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Developing a framework for improving coordination in the provision of agricultural support services to farmers in the Oshikoto region, Namibia

by

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Submitted in partial fulfilment of the requirements for the degree

PhD Agrarian Extension

in the Faculty of Natural & Agricultural Sciences
University of Pretoria
Pretoria

June 2016

DECLARATION

I, Cecilie Ndeshipanda Jona, declare that the thesis, which I hereby submit for the degree PhD Agrarian Extension at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

SIGNATURE:  DATE: 10 July 2016

ACKNOWLEDGEMENTS

First and foremost I would like to thank my Heavenly Father, Jehovah, God Almighty, for his protection, love, favour, mercy, knowledge, and financial breakthrough during my studies at the University of Pretoria. Father God, thank you for my health and for removing every mountain and levelling every hill for my sake for my study to be possible. Without YOU nothing could have been possible.

Secondly, I would like to thank Dr S.E. Terblanche, not only as my supervisor, but also as my mentor and encourager when all hope was lost. This thesis could not have been completed without you constantly making time despite your busy schedule to read through my work in great detail, and coming up with constructive ideas and knowledge that have made this project a complete success. Sir, I will always remain indebted and grateful to you. Mrs Yvonne Samuels, you deserve a special thanks, not only for being there as friend, but for creating a conducive environment for me to stay in and to manage my appointments with Dr Terblanche.

I must also acknowledge the inputs from the Department of Statistics (University of Pretoria); especially the assistance received from Dr Jacqui Sommerville and Dr Gretel Crawford, who constantly helped in analysing the data with their statistical software.

I want to thank and gratefully acknowledge the University of Namibia (UNAM), Namibia Student Financial Assistant Fund (NSFAF), the National Council for Higher Education (NCHE), and the National Commission on Research Science and Technology (NCRST) for financial support to undertake my studies. Without all your sponsorship in one way or another, this study would not have been possible to complete.

I would also like to acknowledge my father, Israel Jona. Tate, without you telling me to apply for my PhD and constantly reminding me to do so, I could never have thought of doing a PhD. Thank you, Tate, for having faith in me, for escorting me to the airport, for your constant encouragement, emotional and financial support, and for all your calls day and night so that I did not feel homesick. I am proud to have you as a father and I will always love you.

To my family and friends: I am sincerely grateful to you for standing by me and encouraging me to work and push hard. Mrs Margareth Nghixulfwa, thank you for always sending me my niece's pictures to gradually see her growing. Eneas Jona, thank you for your moral support. Dr Nangula Mavhungu and Dr Kau Mavhungu, thank you for making Pretoria my home away from home, for your love and continuous input in my work, and a special thanks to the braai your family held for me when my proposal was accepted. I will miss your family dearly and will always remember you in my prayers. A special thanks goes to Mrs Alushe Nditya for being an encourager, motivator, and helper while in South Africa. When all hope was lost, you went the extra mile to ask for data on my behalf.

I am humbled and thankful for the support I received from my friends and colleagues from House Jacaranda and the PhD room. Special thanks to Patrick, Hiywot, Thembi, Dee, Raphel, Mesay, Shapi, Eddy, Sombo and Giesberta. Thank you once again for your constant motivation, jokes, and laughter. UP could never have been the same without you around.

DEDICATION

This thesis is dedicated to my parents, Lea and Israel Jona.

ABSTRACT

Title: Developing a framework for improving coordination in the provision of agricultural support services to farmers in the Oshikoto region, Namibia

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Degree: PhD Agrarian Extension

The goal of this study was to develop a framework for improving coordination in the provision of Agricultural Support Services (ASS) in the Oshikoto region of Namibia. The research questions that were addressed were: Who are the current role players in the Agricultural Support Services (ASS)? Are there any official linkages structures for coordinated agricultural support services? What are the required capacities and skills for coordinated ASS and what are the perceptions and attitudes of the stakeholders towards ASS?

The conceptual framework of the study was framed by extension and decentralisation policies that need to be in place for ASS work to take place. The research further examined the internal factors that lead to outputs of coordination and ultimately to a framework for improving coordination.

A mixed method research design was used to obtain data. The study used qualitative techniques to interview 11 active ASS providers from different organisations such as Government, Parastatal, FBO, Input Supply and Educational Institutions in the Oshikoto region who work with farmers. The ASS providers were selected using the snowball-sampling technique. Although the results revealed that the majority of the ASS providers indicated that they would like to work with other organisations, there was no formal coordination structure put in place

allowing them to do so. As a result of no official linkages, the ASS providers plan activities individually and report to different supervisors. It is, however, very clear that ASS providers want to work together, as 72.7% were of the opinion that good coordination is when all ASS providers assist one another and work together in a complementary way so that they are more effective, efficient and avoid duplication of the same activities.

Regarding ASS providers' education, out of the 84 ASS provider field workers, only 36 had a Secondary School Certificate and only 28 had diplomas in agriculture-related courses. Some of the ASS providers indicated that, according to them, the higher education institutions were too theoretical and not practical enough, and did not consult organisations on the ground when developing their curricula. Higher education institutions such as UNAM were more research oriented, concentrating more on trials and demonstrations and not on farmers' needs. The Supply/Traders had very little knowledge of agriculture yet they sometimes vaccinate livestock on request. Most of the ASS providers use top-down approaches such as the T&V approach rather than participatory approaches. The problems can only be solved if an enabling environment is created whereby all the ASS providers belong to one umbrella organisation and are accountable to one supervisor.

In addition to qualitative techniques, the study also utilised quantitative research techniques, which included structured and semi-structured questionnaires that were administered to (N=200) randomly selected farmers from eight constituencies in the Oshikoto region. The quantitative data were entered into the SAS statistical software program and tables of descriptive statistics and test of significant differences were generated. Some of the quantitative data revealed that government institutions such as the DEES and DVS were in contact with many of the farmers, but the farmers did not seem very satisfied with their services. The few farmers who were contacted by the Private Extension Services Providers, NGOs, and Agricultural Mentors perceived their services as being more relevant and adequate as compared to the DEES and DVS. An estimated 86% (171) of the farmers indicated the radio as their primary source of information.

From the 200 farmers interviewed, only 65 (35%) of the farmers belonged to a Farmer-Based Organisation (FBO). There were 42.3% farmers who belonged to a cooperative, 43.1% to a farmers' association, and 24% to community projects. There is a need for increased formation of FBOs in the Oshikoto region. Sixty-two per cent (62%) of the farmer respondents indicated that coordination and collaboration of activities were an extremely serious problem in the Oshikoto region, while only 5% of the farmers indicated that it was not an issue.

The study results informed the development of the framework for improving coordination in the provision of Agricultural Support Services in the Oshikoto region.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADC	Agricultural Development Centre
AEO	Agricultural Extension Officer
AET	Agricultural Extension Technician
AMTA	Agro-marketing and Trade Agency
ASS	Agricultural Support Services
ATMA	Agriculture Technology Management Agency
BAPs	Block Action Plans
BFAC	Block Farmers' Advisory Committee
BoN	Bank of Namibia
BTT	Block Technology Team
CAEO	Chief Agricultural Extension Officer
CAET	Chief Agricultural Extension Technician
CDC	Central Development Council
CDC	Constituency Development Committee
DAAP	District Agricultural Action Plan
DEES	Directorate of Extension and Engineering Services
DVS	Directorate of Veterinary Services
EAS	Extension Advisory Services
FAC	Farmers' Advisory Committee
FAO	Food Agriculture Organisation
FBO	Farmer-based Organisation
FF	Farmers' Friend
FFS	Farmers' Field School
FIG	Farmers' Interest Group
FO	Farmers' Organisation
FSP	Farmers' Support Programme
FSRE	Farming System Research and Extension
GB	Governing Board

GDP	Gross Domestic Product
GFRAS	Global Forum for Rural Advisory Services
GRN	Government of the Republic of Namibia
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
Ha	Hectares
HCD	Human Capital Development
ICT	Information and Communication Technology
IDWG	Inter-departmental Working Group
IFPRI	International Food Policy Research Institute
ITC	Information Technology Communication
MAWF	Ministry of Agriculture, Water and Forestry
MAWRD	Ministry of Agriculture, Water and Rural Development
MEAS	Modernizing Extension and Advisory Services
MOAS	Market-Oriented Advisory Services
MRLGHRD	Ministry of Regional and Local Government, Housing and Rural Development
MW	Medicine World
NAADS	National Agricultural Advisory Services
NAES	The Namibian Agricultural Extension Service
NALEP	National Agriculture and Livestock Extension programme
NATP	National Agricultural Technology Project
NDP	National Development Plan
NGO	Non-governmental Organisation
NNFU	Namibia National Farmers' Union
NPC	National Planning Commission
OCORS	Okashana Community Outreach Research Station
OMC	Oshikoto Marketing Cooperative
ORC	Okashana Research Centre
ORFU	Oshikoto Regional Farmers' Union
PAM	Participatory Action Management

PRA	Participatory Rural Appraisal
RAS	Rural Advisory Services
RDCC	Regional Development Coordinating Committee
RMC	Regional Management Committee
SAMETI	State Agricultural Management and Extension Training Institute
SAP	State Agricultural Plan
SEWP	State Extension Work Plan
SFAC	State Farmers' Advisory Committee
SGB	Standard Generating Body
SHG	Self-help Group
SLSC	State Level Sanctioning Committee
SMS	Subject Matter Specialist
SMSes	Short Messaging Services
SNC	State Nodal Cell
SREP	Strategic Research and Extension Plan
T&V	Training and Visit Approach
ToT	Transfer of Technology
UNAM	University of Namibia
VDC	Village Development Committee
VTC	Vocational Training Centre
WGAE	Working Group on Agricultural Extension

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

In the 1960s and 1970s, agricultural advisory services played a major role in increasing agricultural productivity (Jona & Terblanche, 2015; Swanson, 2008; Swanson & Rajalahti, 2010; Pye-Smith, 2012). In the 1980s and 1990s, different countries restructured and adjusted their programmes due to a decline of funds for extension services, which negatively affected farmers (Jona & Terblanche, 2015; Swanson & Rajalahti, 2010; Pye-Smith, 2012). Most of the agricultural extension activities were generally centralised and, to a large extent, detached from the rural communities (Jona & Terblanche, 2015; Swanson & Samy, 2002a). The nationalised system was mostly a top-down approach, bureaucratic, inefficient, and unresponsive to farmers' needs (Jona & Terblanche, 2015; Swanson & Rajalahti, 2010; Savioff & Lindarte, 2002).

According to Jona and Terblanche (2015), the Namibian Agricultural Extension Service (NAES) is no exception from other developing countries. Before Namibian independence in 1990, agricultural support services (including extension) were mostly centralised, top-down structures with considerable subsidy inputs, including ploughing services to the community, farming inputs such as seeds, and infrastructure maintenance (Kabinda, 2012[1]). Administration programmes were usually developed in Windhoek at the national level and then cascaded down to the regions (Jona & Terblanche, 2015).

After independence, the government agricultural extension services slowly started moving away from the Transfer of Technology (ToT) to the Training and Visit (T&V) approach, followed by the Farming System Research and Extension (FSRE) approach (Jona & Terblanche, 2015). Most of the subsidies that had been provided by the government before independence were halted. Very few extension officers and extension technicians were trained to go out into the field and train the farmers in the new technologies. In 1997, the Namibian government, in partnership with

[1] Kabinda, M.N. 2012. Verbal communication with author on 03 June 2012. Transcript notes in possession of author.

donor agencies, introduced the FSRE approach in the northern regions of the country (Matanyaire, 2005; Kumba, 2005; Jona & Terblanche, 2015). Despite the FSRE that was introduced in 1997 as a participatory measure, one could argue that it was not really successful as the activities that had been introduced before independence were merely reintroduced in 2007. These activities included ploughing services and subsidies inputs (such as seeds and fertilisers), which were reintroduced to the communal areas (Uheua, 2013; Jona & Terblanche, 2015). In the past, various activities were carried out by the Ministry of Agriculture, Water and Forestry (MAWF) alone. Currently, different organisations such as NGOs, private sector firms, farmer-based organisations and cooperatives, public research and education institutions, and semi-public organisations and parastatals are providing agricultural support services to farmers (International Food Policy Research Institute (IFPRI), 2012; Jona & Terblanche, 2015). These organisations work in isolation to improve the livelihood of farmers as they plan and implement their activities individually and separately, resulting in programmes that are not harmonised. As a result, various resources have been wasted, owing to the duplication of activities (Jona & Terblanche, 2015; Rivera & Alex, 2004). According to Werner and Odendaal (2010) and Engel (2006), there is a lack of communication and coordination between certain ministries in Namibia. IFPRI (2012) observed a lack of or weak cooperation between the government, NGOs, and service providers, which resulted in duplication and inefficient usage of resources. Research, extension, and training are spread across different divisions and institutions within the MAWF – creating poor coordination among them (Jona & Terblanche, 2015).

According to Davis and Heemskerk (2012), extension and all other agricultural support services should be based on a programme for action, which should be developed jointly by all stakeholders and service providers and which should reflect agreement on the part of all stakeholders. Thus, pluralistic (coordinated) extension emphasises jointly planned, implemented, and evaluated activities by all the stakeholders, including the farmers (Rivera & Qamar, 2003). Pluralistic extension also distinguishes between the different characteristics of farmers and their farming systems, while addressing the farmers' challenges and providing various services to the farmers (Rivera, Qamar & Crowder, 2002).

According to Rivera and Qamar (2003) and Rivera and Alex (2004), coordination can promote a strong collaborative relationship and networking among stakeholders for an efficient farmer support organisation. It can also provide collective insight and better understanding of farmers, which can lead to the development of a common framework to guide all stakeholders to the common goals of development (Jona & Terblanche, 2015).

Rivera and Qamar (2003) and Rivera and Alex (2004) recommended the creation of a coordination communication platform that brings together various stakeholders who are involved in extension service provision to share experiences and create linkages of working together. The existing organisations in the rural areas should be recognised and harnessed by public extension organisations for effective rural development. The poor performance of the agricultural sector is generally attributed to a lack of markets for some products, high agricultural and transport costs, and the ineffective agricultural extension support services provided to smallholder farmers (Mushendami, Biwa & Gaomab, 2008). Small-scale farmers lack the capacity and mechanisms with which they can communicate their demands, mainly because they are disorganised and lack negotiating power. If demand-driven extension is to be effective, there is a need for well-organised farmers' associations (Neuchâtel Group, 2007).

According to Rivera and Qamar (2003) and Rivera and Alex (2004), for effective coordination to take place, the government and other extension providers have to widen their vision for agricultural extension to capture the interests of other stakeholders – not only to ensure food security, but also to take into account other factors such as marketing and micro-enterprises that have an immediate impact on the rural households' livelihoods.

Düvel (2005) pointed out that it is important that partners interact with one another in order to function properly. He further mentioned that the empowerment of communities to a certain degree would enable them to lay down rules of coordination for service delivery. Mwanje, Düvel and Mangheni (2002:4) identified the reasons why coordination is important as follows:

- The harmonisation of programmes among organisations avoids duplications and contradictions or conflicts of service;

- The sharing of experiences in the interest of effective and efficient service delivery;
- The development of systematic procedures for the delivery of service; and
- Minimising the wasting of resources.

According to Werner and Odendaal (2010) and Engel (2006), there is a lack of coordination and communication between some organisations in Namibia, which hinders the implementation of agricultural training programmes. Werner and Odendaal (2010) further mentioned that extension support services need to be strengthened or established where they do not exit. Coordinated instructions would lead to effective farmer support services; if the farmers have to be effective, then the service providers need to be accountable to the farmers. In addition, it is extremely important that the stakeholders who deal with farmers, including the extension officials, researchers, and private sector providers, hold coordinated meetings in order to discuss production, problems, research findings, and recommended practices (Swanson, 2008). Coordination also helps in the identification of insight problems, as well as better understanding the farmers' needs.

1.2 PROBLEM STATEMENT

In Namibia, operational expenditure on agricultural extension services averaged about N$50 million over the last few years. The international donors in 2003 roughly contributed about N$10 million per year in both operational and capital expenditure (Ministry of Agriculture Water and Rural development (MAWRD), 2003b). Dolberg (2000), however, argued that extension technicians at the grassroots level are non-professional and have little knowledge of extension work. Dolberg (2000) and !Hoaës (2013) also alleged that the extension advice in Namibia is outdated and focuses more on technical issues without assisting in transforming rural farming into market-oriented businesses since independence in 1990. According to the Global Forum for Rural Advisory Services (GFRAS, 2012), the role of extension should expand from implementing a specific set of activities to supporting stakeholders and carrying out collaborative activities with agricultural extension. Currently in Namibia, several organisations, including public institutions, NGOs, farmers' unions, and private companies, are working with farmers in order to improve their livelihoods. IFPRI (2012) observed that the Directorate of Agricultural

Extension, Research and Training's offices are spread across different departments within the directorate for the purpose of specialisation, but this has created a poor research and extension team effort. According to !Hoaës (2013), it is also possible that the poor performance of the farmers could be due to the unresponsive and uncoordinated agricultural support services (including extension) provided by the various stakeholders. IFPRI (2012) stated that the weak cooperation and lack of coordination between the government and NGO agricultural extension providers resulted in duplication and wastage of resources, contradiction, and conflict among organisations in Namibia. Although different sources such as IFPRI (2012), Engel (2006), and Werner and Odendaal (2010) observed weak coordination in the extension services, none have conducted a baseline survey to ascertain the extent of the weak coordination among various agricultural support services. Thus, this study intends to answer the following research questions:

1. Who are the current role players in the Agricultural Support Services (ASS)?
2. Is there any official linkages structure for coordinated agricultural support services?
3. What are the required capacities and skills for coordinated agricultural support services?
4. What are the perceptions and attitudes of the stakeholders towards coordinated agricultural support services?
5. What are the essential aspects of a coordinated support service of the extension frameworks?

1.3 OBJECTIVES OF THE STUDY

The main objective of the study is to develop a framework for improving coordination in the provision of ASS to farmers in the Oshikoto region of Namibia.

To achieve the main objective, the study will pursue the following specific objectives:

1. To determine the perceptions and attitudes of the stakeholders (farmers) towards coordinated ASS providers, with the following sub-objectives:

a) To determine the farmers' perceptions of contact frequency, adequacy, relevance, and the quality of Agricultural Support Services (ASS) in the Oshikoto region;
b) To analyse the different information sources used by farmers in the Oshikoto region;
c) To analyse farmers' participation and involvement in groups, as well as their structure and problems; and
d) To identify factors affecting farmers' perceptions of coordination of ASS in the Oshikoto region.

2. To identify the current role players among the ASS providers in the Oshikoto region of Namibia;
3. To determine coordination linkages among the various stakeholders of agricultural support services in the Oshikoto region of Namibia;
4. To analyse the capacities and skills of ASS providers and the required capacities;
5. To determine the perceptions and the attitudes of ASS providers towards coordinated activities; and
6. To develop a framework for improving coordination in the provision of agricultural support services to farmers in the Oshikoto region in Namibia.

1.4 ACADEMIC VALUE AND CONTRIBUTION OF THE PROPOSED STUDY

The study results will, in particular, contribute to the body of knowledge on how best to provide well-organised agricultural extension services to farmers. It appears that stakeholders in the Oshikoto region are implementing programmes, but the results are not forthcoming to the beneficiaries. Thus, it is clear that a comprehensive framework is needed in order to provide agricultural support services which will be responsive and accountable, as well as effective to meet the needs of diverse farmers. In addition, the study results will be used to inform how best to train the extension service providers and to develop their knowledge and skills, as well as how to coordinate the services provided by the various stakeholders.

1.5 PRE- AND POST-INDEPENDENCE AGRICULTURAL EXTENSION IN NAMIBIA

1.5.1 Pre-independence agricultural extension in Namibia

There is very little information documented in the literature regarding agricultural extension in Namibia during both the pre- and post-independence periods. According to Anandajayasekeram, Puskur, Workneh and Hoekstra (2008), initial agricultural extension structures were top-down in nature, as information used to flow from the national level – filtering to the farmers through agricultural extension agents. The farmers were merely the recipients of the information; they did not give any feedback. This scenario is clear from the Namibian information available that the main agricultural extension was a conventional approach with considerable subsidy inputs, including ploughing services to the community, farming inputs such as seeds, and infrastructure maintenance (Kabinda, 2012). Administration programmes were usually developed in Windhoek at the national level and then cascaded down to the regions. The programmes that were implemented were developed mainly by planners, thus it was purely a top-down approach. During periods of drought, the government supplied the community with drought-relief food.

1.5.2 Post-independence agricultural extension in Namibia

According to Anandajayasekeram *et al.* (2008), most of the governments in Africa have moved away from "blueprint solutions" for farmers and moved towards participatory approaches over the last two decades. Namibia was no exception after independence in 1990. The government's agricultural extension services slowly started moving away from the ToT approach towards the T&V and participatory approach. Most of the subsidies that had been provided for ploughing, inputs, and tractors by the government before independence were halted and eventually completely removed. Before independence in 1990, there was no Faculty of Agriculture at the University of Namibia (UNAM). There were, however, agricultural colleges that used to offer diplomas and certificates in agriculture-related courses. As a result of the above, there were only technicians and no agricultural officers. Before 1990, agricultural extension technicians were trained to go out and train farmers in new technologies. On-farm and off-farm trials were also

encouraged and this led to the introduction of hybrid seeds from neighbouring countries. The agricultural technicians mostly practised the T&V approach, which was practised by many countries in 1980. The aim of the T&V approach is to reach more farmers and to better train the extension agents (Anandajayasekeram *et al.*, 2008). Most farmers were encouraged to conduct on-farm trials and demonstrations, and to visit other farms to observe how hybrid seeds adapted in the farmers' fields, as well as in research stations.

With the help of the NGOs, the government introduced subsidies for livestock, especially goats, which were granted to farmers who had no breeding stock. In addition, improved bulls were bought for the communities to enable them to improve their herds, especially in the communal areas, with the aim of encouraging rural farmers to breed with large-frame cattle as opposed to the Nguni breed. The communities were also encouraged either to borrow money or to obtain loans to buy their own farm equipment, such as tractors, to plough for other communities at a subsidised rate. In terms of the subsidy scheme, farmers were required to pay a certain percentage while the government would pay the remainder (Kabinda, 2012). This is a recommended approach as it obviates dependency and encourages empowerment.

After 1990, top-down approaches were discouraged all over the world. The Namibian government, in partnership with donor agencies, introduced the Farming System Research and Extension (FSRE) approach in the northern regions of the country. The communities, with the support of extension officers, developed community action plans, which they were encouraged to carry out. However, despite the FSRE that was introduced in 1995, one could argue that it was not really successful as the activities that had been introduced before independence were merely reintroduced in 2007. These activities included ploughing services and subsidised inputs (such as seeds and fertilisers), which were reintroduced in the communal areas.

Figure 1.1 depicts the structure of the Extension Directorate within the MAWF in Namibia.

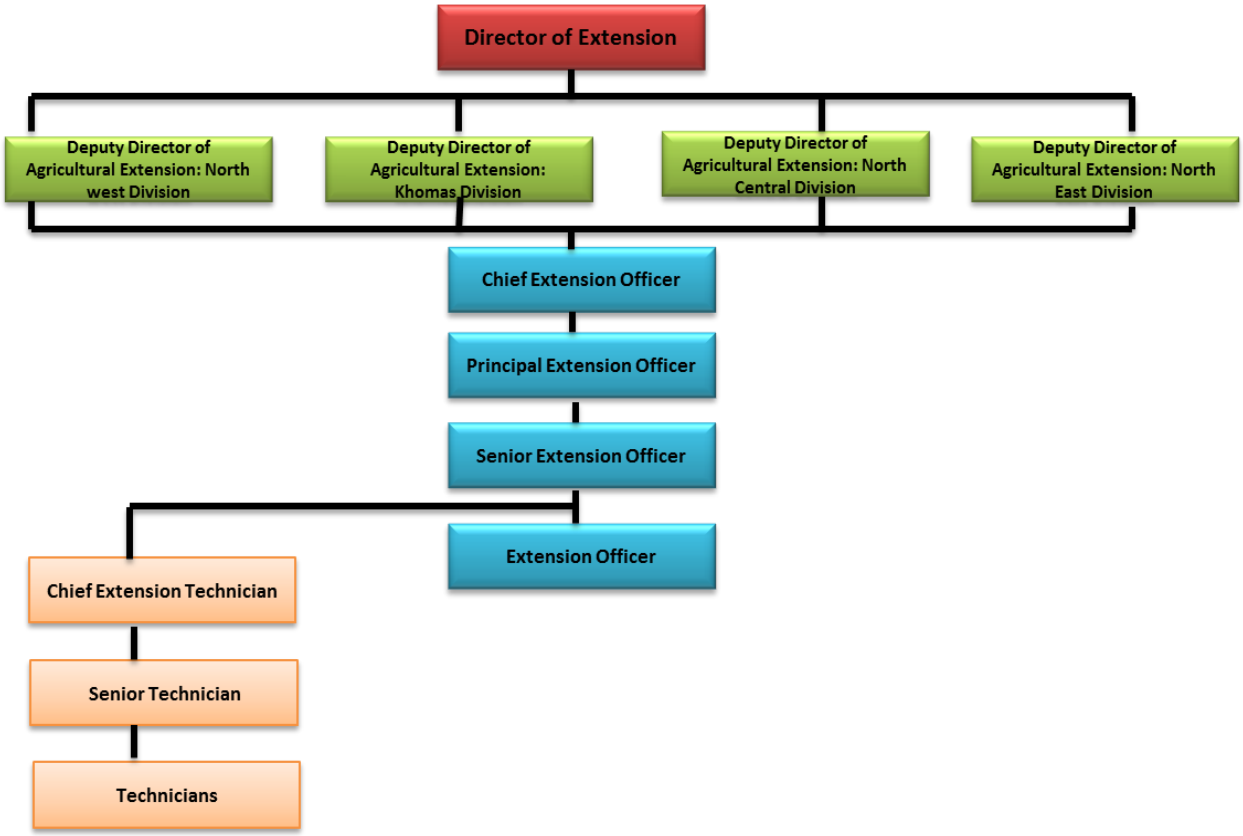

Figure 1.1: The structure (organogram) of the Directorate of Extension Services of the Ministry of Agriculture, Water and Forestry in 2013

Source: MAWRD, 2003b

The Ministry was occupied with a restructuring process at the time of conducting this research. The structure as illustrated in Figure 1.1 was operational in 2013 (at the time of conducting this research). The Directorate of Extension is headed by the director, who in turn is assisted by deputy directors who are based in the regions. The deputy directors are assisted by chief extension officers, who are also based in all four of the regions. The principal extension officers fall under the chief extension officer, the senior extension officers fall under the chief extension officers, and the extension officers fall under the senior extension officers. The chief extension technicians oversee the work of the extension technicians, while the extension officers act as backup Subject Matter Specialists (SMSs) for the technicians. The extension officers are responsible for providing training to the extension technicians, as well as giving the necessary

support to the Ministry. The technicians operate closely with the communities in the Agricultural Development Centres (ADCs). All 14 regions have the same structure – from the chief agricultural extension officer down to the technicians. The extension technicians are usually in possession of a National or Higher Agricultural Diploma qualification only, while agricultural extension officers have a university degree in a specialised field.

1.6 MINISTRY OF AGRICULTURE, WATER AND FORESTRY: DIRECTORATE OF ENGINEERING AND EXTENSION SERVICES (DEES)

1.6.1 Oshikoto Region Agricultural Extension

The Directorate of Extension and Engineering Services (DEES) falls under the Ministry of Agriculture, Water and Forestry and has the aim of improving agricultural technologies. The DEES is responsible for the management of national extension programmes, which includes the functions of planning, implementing, monitoring, evaluating, and re-planning activities to meet objectives determined by government policy.

As indicated in Figure 1.1, agricultural extension is organised in all 14 regions of Namibia with a diversity of programmes, as well as a range of personnel. The information is transmitted from the national government to the regional level, and then to the constituencies and to the farmers through either the extension officers or the extension technicians. The Oshikoto region consists of extension staff with chief agricultural extension officers (CAEOs), chief agricultural extension technicians (CAETs), agricultural extension officers (AEOs), and agricultural extension technicians (AETs) – some at the regional level and some at the constituency levels.

The staff from the DEES receive information from various sources, such as research technicians, but there is a weak information flow which is mainly as a result of the top-down approach. There is scarcely any feedback between the research, extension, and other extension providers in the regions. Thus, this approach offers the farmers who are at the end of the chain little opportunity to provide feedback.

According to MAWRD (2003a), the DEES adopted a logical framework (log frame) in 2002, which is a tool that links long-term policies and plans (e.g. Second National Development Plan [NDP2]) with short-term plans where the regions' plans (e.g. Annual Work Plan and Budgets) are taken from. The MAWRD (2003b) also mentioned that the log frame helps the Ministry to carry out activities more effectively as the managers are able to monitor and evaluate the activities of the work plan; such as their goal and purpose and define output, as well as activities. The log frame was adopted by the DEES in all 14 regions. Table 1.1 presents the log frame of the MAWRD (2003b).

Table 1.1: Extension logical framework

GOAL	
Improve food security at household and national levels (It should be noted that food security is not the same as food self-sufficiency. Food security refers to the ability to secure enough food, whether it is produced or purchased using income from other sources; while food self-sufficiency refers to the ability to produce enough food.)	
PURPOSE	
Farmers must achieve increased and sustainable agricultural production and increased incomes from agriculture.	
OUTPUTS	**ACTIVITIES**
1. Improved agricultural technology and practice options are available to stakeholders.	❖ Development of relevant agricultural technology. ❖ Development of information on relevant agricultural technologies. ❖ Dissemination of information on relevant agricultural technologies to create awareness and interest.
2. Relevant farmer support information is available.	❖ Inform farmers of agriculture-related policy issues, input and product markets, complementary service provision, related value-added opportunities, and complementary off-farm livelihood opportunities.
3. Human resources in the agricultural sector are developed.	❖ Farmer training in technical, management, and facilitation skills. ❖ Staff of the DEES and partners training in technical, management and facilitation skills.
4. Agricultural institutions and organisations are strengthened towards improved service delivery.	❖ Facilitate CBO formation, provide training in technical and management skills and support CBO projects. ❖ Management information systems. ❖ Efficient use of personnel, financial, logistical, infrastructure, and material resources.
5. Cooperation between partner organisations is improved.	❖ Information sharing (documents and meetings), joint planning and coordination, joint planning, and collaboration.

Source: Adopted from MAWRD, 2003b

Table 1.1 seems very useful for management to monitor and evaluate the work plan carried out by the fieldworkers, but it appears top-down in nature and not participatory as most of the activities mentioned are mostly to develop and train farmers, yet nothing was mentioned regarding identifying the farmer's needs. The plan seems to be more inclined to the accomplishment of the NDP2. One of the most important activities of agricultural extension is to empower farmers and to teach farmers how to grow mealies instead of giving them mealies all the time. Although the example in Table 1.1 was adopted in 2003, being an extension officer up to 2008, the researcher made use of the same log frame while the Ministry of Agriculture claimed to make use of the FSRE approach, which claimed that the farmers, extension officers, and researchers worked as partners to solve the farmers' problems. Neither the farmers nor researchers are mentioned in the log frame, although Output 5 is to improve cooperation between partner organisations and seems more about information sharing, joint planning, and collaboration on the pre-set objectives of the NDP2.

1.7 TOWARDS A CONCEPTUAL FRAMEWORK

The conceptual framework diagram in Figure 1.2 is framed by an agricultural extension policy and a decentralisation policy that need to be in place for effective ASS provider work to take place. The importance of the extension policy is for the organisations to agree on extension functions, as well as the clients to be served by different organisations (Contado, 1997). The decentralisation policy is needed to transfer certain decision functions to regional levels. The decentralisation of extension requires that functions of extension are brought to the regional level and that the farmers themselves are involved. The internal factors are essential elements that will lead to output of coordination and ultimately to a framework for improving coordination.

The internal factors are the extent to which the farmers participate in agricultural activities, as well as the accountability of both farmers and organisations that are involved in agricultural extension. Qualified extension and other services providers and Subject Matter Specialists must assist the farmers to improve the productivity of their farming activities – their facilitation skills should be sufficient to help the farmers. There should be sufficient funding for extension providers to carry out extension activities affectively. Coordinated organisations will not be able to function properly unless adequate infrastructure is in place for regular meetings and

information sharing. The coordination of organisations leads to harmonised programmes, sharing of skills and knowledge, systematic services delivery by all organisations that avoid duplication, and the efficient use of resources.

As stipulated in Figure 1.2, several organisations, including NGOs, farmers' unions, and private companies, are currently working in Namibia with the farmers in order to improve their livelihoods. However, there is at present no proper coordination between these institutions. It is very evident that extension services are no longer the responsibility of the Ministry of Agriculture alone. Extension comprises a range of services, including providing knowledge and information to farmers to enable them to improve their livelihoods (Rivera & Alex, 2004). This is in line with Vision 2030, which states that "creating an environment that is conducive to working together is a key to economic progress and social harmony and the essence of partnership between government, communities and other members of civil society" (National Planning Commission, 2004).

