security is part of the section 27 Constitutional rights in South Africa (Republic of South Africa, 2001). On these rights, the Constitution states that every citizen has the right to have access to sufficient food and water, and that the state must by legislation and other measures, within its available resources, avail to progressive realization of the right to sufficient food.

The Reconstruction and Development Programme (RDP) in 1994 identified food security as a priority policy objective. As a result, the Government reprioritised public spending to focus on improving the food security conditions of historically disadvantaged people. That policy resulted into increased spending in social programmes of all spheres of government such as school feeding schemes, child support grants, free health services for children between 0-6 years, for pregnant and lactating women, pension funds for the elderly, working for water and community public works programmes. Provincial Governments developed a number of different food security initiatives to align themselves with the prescripts of the Constitution, National Government policies and frameworks. Among some of such Provincial Food Security Initiatives is the Eastern Cape Province Massive Food Production Programme as well as Siyazodla Programme; Mpumalanga Province Masibuyele Emasimini Programme; KwaZulu-Natal's One Garden-One Household Programme which includes community food garden initiatives and Xoshindlala.

The Integrated Food security and Nutrition Programme was initiated in 2002. The vision of the programme was to attain a universal physical, social and economic access to sufficient, safe and nutritious food by all South Africans at all times to meet their dietary and food preferences for an active and healthy life. Its goal was to

eradicate hunger by 2015, malnutrition and food insecurity (DoA, 2002: 6). To reach this target, a strategic objective was to increase domestic food production by providing support services to farmers. The food security budget for various provinces for 2010/11 to 2014/15 financial years is shown in Figure 6.3.



**Figure 6.3: Food security budget for nine provinces of South Africa**

Source: Research survey (2016)

It can be observed in Figure 6.3 that Eastern Cape, KwaZulu-Natal and Mpumalanga were the three main Provincial Governments that budgeted more funds for food security programmes during 2010/11 to 2013/14 financial years. Whereas, in 2014/15 financial year Western Cape Province had the highest budget allocation than all the other eight provinces and it even doubled and in some cases tripled the allocated budget by other provinces. The second highest province was Mpumalanga with Eastern Cape Province being the third.

The 2014/15 financial year received the highest budget allocation of about 30%. The second highest allocation was during both 2010/11 and 2011/12 financial years with 20% of total allocated budget. Whilst both 2012/13 and 2013/14 financial years came third and the lowest budget allocation on food security programmes of 15%. During the 2014/15 financial year, a significant 50% increase of the food security budget was experienced and this was the highest percentage change during the years

under investigation. The lowest percentage change of -32% was in the 2012/13 financial year.

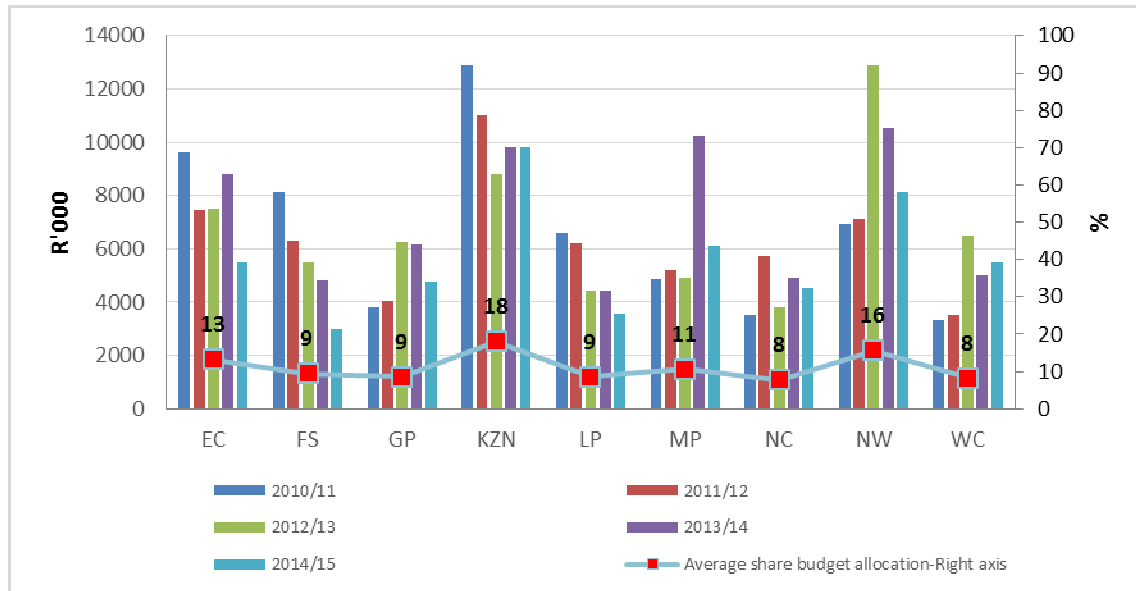
The average share of budget allocation on food security by province for the financial years 2010/11 to 2014/15 ranged between 2 and 23%. Eastern Cape and Mpumalanga Provinces had the highest share of budget allocation in the five years (23%) while Limpopo Province had the least share (2%).