Pluralistic extension may be regarded as being in line with the aforementioned statement because it aims at the advancement of "mixed economies" in terms of which government organisations, NGOs, and private organisations form partnerships in order to provide agricultural technologies to farmers. Pluralistic extension also implies that public extension should be more cooperative with other stakeholders. Rivera and Qamar (2003) and Birner, Davis, Pender, Nkonya, Anandajayasekeram and Ekboir (2006) were of the opinion that pluralistic agricultural extension involves the "promotion of demand-driven and farmer-accountable extension".

According to the Global Forum for Rural Advisory Services (GFRAS, 2012), the role of extension should expand from implementing a specific set of activities to supporting stakeholders and carrying out collaborative activities within agricultural extension. Thus, the researcher is of the opinion that pluralistic, demand-driven extension would help to improve extension services to the farmers, as most of the institutions are working towards the common goal of improving the farmers' living conditions. A further benefit of pluralistic extension is that it would alleviate much of the personnel and financial pressure on the government, and in addition, the farmers would benefit from the variety of human information sources.

1.8 CONCEPTUAL FRAMEWORK

Figure 1.2 presents a conceptual framework for coordinated agricultural support services in Namibia.

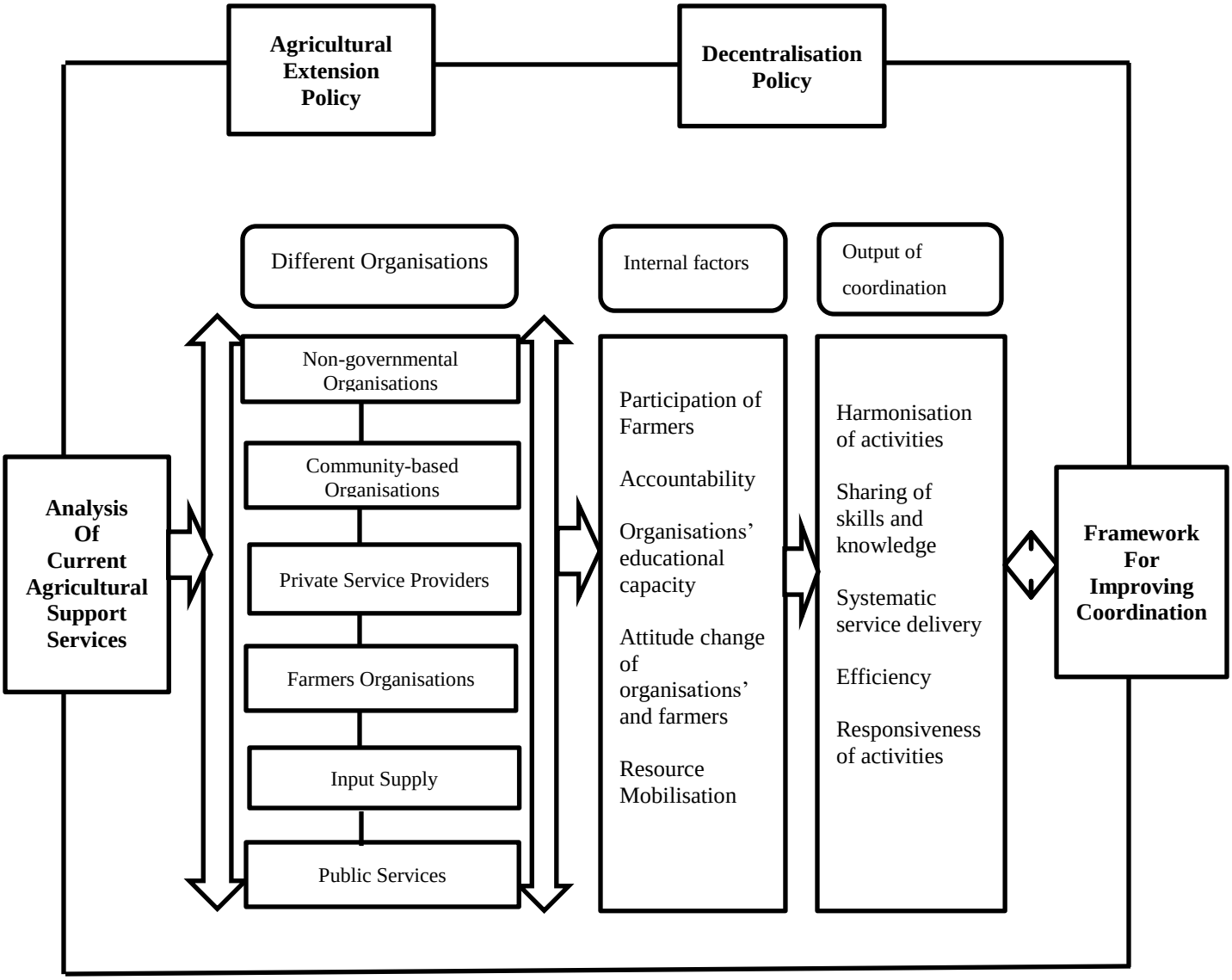

Figure 1.2: A conceptual framework for coordinated agricultural support services in Namibia

Source: Own figure

1.9 AGRICULTURAL ORGANISATIONS

1.9.1 Introduction

Most of the private and public organisations which are involved in extension work sometimes experience an overlap of activities. Coordinated instructions would lead to effective demand-driven extension services. If the farmers are to be effective, the service providers need to be accountable to the farmers. In addition, it is extremely important that the stakeholders who deal with farmers – including the extension officials, researchers, and private sector providers – hold coordinated meetings in order to discuss production, problems, research findings, and recommended practices (Swanson, 2008). The following are some of the institutions that offer agricultural support services to farmers.

1.9.1.1 Farmers' organisations

The formation of farmers' associations must be encouraged as such organisations could play an essential role to farmers; the group voice would be heard more readily by the central government than individual voices. Farmers' organisations may also play an important role in negotiating with service providers, as well as in evaluating the services received (Neuchâtel Group, 2007). In order to strengthen the farmers' organisations, the financial situation of the organisations and their members is extremely important because effective financial management capacity would enable service delivery to the members. It is also important that organisation members contribute toward the organisation's operational budget on a regular basis, e.g. monthly. Thus, it is essential that the farmers' organisations function well (Swanson, 2008).

1.9.1.2 Public services

The role of the public sector in extension services in most countries involves meeting national development goals; including realising national food security and improving rural livelihoods GFRAS (2012) and Namibia is no exception. The advantage of public services is that they are usually well distributed in all regions and are thus able to reach most of the farmers. In a more pluralistic environment, the public sector should collaborate with all the extension platforms to identify gaps in service delivery and ensure that those gaps are addressed. According to GFRAS

(2012), extension advisory services (EAS) should also promote capacity building, as well as to coordinate activities to ensure the efficient use of resources by all the extension providers. Most of the extension staff are accountable to their superiors in the public sector rather than to the farmers and, consequently, they tend to ignore their accountability to the users (Neuchâtel Group, 2007). Namibia is no exception.

According to Swanson (2008:4), government agencies rarely bring about institutional change for the following reasons:

- The bureaucratic system makes the implementation of changes extremely slow.
- There is a low level of training of staff members and, specifically, a lack of supervisory training in public services.
- Most public extension advisors carry out routine extension assignments which are predetermined by their supervisors.

GFRAS (2012) also indicated that the public sector extension services should attempt to develop the capacities of other EAS providers in order to make a more effective contribution to a country's vision. A decentralised system could be of paramount importance, with staff members forming a local committee representing small and medium-scale farmers (Neuchâtel Group, 2007).

1.9.1.3 Non-governmental organisations (NGOs)

Non-governmental organisations (NGOs) are defined broadly as all not-for-profit actors which are neither governmental nor intergovernmental (Food and Agriculture Organization (FAO), 1999b). In many countries, NGOs deliver advisory services in remote areas. In most cases they work in isolation, focusing on specific geographical areas and specific types of farmers (GFRAS, 2012). In general, the activities of NGOs are well defined and their resources are well managed. However, they should expand from implementing specific activities and support to collaborating with other extension providers such as NGOs that have experience in building social capital and collaborating with the public extension sector by implementing joint programmes. In view of the fact that NGOs are known to be effective in their services, the contracts of non-performing staff

members are usually terminated. Their funding is mostly external and, as a result, they depend on their NGO policy and non-performing staff members may therefore compromise their accountability to the farmers (Neuchâtel Group, 2007). Their sustainability is sometimes challenged as they often discontinue activities after donor withdrawals and this may leave the farmers worse off than before (Kahan, 2011).

1.9.1.4 Marketing and input supply companies

Many of the marketing and input companies deliver free advice when selling their inputs or when marketing their products. However, in most cases, they do not have adequate training in agriculture (Swanson, 2008). Nevertheless, these companies may still partner with public sector extension services and NGOs to initiate joint activities in order to link the small-scale farmers with high-value markets (GFRAS, 2012). The success of most private companies depends on their income and, as a result, they are loyal to the company management rather than having the interests of the farmers at heart. As a result, it may be observed that most technical advice tends to be more product-driven than farmer-driven and the biggest problem is that sales determine the modus operandi of the companies (Neuchâtel Group, 2007).

1.9.1.5 Independent private service providers

The private service providers are accountable to the farmers as they depend on the farmers for their income. However, it is commercial farmers rather than small-scale farmers who tend to make use of their services. Thus, by implication, these independent private service providers exist only where there is a favourable market for their services and, thus, they are absent in many remote rural areas unless the services are subsidised (Neuchâtel Group, 2007).

1.9.1.6 Community-based services (specialised fellow farmers)

The literature encourages defined farmer-to-farmer services as such services are geared towards the development of private services in the rural areas (Neuchâtel Group, 2007). Their prices are usually suited to the small-scale farmers because, in general, they provide services on a part-time basis to their neighbours and friends. It is, however, important that successful community-based

organisations be linked to professionals in order to provide assistance to farmers when the farmers are faced with problems (Neuchâtel Group, 2007).

1.9.2 Adequate funding to cover extension operational programme costs at field level

As much of the literature shows, there are inadequate financial resources to cover extension operational programme costs. The reason for this may be that most bureaucratic, top-down government programmes resort to cutting operational budgets in order to retain the funds that will cover their costs (Swanson, 2008). However, cutting operational costs will result in the inadequate functionality of extension agents as they will not be able to conduct field activities such as demonstrations, field days, workshops, and suchlike.

Many of the extension officers based in the rural areas have no basic equipment such as telephones, faxes, computers, or Internet access. However, as transitions in extension are made, Internet access will become an essential market-driven approach tool if field staff are to be operational in supplying technical and management information to the farmers (Swanson, 2008). If farmers are to be successful, there is a need for sufficient financial resources under the direct control of the extension programmes. As regards financial support for the farmers, they not only need such support but they also require guidance on how to use the money, as well as guidance on the repayments of the financial assistance to the bank (Bembridge, 1991, as cited by Van Niekerk, Stoebel, Van Rooyen, Whitfield & Swanepoel, 2009).

1.9.3 Extension policy

According to the Neuchâtel Group (2007:9), “a sound agricultural policy is indispensable” if an agricultural programme is to succeed. Rivera and Qamar (2003) were of the opinion that extension reform requires a policy vision for its implementation. A policy in pluralistic, demand-driven advisory services is needed in the interests of direction, coordination, and quality control in order to safeguard the interests of the farmers (Rivera & Qamar, 2003). Such a policy would also create an enabling environment for the development of service supply and the commitment of public sectors to deliver advisory services (Neuchâtel Group, 2007). According to Qamar

(2005), it is time that policy makers in developing countries are challenged and that they revisit both the discipline of extension and the development of an extension policy.

According to Contado (1997), extension policies clearly provide for coordination between research, education, inputs supply credit, and marketing, as well as some flexibility to accommodate the changing environment. Such policies should also include goals for agricultural extension, the responsible agencies, personnel relating to the clients, and the area to be served, as well as guidelines. Without policy decentralisation, demand-driven extension would be difficult (Contado, 1997). Currently, the Directorate of Extension in Namibia still uses an agricultural policy that was formulated in 1995 and there is thus a need for the agricultural extension policy to be separated from the 1995 agricultural policy.

The Neuchâtel Group (2007) also mentioned that decentralisation is important in light of the changing environment. It further advocated new pluralistic approaches which would break away from the traditional approach of transfer of technology.

1.9.4 Market opportunities for farmers – including resettled farmers

Market opportunities cannot be overemphasised in the resettlement programme; firstly, because such market opportunities are needed to contribute to the GDP of the country, and, secondly, the farmers need to make a living from their farms and they need to pay their employees. Swanson (2008) stated that economic variables should be central to the planning process and that the principles should be based on the fact that if there is no market for a particular crop or product, farmers should be discouraged from producing it.

It is essential that the resettled farmers be offered a wide variety of market information, which could be initiated by means of, for example, the Participatory Rural Appraisal (PRA) approach. This would enable them to identify crops and products that could be grown on their farms and that have economic value. Thus, extension officials need to identify and assess the markets for the different crops and products to be grown in particular communities and then train the farmers on how to cultivate these crops and products. Should the need arise, the farmers should be organised into producer groups to prevent market failure and to maintain a stronger position within the market (Swanson, 2008).

1.9.5 Qualified extension officers

If farmers are to be successful, there is a need for qualified extension technicians and officers in the field. According to Swanson (2008), for an extension system to link with researchers and Subject Matter Specialists, extension officers should be expected to have at least an MSc degree. However, the study further indicated that most extension directors and senior managers often have a BSc degree, although the educational levels of frontline extension staff vary significantly from country to country. In Namibia, many extension staff members still only have a diploma qualification, while some only have a BSc degree. In the majority of countries, including Namibia, most of the diploma-level programmes were designed to produce agricultural generalists and, thus, these diploma courses offer limited training in any particular specialisations or subject matter areas (Swanson, 2008).

1.9.6 Decentralisation

According to Swanson (2008), decentralisation is the biggest challenge facing agricultural systems after decades of top-down operational services. In countries such as Chile, Colombia, Mexico, and Venezuela, the extension systems are highly bureaucratic and they do not respond to the needs of the farmers (Swanson & Samy, 2002a). On the other hand, most of the farmers in Africa, Asia, and Latin America have limited access to extension services as a result of a centralised government approach. It is also true that most governments have too few extension workers compared to the numbers of farmers. Nevertheless, the participation of farmers in development activities is of paramount importance if sustainable development is to occur (Swanson & Samy, 2002b).

Three major factors are involved in decentralisation (Swanson, 2008):

- Firstly, transferring certain decision-making functions such as programme planning and implementation, the setting of priorities for activities, and the allocation of funds, as well as administrative functions such as the securing of funds for district and sub-district levels.

- Secondly, the degree of public participation in certain decision-making authority must be shared with the rural people. This includes advisory capacity programme planning as well as the control of certain financial planning activities and the relevant accountability.
- Lastly, the involvement of local government in extension activities, such as the outsourcing of certain extension activities to NGOs and farmer-based organisations (FBO), as well as to private firms, should be promoted notwithstanding linking organising producer groups to markets.

According to Swanson (2008:28), the following four alternative institutional arrangements have been used in connection with the term decentralisation:

1. *Deconcentration* – Certain selected managerial functions, for example programme planning and implementation, are assigned to the district and local levels within the national/provincial/state level agricultural extension system.
2. *Delegation* – A district-level extension systems agency is assigned accountability for providing or coordinating extension services on a territorial basis. These include managerial and fund allocation functions.
3. *Devolution* – Programme planning, management, and co-financing responsibilities are transferred to local and/or district-level governments.
4. *Transfer of specific extension activities to NGOs, FBOs and private firms* – Certain responsibilities for specific activities are transferred at different levels from central government to NGOs, FBOs, and private firms.

The importance of decentralisation is that it serves the interests of the farmers, as well as improving the management of extension. In addition, decentralisation improves the financial performance of extension. In Namibia, according to the Decentralisation Policy of September 1997, there is still a lack of clarity on the part of central government ministries on the following factors, which prevents decentralisation from taking place:

- Commitments at national and state level have not been met with equal enthusiasm at the ministerial and sectoral levels.

- Central government line ministries have, at an operational level, expressed the need for policy clarity as regards decentralisation.
- Concerted efforts aimed at policy clarification, review, and enforcement would enable the process to launch at a faster pace.

1.10 DEFINITION OF KEY CONCEPTS

i) *Rural Advisory Services (RAS)* refer to those activities that make information available, strengthen capacities, empower rural people, and promote innovation. Thus, RAS support rural people in obtaining skills and information and, thus, making better informed decisions in order to address the challenges they face and improve their livelihoods and well-being, both individually and jointly with others. RAS are also known as extension or agricultural extension (GFRAS, 2011).

ii) *Agricultural extension:* The term "extension" was first used to describe the extended adult education programmes organised by Oxford and Cambridge universities in England in 1867. In Latin America and the Caribbean, extension services were institutionalised after World War II and in Asia in 1950 (Swanson & Claar, 1994). In most African countries, extension started in the 1960s and 1970s. In the past, the main function of extension was to enhance learning in an informal setting. Thus, one of the functions of extension was to act as an intermediary between farmers and researchers and, thus, the problems and needs of farmers were reported to extension officers and recommendations taken back to the agricultural researchers. Agricultural extension was perceived mainly as a component of agricultural development. However, based on donor recommendations, various extension models and approaches have been developed (Modernizing Extension and Advisory Services (MEAS), 2011).

Birkhaeuser, Evenson and Feder (1991) pointed out that the various advanced systems that were developed since World War II have brought about great changes in agricultural production, as well as in the knowledge of farmers. However, these systems were designed for different agro-ecological zones or for different crop or livestock enterprises, and not for different socio-economic circumstances. Several research studies on

extension, for example Swanson (2008) and Düvel (2002), pointed out that there is no single blueprint for the "best" extension approach as each extension service should take into account its own context and the conditions under which it operates. Düvel (2002) also mentioned that there are organisations that prefer to propagate specific approaches in the world. Most of the approaches chosen in agricultural extension depend on the goal that is being pursued. According to Christoplos (2010), extension is an admittedly amorphous umbrella term for all the various activities that are involved in the information and advice services that are needed by farmers and the other actors in agrifood surplus systems and rural development.

According to the Neuchâtel Group (2007), extension provides sources of support, analysis, and methods of production. Extension is advisory, not prescriptive. This requires extension workers to be "actors" and not "instruments of extension".

Agricultural extension in the context of this study will be defined as those systems that should facilitate the access of farmers, their organisations, and other market actors to knowledge, information, and technologies; facilitate their interaction with partners in research, education, agri-business, and other relevant institutions; and assist farmers to develop their own technical, organisational, and management capacity (Christoplos, 2010).

iii) *Pluralistic advisory services* "[specify] the variety of service providers that have emerged in recent years, including public-private partnerships and outsourcing to the private sector and NGOs" (Birner *et al*., 2006:23).

iv) *Decentralisation extension:* Decentralisation is the transfer of authority and responsibility for government functions from central government to intermediate and local governments.

v) *Demand-driven extension services:* According to the Neuchâtel group (2007:4), the main principles of demand-driven extension include the following:

- Services shall be driven by the users' demand.
- Service providers shall be accountable to the users.
- Users shall have a choice of service providers.

vi) *Market-oriented agricultural advisory services* (MOAS): MOAS comprise the knowledge services aimed at assisting farmers, rural entrepreneurs, and other actors in the agricultural value chains to increase their access to markets and realise benefits from commercialisation (Neuchâtel Group, 2008:11).

1.11 ORGANISATION OF THE STUDY CHAPTERS

This chapter has given an overview of the objectives, as well as the conceptual framework and definitions of key concepts.

Chapter 2 provides a literature review on the global perception of the significance of agriculture extension, approaches, and challenges, and lastly different participatory models.

Chapter 3 discusses research design methods and the procedures followed to obtain data.

Chapter 4 presents the findings, analysis, and a discussion.

Chapter 5 discusses farmers' participation and involvement in the groups.

Chapter 6 presents the qualitative data by identifying the current role players among ASS providers.

Chapter 7 provides the conclusion and recommendations of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This section will discuss the literature most relevant to this study. The chapter will review the global perspective on the significance of agriculture, as well as the new concept of agricultural extension. In addition, the chapter will review the participatory models of three different authors.

2.2 GLOBAL PERCEPTION OF THE SIGNIFICANCE OF AGRICULTURE

The international community has pledged to halve poverty and hunger by 2015 (FAO, 2012). As a result, there is increased urgency in the fight to reduce hunger by 2015. Based on the "one-dollar-a-day threshold", there are 1.4 billion poor people in the developing countries. Of these, 985 million suffer from chronic hunger and thus their daily intake of calories is insufficient for them to live active and healthy lives. Despite numerous efforts on the part of organisations and governments to reduce poverty, extreme poverty remains a frightening problem in most of the developing countries. In sub-Saharan Africa, there were 58 million more poor people in 1999 than in 1990 (Swanson, 2008). By 2016, a billion people will still be living on less than US$1.25 a day (Swanson, 2008). In sub-Saharan Africa, the number of poor people has almost doubled from 200 million in 1981 to 390 million in 2005, although the poverty rate fell from 58% in 1996 to 50% in 2005 (Swanson, 2008).

Most of the people who are affected by poverty live in rural areas and thus it is essential that strategies to reduce the slow pace of poverty and to reduce hunger be implemented in these areas. The majority of research has indicated that agriculture is the main force behind the rural economy in developing countries. In addition, the literature has shown that very few countries achieve sustainable economic growth without developing their agricultural sector, with agriculture playing an important role in most developing countries through the provision of income, employment, and foreign exchange. Without a developed agricultural sector, a country becomes inefficient as regards feeding itself or importing foreign goods for consumption

(Birkhaeuser *et al*., 1991). In order to reduce hunger and poverty, civil organisations and NGOs should commit themselves to mobilising resources and providing technical services and advocacy to communities because agricultural growth plays a critical role in enhancing food security and reducing poverty in developing countries (FAO, 2006).

There is an urgent need to increase agricultural productivity in sub-Saharan Africa as the most basic food production is not able to keep pace with the increasing population growth in the region. However, achieving increased agricultural production is a complex issue as many factors are involved. Two of these many factors include agricultural extension and research as means of developing and conveying message to farmers. Thus, in the context of sustainable agricultural development, agricultural extension has a crucial role to play (FAO, 2006).

2.3 AGRICULTURAL EXTENSION APPROACHES AND CHALLENGES

Agricultural extension has been active in most developing countries since the 1800s with the main focus on realising national food security in terms of staple food crops through the transfer-of-technology (ToT) approach (Swanson, 2008; Swanson & Rajalahti, 2010; Kidd, Lamers, Ficicarelli & Hoffman, 2000; Swanson, Samy & Sofranko, 2003). The ToT model was dominant in the 1970s and 1980s, followed by the Training and Visit (T&V) approach, which was used mostly in Asian and sub-Saharan African countries.

The aim of the T&V approach was to address the management issues associated with achieving national food security. The approaches of ToT and T&V were predominantly top-down and delivered specific recommendations from research stations only. Although the T&V approach was an improved version of the original ToT approach, it was found to be unsustainable after donor financing was terminated and it ended up being a “one-size-fits-all” top-down approach (Kidd *et al*., 2000; Swanson & Rajalahti, 2010).

After the criticisms of the ToT and T&V approaches, the participatory approaches were introduced. These approaches involved building partnerships between researchers, extensionists, and farmers, so as to refocus extension activities on the needs of the farmers. However, the

participatory approach was criticised for its inability to address the structural top-down approach (Swanson, 2008; Swanson & Rajalahti, 2010).

Lastly, during the 1980s, the Farming System Research and Extension (FSRE) approach was developed in order to empower rural people and spur their development. The FSRE approach has been used in Namibia since 1995 (Matanyaire, 2005). This approach was initiated to increase the productivity of the integrated production system and to forge better linkages between extensionists, researchers, and farmers. However, the primary problem faced in terms of this approach was that it was marginally financed because it was not a core function of either research or extension. Another criticism of FSRE was that it concentrated mainly on national food security rather than improving the rural livelihoods of the poor and thus did not enable them to achieve food security (Swanson, 2008; Swanson & Rajalahti, 2010).

2.4 CHALLENGES FACING ORGANISATIONAL SERVICE PROVIDERS

Food security is still a major challenge in many countries with regard to the needs of farmers to increase their incomes and improve their livelihoods (Swanson, 2008; Swanson & Rajalahti, 2010). However, agricultural extension plays a major role in developing human and social capital, improving skills and knowledge, helping with the process of production, organising farmers, and facilitating access to markets (Glendenning, Babu & Asenso-Okyere, 2010).

Nevertheless, the extension public sector on its own is not able to finance, let alone deliver, extension to meet the requirements of the farmers, and the extension institutions are faced with many challenges. The first and most important of these challenges is the minimal physical and communication infrastructure. This includes poorly equipped extension offices with no basic equipment such as telephones, while poor roads in the rural areas in which most agricultural development centres are based, make it difficult to access their clients. Secondly**,** the operational budget in most countries has been drastically cut, resulting in fieldwork being compromised (Swanson, 2008; Birner & Anderson, 2007; Davis, 2008). Thirdly, a lack of competent Subject Matter Specialists in important areas, including high-value crops and livestock, as well as a weak link between research and extension, hamper the delivery of extension services (Davis, 2008). Fourthly, farm management and marketing skills among most extension staff members at all

levels are severely lacking. Fifthly, there is a lack of the requisite professional skills, including the ability to facilitate as well as to organise groups in the communities. Lastly, there are little or no incentives for extension agents to excel in their work (Swanson, 2008).

In addition to the fact that extension is faced with numerous challenges, it is also one of the fields in which the degree of impact is extremely difficult to measure, especially as regards linking the cause and effect quantitatively. The other huge problem is the lack of baseline data, which exacerbates the difficulty of measuring the quantitative impact over the years (Purcell & Anderson, 1997 cited in Davis, 2008:17). There is, however, some documented evidence of success of agricultural extension; for example in Zimbabwe, where longitudinal data and controlling were used to measure innate productivity using locality dummies, farm plot characteristics, and farmer ability. It was discovered that farmers' access to one or two visits per year by extension officers raised the value of their crop production by 15%, which is a statistically significant parameter. Another study conducted on the impact of extension in Mozambique has shown that access to extension increased farm production by 8.4% per farm. Thus, in the main, research has shown that extension has significant and positive effects on knowledge of adoption (Davis, 2008).

At a national level, the global development public extension system is changing and there is a need to move towards more facilitating roles as regards to working with groups and in order to produce and market different high-value products successfully (Swanson, 2006; Davis, 2008). As a result of problems with resources and management, many countries have reorganised more workable approaches. China, and to a lesser extent India, have been very effective in making their public extension system programmes market-driven (Swanson, 2006), while New Zealand and Australia have privatised their extension services (Swanson, 2008; Swanson & Rajalahti, 2010).

Table 2.1 presents certain selected models that are currently being used in some of the sub-Saharan African countries.

Table 2.1: Extension models in selected sub-Saharan countries

Country	Extension model
Angola	Rural Development and Extension Programme; Farmer Field School (FFS).
Benin	Participatory management approach; decentralised model; FFS.
Burkina Faso	FFS.
Cameroon	National Agricultural Extension and Research Programme Support Project; FFS.
Ethiopia	Model based on SG-2000 approach: Participatory Demonstration and Training Extension System; FFS.
Ghana	Unified Extension System (modified T&V); pluralistic with NGOs and private companies part of the national extension system; decentralised; Farmers' Friend (FF).
Kenya	Pluralistic system including public, private, and NGOs; FFS; stakeholder approach (NALEP): sector-wide, focal area, demand-driven, group-based approach.
Malawi	Pluralistic, demand-driven, decentralised; "one village, one product"; FFS.
Mali	Modified T&V; both private and parasternal services for cotton; FFS; SG2000.
Mozambique	Government-led pluralistic extension; FFS.
Nigeria	FFS; participatory; SG-2000.
Rwanda	Participative, pluralistic, specialised, bottom-up approach; FFS.
Senegal	FFS; government-led, demand-driven and pluralistic system; FFS.
Tanzania	FFS; group-based approach; SG-2000; modified FSRE from Sokoine. University of Agriculture's Centre for Sustainable Rural Development; private extension; decentralised Participatory District Extension; pluralism.
Uganda	National Agricultural Advisory Services (NAADS) is demand-driven, client-oriented, and farmer-led; SG-2000; FFS.
Zambia	Participatory Extension Approaches; FFS.

Source: Davis, 2008

In the past, extension in countries was run primarily by the Ministry of Agriculture and Namibia is no exception. However, extension has changed over the years with multi-sectoral collaboration and partnerships, such as public companies, private companies, and NGOs. (Swanson &

Rajalahti, 2010; Davis, 2008). Accordingly, a new extension approach would be appropriate to cater for all the stakeholders. Stakeholders require the different skills of group dynamics, marketing, and Information and Communication Technology (ICT) more than ever before, while the agricultural officers need to connect the farmers with the markets and other institutions that they need.

The privatisation of extension is not encouraged by many researchers as a result of the gap between small-scale and large-scale farmers. However, there is an urgent need for partnerships between the public and private organisations so as to increase agricultural production throughout entire agricultural communities (Swanson, 2008). In addition, extension delivery for the poor, whether public or private delivery, should be publicly financed (Swanson, 2008). Apart from the challenges that agricultural extension is facing, the establishment of a well-managed, effective, and accountable system that meets the needs of farmers in diverse farming is also an extremely important issue (Birner & Anderson, 2007). According to Joughin and Kjaer (2012) the NAADS programme in Uganda has been discontinued as it was observed to be donor driven, ambitious, and lacked ownership.

2.5 THE "NEW EXTENSIONIST": ROLES, STRATEGIES, AND CAPACITIES TO STRENGTHEN EXTENSION ADVISORY SERVICES

The New Extensionist addresses the new challenges in agricultural extension innovation by recognising the broader pluralistic landscape as including stakeholders such as private sectors, NGOs, producer groups, cooperatives, associations, and consultants. In order to cater for all these stakeholders, there is a need for a process that facilitates knowledge flow between all stakeholders. GFRAS (2012) has devised ways of developing capacities at the individual, organisational, and enabling environmental levels so as to contribute more effectively to agricultural innovation.

2.5.1 Individual level

Extension and advisory services (EAS) need staff members at the individual level who are equipped with a good understanding of technical skills to enable them to manage social processes, as well as good facilitating training competency (GFRAS, 2012).

2.5.2 Organisational level

Firstly, EAS at the organisational level is expected to network with public, private, and civil society organisations in terms of strategic management functions, as well as structure and relationships, and, secondly, to provide an operational capacity relationship, sanctions, incentives, and values. Thirdly, there is a need to put in place policies and performance pertaining to human and financial capital. Lastly, the EAS are expected to put in place infrastructure and information resources.

2.5.3 Enabling environment level

At the enabling environment level, there should be capacities for interaction, learning, and adaption. In addition, at this level there should be a clear vision aligned with political commitment, as well as a legal regulatory framework and power structures.

2.5.4 All three levels

At all three of these levels, mechanisms should be in place to investigate gender as well as equal access to services by both men and women and to promote the involvement of the youth in agriculture.

The next section will discuss the concept of a landscape that all extension workers require if they are to carry out their roles properly and in a professional manner. This landscape encompasses all the specific extension concepts, study fields, essential knowledge, and skills areas. This concept was developed by the Standard Generating Body (SGB) for Agriculture Extension in South Africa in 2005 (Terblanche, 2008).

2.6 THE LANDSCAPE NEEDED FOR EFFECTIVE EXTENSION WORK

The South African extension landscape is divided into three areas; namely the concept, the study field, and the essential knowledge and skills areas needed for effective extension work. Table 2.2 starts with the upstream concept, which includes, firstly, the communication and interaction concept, that is the vehicle through which extension takes place; secondly, the extension methodology, which describes the implementation and management of the extension process; thirdly, the extension philosophy and practices (the science of extension); and fourthly, contextual extension, which is the context or environment of the practice of extension. Finally, there is the downstream concept. This concept was developed by the Standard Generating Body (SGB) for Agriculture Extension in South Africa in 2005 (Terblanche, 2008:65).