#### **6.2.4 National LandCare Programme**

The National LandCare Programme (NLP) was initiated by the Department of Agriculture in 2001. The vision of the Programme is to have communities and individuals adopt an ecologically sustainable approach to the management of South Africa's environment and natural resources, while improving their livelihoods. This means people use the soil, water and vegetation resources in such a manner that their own quality of life is improved and future generations will also be able to use them to satisfy their needs. The implication is that cultivation, livestock grazing and harvesting of natural resources should be managed in such a manner that degradation (such as soil erosion, nutrient loss, loss of components of the vegetation, increased run off of water, etc.) is curtailed. To achieve this, the Department of Agriculture, Forestry and Fisheries gives support for natural resource management through the NLP. Through this programme, community groups, provincial and local governments are encouraged to responsibly manage and conserve the land, vegetation, water and biological diversity in their local area (DoA, 2001b:5).

The goal of the NLP is to develop and implement integrated approaches to natural resource management in South Africa, which are efficient, sustainable, equitable, and consistent with the principles of ecologically sustainable development. Farmer participation and strong institutional support structures and incremental change to existing farming practices are key to the success of the strategy. LandCare investment is intended to provide resources and incentives that facilitate the achievement of the NLP objectives through focusing on major themes such as WaterCare, SoilCare, VeldCare, Junior land Care, and Small Community Grants.

Investment towards the above themes is expended through Provincial Departments of Agriculture (DoA, 2001b: 5). The LandCare Programme budget for various provinces for 2010/11 to 2014/15 financial years is shown in Figure 6.4.



**Figure 6.4: LandCare budget for nine provinces of South Africa**

Source: Research survey (2016)

According to Figure 6.4, KwaZulu-Natal Province was the dominant province appearing in the top three provinces that received a higher allocation of LandCare budget across the years under review. Eastern Cape Province was the second highest in 2010/11 and 2011/12 but became the third on budget allocated in the 2012/13 financial year. During the 2012/13 and 2013/14 financial years, North West Province received the highest budget allocation. Mpumalanga Province appeared twice on the top three and was the second highest in 2013/14 whilst it was third during the 2014/15 financial year.

The 2014/15 financial year had the lowest budget on the LandCare programme (18% of the total budgeted amount) during the five year study period. While, the 2013/14 financial year received the highest budget allocation of about 22% and 2012/13 being the second highest with about 21%. The highest percentage increase (7%) of LandCare budget was experienced in 2012/13 and the lowest of -27% was in 2014/15 financial year.

The average share of budget allocation by province for the financial years 2010/11 to 2014/15 ranged between 8 and 18%. KwaZulu-Natal Province had the highest share of budget allocation in the five years while Northern Cape and Western Cape Provinces had the least shares.