Table 2.2: Concept of a landscape needed for effective extension

CONCEPT	STUDY FIELD	ESSENTIAL KNOWLEDGE/SKILLS AREAS
1. Upstream	1.1 Agricultural and extension research	i) New innovations (5 – 10 years in advance) ii) Adaptation and transformation of technology to render it applicable to specific farmers and farm situations – sustainability.
	1.2 Technical skills and knowledge pertaining to agriculture	i) NQF Level 5 Qualification in Agriculture (Nat. Diploma) ii) NQF Level 6 Qualification in Agriculture, first degree and further postgraduate degrees NQF Level 7/10 iii) Specific agricultural skills programmes (short courses) - Certificates SAQA accredited
	1.3 Knowledge support services (SMS)	i) Subject Matter Specialists to support extensionists
	1.4 Entrepreneurial skills	i) Entrepreneurial skills training (management training to manage any enterprise)
	1.5 Quality control	i) Monitoring and evaluation of extension (accountability)
	1.6 Finance	i) Salary ii) Working capital iii) Equipment
1. Communication and interaction (the vehicle through which extension takes place)	1.1 Communication	i) Fundamentals of communication ii) Communication strategies iii) Individual/group/mass communication iv) Communication aids v) Managing the communication process vi) Mentoring (the protégé and mentor) vii. Individual facilitation process viii. Consultation dialogue
	1.2 Group facilitation	i) Group dynamics and theories ii) Group forming and utilisation iii) Facilitation methods and techniques iv) Leadership development v) Adult education

2. Extension methodology (implementation and management of the extension process)	2.1 Approaches to extension	i) Different implementation approaches and structures ii) Philosophy of change and development iii) Extension systems iv) History and development of agricultural extension v) Action research and action learning
	2.2 Management of extension	i) Strategic planning and management ii) Corporate policy and capacity building iii) Organisational and systems theory iv) Functions of management v) Motivational theory vi) Networking, linkages and coordination vii) Programme development, planning, implementation and management viii) Evaluation of extension ix) Extension accountability x) Extension profession xii) Ethics and professionalism
3. Extension philosophy and practice (the science of extension)	3.1 Behavioural change	i) Agricultural production as forms of behaviour-influencing factors ii) Behavioural fundamentals and theories iii) Behavioural change processes and intervention iv) Adoption and diffusion processes
	3.2 Decision making	i) Basis of behavioural change ii) The decision-making process iii) Influence and function of mediating variables iv) Individual decision making v) Group decision making vi) Risk, uncertainty, and risk perception vii) Information and knowledge management in judgment and decision making
4. Contextual extension (the context or environment of the practice of extension)	4.1 Community development	i) Rural sociology, structures and leadership ii) Dynamics of social change iii) Organisational and institutional structures iv) Participation and empowerment v) Facilitation, negotiation and conflict resolution vi) Community developing roles vii) Social networking and co-ordination
	4.2 Extension policy making	i) Natural resource utilisation and protection ii) The policy-making process iii) Policy analysis and evaluation iv) Technology transfer and skills development v) The agricultural/legal environment vi) The commercial agricultural production environment vii) The small-scale agricultural production environment
2. Downstream	2.1 Agricultural management	Farming as a business – economically viable and sustainable
	2.2 Food security	Priority programme
	2.3 Land care	Conservation of the environment/climate change
	2.4 Land reform	Priority programme
	2.5 Agriculture and marketing policy	Global competiveness
	2.6 Political expectations	Restructuring – long-term strategic goal

Source: Adopted from Standard Generating Body (SGB) for Agriculture Extension in South Africa in 2005 (Terblanche, 2008:65)

The extension landscape is important in terms of extension advisors carrying out their duties in a professional manner. The South African concept may also be applied and practised in Namibia, where such principles are lacking, especially as regards the BSc Agriculture degree programme offered at the University of Namibia. There are only two modules, namely Rural Sociology and Extension and Rural Development, offered to students majoring in BSc Economics in the Department of Agricultural Economics. Students specialising in Crop Science and Animal Science take only Rural Sociology and Agricultural Extension, while students majoring in Fisheries and Aquatic Sciences take only Rural Sociology, and this may not be adequate for a career in extension services.

Extension has changed over the years and more modules are required to supplement the current curricula. Extension officers need a strong knowledge support system. This may be achieved with a team of Subject Matter Specialists (SMSs), linkages with tertiary institutions, and a flow of research and in-service training. Düvel (2004) pointed out that the function of the SMSs is to act as a backup for the extension officers and not to duplicate their activities. Linkages with tertiary institutions and NGOs are also extremely important as different partners have different skills that may contribute to the effectiveness of extension work. Training should not only be about human capital development (HCD) but also about organisational development with relevant training material for extension officers as training is an ongoing process (Van Niekerk *et al*., 2009). Training is only one part of the equation for effective extension work. Van Niekerk *et al.* (2009) mentioned that there are various challenges in terms of personal characteristics that hinder the performance of the extension officers and which need to be overcome. Among others, the most prominent were listening skills, honesty, the ability to get along with people, common sense, the ability to work independently or with little supervision, and a sound work ethic.

Terblanche (2008) stated that a number of principles should underpin an extension approach; that is, the approach should be participative and needs-based. He further mentioned that there are many fixed extension principles that should be part of an agricultural extension services programme if an extension agent is to be successful. These principles include the fact that the relationship between agricultural development and human needs-based development should be characterised by community participation and change with respect for human dignity; including

recognition of the importance of self-determination, individuality, and self-help. Terblanche (2011) stated that the aim of resettlement projects is not merely to resettle disadvantaged farmers, but also to provide ongoing support services to enable them to live a better life. It should be kept in mind that resettled farmers are expected to improve their livelihoods. The extension officer is also expected to possess sound knowledge of the farmers' environment and to prioritise potential resources (Van Niekerk *et al.*, 2009).

2.7 PARTICIPATION

Stakeholder particpitation has been recognised as an important element in agricultural support services (World Bank, 2000; Rivera & Qamar, 2003; Rivera & Alex, 2004; Swanson & Samy, 2002a). Participation means different things in different settings (Masanyiwa & Kinyashi, 2008). This study will adopt the definition of stakeholder participation of the World Bank (1996:3): "… a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them."

According to Shah (1998), participation actively involves communities in identifying their own problems, making plans, and formulating and implementing decisions concerning their own lives. Stakeholders who participate in agricultural support services are farmers, the private sector, groups, and individuals. Several comparative studies conducted by the World Bank (1996) and Montgomery (1983) indicated that "participation" was a critical component of success because it was associated with greater efficiency, more cost-effective services, and greater transparency and accountability. These components are needed in Namibia for the improvement of the farmers' livelihoods.

Düvel (2002:4) pointed out that a participatory approach in support services has reinforced the original philosophy of extension, which "seeks to help people to help themselves". General extension literature from Van den Ban and Hawkins (1996) and Leeuwis and Van den Ban (2004) indicated the different ways in which farmers can be involved in support services.
Pretty (1995) described seven ways farmers can participate in agricultural extension, as indicated in Table 2.3. This ranges from manipulative participation to self-mobilisation, where farmers independently initiate and design their own projects and the extension organisation only plays a

supportive role. It is clearly evident that Pretty's typology shifts the authority from organisations to the communities themselves.

Table 2.3: Typlogy of participaction

Type	Characteristics of each type
Manipulative participaction	Participaction is simple by pretence with "the people" represented on official boards, but who are unelected and have no power.
Passive participaction	People participate by being told what has been decided or what has already happened. This kind of participation involves announcements by administration or project management without anyone listening to the people's responses. The information being shared or announced belongs only to external professionals.
Participaction by consultation	People participate by being consulted or by answering questions. External agents define problems, and undertake information-gathering processes and control analysis. Such consultative processes do not concede any share in decision making, and professionals are under no obligation to take on board the people's views.
Participaction for material incentives	People participate by contributing resources, such as labour, in return for food, cash, or other material benefits. This may also include people participating in meetings because they are provided with food or are given compensation.
Functional participaction	Participation seen by external agencies as a means to achieve project goals. Here people may participate by forming groups to meet predetermined objectives related to a project. The involvement may be interactive and involve shared decision making, but arises only after major decisions have already been made by external agents.
Interactive participaction	People participate in joint analysis, development of action plans, and the formation or strengthening of local institutions. Participation is a right, not a means to achieve a project goal. This process involves interdisciplinary methodologies that seek multiple perspectives and employs a systematic and structured learning process. Groups take control over local decisions and determine how available resources are used, so they develop a stake in maintaining structures and practices.
Self - mobilisation	People participate by taking initiatives independently of external institutions to change systems. They develop contacts with external institutions to change systems, and for the resources and technical advice they need, but retain control over how the resources are used.

Source: Adapted from Pretty, 1995

Different authors such as Pretty (1995) and Van den Ban and Hawkins (1996) argued that the involvement of farmers is critical in developing countries. Farmers have accumulated experiences and their participaction is important in planning extension activities, as well as owning the projects (Pretty, 1995). Pretty (1995) was also of the opinion that the involvement of farmers ensures efficiency and success, as their local needs will be taken care of and farmers will be encouraged to take charge of their own development.

According to Cristóvão, Koehnen and Portela (1997), farmers' participaction is improved by including different catergories of farmer groups (formal or informal) in planning the process at mangement level. Cristóvão *et al.* (1997) futher mentioned that people are not homogenous and have different needs and interests. Numerous studies have emphasised farmer participaction, but little is written on how this can be achieved at regional level. Other studies conducted on participaction (Farrington & Martin, 1988; Frankenberger, 1992; Gamser, 1988) mainly focused on research and technology approaches. Examples of how farmers' participation can be achieved using extension support organisations for effective operation are limited.

2.8 DIFFERENT PARTICIPATORY MODELS

Based on the weaknesses of the Transfer of Technology (ToT) approach, Chamala, Coutts and Pearson (1999) created a Participatory Action Management (PAM) model. Hagmann, Murwira and Chuma (1996) developed a participatory innovation development and extension model, and Düvel (2000) developed an organisational model. The government of India and the World Bank developed the Agricultural Technology Management Agency (ATMA) model in 2005, which was decentralised and market-driven. The PAM, Düvel, and ATMA models will be discussed in the next section.

2.8.1 The PAM model

Figure 2.1 presents the six planning steps of the PAM model.

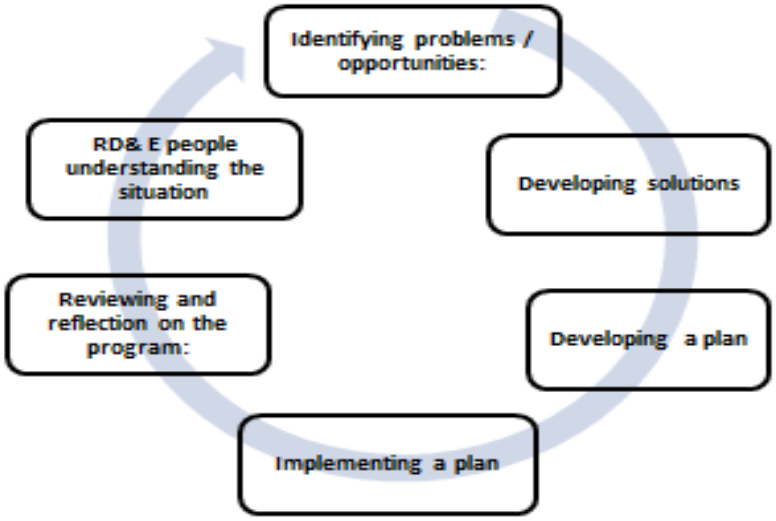

Figure 2.1: **The six planning steps of the PAM model**

Source: *Chamala, Coutts & Pearson, 1999*

The PAM model starts with identifying problems and opportunities by involving all stakeholders and farmers. The next step is developing solutions, prioritising issues that were identified through group discussions, as well as bringing outside experts to speak on potential solutions and opportunities, and, lastly, empowering the groups to select solutions. After that, a plan is developed by using participative planning techniques that suit the needs and resources of the group. The plan is implemented, making sure that the groups and subgroups perform their roles and responsibilities. Members share their views and give feedback to the communities. The PAM model represents all agencies, groups, and individuals who are involved in the primary industry. It also draws opinions, plans, information, and resources from all sectors of the community and develops, implements, and evaluates the results of the team action model (Chamala, 1999).

The advantage of the PAM model is the involvement of on-farm and off-farm resources in a participative way. It starts with a systematic approach; empowering, network building, and encouraging group management (Chamala, 1999). The weakness of this model is that it does not obtain individual contributions from stakeholders. In addition, the model does not explain how

participating community actors are identified. According to Düvel (2000), the PAM model is initiated at national and macro-level, making it top-down in nature, as it is presented to communities at grassroots level. It is unlikely to lead to the ownership of extension services by the community.

2.8.2 Düvel's organisational model

Figure 2.2 presents Düvel's organisational model.

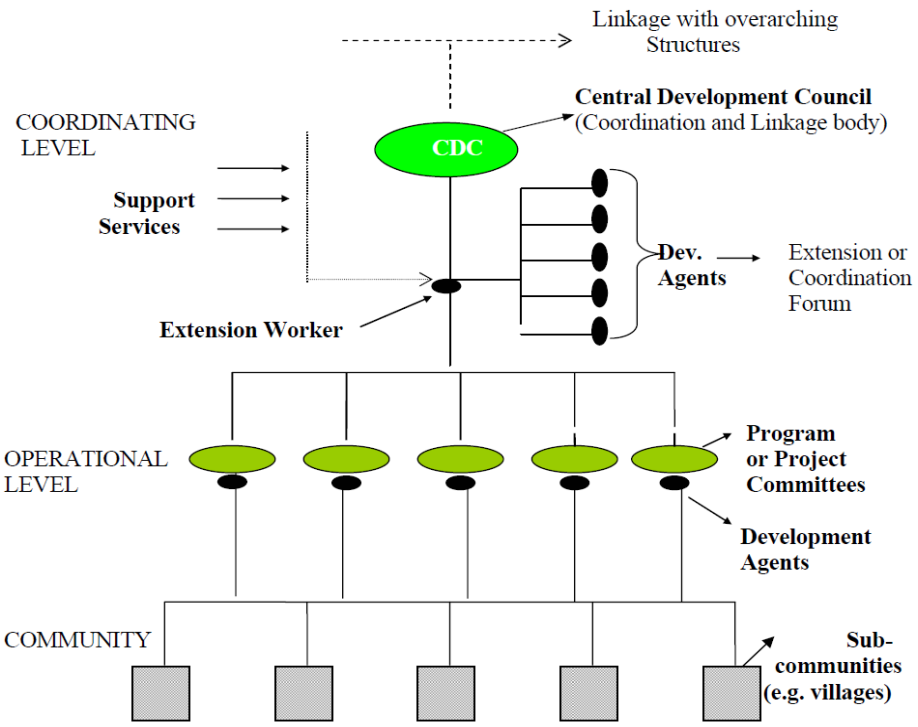

Figure 2.2: Düvel's organisational structure for participatory development, empowerment of communities, and facilitating partnerships and coordination with and between development organisations or agents

Source: Düvel, 2000

Düvel (2000) developed a conceptual framework (see Figure 2.2), which can be used as a structure for better interaction between extension organisations and farmers – leading to community empowerment. The Düvel model includes a community level, operational level, and coordination level. The coordination level consists of a Central Development Council (CDC),

which is representative of the whole community – including various interest groups and local institutions. In a commercial agricultural setting, the CDC could consist of a farmers' union or representatives from various institutions, conservation committees, or study groups. In a communal setting, this council would include representatives from villages and institutions, as well as tribal and other community leaders. The CDC should accept full responsibility for community development and the communities should regard this body as representing their interests (Düvel, 1999).

The main functions of the CDC, according to Düvel (1999:3), are:

- to identify, initiate, negotiate, commission, and coordinate all development priorities and actions; and
- to develop actions in the form of programmes, nominate members of the community who support development agents to accept responsibility for their implementation, and to give regular feedback.

The operational level consists of extension or development workers who function as development managers, operating as a development council which regularly gives feedback. The extension and development committee plans and implements development programmes, which were identified by the CDC. Where several organisations are working in a community, the extensionists should play a coordinating role (Düvel, 1999).

On the community level is the grouping of several sub-communities like villages and farmers' organisations into a larger community that will function as a dynamic and cohesive unit (Düvel, 1999).

2.9 AN EXAMPLE OF A DECENTRALISED EXTENSION SYSTEM MODEL

Figure 2.1 presents a decentralised, market-driven extension model that was piloted by the government of India and the World Bank between 1998 and 2005. The pilot study started in 28 districts of India and had increased to 252 districts by 2005 – 50% of India. The model was

designed to enable diversification into high-value crops and livestock enterprises (Reddy & Swanson, 2006; Working Group on Agricultural Extension, 2007).

The model adopted in India is an excellent example of a decentralised extension model which transformed a top-down approach into a farmer-driven and farmer-accountable approach. India is the second most populated country in the world and therefore their agricultural extension services are organised at state level rather than at central government level. However, the central government takes care of the country's well-defined extension programmes and subsidises the technologies. Thus, the National Agricultural Technology Project (NATP) was introduced in terms of which operational funding was made available directly to the Agriculture Technology Management Agency (ATMA).

Each ATMA is overseen by a governing board that includes representatives of all categories of farmers in the district, including 30% women farmers, the "Untouchables" (also known as the Dalits), and the tribal groups. The Self-help Group (SHG) and Farmers' Interest Group (FIG), as well as various producer groups, select individuals to serve on the Farmer Advisory Committees (FACs) at the block level. The chairperson of the FAC serves on the ATMA Management Committee at district level. The governing board of ATMA is represented by private sector firms, NGOs, rural banks, and other agencies that are directly involved in the agricultural development activities in the district. The senior government officer in each district serves as the chairperson of the governing board, with the ATMA director serving as a member with no voting rights (Swanson, 2008). The Block Technology Team (BTT) prepares the annual work plan, which covers all extension programme activities. These annual work plans have to receive the approval of the FAC before they are forwarded to the district level for fund approval. At the district level, work plans and budget requests are received by the ATMA management committees, which are represented by the heads of the various agricultural departments in the district, before being sent to the ATMA governing board for review and final approval.

According to the evaluation made by Lucknow (2004a, 2004b; Tyagi & Verma, 2004, both cited by Glendenning *et al*., 2010), the piloted study revealed a 14% increase in the diversification of crops, as well as a 24% increase in yield – 5% more than any other district. Although the pilot

programme was viewed as a success throughout the country (Singh, Swanson & Singh, 2006; Swanson, 2008; Swanson *et al*., 2003; Glendenning & Babu, 2011), there were also some challenges observed at the national level when the programme was scaled up in other areas. Glendenning *et al.* (2010:13) voiced the following criticisms:

- Limited staff and rigid organisation;
- Poor capacity and institutional constraints;
- A top-down linear culture;
- Weak links to the research system;
- Limited reach to farmers;
- Challenges that limit the ability to meet the needs of farmers; and
- Sectors working in isolation from one another.

In 2007, the Working Group on Agricultural Extension (WGAE) also commented on the following problems:

- A lack of qualified personnel at all levels;
- The absence of a formal mechanism to support extension delivery below the block level;
- Inadequate infrastructure support by the State Agriculture Management and Extension Training Institutes (SAMETIs); and
- A lack of convergence with other central and state projects.

(WGAE, 2007, cited by Glendenning & Babu, 2011:2).

Figure 2.3 depicts the structure of the ATMA in India.

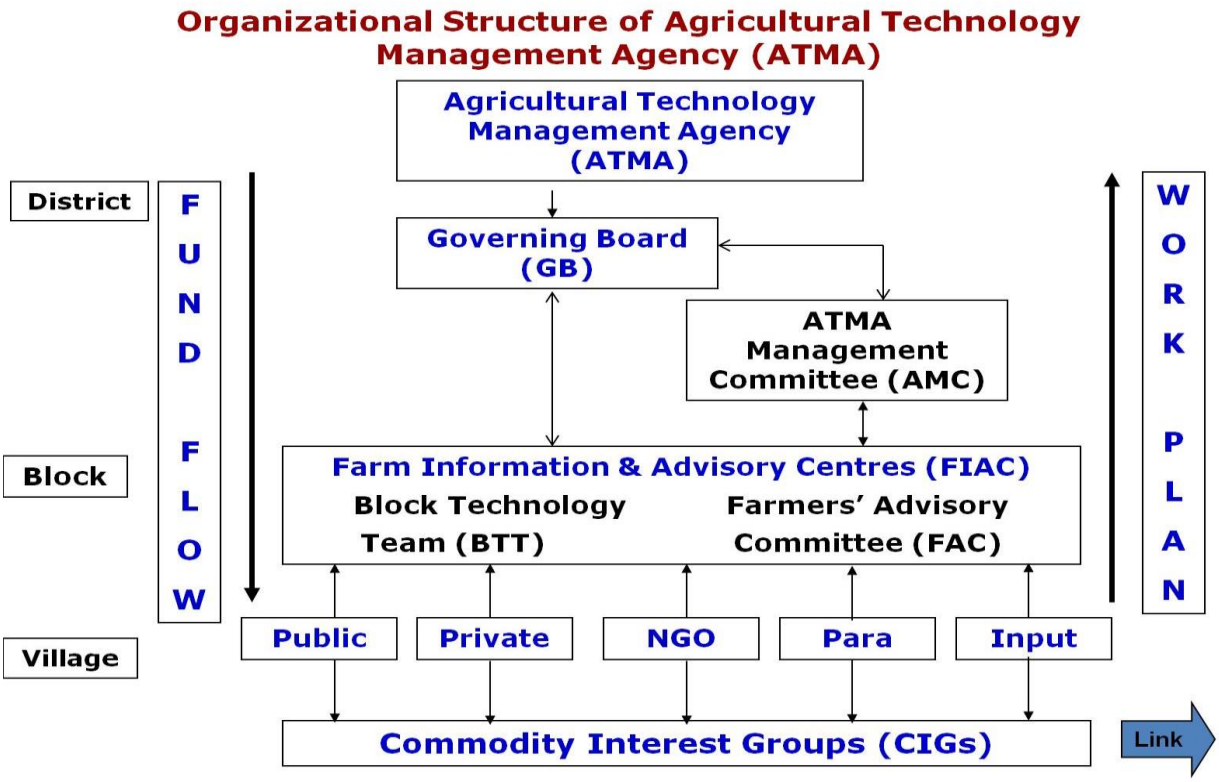

Figure 2.3: **Structure of the Agricultural Technology Management Agency (ATMA)**

Source: *Singh et al., 2006*

It was then proposed that the ATMA project be introduced in all 591 districts in India with the provision of dedicated personnel, as well as adequate funding. However, as a result of the aforementioned criticisms, the model was revised in 2010 in order to address these constraints (Glendenning & Babu, 2011), whereby agriculture livelihoods offered appropriate technologies which integrated appropriate services (Glendenning *et al.*, 2010).

The new ATMA is attempting to realise the following objectives (Department of Agriculture and Cooperation of India, 2010:16):

- Provide innovative, restructured, and autonomous institutions at the state/district/block level;
- Encourage multi-agency extension strategies involving public/private extension service providers;
- Ensure an integrated, broad-based extension delivery mechanism consistent with the farming system approach;
- Adopt a group approach to extension in line with the needs and requirements of the farmers, which have been identified in the form of commodity interest groups and Farmers' Interest Groups (FIGs),
- Facilitate the convergence of programmes for planning, execution, and implementation;
- Address gender concerns by mobilising farm women into groups and providing them all with training; and
- Move towards the sustainability of the extension services through beneficiary contributions.

The revised scheme shown in Figure 2.4 is in favour of dedicated specialists to support and train extension initiatives at state, district, and block levels. The outreach down to the village level is being achieved through the Farmers' Friend programme.

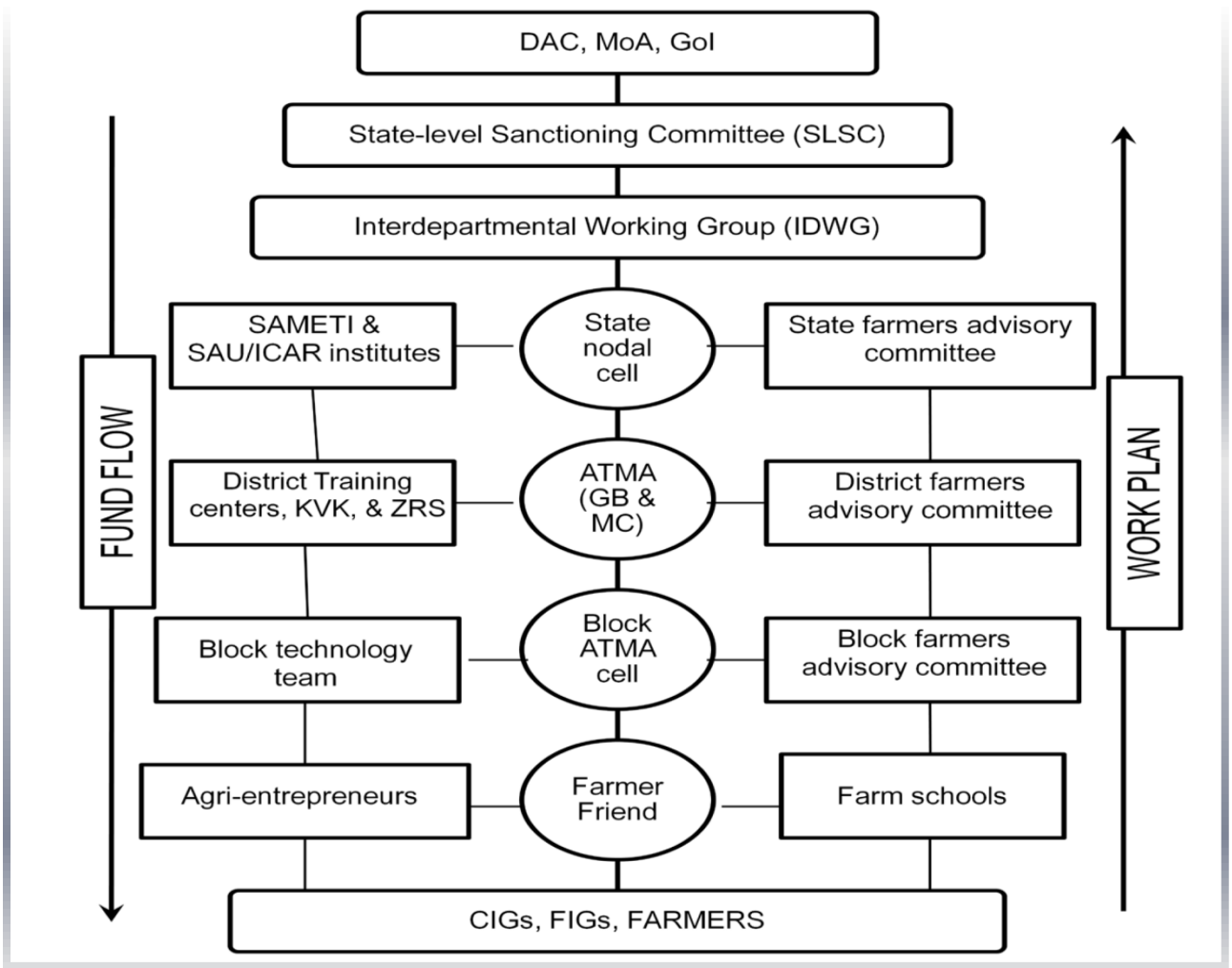

Figure 2.4: **Revised structure of the Agricultural Technology Management Agency**

Source: *Department of Agriculture and Cooperation in India, 2010*

2.10 STATE LEVEL

This level consists of an apex body known as the State Level Sanctioning Committee (SLSC). This body approves the State Extension Work Plan (SEWP), which forms part of the State Agricultural Plan (SAP). The SLSC is supported by the Inter-departmental Working Group (IDWG), which is responsible for coordinating the day-to-day activities.

The State Nodal Cell (SNC) consists of the State Coordinator and State Nodal Officer to ensure receipt of the District Agriculture Action Plans (DAAPs) and to formulate the SEWP, incorporating the farmers' feedback obtained from the State Farmer Advisory Committee

(SFAC). After approval, the SNC monitors the implementation plans as formulated by the SAMETI and the ATMAs. The SAMETI is responsible for the annual training calendar for the capacity building of extension activities and will simultaneously check for any duplication and overlapping of the content and training schedules of activities (Department of Agriculture and Cooperation in India, 2010).

2.11 DISTRICT LEVEL

The function of the ATMA at the district level is to ensure the delivery of extension services to the farmers. The ATMA Governing Board (GB) provides overall policy direction, while the District Farmers' Advisory Committee provides feedback for district level planning and the implementation of the scheme, as well as the overall management of the agricultural extension scheme, including the preparation of the Strategic Research and Extension Plan (SREP) at the district level (Department of Agriculture and Cooperation in India, 2010).

2.12 BLOCK LEVEL

The block level consists of two bodies; namely the Block Technology Team (BTT), which comprises agricultural officers and the line department within the block, as well as the Block Farmer Advisory Committee (BFAC), which represents the Farmers' Interest Group (FIG), as well as the Farmers' Organisation (FO). The two bodies function jointly to provide both feedback and input. The block ATMA cell consists of the block technology manager and Subject Matter Specialist who provide support in the execution of the Block Action Plans (BAPs) (Department of Agriculture and Cooperation in India, 2010).

2.13 VILLAGE LEVEL

At the village level, the Farmers' Friend programme serves as a link between the extension system and the farmers from two villages. The Farmers' Friend programme offers advice on agricultural activities, mobilises farmer groups, and disseminates information to farmers (groups inclusive of individual male and female farmers). In addition, entrepreneurs complement the efforts of extension by providing critical technical advice to farmers. A farmer school constitutes

the instrument for farmer-to-farmer extension at three to five focal points in every block (Department of Agriculture and Cooperation in India, 2010).

2.14 CONCLUSION OF LITERATURE REVIEW

Although the international community has pledged to reduce poverty and hunger by 2015, this dream is still far from being realised as 1.4 billion poor people still live below one US dollar (US$1) threshold a day (FAO, 2012). Most people who are affected by poverty live in the rural areas. Although there are many different organisations offering support services to communities, it is very clear from the literature that agricultural extension play a major role in improving the livelihoods of the community. The Agricultural Support Services sector on its own is not able to finance, let alone meet, the needs of all the farmers. In order for Vision 2030, which aims at transforming Namibia into a healthy and food-secure nation, to be realised, different ASS should work hand in glove to improve the living standard of the farmers. Many authors have developed different participatory models inclusive of all ASS providers in the region/district to improve their working conditions to coordinate different agricultural activities. It is, however, very clear from the literature that each model developed should be tailor-made to a specific country due to different working conditions and development structures that are in the specific country.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

Having provided a review of the broader literature on the agricultural extension approaches and challenges in the previous chapter, a landscape is needed for effective extension and a new participatory model. This chapter outlines the research procedures and, more specifically, the methodological approach for data gathering and data analysis which were used in the study.

3.2 THE STUDY AREA

3.2.1 Description of the study area

For reasons of budgetary constraints and accessibility, the Oshikoto region was chosen for this study. The Oshikoto region is one of 14 regions in Namibia (see Figure 3.1). The region consists of 38 653 km² (3 865 300 ha) of land, of which 70% is utilised for agricultural practices (Ministry of Agriculture, Water and Rural Development (MAWRD), 2003b). Oshikoto is located in the northern part of the country and it is divided into two land tenure regimes. One part of the region consists of large-scale commercial farming units under free-hold title, and the other is dominantly communal land. Oshikoto consists of ten constituencies: Tsumeb, Guinas (predominantly commercial farmers), Omuthiyagwiipundi, Eengodi, Okankolo, Omuntele, Onyaanya, Onayena, Oniipa, and Olukonda (communal area). The municipal area is in Omuthiyagwiipundi and serves as the regional capital.

The Oshikoto region has an annual rainfall of between 550 – 660 mm in the north-east part of the region, while the drier south-western part receives between 400 – 450 mm. A small part in the south receives up to 600 mm per annum (Mendelsohn, Jarvis & Roberts, 2000). The annual evaporation rate increases in the same direction, ranging between 2700 mm – 3000 mm per annum. The region has two major landscapes: the eastern Kalahari woodlands, and the Karsveld, and as such the region has deep Kalahari sand and scattered clay pans. The soils are relatively sterile and rainwater drains rapidly (MAWRD, 2003b). The vegetation is dominated by large

trees and shrubs that have deep roots to reach the moisture in deeper layers. The Karsveld lies in massive deposits of calcrete and dolomite. Soils are mostly sand and loam with dolomite sands to the east and south-east of the region. The landscape is heavily wooded with *Terminalia prunoides* woodlands on calcrete and *Terminalia prunoides-combretum apiculatin* woodlands. Plant diversity in the entire freehold area is high (Mendelsohn *et al.*, 2000).

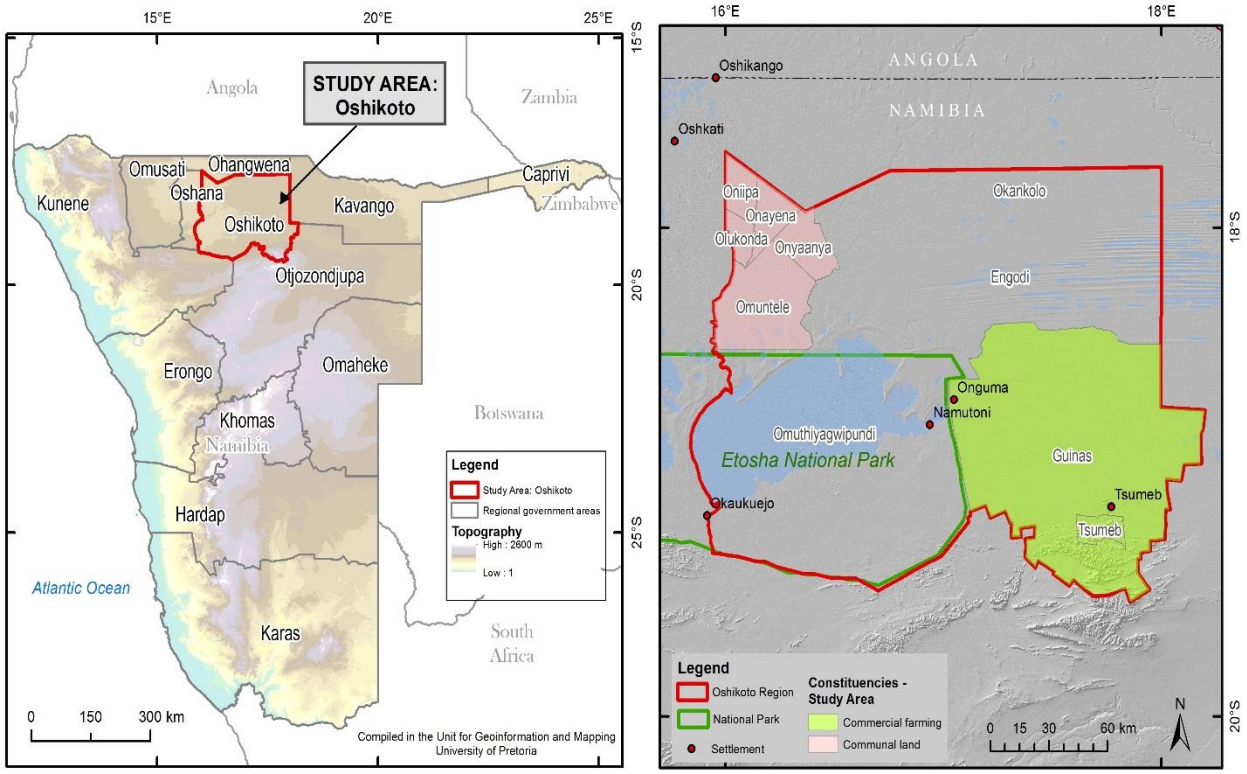

Figure 3.1: Map of the Oshikoto region

Source: NPC, 2012

3.2.2 Livelihoods in Oshikoto

The main economic activity in the Oshikoto region is farming, whereby mixed farming production is dominant in the region (MAWRD, 2003b). There are large commercial beef farmers, as well as intensive cultivation of crops in the freehold sector. Livestock encompasses a wide range of domesticated animals, including cattle, donkeys, goats, sheep, and poultry. Although there seems to be large numbers of animals in the region, due to prolonged quarantine and transport cost, the off-take is low due to high marketing costs (MAWRD, 2003b). In the communal areas, livestock is an important source of drought power. Although there is a variety

of livestock in the region, 50% of the population do not own any livestock; therefore there is a skewed ownership of livestock (National Planning Commission, 2007).

Crop farming is mostly dominated by communal farmers. Since 1990, the range of total area planted per season over seven consecutive years has been 59 588 ha, which increased by 36% in the 2002/2003 rain season. According to MAWRD (2003b), agricultural production is below average due to rural urban migration, lack of technological development, and the increasing human population that depletes the natural resources. The crop areas in the communal areas are dominated by pearl millet because of its good adaption to sandy soils. Most of the water in the region is groundwater from the Cuvelai-Etosha groundwater basin. The quality of water at certain places is saline, and the best quality water is found in the Tsumeb area. Access to groundwater enabled people to settle in the non-freehold parts of the Oshikoto region (National Planning Commission, 2007). Although the region has agricultural potential, the communities rely on food and income derived from employment, pensions, and remittances (MAWRD, 2003b). It is against this background that the Oshikoto region was chosen for this study, as well as due to its diverse farmers' representatives and the different agricultural activities that take place in the region.

3.3 POPULATION CHARACTERISTIC AND CAUSES OF POVERTY

According to the 2011 Namibian Population and Housing Census (preliminary results), the Oshikoto region consists of ten constituencies with a population of 181 600 people, comprising 94 907 females and 87 066 males. This population is from a total of 37 400 households with an average household size of 4.8 people. In the Oshikoto region, the causes of poverty vary by communities and are attributed to many factors, among which accessibility and isolation. Most of the communities in the Oshikoto region are dispersed throughout the region and have to cover some distance to reach clinics and other basic services. Some other factors attributed to poverty are lack of income, low soil fertility, lack of implements, vulnerability, and livelihood system (National Planning Commission, 2012).

3.4 RESEARCH DESIGN

A mixed research design, namely a combination of qualitative and quantitative-descriptive methods, was used in this study to obtain data. Various researchers have noted that different data-collection methods have their strengths and weaknesses, and therefore different methods complement one another. The mixed design is known to strengthen and add validity to research studies. According to Harwell (2011), qualitative research focuses on understanding the experiences as well as the thoughts of the participants as the results provide detailed, in-depth information. Quantitative research tends to leave gaps in terms of providing information. Although it does not provide detailed information, it is more objective than the qualitative approach. Saunders, Lewis and Thornhill (2010) and Leedy and Ormrod (2010) defined applied research as being of direct and immediate relevance to practices and research that are important to present in ways that can be understood and acted upon.

It is against this background that an integration of the two approaches was used to provide a complete understanding of the current situation on coordination and how best to develop a framework that will be most suitable and workable for both the farmers and the ASS providers. Based on the need to develop a framework, both the farmers' (clients) and the ASS providers' views were of paramount importance in the development of the framework. Their views were obtained by means of a questionnaire.

A questionnaire (qualitative in nature) was administered to 11 ASS providers to draw out their insight and understanding on and experiences of the following objectives:

- To identify the current role players in terms of ASS providers in the region;
- To determine coordination linkages among various stakeholders of ASS in the region;
- To analyse the capacities and skills of ASS providers in the region; and
- To determine the perceptions and the attitudes of ASS providers towards coordinated activities.

A semi-structured questionnaire containing both closed-ended and open-ended questions was used to collect quantitative data from the 200 farmers in the region. The broader objective in terms of the farmers was to determine their perceptions and attitudes toward coordinated ASS, with the following sub-objectives:

- To determine the farmers' perceptions of the contact, adequacy, relevance, and quality of ASS;
- To analyse the different information sources used by the farmers in the region;
- To analyse farmers' participation and involvement in groups, as well as group structures and problems; and
- To identify factors affecting farmers' perception and coordination of ASS providers activities in the region.

The mixed-methods technique was used to enable the researcher to identify cross-sectional issues around the farmers and ASS providers which compromise the effectiveness of extension work and, thus, how best to improve the coordination activities offered by the different ASS providers to the farmers. The use of heterogeneous observations provides stronger evidence than a single observation.

3.5 POPULATION AND SAMPLE

The populations of importance to this study were farmers and active ASS in the Oshikoto region. The region is known to have a high potential for agriculture, with two distinct farming systems, which are commercial and communal farming. In this study, commercial farms will be considered as all privately owned farms that are situated in the commercial constituency with the primary aim of making profit (these farms can be inclusive of the resettled and small-scale farmers such as horticulturalists). Communal farming includes all the households in the community who practise farming with the primary aim of feeding their families and to sell the surplus.

It has been observed that the type of farming strongly influences the decisions that the farmers have to make, such as types of livestock to keep, crops to grow, FBOs to belong to, types of equipment to buy, and the market(s) to sell their agricultural produce to. Commercial farmers are predominantly found in the Tsumeb and Guinas constituencies. These two constituencies were purposively included the study and (n=50) commercial farmers were purposively and randomly sampled from the resettled, large-scale and small-scale commercial farmers. According to Saunders *et al.* (2010), purposive sampling enables judgement to choose cases that enable research objectives to be addressed. Thus, purposive sampling in this case meant only interviewing commercial farmers who were willing to offer their time to take part in the study.

The other eight constituencies mostly practise communal farming and is where 85% of the farming household are found (Population Census, 2011). Because the population in the communal settings is homogenous, the researcher randomly selected six constituencies, which were Omuntele, Onyaanya, Onayena, Oniipa, Olukonda, and Oniipa, from the communal area, and (n=150) farmers were interviewed – bringing the total interviewees (farmers) to (n=200).

Apart from the farmers, the study also interviewed 11 active ASS providers from the different organisations in the Oshikoto region who work closely with farmers. The ASS providers were selected using the snowball sampling technique. According to Saunders *et al.* (2010), snowball sampling is used to identify members of the desired population. Since there were very few organisations working in the region, the ASS providers directed the researcher to other ASS providers.

3.6 DATA COLLECTION AND INSTRUMENTS

The study makes use of both the qualitative and quantitative methods (mixed method). Preliminary field visits to the study area were first conducted, which involved contacting local leaders to explain the purpose of the study. Some organisations in the region, such as the DEES, introduced the researcher to the different councillors. Some councillors took it upon themselves to review the research on radio and explain to the community that the research would be taking place and encouraged community members to fully participate in the study since the councillors approved the study. The pilot interviews were conducted at the DEES and on nearby farms in the

area of Onakali, which is the main office of the DEES. Both the qualitative and the quantitative questionnaires were improved according to the recommendations of the DEES staff members and the farmers' input.

According to Yin (2003), no research method is entirely qualitative or quantitative. The data collection for this study consisted of quantitative pre-coded, close-ended questions and qualitative, open-ended questions. The data-collection tools focused on all the issues reflected in the research objectives. The questionnaire was constructed with the assistance of the Department of Statistics at the University of Pretoria.

Eight research assistants were employed in each of the following constituencies: Omuntele, Onyaanya, Onayena, Oniipa, Olukonda, Oniipa, Tsumeb, and Guinas. Ten farmers were chosen for further pilot testing of the questionnaire, which was administered to assist in the content and validity verification of the instrument. To ensure that the study went smoothly, it was important that all the research assistants employed could communicate in the vernacular language. The researcher provided these fieldworkers with background information on the study and trained them in the administration of the questionnaires.

The objectives of the study were explained to them and the training took place in the local language. Comments on the questionnaire were taken into consideration for the perfection of the questionnaire; unclear questions were removed and some questions were amended. While the administration of the questionnaires was in progress in the constituencies, the researcher rotated to supervise the research assistants and to answer any questions that they might have.

The in-depth, open-ended interviews were conducted by the researcher in accordance with the predominantly qualitative-explorative research approach and in line with the research objectives. The techniques that were used were in-depth interviews with focus groups and discussions with key informants of the organisations such as the managers. Some of the managers (key informants), after the introduction of the research, felt that they were able to handle the interviews individually without their subordinates. Some of the organisations wanted to participate in groups and the participants helped one another to answer the questions, although

some only answered when asked to do so by the manager or senior person. The researcher, however, found the group discussions more meaningful and interesting because the members could validate one another's answers, as well as help one another when they forgot some information. Some of the questions were also asked in different ways to ensure that the answers were the same.

The organisations that participated in the qualitative interviews were the Directorate of Extension and Engineering Services (DEES), the Agri-marketing and Trade Agency (AMTA), Namibia National Farmers' Union (NNFU), Oshikoto Regional Farmers' Union, the Directorate of Veterinary Services (DVS), Agricultural Mentors, Okashana Community Outreach and Research Station, Okashana Research Station, Oshikoto Marketing Cooperative, Medicine World, and the higher education institution (UNAM). Most of the respondents felt the questionnaire was too long.

As regards the in-depth interviews, special care was taken in the following ways:

- The interviews were conducted in a non-threatening and private setting.
- The researcher ensured that the interviewees/respondents participated voluntarily, understood the purpose of the research, were aware that the data gathered would be treated with the utmost confidentiality, and knew that they were free to withdraw at any time during the interview.
- The researcher thanked the participants for their contributions after the completion of the questionnaires.

With the consent of the respondents, the interviews were recorded using an audio recorder to supplement the notes that were taken during the interview. The interview responses were translated and summarised. For validation of the information, the summaries were sent back to the key respondents or key persons for verification.

3.7 DATA ANALYSIS

Before the analysis of the data, the responses were checked with the aid of the relevant interviewer to ensure consistency and completeness. The computerisation and statistical analysis of the data were constructed with the assistance of the Internal Consultation Service in the Statistics Department at the University of Pretoria.

The responses to the questions were numerically coded, captured on computer, and then analysed using SAS statistical software. The data analysis included descriptive statistics that described and summarised the data, and appropriate inferential statistics to compare the groups, for example according to gender and age. The comparison of the different groups was performed by using tables, as well as testing significance differences with the chi-square test. Means and standard deviations of different frequencies and ranking of different organisations were also performed.

The qualitative data analysis was conducted manually by reviewing the notes and transcripts to identify appropriate themes. The data extracted from the relevant documents were also presented in tables and discussed in the context of the research objectives.

3.8 VALIDITY AND RELIABILITY

Rigour is an indispensable component of all research in general and of case study research in particular (Miles & Huberman, 1994; Yin, 2003). Therefore, the researcher complied with well-established criteria and logical assessment during the research process to ensure the quality of the research and credibility for the scientific community.

The researcher took care of both the validity and reliability issues of the data, the research process in general, as well as the research output. The mixed method approach is known as a triangulated research strategy. The need for triangulation arises from the ethical need to confirm the validity of the processes involved. Triangulation also increases the reliability of data and the process of gathering it. In the context of data collection, triangulation serves to corroborate the data gathered from other sources.

In terms of measurement procedures, validity is the ability of an instrument to measure what it was designed to measure, or the degree to which the researcher measures what he/she set out to measure (Kumar, 2005). Validity refers to the accuracy and trustworthiness of data-collection instruments, data, and the findings of the research (Bernard, 2000). There are three main types of validity that must be evaluated in any research; namely construct, internal, and external validity.

Construct validity refers to establishing correct operational measures for the theoretical concepts being investigated, by linking the data-collection questions and measures to research questions and objectives (Rowley, 2002; Yin, 2003), which was complied with in this research. In this research, construct validity was achieved by the multiple verifications of the questionnaire with the community members; namely farmers and ASS providers in the Oshikoto region.

The terms “credibility” and “internal validity” are used interchangeably in the literature (Bryne, 2001); they imply that the researcher has to ascertain established relationships between dependent and independent variables (Yin, 2003). In this study, internal validity was stressed by explaining that the researcher was born and grew up in the Oshikoto region and was only studying at the University of Pretoria. It was also made clear that the information was only for study purposes and to improve the coordination of ASS in the region, and that no other benefits were attached to the study. The internal validity in this study was also ensured through the triangulation of different data sources with qualitative and quantitative methods. Multiple people were interviewed, such as farmers and ASS providers of different organisations.

Terms such as generalisation, generalisability, external validity (Yin, 2003), transferability, and applicability (Bryne, 2001) are used compatibly in the literature. Overall, generalisation/external validity/transferability refers to the extent to which research findings can be generalised beyond the immediate survey population and applied to other contexts or to the entire target population (Bryne, 2001; Yin, 2003).

Purposively random sampling of farmers was conducted in eight out of the ten constituencies and the 11 active ASS providers were interviewed. Most the regions in northern Namibia speak the Oshiwambo language and have similar ASS providers with similar household settings. The

generalisation of the study can only be made by replicating the research in the Ohangwena, Omusati, and Oshana regions of Namibia.

In addition, content validity was addressed by ensuring that the data-collection instruments (both the questionnaire and the interview schedule) were designed very carefully to include all the necessary questions related to the research objectives. All the principles of constructing a questionnaire, including avoiding leading questions and ambiguous or vague questions, not using a very long questionnaire, putting together similar questions in sections or sub-sections, not including sensitive questions at the beginning of the questionnaire, etc., were strictly followed.
The study also employed a variety of qualitative techniques to gather data, such as in-depth interviews, focus groups, a semi-structured questionnaire, and observations to explore the views and opinions of the sample respondents. The qualitative data were also validated by following the logic in which the questions were checked and rechecked against the objectives of the study and for their relevance to the study's overall objective. Pre-testing or piloting of the data-collection instruments was performed to increase their validity. The statistical analysis was conducted in close cooperation with Dr Crafford and Ms Sommerville from the Department of Statistics at the University of Pretoria.

3.9 RESEARCH ETHICS

Aspects that relate to ethical behaviour for this study include the following:

- Confidentiality and anonymity in terms of which all the participants were informed of the confidentiality and anonymity of the study before completing the questionnaires. The respondents were also informed that their participation in the study is voluntary and under no circumstance should they feel either forced or obliged to complete the questionnaire.
- All the respondents were informed from the beginning that there would not be any incentives or any financial rewards offered to them.
  The questionnaire was reviewed by the departmental committee before being administered to ensure that it conforms to ethical guidelines.

CHAPTER 4

SOCIO-ECONOMIC PROFILE OF THE OSHIKOTO REGION

4.1 INTRODUCTION

This chapter provides a detailed socio-economic profile of the Oshikoto region. The main socio-economic characteristics of the sampled farmers and Agricultural Support Services (ASS) providers in the Oshikoto region include gender, age, marital status, number of people in the household, education attainment, employment status, farmer categories, size of farms, main enterprise, main income, and who participated in the study. This background information will be used for further analysis in Chapter 5.

4.2 DEMOGRAPHICS

4.2.1 Gender and age

Table 4.1 presents the age percentage distribution of the respondents who participated in the study in the Oshikoto region according to gender.

Table 4.1: Percentage distribution of age of respondents according to gender

Age	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**N**	**%**
21-40	17	17.9	24	22.9	**41**	**20.5**
41-60	46	48.4	48	45.7	**94**	**47.0**
Above 61	32	33.7	33	31.4	**65**	**32.5**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Mean age = 53.9 Standard deviation = 15.5 Min = 23 Max = 102 Mean age male = 55 Mean age female = 53

Source: Survey data

The gender distribution showed an almost balanced or equal representation of men and women. The slightly higher proportion of women could be due to the men being the breadwinners and migrating to urban areas for work, or working in different towns to take care of their families. In terms of age, out of a total of 200 respondents, almost half (47%) were between the ages of 41

and 60 years; this may therefore be the most productive group. It is also interesting to note that the youngest person was 23 years old and the oldest was 102 years old (mean age: 53.9; mean age male: 55; mean age female: 53; SD: 15.5).

4.2.2 Marital status

The farmer respondents in the Oshikoto region are presented according to marital status in Table 4.2. In this study, the "once married" category included those farmers who were separated, widowed, or divorced.

Table 4.2: Percentage distribution of the Oshikoto region according to marital status

Marital status	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**N**	**%**
Never married	16	16.8	37	35.2	**53**	**26.5**
Married	72	75.8	35	33.3	**107**	**53.5**
Once married	7	7.4	33	31.4	**40**	**20.0**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

The largest portion of the respondents were married (53.5%); of these 75.8% were male and only 33.3% were female. It is probable that men without wives and children in the village (once married or unmarried men), would be more likely to find work elsewhere, but women would have to stay and look after their children, even if they were not married.

4.2.3 Household members

Table 4.3 presents the percentage distribution of the respondents according to the number of people in the household.

Table 4.3: Percentage distribution of respondents according to the number of people in the household

Number of people in the household	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	n	**%**	**n**	**%**	**N**	**%**
1 to 4	12	12.6	19	18.1	**31**	**15.5**
5 to 10	52	54.7	65	61.9	**117**	**58.5**
Above 10	31	32.6	21	20.1	**52**	**26.0**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Mean = 8.5 Standard Deviation = 4.7 Min = 2 Max = 28

Source: Survey data

Table 4.3 shows that 58.5% of the respondents (117) reported that the number of people in their household was between five and ten. These results are consistent with the Namibia National Planning Commission (2012), which indicates an average of 7.4 people per household in the Oshikoto region.

4.2.4 Level of qualifications

Table 4.4 presents the percentage distribution of the respondents according to their gender and level of education attained.

Table 4.4: Percentage distribution of respondents according to the level of education attained and gender

Highest education level	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**N**	**%**
No formal education	8	8.4	15	14.3	**23**	**11.5**
Primary education	11	11.6	32	30.5	**43**	**21.5**
Junior school	18	18.9	23	21.9	**41**	**20.5**
Secondary school	58	61.1	35	33.3	**93**	**46.5**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

According to the results, the female respondents in the study had lower education levels than the male respondents. Of the respondents who attained a secondary school level of qualification, the

majority was male (61.1%), and only a third (33.3%) was female. Those with junior school education (20.5%) indicated a fairly equal distribution, comprising 21.9% females and 18.9% males. A total of 21.5% of the respondents achieved primary education, while only 11.5% did not receive any education. According to the findings, one can come to the conclusion that the majority of the respondents could at least read and write.

4.2.5 Sector of employment

Table 4.5 presents the percentage distribution of the respondents according to the sector of employment in the Oshikoto region.

Table 4.5: Percentage distribution of respondents according to the sector of employment

Sector of employment	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**N**	**%**
Unemployed	37	38.9	72	68.6	**109**	**54.5**
Public or government	15	15.8	11	10.5	**26**	**13**
Private and NGO	17	17.9	7	6.7	**24**	**12**
Self-employed	26	27.4	15	14.3	**41**	**20.5**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

Table 4.5 indicates that more than half of the respondents (54.5%) reported that they were not employed. Women had the highest unemployment rate at 68.6%; nearly twice that of men at 38.9%. The highest level of employment was among men who were self-employed (27.4%). It seems, however, that the respondents did not perceive farming as an occupation.

4.2.6 Farmers' categories

Table 4.6 presents the percentage distribution of the respondents according to the type of farmers in the Oshikoto region.

Table 4.6: Percentage distribution of respondents according to farmer categories in the Oshikoto region

Categories	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**N**	**%**
Commercial farmers	36	37.9	14	13.3	**50**	**25**
Communal farmers	59	62.1	91	86.7	**150**	**75**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

According to Table 4.6, 75% of the respondents were communal farmers. It was interesting to note that the majority (86.7%) of the communal farmers were female. This could also be explained in terms of the fact that males migrate to urban areas in search of work.

4.2.7 Farm size in hectares

Table 4.7 shows the percentage distribution of the respondents according to their farms' sizes in hectares.

Table 4.7: Frequency of respondents according to farm size in hectares

Farm size in hectares	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**N**	**%**
1 to 10	40	42.1	74	70.5	**114**	**57**
11 to 45	18	18.9	17	16.2	**35**	**17.5**
Above 45	37	38.9	14	13.3	**51**	**25.5**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

Table 4.7 indicates that the size of the farms of more than half of the respondents (57%) was between one and ten hectares (ha); of which 70.5% were female and 42.1% were male. Respondents with a farm size of between 11 and 45 ha accounted for 17.5%; of which 18.9% were male and 16.2% female. Those who reported farm sizes more than 45 hectares consisted of 25.5% of the sample; of which 38.9% were male and 13.3% were female. The majority of

women had smaller farms as compared to their male counterparts. The smallest farm were 2 ha and the biggest farm were 10 000 ha.

4.2.8 Main farming enterprise

Table 4.8 presents the percentage distribution of the respondents according to the main farming enterprise according to gender.

Table 4.8: Distribution of respondents according to the main farming enterprise and gender in the Oshikoto region

Type of farming enterprise	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	n	**%**	**n**	**%**	**n**	**%**
Livestock	10	10.5	3	2.9	**13**	**6.5**
Cereals	3	3.2	17	16.2	**20**	**10**
Livestock and crops	70	73.7	81	77.1	**151**	**75.5**
Horticulture	12	12.6	4	3.8	**16**	**8**
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

Table 4.8 shows that the majority of the respondents (75.5%) were engaged in livestock and crop farming, with slightly more females (77.1%) than males (73.7%). Farmers who were engaged in livestock farming were mainly male (10.5%), with fewer females (2.9%). The opposite was true for cereals; with more females (16.2%) than males (3.2%). Horticulture was mostly practised by males (12.6%); against only 3.8% females.

4.2.9 Main income source

Table 4.9 presents the percentage distribution of respondents according to their main source of income.

Table 4.9: Percentage distribution according to the respondents' main source of income

Source of income	**Male** (n = 95)		**Female** (n = 105)		**Total** (N = 200)	
	N	**%**	**n**	**%**	**n**	**%**
Pension	20	21.1	34	30.5	54	27
Farming	37	38.9	26	24.8	63	31.5
Relatives	14	14.7	20	25.7	34	17
Permanent job	9	9.5	17	8.6	26	13
Business	15	15.8	8	10.5	23	11.5
Total	**95**	**100**	**105**	**100**	**200**	**100**

Source: Survey data

Table 4.9 indicates that 27% of the respondents' main income derived from pensions. Of the 27%, the majority were females who accounted for 30.5%, while only 21.1% were males. A total of 31.5% of the respondents' main income was derived from farming; of which 38.9% were males and 24.8% were females. Those who depended on relatives for their income were 17% in total; of which 25.7% were females and only 14.7% were males. Only 13% had permanent jobs; mostly men at 9.5%; against 8.6% females. Lastly, 11.5% of the respondents' main income was derived from business; of which males comprised 15.8% and females 10.5%. It is clear that the majority of the respondents (68.5%) still depend on other sources of income as their main source of income. Only the commercial farmers indicated farming as their main source of income.

4.3 FARMERS' PERCEPTIONS OF ASS

4.3.1 The frequency of contact with ass as perceived by farmer respondents

The definitions of farmer contact with ASS were independent on individual farmer perceptions. In this study, the farmers were asked to rank how frequently they were in contact with ASS from less than a month, between one to six months, and more than six months. Table 4.10 presents the perceptions of the farmers of how frequently they had contact with ASS in the Oshikoto region.

Table 4.10: Perceptions of farmers of how frequently they had contact with ASS in the Oshikoto region

Agriculture Support Services (ASS)	≤ month		1 – 6 months		≥ 6 months		No response	
	n	%	n	%	n	%	n	%
The DEES	43	21.5	94	47	25	12.5	38	19
Directorate of Veterinary Services	44	22	64	32	41	20.5	51	25.5
Farmers' Association	25	12.5	47	23.5	18	9	110	55
Private Extension Providers	22	11	14	7	0	0	164	82
NGOs	16	8	36	18	15	7.5	133	66.5
Agricultural Mentors	13	6.5	26	13	21	10.5	140	70
Input Supply/Traders	13	6.5	48	24	17	8.5	122	61
Okashana Research Station	7	3.5	24	12	22	11	147	73.5
Educational Institutions	4	2	14	7	4	2	178	89

Source: Survey data

Table 4.10 shows that of the nine active ASS providers in the Oshikoto region, the majority of the farmers, ranging from 55% to 89%, indicated that they had not been in contact with seven ASS providers within a year. The seven, indicated in descending order, were Educational Institutions at 89%; Private Extension Providers at 82%; Okashana Research Station at 73.5%; Agricultural Mentors at 70%; NGOs at 66.5%; Input Supply at 61%; and Farmers' Association at 55%. The farmers had the most frequent contact (≤ month) with the Directorate of Extension and Engineering Services (21.5%) and Veterinary Services (22%). These results could be attributed to the fact that the Directorates of Extension and Engineering Services and Veterinary Services have offices and officials in most of the Oshikoto constituency – unlike other ASS providers.

Farmer respondents' ranking of contact, and the adequacy, relevance, and quality of ASS in the Oshikoto region is presented in Table 4.11.

Table 4.11: Farmer respondents' ranking of contact (frequencies), adequacy, relevance, and quality of ASS in Oshikoto region

Agriculture Support Services	Contact (frequency)		Adequacy		Relevance		Quality	
	%	Rank	%	Rank	%	Rank	%	Rank
The DEES	81	**1**	67.9	**4**	73.5	**5**	73.5	**4**
Directorate of Veterinary Services	74.5	**2**	66.4	**5**	77.9	**4**	67.8	**5**
Farmers' Association	45	**3**	58.9	**7**	67.8	**6**	63.6	**7**
Input Supply/Traders	39	**4**	44.9	**8**	50	**8**	34.6	**8**
NGO	33.5	**5**	82.1	**2**	95.5	**2**	86.6	**2**
Agricultural Mentors	30	**6**	75	**3**	90	**3**	78.3	**3**
Okashana Research Station	26.5	**7**	39.6	**9**	43.4	**9**	39.6	**9**
Private Extension Providers	18	**8**	91.7	**1**	97.3	**1**	97.2	**1**
Education Institution	11	**9**	59.1	**6**	63.6	**7**	63.6	**6**

1 being the highest and 9 being the lowest

Source: Survey data

According to Table 4.11, 81% and 74.5% of the farmer respondents were frequently in contact with the Directorate of Extension and Engineering Services and the Directorate of Veterinary Services respectively. In third place was the Farmers' Association with 45%. Although these ASS providers contacted most of the farmers as compared to the other ASS providers, farmers' ranking of their services was disappointing. Farmers' perceptions of the adequacy, relevance, and quality of the contact indicated a ranking position of between four and seven. The latter is consistent with the findings of Swanson (2008), who argued that many government institutions are in contact with many farmers due to the fact that public services are well distributed in all regions, and thus are able to reach most of the farmers. The opposite is, however, true regarding the Private Extension Providers, NGOs, and Agricultural Mentors, who contacted fewer farmers, yet their services were ranked among the top three positions. These results validated findings of other researchers such as Neuchâtel Group (2007), who argued that the activities of NGOs were well defined and their resources were well managed, while the Private Service Providers, on the other hand, were accountable to the farmers as they depend on the farmers for their income. It is, however, surprising to note that Input Supply, Okashana Research Station, and Educational Institution were ranked lower in terms of both being in contact with farmers and on their service

delivery. These results could be attributed to the fact that research is complicated and research institutions sometimes find it difficult to simplify the technology to serve farmers' needs and interests. According to Asopa and Beye (1997), the problems researchers investigate are sometimes not in accordance with farmers' needs. The lower ranking of the higher education institution could be attributed to the fact that they might be too technical for the farmers to understand.

Table 4.12 presents the perceptions of farmers on how frequently they were contacted by ASS in the Oshikoto region by gender.

Table 4.12: Respondents by gender and their perception of how frequently they were visited by ASS services in the Oshikoto region

Agricultural Support Services (ASS)	Frequently visits categories	Gender				Total	Chi-square test (X^2)	
		Male		Female			Value	p
		n	%	n	%	n		
The DEES	≤ month	28	65.12	15	34.88	43	7.60	0.0224
	1-6 months	40	42.55	54	57.45	94		
	≥ 6 months	9	36	16	64	25		
	Total	77	47.53	85	52.47	162		
Directorate Of Veterinary Services	≤ month	24	54.55	20	45.45	44	2.31	0.3144
	1-6 months	26	40.63	38	59.38	64		
	≥ 6 months	21	51.22	20	48.78	41		
	Total	71	47.65	78	52.35	149		
Farmers' Association	≤ month	12	48	13	52	42	21.66	0.4342
	1-6 months	24	51.06	23	48.94	47		
	≥ 6 months	6	33.33	12	66.67	18		
	Total	42	46.67	48	53.33	90		
Input Supply	≤ month	10	76.92	3	23.08	13	2.64	0.0407
	1-6 months	18	37.5	30	62.50	48		
	≥ 6 months	8	47.06	9	52.94	17		
	Total	36	46.15	42	53.85	78		
Okashana Research Station	≤ month	4	57.14	3	42.86	7	2.16	0.3387
	1-6 months	12	50	12	50	24		
	≥ 6 months	7	31.82	15	68.18	22		
	Total	23	43.4	30	56.6	53		
Agricultural Mentors	≤ month	8	61.54	5	38.46	13	2.62	0.2697
	1-6 months	11	42.31	15	57.69	26		
	≥ 6 months	7	33.33	14	66.67	21		
	Total	26	43.33	34	56.67	60		
Private Extension Providers	≤ month	16	72.73	6	27.27	22	10.01	0.932
	1-6 months	10	71.43	4	28.58	14		
	≥ 6 months	0	0	0	0	0		
	Total	26	72.22	10	27.78	36		
Higher Education Institution	≤ month	3	75	1	25	4	3.14	0.2077
	1-6 months	5	35.71	9	64.29	14		
	≥ 6 months	3	75	1	25	4		
	Total	11	50	11	50	22		
NGO	≤ month	7	43.75	9	56.25	16	0.99	0.6109
	1-6 months	13	36.11	23	63.89	36		
	≥ 6 months	4	26.67	11	73.33	15		
	Total	24	35.82	43	64.18	67		

Significant where $p \leq 0.05$

Source: Survey data

Table 4.12 shows no significant differences between male and female farmers in seven of the active ASS providers; except for the DEES and Input Supply Providers. According to the Chi-square test (X^2 = 7.60; p = 0.0224), there is a significant difference regarding frequent contact with the DEES; whereby more male (65.12%) than female (34.88%) respondents were contacted more than once a month; while more females (57.45%) than male respondents (42.55%) were contacted between one and six months and less than six months (36% and 64%) respectively. One of the reasons could be because more males migrate to other regions in search of employment than females, who stay to take care of household activities, and when males are on the farm, they make use of the DEES. There was also a significant difference with Input Supply (X^2 = 2.64; p = 0.0407); indicating more males being contacted once a month than females, while more female than male respondents were contacted between one and six months and more than six months respectively. Female farmers clearly have less contact with ASS providers than male farmers.