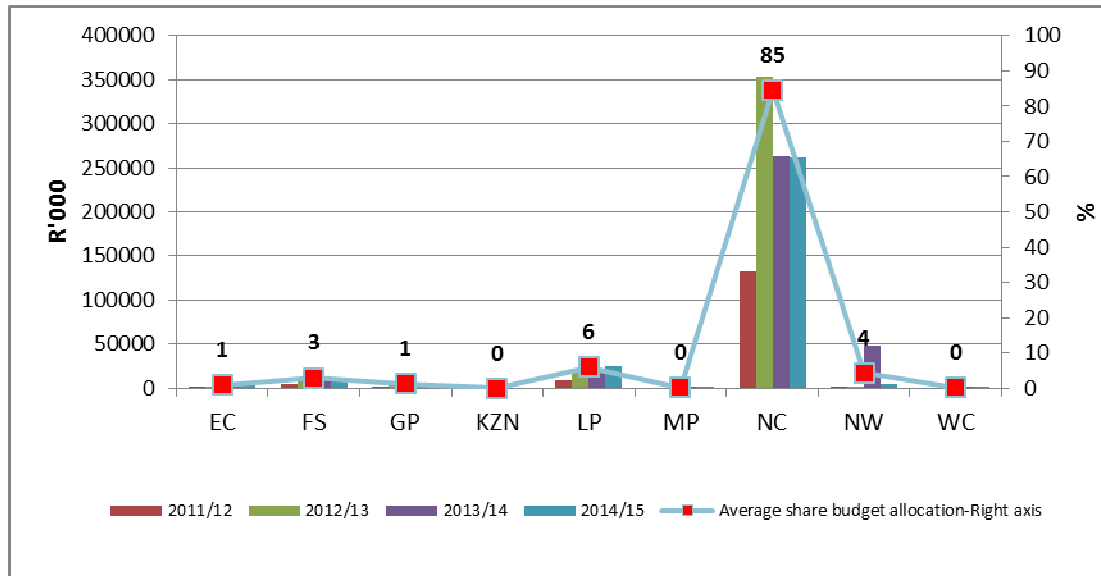
### **6.2.5 Disaster Assistance Scheme**

DAFF facilitates the implementation of climate change programmes and disaster risk management system through its Climate Change and Disaster Management Directorate. The emphasis was on disaster risk reduction, prevention, avoidance, mitigation and preparedness. The disasters could arise from natural hazards such as drought, veld fires and floods and migratory pest control. The frequency of natural disasters has been reported as increasing and that the agriculture sector was very vulnerable to disasters, and extremely sensitive to extreme weather and climate conditions (DAFF, 2016: 5).

According to the DAFF (2011b: 5), the Disaster Assistance Scheme seeks to ensure effective disaster risk management as required by the Disaster Management Act (Act 57 of 2002). The purpose of the disaster assistance scheme is to promote the implementation of disaster risk reduction measures and conservation of agricultural resources and enhance farmers' responsibility in disaster risk management. The scheme further provides assistance to the affected farming communities as required by the Act. It is, therefore, the primary objective of the scheme to assist farming communities who have been severely affected by natural disasters and cannot cope with the effects of the disaster using only their own resources. This objective is aligned to the conservation of natural agricultural resources from being depleted.

The DAFF implement prevention and mitigation, and manage disaster risk funding as a long term measure. The priority was on disaster risk reduction, through strengthening early warning systems and dissemination of early warnings, as well as awareness campaigns to build resilient farming communities. The disaster assistance scheme budget for various provinces for 2011/12 to 2014/15 financial years is shown in Figure 6.5. Therefore, the 2010/11 financial year was removed from the analysis of data for this programme.

KwaZulu-Natal Province did not have a budget allocation for disaster assistance during the period of the study as the province indicated that it did not experience floods that resulted into a disaster.