Table 4.13 presents the percentage of farmers in three age categories who were contacted by ASS providers in the Oshikoto region.

Table 4.13: The frequency of contact with ASS as perceived by farmer age categories in the Oshikoto region

ASS	Age group	≤ month		1-6 months		≥ 6 months		No response		Total	Chi square	P-value
		N	%	N	%	n	%	N	%	n		
The DEES	21-40	7	17.07	21	51.22	5	12.2	8	19.51	41	**5.09**	**0.5328**
	41-60	19	20.21	42	44.68	16	17.02	17	18.09	94		
	Above 61	17	26.15	31	47.69	4	6.15	13	20	65		
Total		**43**		**94**		**25**		**38**		**200**		
Directorate of Veterinary Services	21-40	7	17.07	10	24.39	12	29.27	12	29.27	41	**9.17**	**0.1644**
	41-60	22	23.4	26	27.66	18	19.15	28	29.79	94		
	Above 61	15	23.08	28	43.08	11	16.92	11	16.92	65		
Total		**44**		**64**		**41**		**51**		**200**		
Farmers' Association	21-40	7	17.07	7	17.07	1	2.44	26	63.41	41	**10.60**	**0.1015**
	41-60	10	10.64	26	27.66	6	6.38	52	55.32	94		
	Above 61	8	12.31	14	21.54	11	16.92	32	49.23	65		
Total		**25**		**47**		**18**		**110**		**200**		
Input supply	21-40	3	7.32	9	21.95	6	14.63	23	56.10	41	13.39	**0.0373**
	41-60	9	9.57	29	30.85	5	5.32	51	54.26	94		
	Above 61	1	1.54	10	15.38	6	9.23	48	73.85	65		
Total		**13**		**48**		**17**		**122**		200		
Okashana Research Station	21-40	2	4.88	4	9.76	2	4.88	33	80.49	41	6.44	**0.3761**
	41-60	5	5.32	10	10.64	12	12.77	67	71.28	94		
	Above 61	0	0	10	15.38	8	12.31	47	72.31	65		
Total		**7**		**24**		**22**		**147**		**200**		
Agricultural Mentors	21-40	4	9.76	4	9.76	6	14.63	27	65.85	41	**12.36**	**0.0544**
	41-60	8	8.51	18	19.15	9	9.57	59	62.77	94		
	Above 61	1	1.54	4	6.15	6	9.23	54	83.08	65		
Total		**13**		**26**		**21**		**140**		200		
Private Extension Providers	21-40	6	14.63	5	12.20	0	0	30	73.17	41	**8.51**	**0.0746**
	41-60	9	9.57	9	9.57	0	0	76	80.85	94		
	Above 61	7	10.77	0	0.00	0	0	58	89.23	65		
Total		**22**		**14**		**0**		**164**		**200**		
Higher Education Institution	21-40	1	2.44	5	12.20	0	0	35	85.37	41	**8.64**	**0.1948**
	41-60	1	1.06	7	7.45	4	4.26	82	87.23	94		
	Above 61	2	3.08	2	3.08	2	3.08	61	93.85	65		
Total		**4**		**14**		**4**		**178**		200		
NGOs	21-40	6	14.63	7	17.07	1	2.44	27	65.85	41	**8.54**	**0.2010**
	41-60	7	7.45	18	19.15	11	11.70	58	61.70	94		
	Above 61	3	4.62	11	16.92	3	4.62	48	73.85	65		
Total		**16**		**36**		**15**		**133**		**200**		

Significant where $p \leq 0.05$

Source: Survey data

According to Table 4.13, there was no significant difference between the different age categories for seven of the active ASS providers; except for the Input Supply and Agricultural Mentors. A significant difference ($X^2 = 13.39$; $p = 0.0373$) was recorded for Input Supply. This indicates that more of the farmers were contacted between one and six months in all the age groups compared to more than once a month and more than six months. A significant differences ($X^2 = 12.36$; $p = 0.0544$) was recorded for mentor whereby more farmers were contacted in the age category 21–40 (between one and six months) and in the age category 41 – 60 (contacted more than six months), and in the above 60 category. It is also worth mentioning that no age categories were contacted by Private Extension Providers in more than six months. The number of respondents was, however, low as only 78 respondents for Input Supply and 60 respondents for Mentors gave an indication of contact with them.

Table 4.14 presents the means and standard deviations of the frequency of contact with ASS as perceived by farmers.

Table 4.14: Means and standard deviations of frequencies of contact as perceived by respondents

ASS	N	Mean	SD
Private Extension Providers	36	2.6	0.49
The DEES	162	2.1	0.64
Farmers' Association	90	2.1	0.64
Directorate of Veterinary Services	149	2.0	0.76
NGOs	67	2.0	0.69
Higher Education Institution	22	2.0	0.62
Input Supply/Traders	78	1.9	0.62
Agricultural Mentors	60	1.9	0.75
Okashana Research Station	53	1.7	0.69

Note: Rank based on frequency, 3 = ≤ month; 2 = 1-6 months; 1 = ≥ 6 months

Source: Survey data

According to the findings, the Private Extension Providers were frequently used, with a mean of 2.6, but only a small number of 36 respondents made use of this ASS. The latter is expected because farmers pay for these services and as such they can be called upon any time by the

farmers when the services are needed. The second highest mean was the DEES and Farmers' Association with a mean rating of 2.1; followed by the Directorate of Veterinary Services, NGOs, and the higher education institution ranked third with a mean rating of 2.0. Input Supply and Agricultural Mentors ranked fourth with a mean rating of 1.9; and Okashana Research Station ranked fifth as the ASS with a mean rating of only 1.7 – the smallest mean frequency in contacting farmers.

4.3.2 The adequacy of ASS as perceived by farmer respondents

The definition of farmers' perception of adequacy was subject to individual perceptions. In this study, the farmers were asked to rank the adequacy of services providers on a scale of one to three from Adequate to Inadequate. Table 4.15 presents the perceptions of farmers according to gender in percentages of the adequacy of ASS providers in the Oshikoto region.

Table 4.15: Percentage of gender distribution of respondents' perceptions of the adequacy of ASS in the Oshikoto region

ASS	Response	Gender				Total	Chi-square	P-value
		Male		Female				
		n	%	n	%	n		
The DEES	No response	18	18.95	20	19.05	38	**1.76**	**0.6247**
	Adequate	51	53.68	59	56.19	110		
	Somewhat adequate	21	22.11	17	16.19	38		
	Inadequate	5	5.26	9	8.57	14		
	Total	95	100	105	100	200		
Directorate of Veterinary Services	No response	24	25.26	27	25.71	51	**0.26**	**0.9668**
	Adequate	47	49.47	52	49.52	99		
	Somewhat adequate	19	20	19	18.1	38		
	Inadequate	5	5.26	7	6.67	12		
	Total	95	100	105	100	200		
Farmers' Association	No response	53	55.79	57	54.29	110	**4.21**	**0.24**
	Adequate	20	21.05	33	31.43	53		
	Somewhat adequate	17	17.89	12	11.43	29		
	Inadequate	5	5.26	3	2.86	8		
	Total	95	100	105	100	200		
Input Supply	No response	59	62.11	63	60	122	**0.88**	**0.8312**
	Adequate	18	18.95	17	16.19	35		
	Somewhat adequate	15	15.79	20	19.05	35		
	Inadequate	3	3.16	5	4.76	8		
	Total	95	100	105	100	200		
Okashana Research Station	No response	72	75.79	75	71.43	147	**0.54**	**0.9096**
	Adequate	9	9.47	12	11.43	21		
	Somewhat adequate	8	8.42	11	10.48	19		
	Inadequate	6	6.32	7	6.67	13		
	Total	95	100	105	100	200		
Agricultural Mentors	No response	69	72.63	71	67.62	140	**0.75**	**0.8607**
	Adequate	20	21.05	25	23.81	45		
	Somewhat adequate	5	5.26	7	6.67	12		
	Inadequate	1	1.05	2	1.9	3		
	Total	95	100	105	100	200		
Private Extension Providers	No response	69	72.63	95	90.48	164	**11.77**	**0.0028**
	Adequate	23	24.21	10	9.52	33		
	Somewhat adequate	3	3.16	0	0	3		
	Inadequate	0	0	0	0	0		
	Total	95	100	105	100	200		
Higher Education Institution	No response	84	88.42	94	89.52	178	**17.59**	**0.4151**
	Adequate	5	5.26	8	7.62	13		
	Somewhat adequate	6	6.32	3	2.86	9		
	Inadequate	0	0	0	0	0		
	Total	95	100	105	100	200		
NGO	No response	71	74.74	62	59.05	133	**13.03**	**0.0046**
	Adequate	24	25.26	31	29.52	55		
	Somewhat adequate	0	0	11	10.48	11		
	Inadequate	0	0	1	0.95	1		
	Total	95	100	105	100	200		

Significant where $p \leq 0.05$

Source: Survey data

According to Table 4.15, there were no significant differences between male and female respondents on seven of the active ASS providers; except for:

i) Private Extension Providers, which had significant differences: ($X^2 = 11.77$; $p = 0.0228$). This indicates that more male than female respondents contacted perceived the services as adequate. Only males perceived the services as being somewhat adequate, and none of the respondents perceived the services as inadequate. It is worth mentioning that more females than males did not respond to this question. One would interpret that only a few female respondents made use of Private Extension Providers.

ii) NGOs, which had a significant difference ($X^2 = 13.3$; $p = 0.0046$), indicating that more females than males were adequately satisfied with the NGOs. More females than males answered this question.

Table 4.16 presents the adequacy of ASS in the Oshikoto region as perceived by the farmer respondents per age categories.

Table 4.16: The adequacy of ASS as perceived by farmers in the Oshikoto region according to age

ASS	Age group	Adequate		Somewhat Adequate		Inadequate		No response		Total	Chi - square	P-value
		n	%	n	%	n	%	n	%	N		
The DEES	21-40	19	46.34	8	19.51	6	14.63	8	19.51	41	**6.9423**	**0.3262**
	41-60	51	54.26	21	22.34	5	5.32	17	18.09	94		
	> 61	40	61.54	9	13.85	3	4.62	13	20	65		
Total		**110**		**38**		**14**		**38**		200		
Directorate of Veterinary Services	21-40	20	48.78	3	7.32	6	14.63	12	29.27	41	**19.9523**	**0.0028**
	41-60	47	50	14	14.89	5	5.32	28	29.79	94		
	> 61	32	49.23	21	32.31	1	1.54	11	16.92	65		
Total		**99**		**38**		**12**		**51**	19.95	200		
Farmers' Association	21-40	10	24.39	5	12.20	0	0	26	63.41	41	**4.3016**	**0.6359**
	41-60	23	24.47	15	15.96	4	4.26	52	55.32	94		
	> 61	20	30.77	9	13.85	4	6.15	32	49.23	65		
Total		**53**		**29**		**8**		**110**		**200**		
Input Supply	21-40	9	21.95	6	14.63	3	7.32	23	56.10	41	**9.2728**	**0.1588**
	41-60	20	21.28	19	20.21	4	4.26	51	54.26	94		
	>e 61	6	9.23	10	15.38	1	1.54	48	73.85	65		
Total		**35**		**35**		**8**		**122**		200		
Okashana Research Station	21-40	5	12.20	3	7.32	0	0.00	33	80.49	41	**5.3178**	**0.5037**
	41-60	8	8.51	11	11.70	8	8.51	67	71.28	94		
	>61	8	12.31	5	7.69	5	7.69	47	72.31	65		
Total		**21**		**19**		**13**		**147**		200		
Agricultural Mentors	21-40	11	26.83	2	4.88	1	2.44	27	65.85	41	**9.9008**	**0.1289**
	41-60	27	28.72	6	6.38	2	2.13	59	62.77	94		
	>61	7	10.77	4	6.15	0	0	54	83.08	65		
Total		**45**		**12**		**3**		**140**		200		
Private Extension Providers	21-40	10	24.39	1	2.44	0	0	30	73.17	41	**5.1385**	**0.2734**
	41-60	16	17.02	2	2.13	0	0	76	80.85	94		
	>61	7	10.77	0	0	0	0	58	89.23	65		
Total		**33**		**3**		**0**		**164**		200		
Higher Education Institution	21-40	5	12.20	1	2.44	0	0	35	85.37	41	**4.9051**	**0.2972**
	41-60	6	6.38	6	6.38	0	0	82	87.23	94		
	> 61	2	3.08	2	3.08	0	0	61	93.85	65		
Total		**13**		**9**		**0**		**178**		200		
NGOs	21-40	13	31.71	1	2.44	0	0	27	65.85	41	**7.1566**	**0.3066**
	41-60	28	29.79	8	8.51	0	0	58	61.70	94		
	>61	14	21.54	2	3.08	1	1.54	48	73.85	65		
Total		**55**		**11**		**1**		**133**		200		

Significant where $P \leq 0.05$

Source: Survey data

According to Table 4.16, there were no significant differences between the different age categories in eight of the active ASS providers. The only significant differences ($X^2 = 19.95$; $p = 0.0028$) were recorded for the Directorate of Veterinary Services. This indicates that the majority (99) of the farmers in the three age categories were adequately satisfied with the Directorate of Veterinary Services, as compared to somewhat adequate and inadequate. Although there were no significant differences between Private Extension Providers, NGOs, and Agricultural Mentors, the farmers were satisfied with their services in all age categories. The positive finding is that only 7% of the respondents (14) indicated that the DEES was inadequate; 6% indicated the Directorate of Veterinary Services was inadequate, and only 4% indicated the Farmers' Organisation as inadequate.

The means and standard deviations of adequacy of the ASS providers as perceived by the farmer respondents are presented in Table 4.17.

Table 4.17: Means and standard deviations of the adequacy of ASS providers as perceived by the farmer respondents

ASS	n	Mean	SD
Private Extension Providers	36	2.9	0.28
NGOs	67	2.8	0.43
Agricultural Mentors	60	2.7	0.56
The DEES	162	2.6	0.65
Higher Education Institution	22	2.6	0.50
Directorate of Veterinary Services	149	2.6	0.64
Farmers' Association	90	2.5	0.66
Input Supply/Traders	78	2.3	0.66
Okashana Research Station	53	2.2	0.79

Note: Mean based on Likert scale items of 1 to 3, where 1 = Inadequate; 2 = Somewhat Adequate; 3 = Adequate
Source: Survey data

The findings indicate that Private Extension Providers were more adequate in services provision with a mean of 2.9, but only 36 respondents made use of this ASS provider. The second highest mean was the NGOs, with a mean rating of 2.8. Agricultural Mentors were in third place with a mean of 2.7. In fourth place, the mean rating of 2.6 was for the DEES, Higher Education

Institution, and the Directorate of Veterinary Services. The Farmers' Association was ranked fifth with a mean rating of 2.5, while Input Supply ranked sixth with a mean of 2.3, and Okashana Research Station received a mean of 2.2. The respondents clearly indicated that the services provided by the nine ASS providers were at least somewhat adequate.

4.3.3 The relevance of ASS as perceived by respondents

The definition of relevance was subject to individual perceptions. In this question, the farmers were asked to rank how relevant the services of the ASS providers were to them; from relevant to irrelevant.

Table 4.18 presents percentages of the farmers' perceptions of the relevancy of ASS in the Oshikoto region according to gender.

Table 4.18: Perceptions of farmers of ASS relevancy according to gender

ASS	Response	Gender				Total	Chi-square	P-value
		Male		Female				
		n	%	n	%	N		
The DEES	No response	18	18.95	20	19.05	38	0.88	0.8299
	Relevant	54	56.84	65	61.9	119		
	Somewhat relevant	19	20	16	15.24	35		
	Irrelevant	4	4.21	4	3.81	8		
	Total	95	100	105	100	200		
Directorate of Veterinary Services	No response	24	25.26	27	25.71	51	1.78	0.6183
	Relevant	52	54.74	64	60.95	116		
	Somewhat relevant	17	17.89	12	11.43	29		
	Irrelevant	2	2.11	2	1.9	4		
	Total	95	100	105	100	200		
Farmers' Association	No response	53	55.79	57	54.29	110	4.86	0.1826
	Relevant	24	25.26	37	35.24	61		
	Somewhat relevant	12	12.63	9	8.57	21		
	Irrelevant	6	6.32	2	1.9	8		
	Total	95	100	105	100	200		
Input Supply	No response	59	62.11	63	60	122	0.25	0.9685
	Relevant	18	18.95	21	20	39		
	Somewhat relevant	10	10.53	13	12.38	23		
	Irrelevant	8	8.42	8	7.62	16		
	Total	95	100	105	100	200		
Okashana Research Station	No response	72	75.79	75	71.43	147	3.49	0.3218
	Relevant	7	7.37	16	15.24	23		
	Somewhat relevant	10	10.53	10	9.52	20		
	Irrelevant	6	6.32	4	3.81	10		
	Total	95	100	105	100	200		
Agricultural Mentors	No response	69	72.63	71	67.62	140	5.01	0.1712
	Relevant	21	22.11	33	31.43	54		
	Somewhat relevant	4	4.21	1	0.95	5		
	Irrelevant	1	1.05	0	0	1		
	Total	**95**	**100**	**105**	**100**	**200**		
Private Extension Providers	No response	68	71.58	95	90.48	163	12.11	0.0023
	Relevant	26	27.37	10	9.52	36		
	Somewhat relevant	1	1.05	0	0	1		
	Irrelevant	0	0	0	0	0		
	Total	**95**	**100**	**105**	**100**	**200**		
Higher Education Institution	No response	84	88.42	94	89.52	178	0.85	0.6539
	Relevant	6	6.32	8	7.62	14		
	Somewhat relevant	5	5.26	3	2.86	8		
	Irrelevant	0	0	0	0	0		
	Total	**95**	**100**	**105**	**100**	**200**		
NGOs	No response	71	74.74	62	59.05	133	6.19	0.1029
	Relevant	23	24.21	41	39.05	64		
	Somewhat relevant	1	1.05	1	0.95	2		
	Irrelevant	0	0	0	0	1		
	Total	**95**	**100**	**105**	**100**	**200**		

Significant where $P \leq 0.05$

Source: Survey data

According to Table 4.18, 62% of the female respondents and 57% of the male respondents perceived the services provided by the DEES as relevant. More males (27%) than females (10%), however, perceived the services provided by Private Extension Providers as more relevant with a significant difference ($X^2 = 12.11$; $p = 0.0023$).[2]

Although there was no significant difference with the eight ASS providers, namely the DEES, DVS , Farmers Association, Input Supply, Okashana Research Station, Agricultural Mentors, Higher Education Institution, and NGOs, the female respondents perceived the services of the NGOs, Agricultural Mentors, and Farmers Association as more relevant than the male respondents.

Table 4.19 presents the perceptions of the relevance of ASS in the Oshikoto region of the farmer respondents per age categories.

[2] The significant difference with the Agricultural Mentor and Private Extension Providers must be handled with caution since there were few farmers who participated in the study.

Table 4.19: The relevance of ASS according to the age categories of respondents in the Oshikoto region

ASS	Age group	Relevant		Somewhat Relevant		Not Relevant		No response		Total	Chi - square	P value
		n	%	n	%	n	%	n	%	N		
The DEES	21-40	20	48.78	9	21.95	4	9.76	8	19.51	41	**7.705**	**0.2605**
	41-60	58	61.70	15	15.96	4	4.26	17	18.09	94		
	Above 61	41	63.08	11	16.92	0	0	13	20	65		
Total		**119**		**35**		**8**		**38**		**200**		
The DVS	21-40	23	56.10	4	9.76	2	4.88	12	29.27	41	**12.61**	**0.0496**
	41-60	55	29.79	9	9.57	2	2.13	28	29.79	94		
	Above 61	11	16.92	16	24.62	0	0	11	16.92	65		
Total		**89**		**29**		**4**		**51**		**200**		
Farmers' Association	21-40	14	34.15	1	2.44	0	0	26	63.41	41	**10.79**	**0.0951**
	41-60	30	31.91	8	8.51	4	4.26	52	55.32	94		
	Above 61	17	26.15	12	18.46	4	6.15	32	49.23	65		
Total		**61**		**21**		**8**		**110**		**200**		
Input Supply	21-40	9	21.95	2	4.88	7	17.07	23	56.10	41	**14.47**	**0.0248**
	41-60	23	24.47	14	14.89	6	6.38	51	54.26	94		
	Above 61	7	10.77	7	10.77	3	4.62	48	73.85	65		
Total		**39**		**23**		**16**		**122**		**200**		
Okashana Research Station	21-40	5	12.20	3	7.32	0	0	33	80.49	41	**4.17**	**0.6536**
	41-60	12	12.77	10	10.64	5	5.32	67	71.28	94		
	Above 61	6	9.23	7	10.77	5	7.69	47	72.31	65		
Total		**23**		**20**		**10**		**147**		**200**		
Agricultural Mentors	21-40	11	26.83	2	4.88	1	2.44	27	65.85	41	**13.03**	**0.0426**
	41-60	33	35.11	2	2.13	0	0	59	62.77	94		
	Above 61	10	15.38	1	1.54	0	0	54	83.08	65		
Total		**54**		**5**		**1**		**140**		**200**		
Private Extension Providers	21-40	11	26.83	1	2.44	0	0	29	70.73	41	**8.68**	**0.0697**
	41-60	18	19.15	0	0	0	0	76	80.85	94		
	Above 61	7	10.77	0	0	0	0	58	89.23	65		
Total		**36**		**1**		**0**		**163**		**200**		
Higher Education Institution	21-40	3	7.32	3	7.32	0	0	35	85.37	41	**4.01**	**0.4046**
	41-60	9	9.57	3	3.19	0	0	82	87.23	94		
	Above 61	2	3.08	2	3.08	0	0	61	93.85	65		
Total		**14**		**8**				**178**		**200**		
NGOs	21-40	14	34.15	0	0	0	0	27	65.85	41	**5.28**	**0.5090**
	41-60	33	35.11	2	2.13	1	1.06	58	61.70	94		
	Above 61	17	26.15	0	0	0	0	48	73.85	65		
Total		**64**		**2**		**1**		**133**		**200**		

Significant where $P \leq 0.05$

Source: Survey data

According to Table 4.19, there were no significant differences between the different age categories in six of the active ASS providers; except for the Directorate of Veterinary Services, where significant differences ($X^2 = 12.61$; $p = 0.0496$) were recorded. This means that all age categories indicated that the services of the Directorate of Veterinary Services were relevant. Significantly more respondents (56%) of the age group 21 – 40 than the age group above 61 (17%) indicated that the DVS was somewhat relevant. Only 51 (26%) respondents indicated that DVS services were relevant. There was also a significant difference with Input Supply with ($X^2 = 14.47$; $p = 0.0248$), which indicates that according to the age categories 21 – 40 and 41 – 60, services were relevant. It should also be noted that 73.85% of the age category above 61 did not respond to the question. There was also a significant difference with Agricultural Mentors ($X^2 = 13.03$; $p = 0.0426$), which indicates that the age category 41 – 60 perceived the services of Agricultural Mentors as more relevant compared to the other age categories. Although there was no significant difference with Private Extension Providers and NGOs, the majority of the respondents in all the age categories perceived their services as relevant. It is important to note that 119 (80%) respondents indicated that DEES services were relevant. Sixty-one (61) respondents indicated that Farmers' Association services were relevant.

The means and standard deviation of the relevance of ASS as perceived by the farmer respondents are presented in Table 4.20.

Table 4.20: Means and standard deviations of relevance of ASS as perceived by farmers

ASS	n	Mean	SD
Private Extension Providers	37	3.0	0.16
NGOs	67	2.9	0.30
Agricultural Mentors	60	2.9	0.37
Directorate of Veterinary Services	149	2.8	0.49
The DEES	162	2.7	0.56
Higher Education Institution	22	2.6	0.49
Farmers' Association	90	2.6	0.65
Input Supply/Traders	78	2.3	0.79
Okashana Research Station	53	2.2	0.76

Source: Survey data

Note: Mean based on Likert scale items of 1 to 3, where 1 = Irrelevant; 2 = Somewhat relevant; 3 = Relevant

According to Table 4.20, the Private Extension Providers had the highest mean of 3.0. The second highest mean was 2.9 for NGOs and Agricultural Mentors, followed by the Directorate of Veterinary Services in third place with a mean rating of 2.8. The Directorate of Extension and Engineering Services was in fourth place with a mean of 2.7, while the Higher Education Institution and the Farmers' Association were ranked fifth with a mean rating of 2.6; followed by Input Supply and Okashana Research Station ranked sixth and seventh with mean scores of 2.3 and 2.2 respectively.

4.3.4 Perceptions of quality of ASS as perceived by farmers

The farmers' definitions of quality were subject to individual perceptions of the services they had received from different ASS providers. In this study, the farmers were asked to rank the quality of services received from ASS providers from good quality to poor quality. Table 4.21 presents the perceptions according to the gender of the farmer respondents of the quality of ASS in the Oshikoto region.

Table 4.21: Perception of farmers of the quality of ASS in the Oshikoto region by gender

ASS	Response	Gender				Total	Chi-square	P-value
		Male		Female				
		n	%	n	%	N		
The DEES	No response	18	18.95	20	19.05	38	2.85	0.4161
	Good	52	54.74	67	63.81	119		
	Acceptable	21	22.11	16	15.24	37		
	Not good at all	4	4.21	2	1.9	6		
	Total	95	100	105	100	200		
Directorate of Veterinary Services	No response	24	25.26	27	25.71	51	2.72	0.4368
	Good	44	46.32	57	54.29	101		
	Acceptable	24	25.26	20	19.05	44		
	Not good at all	3	3.16	1	0.95	4		
	Total	95	100	105	100	200		
Farmers' Association	No response	53	55.79	57	54.29	110	4.56	0.2071
	Good	20	21.05	32	30.48	52		
	Acceptable	16	16.84	14	13.33	30		
	Not good at all	6	6.32	2	1.9	8		
	Total	95	100	105	100	200		
Input Supply	No response	59	62.11	63	60	122	1.68	0.6408
	Good	10	10.53	17	16.19	27		
	Acceptable	15	15.79	16	15.24	31		
	Not good at all	11	11.58	9	8.57	20		
	Total	95	100	105	100	200		
Okashana Research Station	No response	72	75.79	75	71.43	147	0.94	0.8168
	Good	8	8.42	13	12.38	21		
	Acceptable	10	10.53	12	11.43	22		
	Not good at all	5	5.26	5	4.76	10		
	Total	95	100	105	100	200		
Agricultural Mentors	No response	69	72.63	71	67.62	140	0.66	0.8817
	Good	20	21.05	27	25.71	47		
	Acceptable	5	5.26	6	5.71	11		
	Not good at all	1	1.05	1	0.95	2		
	Total	95	100	105	100	200		
Private Extension Providers	No response	69	72.63	95	90.48	164	11.07	0.0039
	Good	25	26.32	10	9.52	35		
	Acceptable	1	1.05	0	0	1		
	Not good at all	0	0	0	0	0		
	Total	95	100	105	100	200		
Higher Education Institution	No response	84	88.42	94	89.52	178	3.35	0.3412
	Good	5	5.26	9	8.57	14		
	Acceptable	4	4.21	1	0.95	5		
	Not good at all	2	2.11	1	0.95	3		
	Total	95	100	105	100	200		
NGOs	No response	71	74.74	62	59.05	133	5.54	0.0628
	Good	21	22.11	37	35.24	58		
	Acceptable	3	3.16	6	5.71	9		
	Not good at all	0	0	0	0	0		
	Total	95	100	105	100	200		

Significant where $p \leq 0.05$

Source: Survey data

Table 4.21 shows a similar trend to Table 4.20, whereby the female respondents were more satisfied with the quality of the services provided by the different ASS providers than their male counterparts; except in the case of Private Extension Providers, where the male respondents perceived the quality of services as better than the female respondents, with a significant difference of ($X^2 = 11.07$; $p = 0.0039$). It is, however, worrisome to note that the Higher Education Institution, Farmers' Association, Input Supply Traders, and Okashana Research Station received lower percentages from the male respondents than the female respondents. One of the solutions would be to involve male farmers more in the planning with ASS providers for their needs and interests to be taken into consideration. Although the male respondents had slightly lower percentages than the females, statistically there is no significant difference between them.

Table 4.22 presents the perceptions of the farmers according to the age categories of the quality of ASS in Oshikoto.

Table 4.22: The quality of ASS in Oshikoto as perceived by farmers in three age categories

ASS	Age group	Good		Acceptable		Not good at all		No response		Total	Chi-square	P-value
		n	%	n	%	n	%	n	%	N		
The DEES	21 – 40	23	56.10	5	12.20	5	12.20	8	19.51	41	**16.76**	**0.0102**
	41 – 60	56	59.57	21	22.34	0	0	17	18.09	94		
	Above 61	40	61.54	11	16.92	1	1.54	13	20	65		
Total		**119**		**37**		**6**		**38**		200		
Directorate of Veterinary Services	21 – 40	18	43.90	8	19.51	3	7.32	12	29.27	41	**12.84**	**0.0457**
	41 – 60	43	45.74	22	23.40	1	1.06	28	29.79	94		
	Above 61	40	61.54	14	21.54	0	0	11	16.92	65		
Total		**101**		**44**		**4**		**51**	19.9523	200		
Farmers' Association	21 – 40	11	26.83	4	9.76	0	0	26	63.41	41	**7.18**	**0.3048**
	41 – 60	26	27.66	13	13.83	3	3.19	52	55.32	94		
	Above 61	15	23.08	13	20	5	7.69	32	49.23	65		
Total		**52**		**30**		**8**		**110**		**200**		
Input Supply	21 – 40	7	17.07	7	17.07	4	9.76	23	56.10	41	**10.10**	**0.0885**
	41 – 60	16	17.02	19	20.21	8	8.51	51	54.26	94		
	Above 61	4	6.15	5	7.69	8	12.31	48	73.85	65		
Total		**27**		**31**		**20**		**122**		200		
Okashana Research Station	21 – 40	5	12.20	3	7.32	0	0	33	80.49	41	**4.93**	**0.5531**
	41 – 60	9	9.57	13	13.83	5	5.32	67	71.28	94		
	Above 61	7	10.77	6	9.23	5	7.23	47	72.31	65		
Total		**21**		**22**		**10**		**147**		200		
Agricultural Mentors	21 – 40	12	29.27	1	2.44	1	2.44	27	65.85	41	**11.42**	**0.0762**
	41 – 60	28	29.79	6	6.38	1	1.06	59	62.77	94		
	Above 61	7	10.77	4	6.15	0	0	54	83.08	65		
Total		**47**		**11**		**2**		**140**		200		
Private Extension Providers	21 – 40	10	24.39	1	2.44	0	0	30	73.17	41	**7.64**	**0.1058**
	41 – 60	18	19.15	0	0	0	0	76	80.85	94		
	Above 61	7	10.77	0	0	0	0	58	89.23	65		
Total		**35**		**1**		**0**		**164**		200		
Higher Education Institution	21 – 40	5	12.20	1	2.44	0	0	35	85.37	41	**6.23**	**0.3980**
	41 – 60	6	6.38	3	3.19	3	3.19	82	87.23	94		
	Above 61	3	4.62	1	1.54	0	0	61	93.85	65		
Total		**14**		**5**		**3**		**178**		200		
NGOs	21 – 40	12	29.27	2	4.88	0	0	27	65.85	41	**3.58**	**0.4653**
	41 – 60	30	31.91	6	6.38	0	0	58	61.70	94		
	Above 61	16	24.62	1	1.54	0	0	48	73.85	65		
Total		58		**9**		**0**		**133**		200		

Significant where $P \leq 0.05$

Source: Survey data

According to Table 4.22, there were no significant differences between the different age categories in seven of the active ASS providers, except for the Directorate of Extension and Engineering Services, where significant differences ($X^2 = 16.76$; $p = 0.0102$) were recorded; indicating that the age categories of 21 – 40 (56%) and 41 – 60 (60%) and above 61 (62%) regarded the services as good. Significantly more respondents (22%) in the age group 41 – 60 perceived the quality of services acceptable than in the other two age categories. The findings indicate that all age categories were satisfied with the quality of services provided by the Directorate of Veterinary Services, with the significant difference of ($X^2 = 12.84$; $p = 0.0457$).

Although there was no significant difference among the different age categories in Input Supply, there was discontent with the quality of services provided as they were mostly ranked acceptable to not good at all by the different age categories. Regarding the Farmers' Association, all the farmers (52) in all the age categories perceived the quality of service as good; a total of 30 farmers regarded the services as acceptable and only eight farmers indicated that the services were not good at all and 110 of the farmers did not respond to the question. The high non-response rate is attributed to the fact that the majority of the respondents (about 135) did not belong to any FBOs and hence the question did not apply to them. The Farmers' Association needs to be encouraged to improve its quality of services, because a group voice is more effective than individual voices. Farmers' organisations may also play an important role in negotiating with service providers, as well as in evaluating the services received (Neuchâtel Group, 2007).

Table 4.23 indicates the means and standard deviations of the quality of ASS providers as perceived by the farmers.