**Figure 6.5: Disaster budget for nine provinces of South Africa**

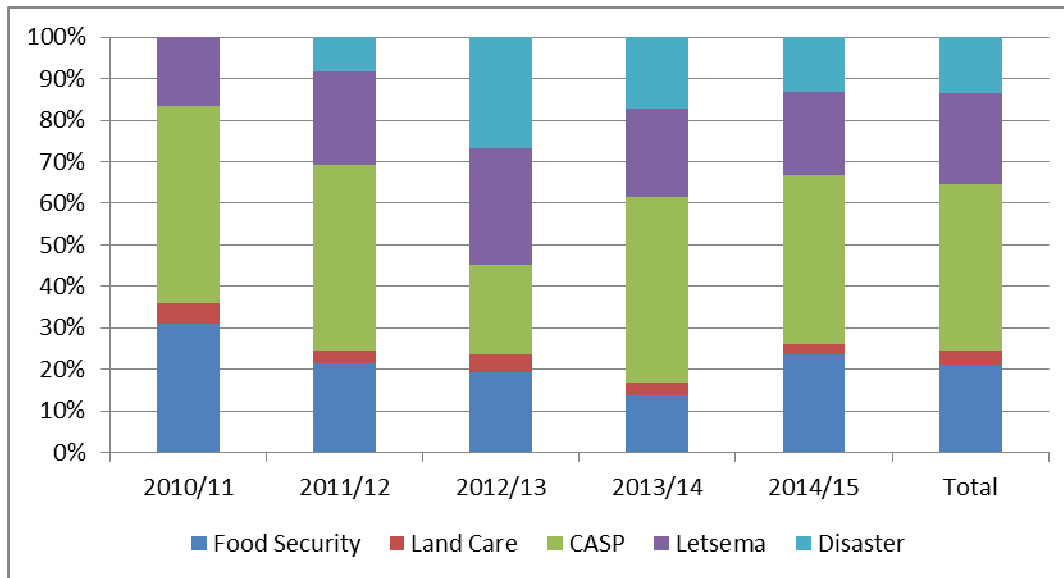
Source: Research survey (2016)

It is evident in Figure 6.5 that the Northern Cape Province received the highest budget allocation of the disaster assistance scheme compared to all other provinces (85% average share budget allocation). The other eight provinces received a budget allocation less than R50 million with Limpopo Province being the second highest and Mpumalanga Province receiving the least budget allocation. The 2011/12 financial year had the lowest budget of the disaster assistance scheme of 13% of the total budgeted amount during the five year study period. While, the 2012/13 financial year received the highest budget allocation of about 34% and 2014/15 being the second highest with about 27%.

The highest percentage increase of 62% was experienced in 2012/13 and the lowest of -30% was in the 2013/14 financial year. Over the five year period, the share of budget allocation ranged between 5 and 38% with Gauteng, Mpumalanga and Western Cape Provinces receiving 5% average shares of the budget allocation and Northern Cape Province receiving 38% average share of the budget.

## 6.2.6 Comparison of farmer programme budgets

Figure 6.6 provides a comparison and summary of agricultural producer support programmes during the 2010/11 to 2014/15 financial years.



**Figure 6.6: Budget allocation on farmer programmes for nine provinces**

Source: Research survey (2016)

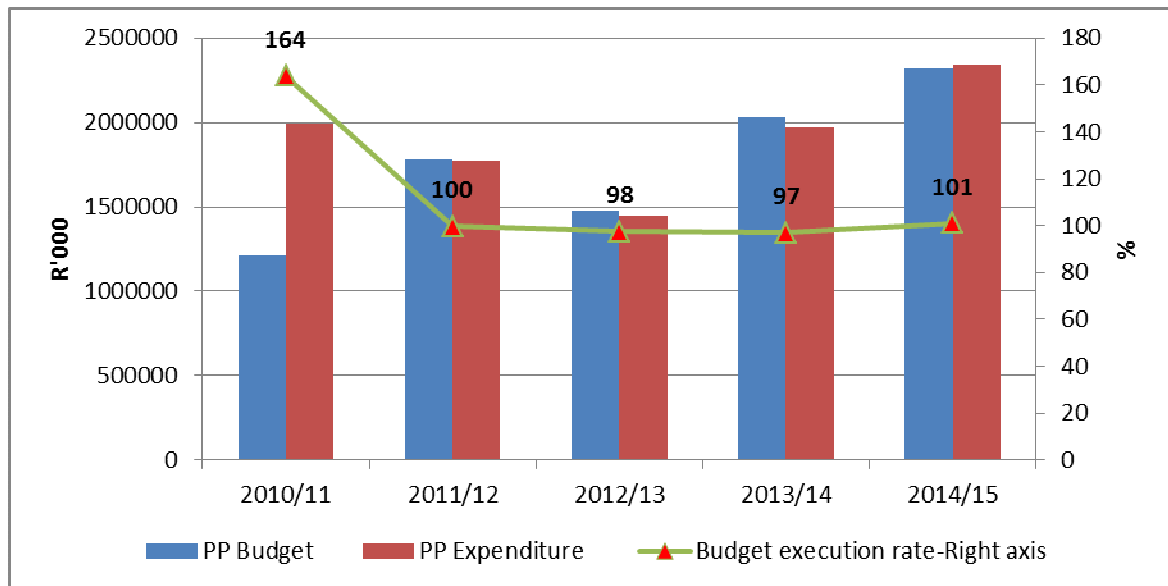
According to Figure 6.6, CASP received the greatest proportion of the budget allocated to farmer programmes over the years. CASP funding was 41% higher than the rest of the other farmer programmes with regards to the total funding provided during the period under review. Ilima/Letsema programme was the second highest with 22% and 21% at the third level was the food security programme. LandCare was found to be the programme with the lowest budget allocation with 3%. During 2012/13 financial year Ilima/Letsema budget was higher than all other farmer programme budgets.