Table 4.23: Means and standard deviations of quality of ASS providers as perceived by farmers

ASS Organisation	N	Mean	SD
Private Extension Providers	36	3.0	0.17
NGOs	67	2.9	0.34
Agricultural Mentors	60	2.8	0.51
The DEES	162	2.7	0.54
Directorate of Veterinary Services	149	2.7	0.53
Higher Education	22	2.5	0.74
Farmers' Association	90	2.5	0.66
Okashana Research Station	53	2.2	0.74
Input Supply/Traders	78	2.1	0.78

Note: Mean based on Likert scale items of 1 to 3, where 1 = Poor quality; 2 = Acceptable; 3 = Good quality

Source: Survey data

According to Table 4.23, the Private Extension Providers (only 36 respondents) had the highest mean of 3.0. The second highest mean was for the NGOs (67 respondents), with a mean of 2.9. Agricultural Mentors (60 respondents) was the third highest, with a mean of 2.8. The DEES (162 respondents) and the DVS (149 respondents) were in the fourth position with a mean of 2.7, and the Higher Education Institution (22 respondents) and Farmers' Association (90 respondents) were in fifth place with a mean of 2.5. Okashana Research Station (53 respondents) and Input Supply (78 respondents) ranked sixth and seventh with a mean of 2.2 and 2.1 respectively. It is clear the majority of respondents do receive ASS from DEES, DVS, Farmers' Association and Input Supply.

4.3.5 Summary of the most important findings

This chapter outlined an overview of farmers' perceptions of the frequency, adequacy, relevance, and quality of ASS providers in the Oshikoto region in Namibia. Although the results show that the majority of the respondents had frequent contact with the DEES and the DVS with 81% and 74.5% respectively, their services where not very satisfactory compared to Private Extension Service Providers, NGOs, and Agricultural Mentors, who were only in contact with a handful of farmers, yet their services were perceived to be relevant, adequate, and of high quality. UNAM (higher education institution of learning) was ranked in the middle, which indicates that its

information might be too technical for farmers to understand. It is important that Private Extension Service Providers, Agricultural Mentors, and NGOs work closely to coordinate activities with the DEES and the DVS.

4.4 INFORMATION SOURCES USED BY FARMERS

4.4.1 Introduction

The literature revealed that farmers in the different categories are faced with different needs and as such need different types of information at various agricultural cycles such as planning, planting, harvesting, storage, and marketing (Manfre & Nordehn, 2013). The farmers' information needs can be satisfied by providing information from multiple sources. Different farmers will have different search behaviour depending on their literacy levels, as well as their access and use of information (Glendenning *et al.*, 2010; Jafri *et al.*, 2014).

Table 4.24 provides an overview of Information Technology Communication (ITC) in the Oshikoto region (as adopted from the Population Census of 2011).

Table 4.24: Population census and access to ICT in the Oshikoto region

Information source	Oshikoto (%)	Urban (%)	Rural (%)
Radio	67.7	69.1	67.5
Mobile/Cell phones	47.1	58.8	45.4
TV	17.3	54.6	11.8
Newspaper – daily or weekly	15.8	28.4	13.9
Computer	3.9	12.9	2.6
Internet – daily or weekly	3.9	9.7	3
Land line/Telephone	2.9	9.1	1.9
Don't know	1.1	1	1

Note: These percentages do not add up to 100% because respondents could give more than one answer.

Source: Survey data

The majority (67.75%) of the population in the Oshikoto region had access to the radio as an information source, while it is slightly higher in urban areas at 69.1%, and slightly lower (67.5%) in rural areas. The radio is affordable and can reach the illiterate when used in the vernacular language (Chapota, Fatch & Mthinda, 2014; FAO, 1999c). Access to television in the Oshikoto region was 17.3%; with the majority of 54.6% in the urban area and only 11.8% in the rural area. Reading of newspapers, either daily or weekly, was also very low in the region; with only 15.8% in the whole region, 28.4% in the urban areas, and only 13.9% in the rural areas. The findings were similar to Aker (2011), who reported that less than 19% of individuals in sub-Saharan Africa read a newspaper once a week, with a much smaller share in rural areas. Aker (2011) further mentioned that newspapers were mostly expensive and concentrated in urban areas and not accessible to illiterate people. Computer usage was low in the whole region, at only 3.9%. In the urban area, 12.9% use computers as a source of information, against only 2.6% in rural areas. Aker (2011) stated that Internet and landline usage were low in rural areas. This study has similar findings; with mobile phones being more widespread than landlines at 47.1% in the whole region, 58.8% in urban areas, and 45.4% in the rural area. According to Aker (2010), mobile phones reduce the communication and information costs in rural areas as they are mostly used in providing information on market prices and weather information by voice mail or short message services (SMSes), as well as cutting down on transport costs. Irrespective of the high literacy rate of 89.6% in the urban areas and 87.9% in the rural areas, the low Internet use is worrisome because the Internet provides a wide range of information that is always accessible.

4.4.2 Use of information sources

The farmers were asked to indicate the information source(s) they were making use of (see Figure 4.1) and to rate it/them on a three-point scale as good, acceptable, or not good at all (see Figure 4.2)

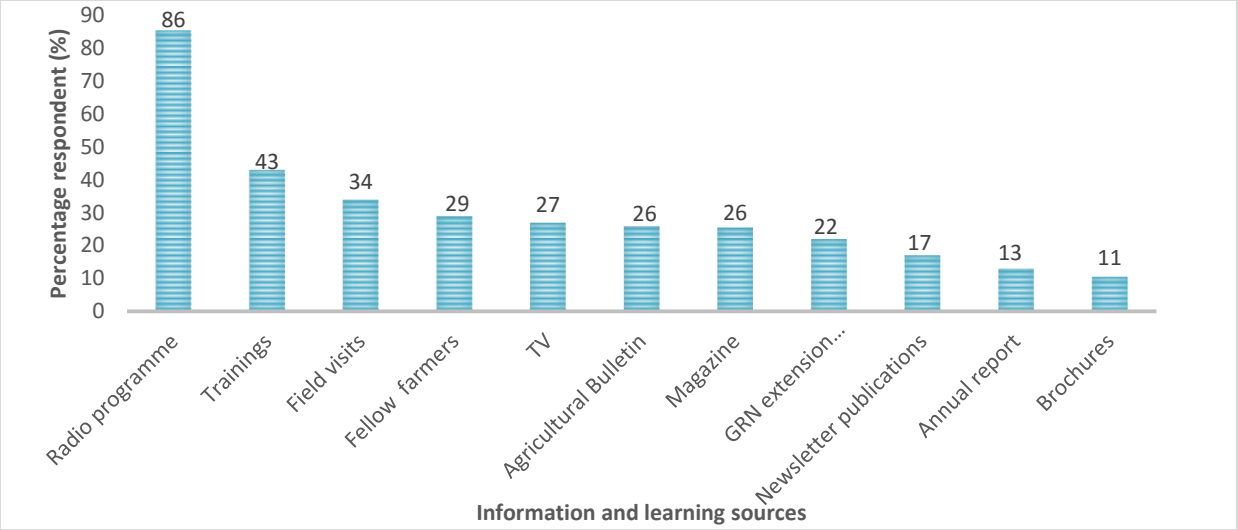

Figure 4.1: Percentage distribution of farmers' information sources in the Oshikoto region

Source: Generated from survey data

Figure 4.1 indicates that the majority of the farmers (86% or 171 respondents) identified radio programmes as their primary source of information in order to improve their agricultural activities. According to the NPC (2012), as indicated in Table 4.24, 67.7% of the people had access to the radio in the Oshikoto region. In the second place was training at 43% (86 respondents), followed by field visits with 34% (68 respondents). Farmers who relied on their fellow farmers for information comprised 29% (or 58) of the respondents. Those who received information from the television were 27% (or 54) of the respondents, agricultural bulletins at 26% (54 respondents), magazines at 26% (51 respondents), GRN extension programme at 22% (44 respondents), newsletters and publications at 17% (34 respondents), annual reports at 13% (26 respondents), and brochures at 11% (21 respondents). Apart from the radio, the top three information sources might be mostly used because of face-to-face interaction. According to the Oshikoto 2011 Regional Census (NPC, 2012), 88% of the population were literate, yet all the literary information sources were ranked low.

4.4.3 Quality of information sources used by farmers

The surveyed farmers were also asked to rate the quality of the information sources they used on a scale of good, acceptable, and not good at all. The data are presented in Figure 4.2. The general opinion was that the respondents were satisfied with the quality of the information received from

the radio as being good (74%), while only 5% perceived it as acceptable; the other 14% did not respond to the question. A total of 29% of the farmers indicated that they relied on their fellow farmers for information, but from the 29% of respondents only 2% regarded the information as being good; the other 27% regarded the information as being accessible. According to Stevens (2007), the reason fellow farmers were consulted might be because farmers have experience that they have accumulated over the years through trial and error, which is passed on from generation to generation in the community. The data depicted in Figure 4.2 further reflect that information from brochures and annual reports were rated as good at 3.5% and 3% respectively. The latter could be attributed to the fact that only a few farmers managed to get hold of brochures and annual reports and that the packaging of information may have been untimely and not relevant to their problems. The other reason is that the reports are presented in English and not in the vernacular language.

Figure 4.2 presents the percentage distribution of farmers' ratings of the quality of the communication channels.

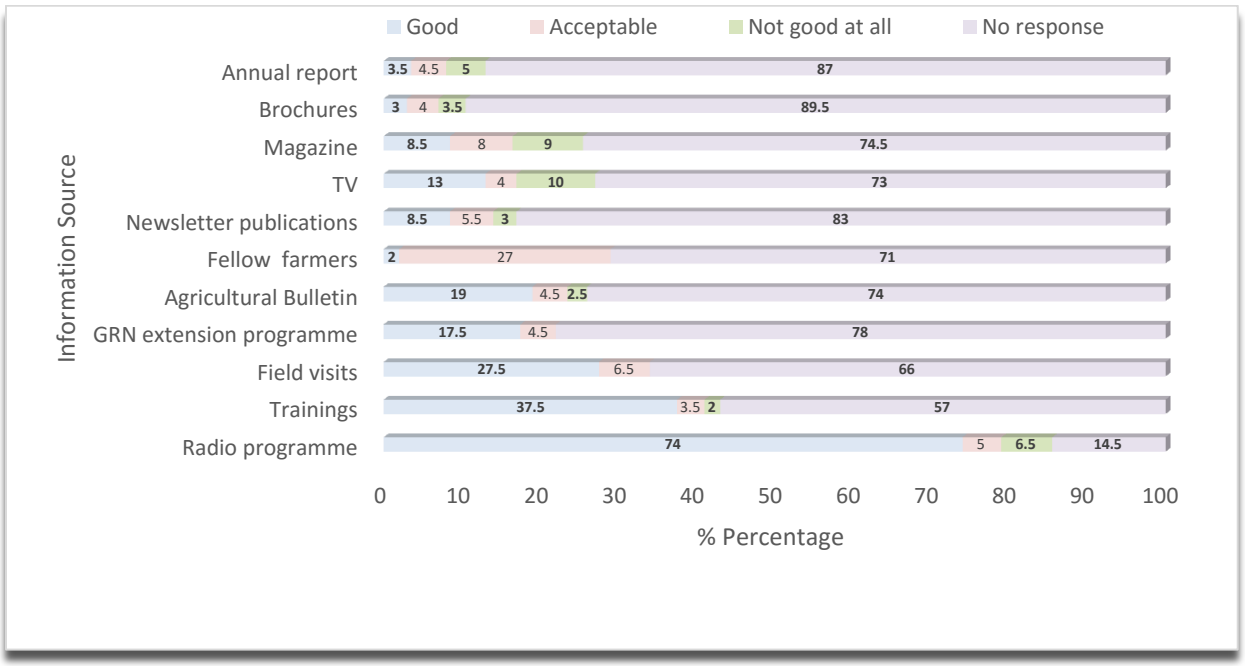

Figure 4.2: The quality of agriculture information sources as rated by farmer respondents (N=200)

Source: Generated from survey data

Apart from the radio, which was rated as highly accessible, it is worth mentioning that 57% to 89.5% of the farmers did not respond to the questions on the other information sources used. The question is: Are they not making use of the information sources, or do they mostly depend on their own discretion? Farmers should be encouraged to make use of information sources as information is important in development activities (Chapman, Slaymaker & Young, 2003).

Table 4.25 presents the means of different information sources in the Oshikoto region as rated by the farmers. Training (n=86), field visits (n=68), GRN Extension Programme (n=44), and Radio (n=171) had the highest mean of 2.8; an indication that farmers perceived their information as being good and of high quality. The findings of this study are similar to a study by Dollisso and Martin (2001) – indicating that farmers still depend heavily on traditional ways of information dissemination, and as such government extension programmes must use them to attract farmers to their services.

Table 4.25: The means and standard deviation regarding the information sources in the Oshikoto region rated by farmer respondents (N=200)

Communication sources	n	Mean	SD
Radio	171	2.8	0.57
Training	86	2.8	0.49
Field Visits	68	2.8	0.40
GRN Extension Programme	44	2.8	0.41
Agricultural Bulletins	52	2.6	0.66
Newsletters	34	2.3	0.77
TV	54	2.1	0.92
Fellow Farmers	58	2.1	0.26
Magazines	51	2.0	0.84
Brochures	21	2.0	0.80
Annual Reports	26	1.9	0.82

Note: Mean based on Likert-scale items ranging from 1 = Not good at all; 2 = Acceptable; 3 = Good

Source: Survey data

The radio scored a mean rating of 2.8, which is high because most of the population, as indicated in Table 4.25, have access to the radio. The radio is also used for community cohesion and solidarity (FAO, 1999b). However, it provides a limited range of information and sometimes disadvantages farmers in terms of in-depth information because of the one-way communication of the radio (Aker, 2010). According to Chapota *et al.* (2014) and FAO (1999a), the radio is an excellent, powerful, and the cheapest medium for reaching large audiences and for sharing knowledge, building awareness, and supporting the adoption of new practices in the community. The television is known to be a powerful tool to raise awareness, generate discussions, and increase knowledge (FAO, 1999b), but, as can be seen in Table 4.24, it is more dominant in the urban areas than the rural areas; the latter could be attributed to low access to electricity.

Making use of fellow farmers for information received a mean rating of only 2.1, which indicates it is acceptable. This finding is the opposite of Stevens (2007), Dollisso and Martin (2001), and Molony (2006), who found more farmers consulting other farmers for quality information. Molony (2006) argued that trust and network or connections build social relationships and farmers are likely to listen to people they trust and have good relationships with. Magazines, brochures, and annual reports scored the lowest; perhaps they do not address the problems and needs of the farmers timeously, or they need to be translated to the vernacular language, or maybe they are not available to the majority of the farmers.

4.5 SUMMARY OF IMPORTANT FINDINGS

The radio was ranked the best source of information in the Oshikoto region, followed by training, field visits, fellow farmers, and television. Although the television was among the highest ranked information sources, it was only viewed in urban areas with electricity. The fact that very few farmers make use of reading materials in the Oshikoto region makes it clear that it is of the utmost importance that the reading materials be translated to the vernacular language for farmers to benefit more from these sources.

Farmers mostly make use of government extension services and face-to-face interactions like training and field visits. The latter can be described by the peasant proverb that states, “What I hear, I forget. What I see, I remember, and what I do, I learn.” Farmers should be encouraged to

participate in hands-on demonstrations, field visits, and competitions. For coordination to be effective, there should be information sharing among all ASS providers.

CHAPTER 5

FARMER PARTICIPATION AND INVOLVEMENT IN GROUPS

5.1 INTRODUCTION

This chapter provides an overview of farmer participation in farmers' cooperatives, associations, and community projects, and the role they play in keeping the groups together. Farmers' participation and involvement are very crucial for community development. No amount of investment, improved technology, or input supply will bring about a permanent improvement in the farmers' living standards (Boas & Goldey, 2011). Farmers' empowerment can only be realised if farmers take control and/or participate in their own development activities (Fraser & Villet, 1994; Boas & Goldey, 2011). Chamala and Shingi (2005:2) stated, "Telling adults what to do provokes reaction, but showing them triggers the imagination, involving them gives understanding, and empowering them leads to commitment and action."

Participation in development can only be a reality if farmers are organised in groups or associations, which is an important element in the implementation of agricultural programmes, as well as the improvement of activities (FAO, 2000; Fraser & Villet, 1994; Boas & Goldey, 2011; Garforth & Munro, 1995). Debrah and Nederlof (2002) argued that farmers can only be empowered if they have an organisation that represents them on local, district, regional, and global levels. Debrah and Nederlof (2002) further mentioned that organisations are good sources of information as they transmit information from farmers to government, to research and development, and financial institutions, and vice versa. Garforth and Munro (1995) were also of the opinion that it is easier and more efficient to work with a group than with individuals because members of an organisation are known to achieve the aims they would not have achieved on their own.

Debrah and Nederlof (2002) reported that in sub-Saharan Africa, all groups in the community in the form of associations, cooperatives, or farmer-controlled companies are part of Farmer-based Organisations (FBOs). In this study, FBOs will be used interchangeably with groups, associations, and cooperatives.

Respondents in the Oshikoto region were asked to state to which FBO they belong. Table 5.1 presents the percentage of farmers who belong to a cooperative, farmers' association, or community project.

Table 5.1: Percentage of farmers belonging to an FBO in the Oshikoto region

Type of organisation	n	%
Farmers' associations	28	43.1
Cooperatives	21	32.3
Community projects	16	24.6
Total	**65**	**100**

Source: Survey data

According to Table 5.1, only 32.5% (or 65) of the respondents out of 200 farmers interviewed participated in FBOs. The respondents who participated in FBOs were those in communal farmer settings. Groverman, Cook and Thomas (1995) urged that in order to avoid conflict within a group, such a group should consist of homogenous members who share the same socio-economic conditions. Of the farmers, 32.3% (21 respondents) belonged to a cooperative, 43.1% (28 respondents) to a farmers' association, and 24.6% (16 respondents) to community projects.

Table 5.2 presents the percentage distribution of farmers who are part of a FBO according to age and gender.

Table 5.2: Percentage distribution of respondents by age and gender who belong to an FBO

Age	**Male** (n = 31) 47.7%		**Female** (n = 34) 52.3%		**Total (65)**	
	n	**%**	**n**	**%**	**N**	**%**
21 - 40	6	19.36	6	17.65	**12**	**18.5**
41 - 60	14	45.16	17	50	**31**	**47.7**
Above 61	11	35.48	11	32.35	**22**	**33.8**
Total	**31**	**100**	**34**	**100**	**65**	**100**

Source: Survey data

Table 5.2 shows that there were slightly more female respondents at 52.3% (34 respondents) than male respondents (47.7% or 31 respondents) who participated in FBOs. The younger

participants, of the age category 21 – 40, who participated in the groups represented only 18.5% (12 respondents). Debrah and Nederlof (2002) reported that younger farmers do not feel comfortable expressing their views in the company of their elders in a traditional setup. Groverman *et al.* (1995) reported that women were reluctant to express their views or challenge the views of male participants in public. According to respondents in the age category 41 – 60 years, more females (50%) than males (45.2%) participated in FBOs, while only 33.8% of above the 61 years of age category participated in FBOs.

5.2 PARTICIPATION OF FARMER RESPONDENTS IN FBOs

5.2.1 Level of participation

Figure 5.1 presents the answers of the farmers who were asked to state at what level they participate in FBOs.

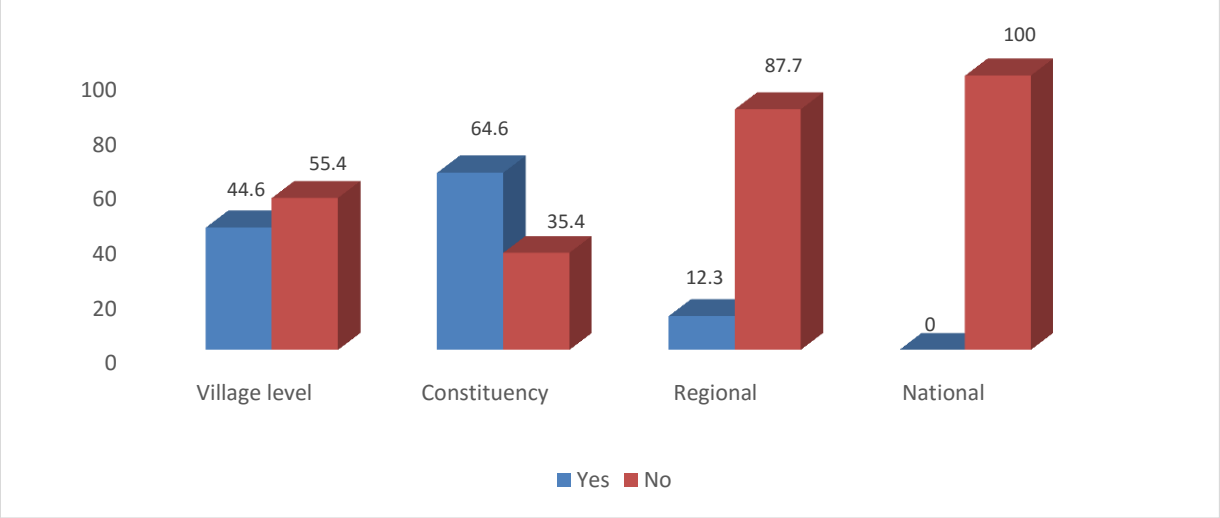

Figure 5.1: Respondents' participation in FBOs according to different levels

Source: Generated from survey data

According to Figure 5.1, the majority of the farmers (64.6%) participated in FBOs at the constituency level and 44.6% at the village level. Only 12.3% of the farmers participated at the regional level, and none participated at the national level. Debrah and Nederlof (2002) reported that a lack of proper consultation at village level leads to farmers not being represented properly in the hierarchical organisational structure, resulting in a few farmers speaking on behalf of most of the farmers. The latter is evident in Figure 5.1, with no representation at the national level. Debrah and Nederlof (2002) further argued that a lack of representatives at the top-level structure leads to a lack of influence in agricultural policies. For proper flow of information, FBOs need to be properly represented at all the hierarchical levels.

5.2.2 Number of group members in FBO levels

The respondents were asked to state the number of group members in the FBO levels. Figure 5.2 presents the percentage distribution of respondents according to the number of group members at different FBO levels in the Oshikoto region.

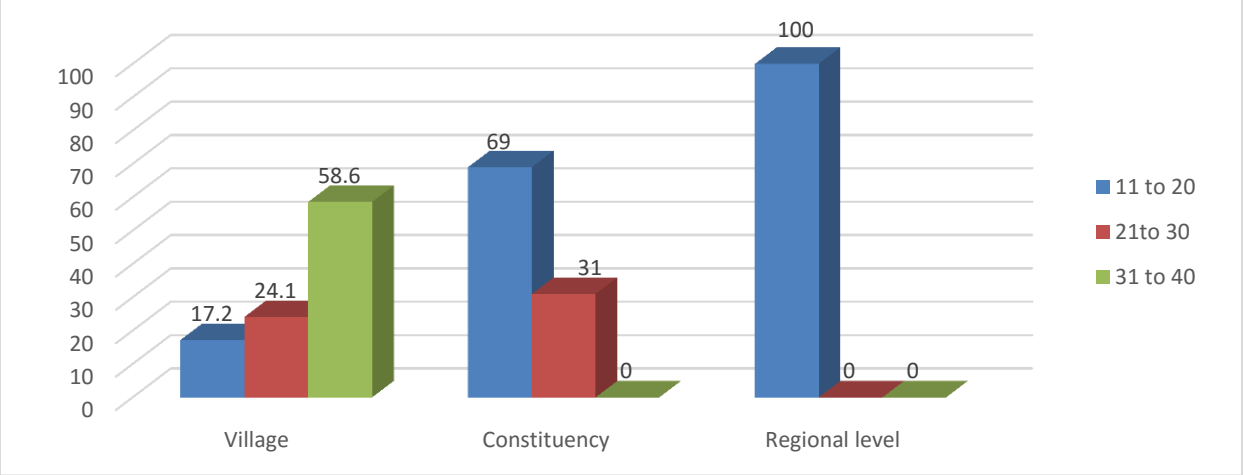

Figure 5.2: Percentage distribution of respondents according to number of group members at different FBO levels in the Oshikoto region

Source: Generated from survey data

As can be seen in Figure 5.2, group sizes ranged from 11 to 40 members in a group. The smaller groups consisted of 11 to 20 members, and the biggest had 31 to 40 members. At the village level, the biggest group of 31 to 40 members comprised 58.6%, and at the constituency (69%)

and regional levels (100%), the groups consisted of 11 to 20 members, which is close to the ideal group representation. Groverman *et al.* (1995) and Roberts, Lowry and Sweeney (2006) proposed that smaller groups of eight to 15 members were more effective because all members are able to communicate better with one another leading to a stronger group. Roberts *et al.* (2006) also alleged that communication breakdowns and poor responsibility outcomes are known to occur in groups with 28 and more members. The same authors also narrated that bigger groups were associated with high conflict levels and the members usually felt less involved in the group activities. Roberts *et al.* (2006) advised that smaller groups have quality discussions, as well as positive working relationships with each other – compared to bigger groups.

Groverman *et al.* (1995) reported that a functional group needs an effective structure with a management committee, which should consist of a chairperson, a secretary, and a treasurer. The chairperson has many functions; among which to organise and chair meetings, as well as to ensure that members pay their contributions as agreed. The role of the secretary, on the other hand, is to write minutes, keep records, and assist the chairperson. The treasurer generates money and manages the finances of the group.

5.2.3 Farmers reporting to FBOs

The farmers were asked to state to whom they report in their FBOs. Figure 5.3 summarises the responses of the farmers in percentages.

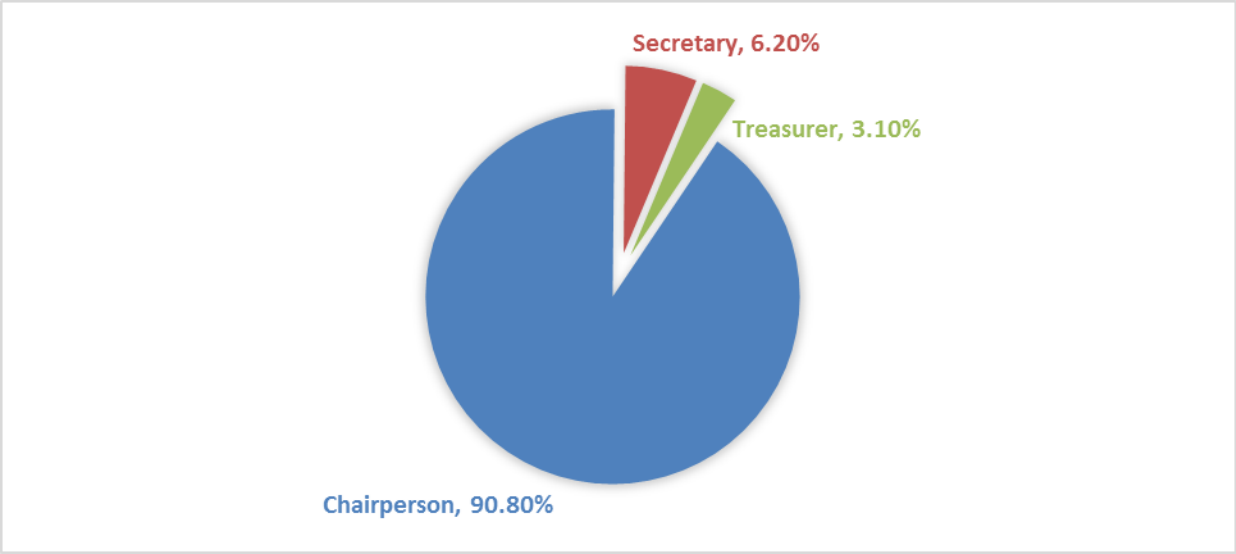

Figure 5.3: Percentage of farmers stating to whom they report in their FBOs

Source: Generated from survey data

Figure 5.3 shows that 90.8% of the group members reported to the chairperson, 6.2% of the group members reported to the secretary, and only 3.1% of the members reported to the treasurer. According to Groverman *et al.* (1995), good leadership is crucial for a group to grow in order to achieve its goals.

5.2.4 Motive for joining FBOs

The farmers were asked to state their motive(s) for joining an FBO. Figure 5.4 indicates the farmers' responses.

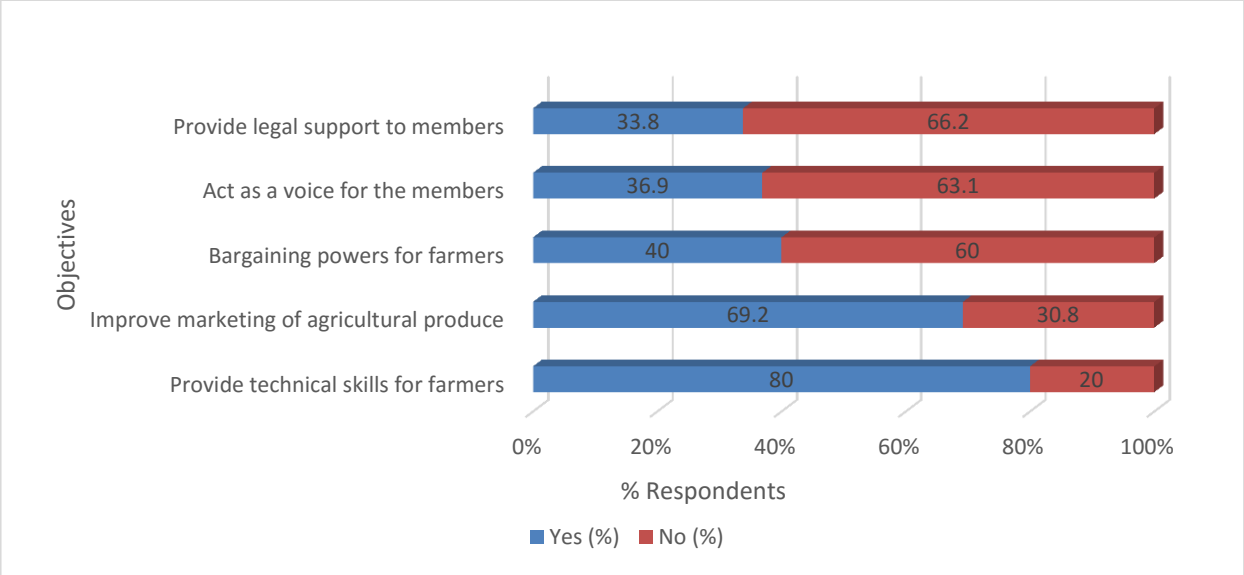

Figure 5.4: Respondents' stated objectives for belonging to a group or association (n=65)

Source: Generated from survey data

According to Figure 5.4, 80% of the farmers indicated that their main objective of joining an FBO was to obtain technical skills that were provided by the FBO. Boas and Goldey (2011) stated that FBOs that cannot provide technical advice face sustainability problems. This finding was supported by Debrah and Nederlof (2002), the Neuchâtel Group (2007), and Korten (1980), who were of the opinion that genuine and effective FBOs should provide services to their group members. If need be, the FBO must contract private expertise to deliver the services on its behalf. Well-organised FBOs can influence policy decisions and negotiate input prices on their members' behalf (Korten, 1980).

The second objective was to improve the marketing of agricultural produce (69.2%). The third objective was to obtain bargaining power for farmers (40%). Lyon (2003) found that when farmers negotiate their own prices, it empowers them to have greater control over commodity prices. Lyon (2003) also confirmed that bargaining for prices works best when farmers do not owe credit to traders – otherwise they would dictate prices for the farmers. Of the members, 36.9% joined an FBO because it acts as a voice for the members. Only 33.8% of the members joined the group to be provided with legal support.

5.2.5 Problems experienced by farmers in FBOs

The farmers were asked to state their views on the different problems they experienced in their FBOs. Their responses are illustrated in Figure 5.5.