## 6.3 BUDGET AND EXPENDITURE TRENDS

An expenditure assessment was performed on the basis of actual spending and budgetary outcomes. Budget execution rates were also computed to determine a divergence between planned and actual spending. Figure 6.7 shows a comparison of



national budget allocation and expenditure trends and the budget execution rates for the 2010/11 to 2014/15 financial years.



**Figure 6.7: Comparison of budget allocation and expenditure on agricultural programmes, 2010/11-2014/15**

Source: Research survey (2016)

Budget execution rates were generally high across the review period. The budget execution rates ranged from 97% in 2013/14 to 164% in 2010/11. These figures indicate generally high budget execution rates within the agricultural sector. In two of the five years, actual expenditure was less than the approved budget. Spending beyond budget allocation occurred in 2010/11 and 2014/15. In 2011/12, the approved budget was spent in totality.

A comparison between budget and expenditure of Extension Practitioners to that of farmer programmes is illustrated in Figure 6.8. It can be observed in Figure 6.8 that the Extension Practitioners' expenditure trends were almost equivalent to the allocated budget. An opposite trend was observed on the farmer programmes' expenditure which was found to be higher than the budgeted amounts from 2010/11 until 2014/15 financial years. During 2011/12 to 2014/15 financial years, expenditure on farmer programmes improved and it was almost equivalent to the budget allocation. Figure 6.8 further demarcates that during the 2010/11 financial year, the farmer programmes' budget was far lower than expenditure. However, from then

onwards the budget trend took a 45 degree turn upwards and started to increase at an increasing rate until the 2014/15 financial year.



**Figure 6.8: Comparison of budget and expenditure trends for Extension Practitioners and farmer programmes, 2010/11-2014/15**

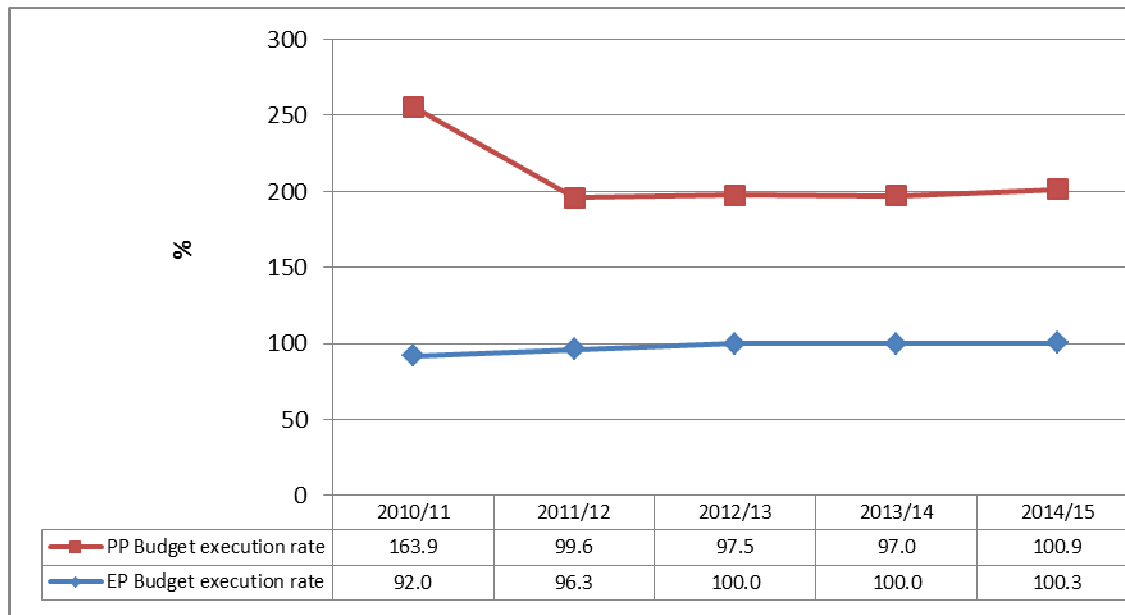
Source: Research survey (2016)

According to Figure 6.8 farmer programmes had a higher share of the total budget allocated during the period of the expenditure review. It was observed that the farmer programmes budget was 86% higher than the Extension Practitioner budget of 14%. The Extension Practitioner funding through the Extension Recovery Plan has always been below R500 000 million whereas the budget for farmer programmes has been ranging between R1.5 to almost R2.4 billion during the rest of the review period (2010/11 to 2014/15 financial years). The total budget for farmer programmes was lower in 2010/11 because there was no disaster budget allocation during that financial year as was shown in Figure 6.5.

A Paired Samples t-Test of differences between the mean of budget allocation and the mean of expenditure on Extension Practitioners and farmer programmes over the five financial years shows that there were statistically significant differences between mean budget allocation for Extension Practitioners and farmer programmes at 5% level of significance (p-value=0.001 which is <0.05). Furthermore, there were statistically significant differences between mean expenditure on Extension Practitioners and farmer programmes at 5% level of significance (p-value=0.000 which is <0.05) (see Table A2 in the Annexure).

According to Table A1 (Annexure), the Paired Samples Statistics box revealed that the mean budget for farmer programmes was greater than the mean budget for Extension Practitioners; it can be concluded that farmer programmes received significantly more budget allocation compared to the budget allocated to Extension Practitioners. Consistent to budget allocation, mean expenditure on farmer programmes was higher than mean expenditure on Extension Practitioners leading to the conclusion that farmer programmes spent significantly higher than Extension Practitioners in the five financial years.

Figure 6.9 shows a comparison of budget execution rates between the Extension Practitioner and farmer programme budgets for 2010/11 to 2014/15 financial years. In general, budget execution rates were high, with the Extension Practitioners budget execution rates ranging between 92% in the 2010/11 financial year and 100.3% in the 2014/15 financial year.



**Figure 6.9: Comparison of budget execution rates for Extension Practitioners and farmer programmes, 2010/11-2014/15**

Source: Research survey (2016)

The execution rates for the farmer programmes were slightly higher in comparison and ranged between 97% in the 2013/14 financial year and 163.9% in the 2014/15 financial year.

#### 6.4 COST OF IMPLEMENTING THE EXTENSION POLICY

This section aims at addressing the study objectives of determining the cost of implementing the newly developed national policy on extension and advisory services and of assessing and evaluating whether the current budgetary trends will be sufficient to implement the newly developed national policy on extension and advisory services. To achieve these objectives, the study compared the number of Extension Practitioners in the Eastern Cape Province to the ideal 1:500 ratio of Extension Practitioner to farmer. The cost of hiring an Extension Practitioner was pegged at entry level remuneration for Salary level 8 within the DAFF. The cost for goods and services was computed using proportional costing based on Eastern Cape Province data. According to the estimation results, the cost of implementing the extension policy is R3 348 789 000 while the average budget allocated for both Extension Practitioners and farmer programmes in the five financial years was R2

089 183 000. The cost of implementing the policy is far higher than the budget allocation; therefore, there is need for additional funding for extension policy implementation.

## **6.5 CHAPTER SUMMARY**

This chapter presented budget allocation and expenditure for farmer support programmes for 2010/11 to 2014/15 financial years. An evaluation was done on budgeted amounts that get to support farmers to produce. A comparison of budget allocation and expenditure between extension personnel and farmer programmes revealed that most of the money was channelled towards farmers themselves. Statistically significant differences emerged between mean budget allocation for Extension Practitioners and farmer programmes. In addition, there were statistically significant differences between mean expenditure on Extension Practitioners and farmer programmes with expenditure on farmer programmes being higher than expenditure on Extension Practitioners.

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## CHAPTER 7

### CONCLUSIONS AND RECOMMENDATIONS

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#### 7.1 INTRODUCTION

This chapter presents a summary of findings and conclusions drawn from the research findings responding to the research objectives. Implications of the findings, recommendations, and future research directions are also presented in this chapter. This includes proposals towards innovative new plans to review and/or supplement the national policy on extension and advisory services.