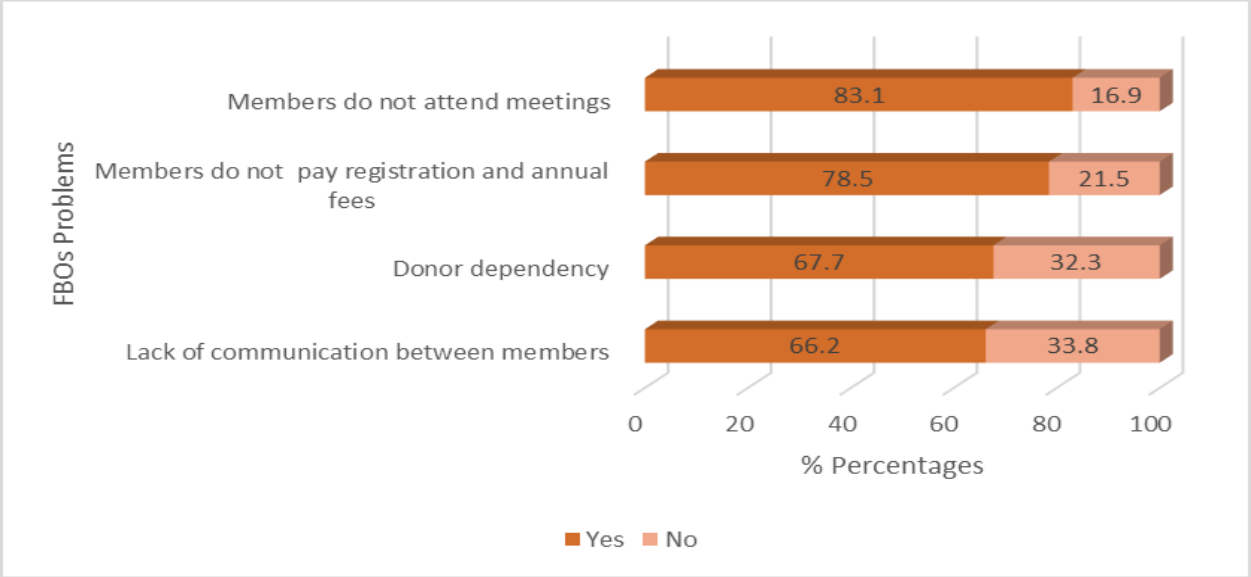

Figure 5.5: Percentage distribution of problems experienced by farmers in their FBOs

Source: Generated from survey data

According to Figure 5.5, 83.1% of the FBO members experienced the problem of members not attending meetings. Groverman *et al.* (1995) emphasised that group meetings were the ideal place for discussions, learning, and decisions to take place. Of the farmers, 78.5% indicated problems such as members not paying registration fees and annual fees. According to the Neuchâtel Group (2007), paying members' fees increases accountability and members' commitment. Groverman *et al.* (1995) stated that members' fees encourage group unity and also pay for smaller expenses such as writing materials, transport, etc. Boas and Goldey (2011) noted that some farmers participate in FBOs hoping that they would obtain economic benefits such as tractor services, transport for products, and better commodity prices. Donor dependency was the third problem, mentioned by 67.7% of the respondents. Boas and Goldey (2011), Debrah and Nederlof (2002), and Bingen, Serrano and Howard (2003) stated that FBOs created by external bodies without real commitment are bound to fail when outsiders withdraw. Lastly, 66.2% of the farmers indicated a lack of communication between group members as a problem.

Communication is a two-way stream that strengthens relations between group members and guides the group in the right direction (Fraser & Villet, 1994; Groverman *et al.*, 1995). Poor communication creates misunderstandings and irritation, which might lead to the failure of the proper functioning of the group.

5.2.6 Effectiveness and efficiency of FBOs

Respondents were asked to state whether or not their groups were effective and efficient. Figure 5.6 indicates group members' perceptions of the effectiveness and efficiency of their FBOs.

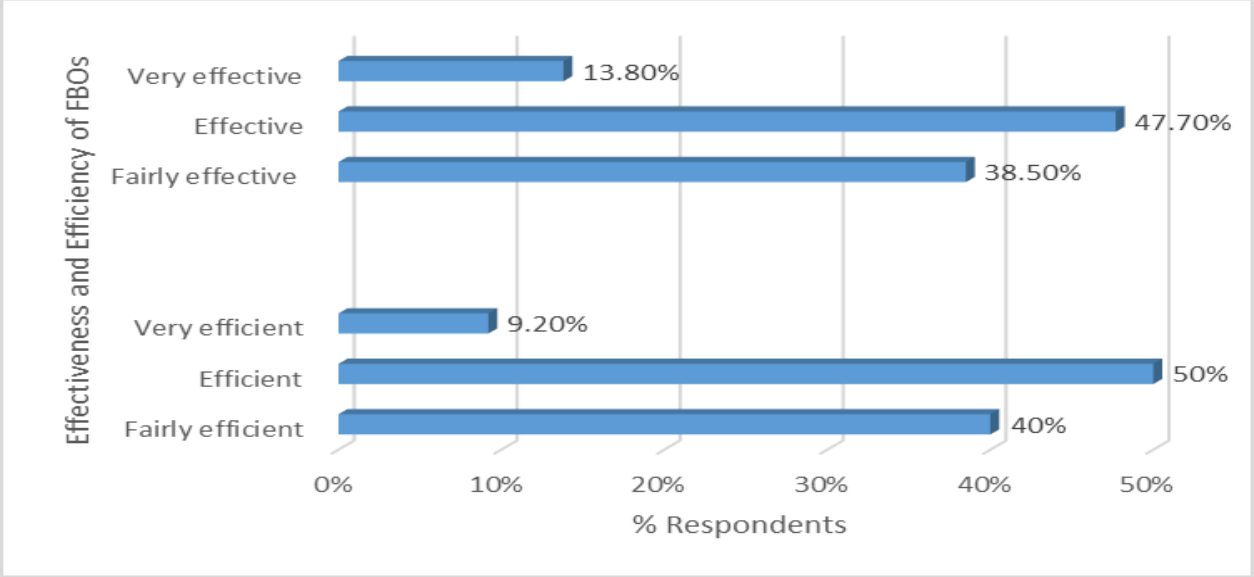

Figure 5.6: The respondents' views on the effectiveness and efficiency of their FBOs

Source: Generated from survey data

As evident in Figure 5.6, the respondents clearly perceived their groups as effective (47.7%) and efficient (50%). Only a small percentage of 13.8% and 9.2% were of the opinion that the groups were very efficient and very effective respectively. Although these are small percentages, they are a cause for concern because one can only stay loyal to a group if it is rewarding. Forty per cent (40%) of the farmers perceived their groups as fairly effective, and 38.5% perceived their groups as fairly efficient. The possible reason could be that the respondents benefited from belonging to a group, but the FBOs need to be strengthened to move from efficient to very efficient and from effective to very effective.

Respondents were asked to indicate when last did they met as a group. Table 5.3 shows the respondents' answers to this question.

Table 5.3: Respondents' views on when last their organisation met as a group

Time frame	n	%	Cumulative %
One to two weeks ago	27	41.5	41.5
A month ago	11	16.9	58.4
Six months ago	16	24.6	83.1
A year ago	11	16.9	100
Total	**65**	**100**	**-**

Source: Survey data

Table 5.3 indicates that 41.5% (or 27) of the group members had met in the last one to two weeks; indicating that the members of the groups were in frequent contact with one another. Boas and Goldey (2011) remarked that members of FBOs often attend meetings just to legitimise their membership and do not make any quality contributions. A small percentage of 24.6% (16 respondents) indicated to have had meetings six months ago, and 16.9% (11 respondents) indicated a year ago. The latter is worrisome because groups that are not frequently in contact are bound to fail.

The respondents were asked to state the level at which their organisations function. Table 5.4 summarises the respondents' views on the level their FBOs function on.

Table 5.4: Respondents' views on the level their organisations function on

Levels	n	%	Cumulative %
Constituency	34	52.3	52.3
Village	28	43.1	95.4
Regional	3	4.6	100
Total	**65**	**100.0**	**-**

Source: Survey data

As can be seen in Table 5.4, 52.3% (or 34) of the respondents stated that their FBOs function at the constituency level, 43.1% (or 28) of the group members' organisations function at village level, while only 4.6% (three respondents) indicated that their FBOs function at the regional level. None of the organisations functioned at the national level. It can therefore be argued that the FBOs were not properly represented at the regional and national level.

5.2.7 Attendance of meetings by extension officers and other ASS

Figure 5.7 indicates the responses to the question that respondents were asked to indicate to what extent agricultural extension officers and other ASS providers attend their meetings.

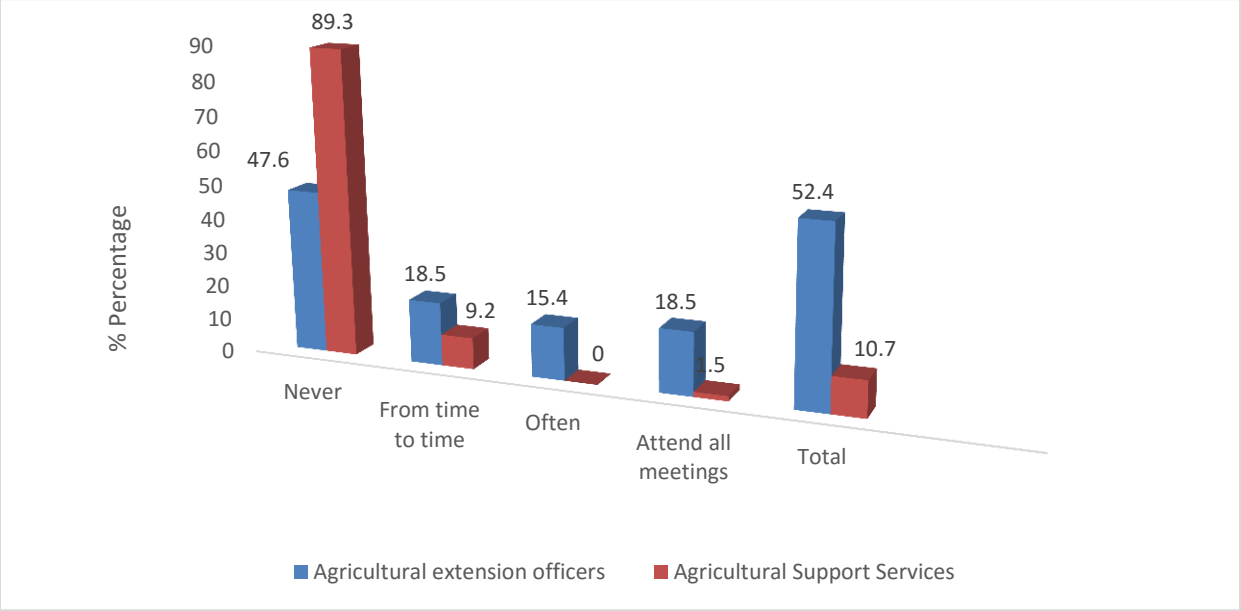

Figure 5.7: Respondents' views on the frequency extension officers and/or ASS attend their meetings

Source: Generated from survey data

According to Figure 5.7, 52.4% (or 34) of the respondents reported that extension officers attended their meetings, and only 10.7% (or seven) of the respondents indicated ASS providers to have attended their meetings. It is very clear that the views of the farmers were divided as 18.5% (or six) of the respondents mentioned that agricultural extension officers attended all their meetings, while others stated that the attendance was from time to time. This finding agrees with Boas and Goldey (2011) that an FBO advised by extension officers is better equipped to sustain

the organisation. It is evident from the results that the extension officers made more effort to attend the meetings, compared to the ASS providers who never attended meetings – according to 89.3% (or 58) of the respondents. All the ASS providers in the region need to be advised to work together as a group to improve the living conditions of the farmers in order for Vision 2030 to be accomplished.

5.2.8 Organisational management structure of organisations

The respondents were asked to state whether their organisations have a secretariat, a chairperson, a secretary, and a treasurer. Table 5.5 indicates the perceptions of the farmers of their organisational structures.

Table 5.5: Perceptions of farmers on whether their organisational structures include a secretariat, a chairperson, a secretary, and a treasurer

Organisation structure	Yes		No		Don't know		Total
	n	%	n	%	n	%	65
Secretariat	0	0	24	36.9	41	63.1	**65**
Chairperson	30	46.2	0	0	35	53.8	**65**
Secretary	53	81.5	1	1.5	11	16.9	**65**
Treasurer	53	81.5	0	0	12	18.5	**65**

Source: Survey data

Table 5.5 shows that 53 respondents (81.5%) indicated that their FBOs had a secretary and a treasurer. Only 46.2% indicated that their organisations had a chairperson. None of the respondents indicated having an organisational secretariat. In fact, 36.9% of the respondents indicated not knowing what a secretariat was. It was also very surprising to note that 53.8% of the group members were not sure whether they had a chairperson, 16.9% did not know what a secretary was, and 18.5% also did not know what a treasurer was. The above percentages can only be explained that the farmers were not properly informed on their management structures. Before the farmers join any FBO they have to be informed of the benefits of joining, as well as the structure of such an FBO. The farmers were asked to state what efforts the FBOs made to

keep their group members together. Table 5.6 shows the effort made by the FBOs in keeping their organisations together.

Table 5.6: Perceptions of respondents of the effort made in maintaining the group

Effort	Frequency	%	Cumulative %
No effort at all	1	1.5	1.5
Very little effort	6	9.2	10.8
Some effort	32	49.2	60.0
Considerable effort	26	40.0	100
Total	**65**	**100**	**-**

Source: Survey data

According to Table 5.6, 49.2% (or 32) of the respondents indicated that FBOs had made some effort to keep the group together, and 40% (26 respondents) indicated that FBOs had made considerable efforts to maintain the group. Only 9.2% (six respondents) indicated that very little effort to keep the group together was made. It is, however, important that the group members graduate from some effort to considerable effort in maintaining the groups.

5.3 SUMMARY OF THE IMPORTANT FINDINGS

Only a few farmers (32.5%) participated in FBOs in the Oshikoto region. Farmers working as individuals are impeded in fighting for their rights and making effective contributions to the agricultural extension policy. The results indicate that only a few of the ASS providers attended FBO meetings. It is very evident from the results that the FBO members in the Oshikoto region need a lot of support from the extension officers and the ASS groups to function effectively and efficiently to be able to sustain themselves. The leadership structures of the FBOs seem weak and need to be strengthened to lead to sustainable and financially stable organisations. It was very evident that groups at the village level are very big. Smaller groups with clear and measurable objectives would be advisable. The groups were faced with many problems that need to be solved, including dependency on donor funding and members not paying their contributions as they are supposed to.

5.4 PROBLEMS EXPERIENCED BY FARMERS

The literature review revealed that throughout the world, farmers' problems depend on their experience, economic status, and social status. The Oshikoto region is no exception. The farmers were asked to mention the most important problems they experienced in farming. Table 5.7 gives an overview of the different problems experienced by commercial and communal farmers in the Oshikoto region.

Table 5.7: Different problems experienced by communal and commercial farmers

Problems	Total	Commercial			Communal		
	N	n	%	Ranking	n	%	Ranking
Water problems	10	1	2.0	7	9	6.0	5
Unavailability of agricultural inputs	113	19	38	4	94	62.7	4
Marketing	150	42	84	1	108	72	2
Inferior agricultural tools and equipment	129	13	26	5	116	77.3	1
Lack of non-agricultural income	86	12	24	6	74	49.3	6
High transport costs	126	32	64	3	94	62.7	4
Unavailability of credit services	75	13	26	5	62	41.3	7
High input costs	128	33	66	2	95	63.3	3

Note: These percentages do not add up to 100% because respondents could give more than one answer

Source: Survey data

According to Table 5.7, commercial farmers (50) and communal farmers (150) experienced different problems. Commercial farmers were mostly faced with marketing problems (84%), high transport costs (64%), and high input costs (66%). These problems are expected to occur for commercial farmers because their aim is to make profit, unlike the communal farmers who mostly farm with the aim of feeding their families and who only sell when there is a surplus of their produce. Communal farmers were mostly concerned with inferior agricultural tools and equipment (77.3%) and marketing (72%). Bingen *et al.* (2003) encouraged communal farmers to take more responsibility for marketing their produce to increase their livelihood. Hellin, Lundy and Meijer (2009) argued that communal farmers have a lack of market information to lead them to meet the requirements of safety and quality. Communal farmers were also concerned with high input prices (63.3%) and unavailability of agricultural inputs (62.7%). Bingen *et al.* (2003)

were also of the opinion that if government agencies could turn over the responsibility of selling inputs to FBOs, it could reduce their input subsidies, which would cause farmers to benefit more. The unavailability of credit services was more of a concern to the communal farmers than the commercial farmers because commercial farmers use their farms as collateral (unlike communal farmers).

Table 5.8 presents the means and standard deviations of problems experienced by farmers.

Table 5.8: Respondents' perceived problems and rankings of their farming activities

Problems	n	Mean	SD
Water problems	10	7.4	1.26
Unavailability of agricultural inputs	112	6.6	1.19
Marketing	150	6.5	1.60
Inferior agricultural tools and equipment	129	6.1	2.25
Lack of non-agricultural income	86	5.9	1.60
High transport costs	126	5.8	1.49
Unavailability of credit services	74	5.7	1.41
High input costs	128	5.7	1.73

Note: Mean based on scale items ranging from 1 to 8. Assuming 8 = most important and 1 = least important

Source: Survey data

According to Table 5.8, water problems scored the highest with a mean of 7.4, but only ten out of the 200 farmers were severely affected by water problems. The unavailability of agricultural inputs was the second biggest problem, with a mean of 6.6. Marketing problems were third, with a mean of 6.5; followed by inferior agricultural tools and equipment, with a mean of 6.1. The fifth biggest problem was a lack of non-agricultural income, with a mean of 5.9. High transport costs was in the sixth place with a mean of 5.8, and in the last place, the unavailability of credit services and high input costs with a mean of 5.7 each. The results seem to suggest that farmers have serious problems with agricultural inputs and marketing in the Oshikoto region. It is also important to note that all the problems listed had a mean value above 5, which means these are important problems that need to be addressed.

5.5 SUMMARY OF THE MAIN FINDINGS

It is very evident that communal and commercial farmers have different problems. Although commercial and communal farmers had similar concerns regarding marketing and in terms of high transport costs and input costs, commercial farmers' percentages were slightly higher than the communal farmers' percentages. Generally, input supply and marketing of produce determine the output that the farmers are likely to obtain from their farming enterprises.

5.6 PLURALISM AND COORDINATION

5.6.1 Introduction

Since Namibian independence in 1990, agricultural extension has been highly dependent on the public service. Currently, different organisations such as NGOs, public research and education institutions, semi-public and parastatal organisations, private sector firms, Farmer-based Organisations, and cooperatives provide agricultural support services to farmers (IFPRI, 2012). This chapter gives an overview of the current status of coordination between different organisations, as well as ways of improving coordination.

Table 5.9 provides an overview of the need for agreement regarding coordination of the current situation in the Oshikoto region. The respondents were asked to provide their perceptions of the seriousness of coordination and collaboration in the Oshikoto region.

Table 5.9: Respondents' perceived need of coordination and collaboration in the Oshikoto region

Ranking	Frequencies	Percentage (%)	Cumulative (%)
Extremely serious	124	62.6	62.6
Moderately serious	48	24.2	86.6
Less serious	15	7.6	94.4
Not serious at all	11	5.6	100
Total	**198**	**100**	-

Source: Survey data

Table 5.9 shows that 62.6% (or 124) of the respondents indicated that coordination and collaboration were extremely serious problems in the Oshikoto region, 24.2% (48 respondents)

indicated that the problem was of average importance, and only 5.6% (11 respondents) indicated that the coordination and collaboration problems were not serious at all. As can be seen in Table 5.9, respondents regarded coordination and collaboration as very important in the Oshikoto region.

Table 5.10 provides the respondents' views on solutions to poor coordination and collaboration in the Oshikoto region.

Table 5.10: Respondents perceptions of possible solutions to poor coordination and collaboration in the Oshikoto region

Perceived Solutions	n	%	Cumulative %
ASS providers to build good working relationship with one another	82	59.0	59
Farmers' association members to train other farmers	23	16.5	75.5
Farmers' association to have members from each village	19	13.7	89.2
All ASS providers to cooperate with one another in groups	15	10.8	100.0
Total	**139**	**100.0**	-

Source: Survey data

According to Table 5.10, 59% of the respondents indicated that the solution to poor coordination and collaboration in the Oshikoto region would be for the ASS providers to first build good working relationships with one another. Only 16.5% of the respondents were of the opinion that collaboration and cooperation would improve if the farmers' association members trained other farmers, and 13.7% indicated that the farmers' association should consist of members from each village. Only 10.8% of the respondents were of the opinion that coordination and collaboration would be improved if all ASS providers worked together as a group. It needs to be noted that 70% (or 139) of the respondents did not answer the question. A total of 30% did not have an idea of possible solutions to improve coordination and collaboration.

The respondents were asked how important they regarded coordination and collaboration on the different levels in the Oshikoto region.

Table 5.11: Perceptions of farmers of levels they regard coordination and collaboration as important

Different levels	Extremely important		Moderately important		Low importance		No response	
	n	%	n	%	N	%	n	%
All levels	62	31	9	4.5	1	0.5	128	64
Village level	44	22	16	8.0	0	0	140	70
Constituency level	28	14	24	12	2	1.0	146	73.0
Regional level	9	4.5	2	1.0	0	0	189	94.5
National level	8	4.0	0	0	0	0	192	96

Source: Survey data

According to Table 5.11, 31% of the respondents were of the opinion that coordination is extremely important on all the levels (village, constituency, regional, and national level). Twenty-two per cent (22%) of the respondents perceived collaboration as important at village level, and 14% viewed coordination as extremely important at constituency level. Only 4.5% and 4% perceived coordination as important at regional and national levels. Of the respondents, 12% regarded coordination as moderately important at constituency level, and 8% of the respondents regarded coordination as important at village level. Only 4.5% and 1% regarded coordination as important on all the levels and regional level respectively. Only one respondent regarded coordination as having low importance on all the levels, and two as having low importance at constituency level. These results show that the farmers regarded coordination as important on all the levels. The large number of non-responses could be attributed to the fact that the farmers were not aware of the different levels in their regions and the possible rate and importance of the different levels.

Table 5.12 indicates the farmers' perceptions of who they thought should manage coordination structures in the Oshikoto region.

Table 5.12: Perceptions of farmers of who should manage coordination structures at different levels in the community

Coordination	Village		Constituency		Regional level		National	
	n	%	n	%	n	%	n	%
Headmen and the DEES	75	37.5	0	0	0	0	0	0
Headman	62	31	0	0	0	0	0	0
Governor	13	6.5	0	0	33	16.5	0	0
Councillors and the DEES	4	2.0	47	23.5	0	0	0	0
Councillors	0	0	79	39.5	0	0	3	1.5
Regional heads	0	0	0	0	91	45.5	0	0
The DEES	0	0	20	10	8	4.0	30	15
Minister	0	0	0	0	0	0	66	33
No response	46	23.0	37	18.5	68	34	101	50.5

Source: Survey data

According to Table 5.12, 37.5% of the respondents indicated that they were in favour of the headmen and the Directorate of Extension and Engineering Services (DEES) managing coordination at the village level. Thirty-one per cent (31%) of the respondents indicated that only the headmen should manage coordination at the village level. Of the respondents, 23.5% stated that councillors and the DEES should manage coordination at the constituency level. However, 39.5% (or 79) of the respondents were of the opinion that councillors alone should manage coordination at the constituency level. A total of 45.5% (or 91) of the respondents were of the opinion that the regional heads of different departments should manage coordination at regional levels, and 16.5% were of the opinion that governors should manage coordination at the regional level. At the national level, 33% (or 66) of the respondents perceived coordination to be managed by the minister, while only 15% thought it should be the DEES. In total, 50.5% did not respond to the question of management at national level, 34% at regional level, 18.5% at constituency level, and 23% at village level.

The respondents were asked to rate the ASS providers on their current and potential performance. Table 5.13 indicates the farmers' perceptions of the current and potential performance of ASS providers in the Oshikoto region.

Table 5.13: Perceptions of farmers of the current and potential performance of ASS providers in the Oshikoto region

ASS Organisations	n	Current		Potential	
		Mean	SD	Mean	SD
Private Extension Providers	36	6.5	1.21	9.9	0.33
NGOs	68	6.1	1.17	9.6	0.88
Agricultural Mentors	60	5.4	1.30	9.9	0.37
Higher Education Institution	23	4.7	1.20	8.7	1.29
Directorate of Veterinary Services	149	3.5	1.50	9.2	1.07
Farmers' Association	90	3.3	1.45	9.2	1.13
Okashana Research Station	53	3.2	1.44	9.3	0.87
The DEES	162	3.0	1.56	9.1	1.42
Input Supply/Traders	78	2.9	1.20	9.3	1.24

Note: 10 was the highest mean scale and 1 the lowest on the mean

Source: Survey data

According to Table 5.13, Private Extension Providers were in first place with a current mean of 6.5. In the second place was NGOs with a current mean of 6.1, and in the third place was Agricultural Mentors with a mean of 5.4. It seems the respondents were not satisfied with seven ASS providers (mean <6.1). The Higher Education Institution in the fourth place with a mean of 4.7. The Directorate of Veterinary Services was in fifth place with a mean of 3.5; in the sixth place was the Farmers' Association with a mean of 3.3; in the seventh place was Okashana Research Station with a mean of 3.2; and in the eight place the DEES, with a mean of 3.0. In the ninth and last place was Input Supply with a mean of 2.9. The respondents would like the ASS providers to increase their agricultural services to a higher potential as the ASS providers were given potential mean levels ranging from 8.7 to 9.9.

It is interesting when one compares Table 4.11 and Table 5.13 to find that Private Extension Providers, who were ranked first on adequacy, relevance, and quality, were also ranked first in terms of current and potential performance. Private Extension Providers were followed by NGOs and Agricultural Mentors in second and third place. The Directorate of Extension and Engineering Services was ranked fifth, fourth, and fifth on adequacy, relevance, and quality, but

ranked second last on current performance. It seems the farmers want the DEES to improve its services delivery from the current mean of 3.0 to a potential mean potential of 9.1. The Okashana Research Station and Input Supply were ranked the lowest on their adequacy, relevance, and quality, as well as on their current services potential of delivery. It seems that the farmers were not at all satisfied with their services.

The respondents were asked to rate the current and potential knowledge support of the ASS providers to farmers in the different farming systems using a ten-point scale (one being the lowest and ten the highest). Table 5.14 indicates the perceptions of the farmers of the different farming systems regarding the current and potential knowledge support of the ASS providers in the Oshikoto region.

Table 5.14: Perceptions of farmers of different farming systems of the current and potential knowledge support of the ASS providers in the Oshikoto region

Type of Farmers	n	Current		Potential	
		Mean	SD	Mean	SD
Large commercial farmers	16	5.1	1.02	10	0.00
Communal farmers	150	4.1	1.61	9.5	0.77
Small-scale commercial farmers	13	2.9	0.95	10	0.00
Resettled farmers	21	2.9	0.95	10	0.00

Source: Survey data

According to Table 5.14, a mean of 5.1 was given by large commercial farmers (16) who perceived that the ASS providers' potential knowledge support was above average. The communal farmers (150) gave the ASS providers a mean of 4.1. Small-scale (13) and resettled farmers (21) gave them a mean score of 2.9. The results can be interpreted as that farmers in the different farming systems were not very satisfied with the services of the ASS providers. However all of them indicated potential knowledge support of 10.

5.7 SUMMARY OF THE IMPORTANT FINDINGS

It is evident from this chapter that the farmers were of the opinion that the ASS providers need to collaborate and coordinate with one another at all levels for the maximum benefit of the farmers. The respondents' views were, however, divided as to who should manage the coordination structures at the different levels. At village level, some of the respondents would like the headmen and the DEES to manage the coordination structures, and others would like the headmen to coordinate the process. At the constituency level, the majority thought that the coordination should be managed by councillors, while others thought it should be councillors with the help of the DEES. At the regional level, the majority of the farmers thought the regional heads should lead the coordination process. At the national level, most of the respondents concurred that the minister should manage the coordination process. Some of the respondents thought that the coordination structure should be managed by the regional heads of the department. The majority of the farmers were dissatisfied with the current status quo of service delivery and would like all the ASS providers in the region to improve their service delivery. There is a serious lack of coordination and collaboration of ASS providers in the Oshikoto region.

5.8 FINDINGS OF THE QUALITATIVE INTERVIEWS

5.8.1 Introduction

The previous two chapters discussed the findings of the quantitative questionnaires that were administered to 200 farmers. This chapter provides a detailed description and analysis of the findings of the qualitative interviews that were conducted with the 11 active ASS providers in the Oshikoto region. The order of presentation in this chapter is as follows: introduction, discussion, and summary of the important findings. The outcome of the analysis of all the findings informed the development of a framework for the coordination of agricultural support services to farmers in Oshikoto region in Namibia.

5.9 OBJECTIVE 2: IDENTIFY CURRENT ROLE PLAYERS AMONG THE ASS PROVIDERS

5.9.1 Introduction

The majority of people in developing countries live in rural areas and rely on agriculture for making a living and for employment (UNDP, 2014; Rigg, 2006). In the Southern African Development Community (SADC), 70% of the population depend on agriculture for food, income, and employment (SADC, 2011).

Namibia is no exception as a total of 1 219 400 people (58% of the population) lived in the rural areas during the 2011 census. The UNDP Development Index revealed that 31.91% of the Namibian population live below U$1.25 a day. In the Oshikoto region, 87% of the population live in rural areas and the prevalence of poverty stands at 43% (Namibian Planning Commission: Macroeconomics Planning Department, 2015). In general, Agricultural Support Services (ASS) providers are supposed to reduce rural poverty, improve livelihoods, and increase the agricultural production level (Haug, 1999; Dethier & Effenberger, 2012; Buadi, Anaman & Kwarteng, 2013).

Since 1990, after Namibian independence, the agricultural extension providers were mainly the responsibility of the government through the Directorate of Extension and Engineering Services (DEES), although the DEES is still publically funded and delivers agricultural extension services publically. There are also other service providers in the Oshikoto region who work towards improving the community's food security and livelihood. It is common knowledge that agricultural extension providers and donors have been criticised for, among other things, not checking financial feasibility, not following the recommendations of the World Bank, and not identifying the most fundamental problems faced by the farmers (World Bank, 1995, as cited by Haug, 1999:268). Ashby and Sperling (1995) and Ceccarelli and Grando (2007) were of the opinion that demand-driven extension would lead to demand-driven research. According to Haugh (1999), the objectives of the extension services should be clearly and well defined for the objectives to be evaluated accordingly. Haugh (1999) further mentioned that the objectives should explicitly mention the target group to be reached.

It is against this background that 11 ASS providers, key informants, and focus groups were interviewed in the Oshikoto region; ranging from NGOs to Private Extension Service Providers. The ASS providers were interviewed to provide an overview of the aims of their organisations, when the organisations were established, and the activities they embark on. This chapter also provides an overview of the levels responsible for planning, finance, and evaluation of organisational activities.

Table 5.15 shows the names and levels of operations of the services providers that participated in the interviews in the Oshikoto region.

Table 5.15: Names and types of ASS providers included in the study in the Oshikoto region

ASS Organisation	Type	Level
Directorate of Extension and Engineering Services (DEES)	GRN	Regional
Agro-marketing and Trade Agency (AMTA)	Parastatal	Regional
Namibian National Farmers' Union (NNFU)	FBO	National
Oshikoto Regional Farmers' Union (ORFU)	FBO	Regional
Directorate of Veterinary Services (DVS)	GRN	Regional
Agricultural Mentors (Farmers Support Project) (FSP)	NGO	Regional
Okashana Community Outreach Research Station (OCORS)	GRN	Regional
Okashana Research Station (Centre) (ORC)	GRN	Regional
Oshikoto Marketing Cooperative (OMC)	FBO	Regional
Medicine World (Traders) (MW)	Input supply	Regional
Higher Education Institution (UNAM)	Institution	National

Source: Compiled from questionnaire data

According to Table 5.15, from the 11 organisations interviewed in the region, four were government institutions, three were FBOs, one each an Input Supply Trader (Medicine World) and a Higher Education Institution (University of Namibia (UNAM), one Parastatal (AMTA), one Agricultural Mentor, and one Research Organisation (Okashana Research Station). Most of the ASS providers interviewed were represented at the regional level, although their main branches were based at the national level. Some of the ASS providers, such as UNAM, NNFU, and AMTA, were working across the four northern regions; Oshikoto region being one of them.

The following section provides an overview of the ASS organisations interviewed in terms of years in operation, main services/objectives, and extension approaches in the Oshikoto region.

5.9.2 The Directorate of Extension and Engineering Services (DEES)

The DEES is a government institution that was established before 1990. It is aimed at increasing food security by providing agricultural extension services in the form of communication advisory services and training of farmers in agriculture-related courses such as livestock husbandry practices and crop cultivation. Some of the activities the DEES undertakes are information dissemination, technology development, and providing subsidised inputs to subsistence farmers such as ploughing services, seeds, and fertilisers. The DEES is well distributed in the region with offices in the entire constituency, and aim to help all the farmers. The main agricultural extension approach used is Farming System Research and Extension (FSRE) and the T&V approach where farmers are trained as mentors to train other farmers (DEES official interview, 2014).

5.9.3 Agro-Marketing and Trade Agency (AMTA)

AMTA was part of the Namibian Agronomic Board since 2011 and thereafter started operating on its own. The aims of the Agency are to create and facilitate marketing and storage facilities for agricultural produce according to local farmers' needs, to capacitate various agro-ecological producers to produce according to international standards, to promote value addition, and to ensure a logistical system for agricultural produce. The Agency's services include purchasing cereals, millet, maize, and wheat, and in the future AMTA plans to include beans and wheat. The different seeds AMTA buys are reserved and sold during times of drought or when there is a seed shortage in the country. In total, AMTA has 90 tonnes of seed in storage. There is no specific extension method followed, but AMTA engages all stakeholders in its meetings. AMTA targets all the farmers who want to buy or sell their produce (AMTA official interview, 2014).