#### 7.2 SUMMARY AND CONCLUSIONS

The main objective of the study was to review public expenditure on agricultural extension support services so as to provide evidence-based recommendations to inform implementation of the newly developed national policy on extension and advisory services. The study also aimed at providing an initial baseline for future review and tracking of public expenditure on agricultural extension support and the quality and quantity of the human capital of agricultural extension personnel. Sections that follow are organised according to the empirical objectives of the study.

##### **7.2.1 To provide initial baseline for future review and tracking of public expenditure on agricultural extension support services.**

The current budget allocation and expenditure trends for provision of extension services translate to R535.24 allocated and R524.49 spent per farmer per year. Budget execution rates were high for both the Extension Practitioners and the farmer programmes, with execution rates for farmer programmes better than Extension Practitioners. Such trends indicate an efficient system of budget execution for the benefit of the farmers, if only budget execution is considered. Evidence that this

efficiency of expenditure was for the benefit of farmers could not be exclusively investigated given data limitations.

Furthermore, statistically significant differences between mean budget allocation for Extension Practitioners and farmer programmes was found. Differences between the mean expenditure on Extension Practitioners and mean expenditure on farmer programmes were also statistically significant. The mean budget for farmer programmes was greater than the mean budget for Extension Practitioners for the five years leading to the conclusion that farmer programmes received significantly more budget allocation compared to the budget allocated to Extension Practitioners. Consistent to budget allocation, mean expenditure on farmer programmes was higher than mean expenditure on Extension Practitioners leading to the conclusion that farmer programmes spent significantly higher than Extension Practitioners in the five financial years.

### **7.2.2 To determine whether the citizens of South Africa get value for money on agricultural extension support services.**

The findings of the study depict extension personnel that are generally fairly young and middle aged (age group of 36-45 years). This group is generally regarded as energetic and most willing to learn more on research and developmental issues to be innovative in the sector, if age alone is considered. A significant proportion of Extension Practitioners complied with the norms and standards of at least a four year degree. There were 72% of the total Extension Practitioners meeting the minimum required qualifications, which is a considerably good indicator of the quality of extension service rendered. Hence, it can be concluded that farmers receive value for money, if only qualifications of Extension Practitioners is considered.

Farmer programmes had a higher share of the total budget allocated during the period of the expenditure review compared to the budget allocated to Extension Practitioners. Hence, the conclusion that citizens of South Africa are getting value for money on agricultural extension support services because the budget tends to go towards farmer programmes compared to what goes towards remuneration costs.

However, a look at the ratio of Extension Practitioner to farmer gives a different picture. Available statistics has shown that there are 2.82 million producers actively practicing agriculture which implies that 3 030 Extension Practitioners are responsible for rendering agricultural extension support services to those producers. Although the number of Extension Practitioners has increased in the past five years due to the recruitment drive through ERP, producers at subsistence and smallholder levels are still serviced through a low extension producer ratio. Taking an example of 2.82 million producers being serviced by only 3 030 Extension Practitioners means that a ratio would be 1:965 which stretches the capacity of Extension Practitioners to the limit. If a ratio of 1:500 is to be used as a benchmark for implementation of agricultural extension support services to an estimated total number of 2.82 million producers effectively and efficiently, DAFF needs a total of 5 640 Extension Practitioners. Based on 2014/15 data, to achieve the recommended ratio as per DAFF norms and standards of 2005, an additional extension personnel of about 2 718 should be recruited.

### **7.2.3 To determine the current expenditure trends on agricultural extension support services.**

Generally, budget allocation to both Extension Practitioners and farmer programmes was on an increasing trend over the five years indicating progressive budgeting as the programmes progressed. The statistically significant differences in budget allocation and expenditure between Extension Practitioners and farmer programmes indicate a necessary bias towards programme implementation as opposed to huge expenditure on personnel. Such a trend was revealed by the higher mean budget for farmer programmes compared to the mean budget for Extension Practitioners and also higher mean expenditure on farmer programmes compared to mean expenditure on Extension Practitioners during the five financial years.

### **7.2.4 To determine the cost of implementing the newly developed national policy on extension and advisory services.**

Through use of zero-based budgeting, which involves preparing a budget from scratch with a zero-base, the study compared the number of Extension Practitioners



in the Eastern Cape Province to the ideal 1:500 ratio of Extension Practitioner to farmer. Zero-based budgeting is a system used by the Government of South Africa for budgeting. The cost of hiring an Extension Practitioner was pegged at entry level remuneration for Salary Level 8 within the DAFF. The cost of goods and services was proportionally computed based on Eastern Cape Province data. According to the estimation results, the cost of implementing the newly developed national policy on extension and advisory services is R3 348 789 000. This amount includes budget allocation to both Extension Practitioners and farmer programmes.

### **7.2.5 To assess and evaluate whether the current budgetary trends will be sufficient to implement the newly developed national policy on extension and advisory services.**

An assessment of whether the new policy on extension and advisory services can be implemented with the current workforce and budget was done through comparing the cost of implementing the extension policy (R3 348 789 000) and the budget allocated for both Extension Practitioners and farmer programmes (R2 089 183 000). The cost of implementing the policy is far higher than the budget allocation by R1 259 606 000. Therefore, a conclusion is reached that the government will have to allocate additional funding for extension policy implementation.

## **7.3 RECOMMENDATIONS**

### **7.3.1 To provide initial baseline for future review and tracking of public expenditure on agricultural extension support services.**

Government should pay more attention to implementation of the ERP to further increase the number of Extension Practitioners until, at least, a ratio of one Extension Practitioner to 500 farmers is reached. The ratio will be achieved through recruitment of additional Extension Practitioners to enhance human capacity on the ground.

### **7.3.2 To determine whether the citizens of South Africa get value for money on agricultural extension support services.**

Recruitment of additional Extension Practitioners should concentrate on bringing on board qualified personnel to ensure good quality service provision and adherence to the norms and standards of extension service comparable to international standards.

### **7.3.3 To determine the current expenditure trends on agricultural extension support services.**

Expenditure on farmer programmes should be further enhanced through improving budget execution rates and ensuring that the efficiency in expenditure is focused on benefiting the farmers.

### **7.3.4 To assess and evaluate whether the current budgetary trends will be sufficient to implement the newly developed national policy on extension and advisory services.**

Since current budgetary trends fall short of the cost of implementing the newly developed national policy on extension and advisory services, it is recommended that government allocates more funds to public extension service provision. The implementation process could be phased with short-term, medium- and long-term implementation plans. Short-term plans would focus on immediate interventions required to support the agricultural sector through extension and advisory services while the medium- and long-term implementation phases would focus on interventions to transform the current structure of the extension system to address shortcomings identified through the policy analysis and development process.

Budget execution should be focused more towards poorly resourced farmers. A user-pay principle could apply in the case of producers and members of producer organisations that can afford to pay for services rendered. Co-financing of services and private funding should be implemented to solve the problem of fiscal sustainability. Full-scale privatisation of extension and advisory services is not feasible in the country at the moment and government policy is to ensure equity and

meet the need to support the many clients who rely on the public service, and who have no means to pay for private services. However, integration of the private sector into the public extension and advisory services is encouraged and promoted.

#### **7.4 FUTURE RESEARCH DIRECTIONS**

Future research should take from the data and analytical limitations because this study was certainly not exhaustive. Different methodological approaches could strengthen the conclusions and recommendations.

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## Annexure

**Table A1: Paired samples statistics**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PPbudget	1 764 619.40	5	437465.898	195640.697
	EPBudget	322 459.0000	5	28601.99587	12791.20141
Pair 2	PPExpenditure	1 903 614.20	5	329924.583	147546.759
	EPExpenditure	315 793.2000	5	38308.73089	17132.18528

Source: SPSS statistical output (2016)

**Table A2: Results of a paired samples t-Test**

Paired Samples t-Test										
		Paired Differences				t	df	Sig. (2-tailed)		
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower				Upper	
Pair 1	PPbudget - EPBudget	1442160.40000	411715.11818	184124.59833	930948.56023	1953372.23977	7.833	4	.001	
Pair 2	PPExpenditure - EPExpenditure	1587821.00000	319923.65609	143074.20853	1190583.31406	1985058.68594	11.098	4	.000	

Source: SPSS statistical output (2016)