5.9.4 Namibia National Farmers' Union (NNFU)

NNFU is a non-profit organisation that was established in 1992. The aims of this establishment, among others, are to serve as a mouthpiece for the Namibian communal and emerging farmers, and to enhance the marketing of farming products to increase farmers' income. NNFU consists of affiliated farmers' organisations throughout Namibia and provides collective bargaining power for farmers. Other activities are to arrange farmers' agriculture-related competitions, field days, and shows. NNFU also works closely with the DEES and Okashana Research Station on the development of markets, both for processed and unprocessed agricultural products. NNFU also publicises success and failure stories through the media. The major outcome is that NNFU managed to form 12 regional farmers' unions, as well as 130 farmers' organisations. NNFU has 35 125 members throughout Namibia. The primary methods used are meetings and networking of members (NNFU official interview, 2014).

5.9.5 Oshikoto Regional Farmers' Union (ORFU)

The Oshikoto Regional Farmers' Union is affiliated with the Namibia National Farmers' Union (NNFU). It was established in 2012 and was only in operation for a year at the time of the interview. The organisation was established with the aim of helping farmers with training activities and to help farmers with ploughing, fertilisers, as well as weeding services. The Union also supports farmers to dehorn animals, as well as advising farmers on their different needs and encouraging farmers to participate in agricultural shows. In times of drought, the Oshikoto Regional Farmers' Union also becomes the voice of its members in asking the government for animal feed and subsidies on input costs. The Union has also supported some villages to obtain boreholes from the government. The benefits that the members of the organisation receive are free ploughing services and free training classes in agriculture-related courses. When second-hand tractors are auctioned by government, the Union members also get priority in buy them. One of the problems experienced by the organisation is the poor soil that needs more fertilisers. Although fertilisers are sold at a subsidised rate, it seems inadequate since the soil is very sandy and low in nutrients. The other problem the respondents mentioned was the inbreeding of livestock, for which they suggested exchanging animals with other communities. The extension

methods used are meetings and individual farmer visits (Oshikoto Regional Farmers' Union official interview, 2014).

5.9.6 Directorate of Veterinary Services (DVS)

The Directorate of Veterinary Services (DVS) has been in operation since before independence (before 1990). Its main objective is improving the wellbeing of livestock in Namibia. Its other objectives are to create awareness about diseases, the dissemination of information on animal-related issues, protection of animal welfare, issuing permits when animals are moved from one place to another, treating animals when they are sick, and vaccinating animals against priority diseases such as rabies, lung diseases, and foot-and-mouth disease. The T&V approach, which was brought about by a shortage of staff members, makes use of community animal health technicians, who are people selected by the respective communities to serve them. The technician of the community concerned trains the community members to treat their animals when they are sick. The DVS uses both proactive and reactive methods as farmers bring their sick animals to the office, but the technicians also drive out to treat animals when called. It is an individual extension approach (DVS official interview, 2014).

5.9.7 Agricultural Mentors (Farmers' Support Project / FSP)

According to the informants, the FSP is an NGO consultancy. It started a long time ago in another region, but only started three years ago in the Oshikoto region. The main objective is to increase agricultural productivity of crops, horticulture, and livestock. The activities are training and the provision of agriculture-related information to farmers for farmers' identified needs. When asked how they identify needs, the informant stated:

> "I identify through a natural way; for example, if I see this farmer has a lot of livestock, I try to find out who the owner is and what is his objective and aim of farming, then I continue to identify his needs. Sometimes needs are identified through farmers' organisations and cooperatives and then we do follow-up meetings whereby we identify their problems together. After that, we prioritise and together

> with the farmer, we identify training needs and give advice according to the farmer's needs and necessity."

When asked what the difference was between agricultural mentors and extension officers, the respondent stated:

> "I have been an extension officer, for sometimes back in extension we were given, for example, a certain technology or methodology that has been already established, then we take it to the farmers, but as mentors we establish everything together with the farmers, but extension is more like imposing on the farmers. The agriculture primary methods we are using are individual visits and group approach."

The FSP targets all the farmers in the region. There are only three FSPs in the whole Oshikoto region.

5.9.8 Okashana Community Outreach Research Station (OCORS)

The Okashana Community Outreach Research Station is not part of Okashana Research Station; it is a department in the Ministry of Regional and Local Government, Housing and Rural Development (MRLGHRD). The Okashana Community Outreach Research Station started operating in 2009 in the Oshikoto region. Its main objective is to improve people's livelihoods in the rural areas, as well as to provide technical and financial support. The main services are poultry production, but piggeries are currently on trials with plans to roll them out in the community and community gardens in the near future (Okashana Community Outreach Station official interview, 2014).

The informants explained that five chickens were given per household and that the criteria for receiving chickens were shelter, clean water, and whether the households were able to feed the chickens. The informants stated:

> "When the chickens reproduce, 30% are given back to us to give to other community members. Concerning the piggery, we have indigenous and exotic pigs. We do cross-

breeding of pigs since we are planning to give the improved ones to the community. When it comes to gardens, we have one at the centre for our hospitality division and five community gardens in the different constituencies. The councillors in the community identify the beneficiaries who show interest in gardening, but are struggling financially or lack the necessary equipment. The identified beneficiaries are trained and given equipment as well as water tanks. All they have to contribute is labour."

5.9.9 Okashana Research Station/Centre (ORC)

Okashana Research Station is part of the Directorate of Research and Training of the Ministry of Agriculture Water and Forestry (MAWF) and mostly deals with plant research. Its main clients are communal farmers. The research station has been in operation since before independence (1990). The main objective is to carry out research activities on plants (such as pearl millet) to improve the variety and technology of the different pearl millet (*Pennisetum glaucum*) varieties, called Okashana, 1, 2, and 3, by performing multiplication of seeds. The major outcome is the new drought-resistant seeds developed by the researchers. Okashana Research Station also sells different types of seeds to the community, namely beans and sorghum, as well as mushroom spores. Although the main clients are communal farmers, Okashana Research Station mostly works with extension officers who disseminate information to the farmers and the extension officers sometimes train farmers when invited. The respondents from Okashana Research Station also mentioned that they mostly work indoors and the only time they provide training is when extension officers invite them or when they visit the seed cooperatives which they have given seeds to multiple times (Okashana Research Station official interview, 2014).

5.9.10 Oshikoto Marketing Cooperative (OMC)

The Oshikoto Marketing Cooperative was established in 2013. The main objective is to increase farmers' income by selling livestock. Its activities are to sell medicine to committee members and to sell livestock on behalf of the farmers at auctions. The main services are to increase off-take and to reduce the grazing burden on the natural vegetation. When the livestock cooperatives organise auctions, members do not pay levies, while non-members pay N$10 for each livestock

animal. The Oshikoto Marketing Cooperative is newly established and does not have any outcomes to report. The main clients are communal farmers (Oshikoto Marketing Cooperative official interview, 2014).

5.9.11 Medicine World Traders (MW)

Medicine World Traders are input suppliers who have been in operation for more than 25 years. They sell livestock drugs and fertilisers. Their major objectives are to help with veterinary medicine and give advice on medicine for livestock, as well as the usage of fertilisers. When asked how they provide information on the usage of fertilisers, the respondent said, "We get it from the bags." The respondent mentioned that they work closely with the Directorate of Veterinary Services, which advises and train them on the medicines. They also vaccinate livestock privately on request of the farmers in the regions (Medicine World Traders official interview, 2014)

5.9.12 Higher Education Institution (UNAM)

The University of Namibia (UNAM), with donor funding, embarked on the Rice Project in 2012. It has two projects in the community. It has trials whereby the target group is identified by extension officers, and rice trials, which are done on the target group's fields. The researchers do the planting and harvesting, but the household receives the harvest. The other project is where farmers are identified by extension officers to be trained and given seeds. The harvest belongs to the farmers. The University's staff members only visit the region for field days or demonstrations, or when they are invited by farmers or extension officers. The seed project is conducted in the Oshikoto region. Extension officers are trained to train farmers on different rice cultivars. The main objective is to identify suitable water-saving techniques for rice cultivation in the northern part of Namibia, including the Oshikoto region. The primary method of extension is the T&V approach, and the main focus is the communal farmers who are close to the Oshanas (water pots) (University of Namibia official interview, 2014).

5.9.13 Primary operational level for ASS providers

The ASS provider respondents were requested to indicate the operational level of their organisations with primary authority regarding finance, planning, and the evaluation of their activities. The results are presented in Table 5.16.

Table 5.16 clearly shows that seven of the ASS providers' finances were managed from the national level. The DEES and the DVS, however, mentioned that their finances were released according to the work plans they submit to the national level. The Oshikoto Marketing Cooperative and Input Traders' finances are held at the regional level since they are privately owned.

Table 5.16: The ASS providers' operational authority of finance, planning, and evaluation in the Oshikoto region

Name of the organisation	Finance	Planning	Evaluation
Directorate of Extension and Engineering Services (DEES)	National	Regional Constituency	National
Agro-marketing and Trade Agency (AMTA)	National	Regional Constituency	National
Namibia National Farmers' Union (NNFU)	National	Regional	National
Oshikoto Regional Farmers' Union (ORFU)	National	Regional	Regional
Directorate of Veterinary Services (DVS)	National	Regional	Regional
Agricultural Mentors (FSP)	Regional	Regional	National;
Okashana Community Outreach Research Station (OCORS)	National	Regional	Regional
Okashana Research Station (Centre) (ORC)	National	National	Regional
Oshikoto Marketing Cooperative (OMC)	Regional	Regional	National
Medicine World / Input Traders (MW)	Region	Regional	None
Higher Education Institution (UNAM)	National	National	National

Source: Compiled from questionnaire data

The DEES and the DVS respondents mentioned that their activities were planned on a monthly basis by the technicians in the constituency. The DVS respondent alluded that the plans are

accepted or rejected based on the budget and priority of what is planned at the regional level. The DEES respondents and Agricultural Mentors clearly mentioned that they performed needs assessments with the farmers as their activities are based on the needs of the farmers. All the technicians and members of the different representatives attend Constituency Development Committee (CDC) meetings where the problems of the different communities are discussed. Sometimes the ASS providers also take their activities from there. Okashana Research Station's activities are planned at the national level. Regarding evaluation, four of the ASS providers (Agro-marketing and Trade Agency (AMTA), Namibia National Farmers' Union (NNFU), Agricultural Mentors, and the Oshikoto Marketing Cooperative) indicated that their evaluations were performed at the national level, while the Oshikoto Regional Farmers' Union, the Directorate of Veterinary Services, and Okashana Community Outreach Research Station indicated that their activities were evaluated at the regional level. Medicine World indicated that they did not evaluate their activities, and the DEES mentioned that their activities were evaluated at both national and regional level.

The literature revealed that agricultural extension providers without proper facilities are likely to be prevented from carrying out their work effectively. Without transport, radio, and telephone, the extension providers were limited in organising and carrying out field work operations effectively (Peterson, 2004).

It is against this background that the ASS provider respondents were asked to state at which operational level they have the following facilities: office, transport, Internet, and telephone at the national, regional, constituency, and village level. The results are presented in Table 5.17.

Table 5.17: ASS facilities of transport, office, Internet, and telephone at different operational levels in the Oshikoto region

Name of the organisation	Transport	Office	Internet	Telephone
DEES	Regional Constituency	Regional Constituency	Regional Constituency	Regional Constituency
AMTA	Regional	Regional	Regional	Regional
NNFU	National Regional	National Regional	National Regional	National Regional
ORFU	No	No	No	No
DVS	Regional	Regional Constituency	No	No
FSP	No	No	No	No
OCORS	Regional	Regional	Regional	Regional
ORC	National Regional	National Regional	National Regional	National Regional
OMC	No	No	No	No
MW	No	Regional	No	Regional
UNAM	National	National	National	National

Source: Compiled from questionnaire data

According to the results in Table 5.17, all the government institutions were provided with transport, although the transport was not sufficient for some of the organisations as they shared vehicles with colleagues in the region. The DEES respondents also pointed out that two agricultural technicians from different Agricultural Development Centres (ADCs) shared one vehicle. Agricultural Mentors, the Oshikoto Regional Farmers' Union, the Oshikoto Marketing Cooperative, and Medicine World had no transport, office, Internet, or telephones. An Agricultural Mentor jokingly mentioned that his car was his office. The Oshikoto Regional Farmers' Union respondents mentioned that they usually asked the DEES whenever they were in need of transport or office space and that the DEES had so far been willing to help them.

The ASS provider respondents were asked to indicate the percentage of funding received from different sources such as national, cost recovery from private sectors, donors, or farmers. The results are presented in Table 5.18.

Table 5.18: ASS providers' indications of the sources of their funding

Name of the organisation	National level	Cost recovery	Private sectors	Donor funding	Farmers
The DEES	100%	0	0	0	0
AMTA	100%	0	0	0	0
NNFU	75%	0	0	25%	0
ORFU	0	0	0	100%	0
DVS	100%	0	0	0	0
FSP	0	0	45%	55%	0
OCORS	100%	0	0	0	0
ORC	100%	0	0	0	0
OMC	0	0	0	94%	6%
MW	0	0	100%	0	0
UNAM	40%	0	0	60%	0

Source: Compiled from questionnaire data

Table 5.18 clearly shows that five of the ASS providers received 100% of their funding from the government. Those were the DEES, DVS, OCORS, ORC, and AMTA. The respondents also mentioned that so far they had not received anything from cost recovery from farmers and the private sector, donor funding, or farmers. The DEES respondents, however, alluded that although they sold subsidised seeds, fertilisers, and services such as ploughing and weeding to the farmers, the money goes straight to the Inland Revenue of the Ministry of Finance. The same goes for AMTA; all the money from the seed sold goes to the Ministry of Finance, and the levies received from the farmers go to the Agronomic Board. NNFU received funding of N$2 500 from the farmers' organisations and in return they give out N$12000 anually. Agricultural Mentors are funded 45% by the Agricultural Bank of Namibia and 55% comes from donor funding by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). The farmers do not pay or make contributions. Oshikoto Marketing Cooperative obtained 94% of their funding from donors and only 6% from the farmers. Since Input Supply is privately owned, they supplied 100% of their own funding.

The farmers are the clients of the ASS providers and involving them in decision making ensures that the farmers' needs and programmes are addressed (Masangano & Mthinda, 2012). As a result of the above, the organisations were asked to state whether the farmers' representatives and producer groups were represented on the extension advisory boards or committees at the national and regional levels. It was found that it was only the NNFU who had farmers' representatives at the national, regional, and constituency levels. The other organisations, although they made use of farmers' organisations or cooperatives, did not have farmers represented on the extension advisory boards. They were mostly used as communication channels between the organisations and the farmers. The DEES and DVS, however, mostly attended the Community Development Committee (CDC) meetings which are based in most of the communities where general community problems are discussed.

The organisations were asked to state whether they have an agricultural extension policy or other policies that govern them, and if they did not have policies, why they did not have them. The DEES, NNFU, DVS, and Okashana Research Station all made use of the agricultural policy of 1995. The DEES respondent mentioned that she was not aware whether the policy was being amended, while NNFU responded that they were busy with an amendment of the policy. The DVS respondents stated that they were busy developing an animal health policy, while the respondents of ORC mentioned that they were busy with the draft of a seed policy that will govern and protect them: "The policy will help very much because even if you see a farmer selling poor quality seeds, you can say nothing because there is no law that protects us."

It is high time that ASS providers who are using the agricultural policy of 1995 start thinking of an extension policy that will incorporate all their needs.

The AMTA respondent mentioned that their policy has been in draft since 2012. The Agricultural Mentors respondent mentioned that they have a policy, but that he was not aware whether the farmers were involved since he only recently started working there. The Marketing Cooperative and Medicine World respondents mentioned that they only have rules that govern them. The Okashana Community Outreach Research Station and UNAM Rice Project respondents mentioned that they did not have any policies.

The ASS providers were asked whether the farmer organisations played a role in the establishment of their policies. All the government institutions and the Agricultural Mentors respondents mentioned that they were not aware that the farmers were involved, since most of them did not yet work at the organisations at the time the policies were implemented. The AMTA respondent, however, stated that the organisation only consulted cooperatives and farmers' associations. The DVS respondent stated the farmers were not included in the current animal health policy. The Okashana Research Station respondent mentioned that the farmers were not included in the draft seed policy. When asked why not, the respondent replied, "I don't know. The director will know." The Okashana Community Outreach Centre mentioned that a policy was something they simply never thought of. The UNAM Rice Project respondent mentioned that the reason they did not have a policy is that they used extension officers to give them farmers' feedback.

5.9.14 Summary of important findings

From the ASS providers' interviews, it is clear that all the ASS providers are working towards a common vision, which is to increase food security and to improve the livelihood of the community. Two organisations use a participatory approach and conduct needs assessments with the farmers. The other organisations seem to mostly use the T&V approach, which is a top-down approach. It is very worrisome because top-down approaches have been criticised all over the world as rigid, consisting of one-way communication channels, and not being cost-effective. It is good that the planning is being done at the regional level, but it is worrisome that the farmers have very little input in the planning process. The primary administration of finances still occur at the national level, which might lead to a delay in activities due to governmental bureaucracy structures. Farmers, who are the clients, are not represented in the decision-making bodies or committees and this is also a cause for concern. How can they be empowered if they do not participate in decision-making processes such as policy implementation? It is very worrisome that the farmers are the recipients of knowledge and technology without making any contributions towards them.

5.10 OBJECTIVE 3: INSTITUTIONAL LINKAGES AND COORDINATION OF ASS IN THE OSHIKOTO REGION

5.10.1 Introduction

The term "linkage" refers to communication and a working relationship between two or more institutions in order to achieve common objectives (Agbamu, 2000). Most of the organisations have realised the importance of working closely with other ASS providers instead of working in a vacuum to improve the livelihoods of the communities (Okorley, Gray & Reid, 2009). According to Bornman, Nealer and Stevens (2009), poor communication between linkages results in a lack of coordinated planning and implementation. Kibwika, Wals and Nassuna-Musoke (2009) were of the opinion that linkages between organisations should be based on mutual trust, high ethical standards, and transparency on the part of all partners.

Kibwika *et al.* (2009) further mentioned that success in joint activities requires honesty, ethics, and integrity. Although the establishment of coordination bodies and clear policy guidelines were seen as solutions to coordination problems, Campbell and Hartnett (2005) noted that coordinated bodies should also be encouraged by incentives for institutions and individuals to invest more in coordination. Campbell and Hartnett (2005) also mentioned that certain ingredients were essential for coordination to be effective, such as trust, understanding, and a good working relationship with other institutions. Campbell and Hartnett (2005:8) recommended that effective coordination should include the following components:

- Identification of the dimension of the coordination mechanisms, whether horizontal or vertical;
- Assignment of roles in the coordination process;
- Establishment of coordination objectives; and
- Comprehension of the environment and all of the relevant players.

This section explores the strength of the linkages between the different ASS providers in the Oshikoto region. It further explores the ASS providers' views on the organisations they perceive

as useful to work with. The respondents were asked to explain how they developed their agricultural support activities with other ASS providers in the region.

Of the 11 organisations interviewed, four of the organisations mentioned that they had not developed any agricultural support service activities with other organisations, and that their activities were authorised from the national level. Some institutions mentioned having trained DEES Agricultural Extension Technicians, while other organisations trained lead farmers or influential farmers to train other farmers. Some lead farmers were trained to treat community livestock when they got sick. Most of the influential farmers were, however, chosen by the community members or the community councillors to represent them on a voluntary basis. The above-mentioned approaches used by ASS providers are referred to as conventional approaches, which are also called top-down approaches. Düvel (2000) argued that best approaches or superior or inferior approaches do not exist; it depends on the situation. The top-down approach has been recorded in Asia to be successful when used with homogenous farming systems, more agents and farmers, or when it delivers a specific technological package (Davis, 2008). Nonetheless, the disadvantages of the T&V approach outweigh the advantages, as the approach has been criticised of being rigid, expensive, has low levels of farmers' involvement, as well as being blind to agro-ecological and socio-economic activities (Sulaiman & Hall, 2002). Most countries have been said to have abandoned the T&V approach after the Second World War and when the World Bank ended funding in 1995 (Glendenning & Babu, 2011; Düvel, 2000), and replaced it with the participatory approach.

Two of the ASS providers, however, mentioned that they conducted their activities together with the farmers to priorities the farmers' needs. They mentioned that their activities were based on those prioritised needs. The ASS providers in the Oshikoto region need to be encouraged to graduate from the top-down approach to the participatory extension approach, whereby farmers will be more involved in needs identification, planning, and the evaluation of their own activities. It is common knowledge that in agricultural extension it is better to learn with farmers rather than to teach them.

The ASS providers were requested to mention the organisations that would be useful to cooperate with on a five-point Likert scale (very useful, strongly useful, moderate, weakly useful, or no linkages at all). The results are listed in Table 5.19.

Table 5.19: Strength of linkages of organisations and ASS providers to be useful to cooperate with as provided by 11 ASS providers

Name of the organisation	Very useful (%)	Strongly useful (%)	Moderate (%)	Weak useful (%)	No linkages (%)	Total (%)
DEES	70	20	0	0	10	**100**
AMTA	10	0	0	10	80	**100**
NNFU	40	20	20	10	10	**100**
ORFU	50	10	0	20	10	**100**
DVS	50	10	30	10	10	**100**
FSP	40	20	20	0	10	**100**
OCORS	10	0	10	0	80	**100**
ORC	40	0	10	10	40	**100**
OMC	40	0	0	10	50	**100**
MW	10	0	0	0	90	**100**
UNAM	40	30	30	0	0	**100**
ORC	70	0	0	0	30	**100**
Other organisations						
Forestry	20	0	0	0	80	**100**
Seed Cooperatives	10	0	0	0	90	**100**
Vocational Training Centre (VTC)	10	0	0	0	90	**100**

Source: Compiled from survey data

The results in Table 5.19 indicate that 70% of the ASS providers found the Oshikoto Regional Council and the DEES very useful to work with. The main reason given was that their offices were in all the constituencies, which made it easier for them to access farmers to work with. In addition to the above reason, the Oshikoto Regional Council is where all the councillors of different constituencies meet, and being politicians, they were found to be very influential regarding the development activities in their constituencies. Fifty per cent (50%) of the ASS providers indicated that the Oshikoto Regional Farmers' Union and the DVS would be very

useful to cooperate with because it was easier if the organisation wanted to work with a group of farmers to go through the Oshikoto Regional Farmers' Union and the DVS. Forty per cent (40%) of the ASS providers indicated Agricultural Mentors to be very useful, and 20% mentioned that the Agricultural Mentors were strongly useful because of their experience of working with different farmers and the fact that they were regarded as having more resources than other organisations. Forty per cent (40%) of the organisations also indicated the Okashana Research Station to be very useful to work with, on the condition that more research concerning the region would be conducted and be accessible to the organisations.

Other organisations such as AMTA and Traders and Supply (Medicine World) were only attractive for cooperation to 10% of the ASS providers. Organisations such as Forestry, Seed Cooperatives, and Vocational Training Centres were identified by certain ASS providers to be very useful to work with, but were not listed on the questionnaire. The Oshikoto Regional Council was on the list, but could not be interviewed because of other commitments.

The ASS providers were asked to characterise the strength of their organisational linkages with other organisations. The results are presented in Table 5.20.

Table 5.20: Characterisation of strength of linkages as provided by 11 ASS providers

Name of the organisation	Very strong (%)	Strong (%)	Moderate (%)	Weak (%)	No linkages (%)	Total (%)
DEES	40	10	20	20	10	**100**
AMTA	10	0	0	0	90	**100**
NNFU	20	10	20	0	50	**100**
ORFU	10	20	10	0	60	**100**
DVS	30	0	10	0	60	**100**
FSP	30	0	0	0	70	**100**
OCORS	10	0	10	0	80	**100**
ORC	0	0	20	0	80	**100**
OMC	10	0	10	0	80	**100**
MW	0	10	0	0	90	**100**
UNAM	0	20	0	0	80	**100**
Oshikoto Regional Council	40	10	10	0	40	**100**
Forestry	10	0	0	0	90	**100**
Seed Cooperatives	10	0	0	0	90	**100**
Vocational Training Centre (VTC)	10	0	0	0	90	**100**
Meatco	10	0	0	0	90	**100**

Source: Compiled from survey data

It is very clear from Table 5.20 that the ASS providers were not satisfied with the current strength of linkages on the ground. Only 40% of the ASS providers indicated having a strong linkage with the DEES and Oshikoto Regional Council. Thirty per cent (30%) of the ASS providers indicated having strong relationships with the DVS and FSP. Twenty per cent (20%) of the ASS providers interviewed indicated very strong relationships with the NNFU. The rest of the ASS provider representatives (10%) indicated having very strong relationships with other organisations. These indications are very worrisome as most of the ASS providers do not seem to have any linkages with one another while working in the same region. If Namibia is to achieve Vision 2030, all the organisations need to work together towards a common vision.

The ASS providers were asked which factors prevented effective job performance in their institutions, as well as to rank them according to their priorities. The results are presented in Table 5.21.

Table 5.21: Factors that prevent effective job performance in the organisation according to priorities

Factors that prevent job performance	Frequencies	Percentage (%)
No transport	7	19.4
No coordination with other organisations	6	16.7
Bureaucracy	5	13.9
Performing activities not in the job description	4	11.1
Lack of training	4	11.1
No clear policy direction	4	11.1
Lack of management support	3	8.3
No coordination with colleagues	3	8.3
Total	**35**	**100**

Note: Multiple responses

Source: Compiled from survey data

The results from Table 5.21 clearly show that 19.4% of the ASS provider organisations had problems with transport. Without transport, ASS providers are not able to do their work because the farmers are widespread throughout the region. It also makes it difficult for ASS providers to attend to more serious agricultural matters without any transport. A total of 16.7% of the ASS providers indicated no coordination with other organisations as a problem. It is difficult to harmonise work plans because all ASS providers report to different organisations with different budgets and activities to carry out. Eleven per cent (11%) of the ASS providers reported performing activities not in their job descriptions, a lack of training, and no clear policy direction. The least regarded problems were lack of management support (8.3%), as well as no coordination with colleagues (8.3%). Most of the government institutions mentioned that they still worked with the 1995 agricultural policy. The last three organisations mentioned lack of management support and no coordination with colleagues.

- ***The ASS providers were queried on the quality of coordination in their areas***

The majority of the ASS provider representatives mentioned that the quality of coordination in the region differed from one organisation to the next, depending on the activities being coordinated, as well as the organisation being coordinated with. It also depended on whether management was in agreement with what was being coordinated. The quality also depended on the reputation and commitment of the ASS provider they worked with.

Some of the respondents were of the opinion that the quality is higher when proper planning and evaluation were involved from the beginning. The organisations involved in the coordination activities should minimise bureaucracy. The quality would also be much improved if there were coordinated policies to guide all the organisations involved.

- ***The ASS providers were asked their views on the factors favouring coordination in their areas***

There should be awareness among stakeholders in terms of knowing one another and what they are doing, as well as sharing information among different organisations. Activities should be based on a needs-based approach with all stakeholders. Coordination will be favoured by sharing resources such as transport. Competent staff members in all levels from both sides should be involved. Good communication and planning of the coordination of activities by all the parties involved will favour coordination efforts. There should be a leading organisation or a coordination body that spearheads the planned activities. In order for ASS providers to work together, their organisational heads need to budget together on activities they are going to execute together. There should be an ASS provider policy that protects all the organisations involved. Training of staff on coordination at the highest levels and management support will also improve coordination.

- ***The ASS providers were asked their views on the factors hindering coordination in their areas***

The most notable factors were a lack of resources, the commitment of staff, and no guiding policy for working with other ASS providers. The respondents also mentioned that training by higher education institutions occurred without consulting the organisations who are involved in agriculture. The respondents found that, as a result, some of the training was too theoretical and not practical, while other training seemed outdated. Students should be trained as specialists in agriculture and not as generalists.

One comment was, "We are lacking entomologists on the ground." Some of the trained specialists stay in the office rather than going to the field to practise. Sometimes political staff members hinder progress as they do not work closely together with other members who belong to different opposition groups. Also, if a supervisor did not participate in planning, it led to technicians not being allowed or released to participate in the activities. A lack of resources and planning in isolation lead to poor and improper coordination. Sometimes when higher ranking officials are required to coordinate, they send their lower-ranking officials who cannot contribute in meetings.

When they have good agricultural projects, some organisations speak to the councillors first before speaking to other ASS providers, which occasionally results in good projects being rejected in the region, irrespective of how good the idea was. Another problem is bureaucracy, in which case too many people have to sign documents before a project is approved. Some respondents mentioned that coordination was also hindered by personal issues such as someone getting a promotion to a different organisation, but being forced to work with their previous supervisor who previously undermined their abilities and hindered many good ideas.

5.10.2 Summary of important findings

Most ASS providers in the Oshikoto region still make use of the top-down approach that has been discontinued in many countries. It is very worrisome that there are weak linkages between the different ASS provider organisations. It is, however, very evident that the different ASS providers would like to work together, but find it difficult to do so because they have different managers and different financial and planning systems, which make it difficult for the organisations to work together. Transport was one of the top listed problems in the Oshikoto region. Without transport, it is very difficult to carry out agricultural support services activities as farmers are located far from one another.

Bureaucracy topped the list as preventing effective job performance in the region as activities of urgency cannot be carried out timeously. The supervisors of different ASS providers exhibit a lack of interest in the coordination of activities as they delegate their junior staff members to attend meetings instead of participating in the coordinated activities themselves.

Resource sharing is another problem due to organisations having different budgets and different planned activities. The other concern was a lack of ASS policy to protect and guide the organisations involved in coordination efforts.

Higher education intuitions involved in agricultural training should scrutinise or involve the ASS organisations in their syllabus development in order to teach practical topics relevant to the region.

5.11 OBJECTIVE 4: THE REQUIRED CAPACITIES AND SKILLS FOR COORDINATED ASS

5.11.1 Introduction

Capacity and necessary skills play a very important role in the improvement of the community and increased food security. Grindle and Hilderbrand (1995: 443) defined capacity building as “the ability to perform appropriate tasks effectively, efficiently and sustainably”. This definition

is suited for the Oshikoto region because it equates capacity building not only with development, but also with the training of human resources. Training is important as it enables staff members to carry out their activities with motivation and confidence. Studies by Khalil, Ismail, Suandi and Silong (2009) and Boyd (2003) showed that competence and skills were positively related with extension agent performance. It is, however, true that performance and good qualifications should go with attractive incentives to draw capable people to agricultural extension. In Ghana, for instance, low salaries led to many of the best public officials leaving for greener pastures (Grindle & Hilderbrand, 1995).

It is also important that the University and higher education institutions be in constant communication with the ASS providers to shape their training curricula and programmes to address the needs on the ground level and for students to be equipped with more appropriate training qualifications. According to Grindle and Hilderbrand (1995), inappropriate professional training programmes result in in-house training of which the related finances could have been channelled elsewhere.

According to Terblanche (2008), for extension officers to be effective in their jobs, they need to have technical skills in agricultural skills, communication skills, group facilitation skills, and extension management skills such as programme planning, monitoring, evaluation, and leadership development.

The respondents were asked to mention their perceptions of required capacities for their organisations.

Some of the respondents mentioned that a diploma in community development or agriculture would be sufficient to work with the farmers. Others stated that as long as one is an expert in agriculture or animal health, that it is good enough. Some of the respondents mentioned at least an agricultural diploma specialising in agronomy, food science, or agricultural economics. Some of the respondents were of the view that not only should good qualifications be required, but that staff members should be supported and encouraged by management to further their studies. Some staff members started and retired with diplomas as there is no encouragement for them to

further their education. Some of the respondents were of the opinion that staff members doing research-related work should have at least a degree or a master's degree to be comfortable doing research. Further studies would be seen as encouragement and motivation to colleagues if staff members are promoted after completing their studies.

The ASS providers were asked to list the professional and technical extension personnel in their institutions by gender for 2013 and 2014. The results are presented in Table 5.22

Table 5.22: Number of professional and technical personnel by gender in ASS organisations

Organisation	Year	Senior Management		Agricultural Support Officers		Field Extension Staff	
		Male	Female	Male	Female	Male	Female
ORC	2014	3	1	0	0	0	0
FSP	2014	3	0	0	0	0	0
OCORS	2014	1	1	0	0	0	0
OMC	2014	5	3	0	0	0	0
ORFU	2014	4	4	0	0	0	0
NNFU	2014	1	3	0	0	0	0
MW	2014	3	1	0	0	0	0
AMTA	2014	0	1	2	2	3	4
The DVS	2014	1	0	0	2	14	4
The DEES	2014	1	1	2	2	6	6
Total	**-**	**22**	**15**	**4**	**6**	**23**	**14**

Source: Compiled from survey data

Table 5.22 only indicates the results of 2014, although the respondents were also asked to mention the number of professional and technical personnel by gender in their organisations in 2013. All the respondents mentioned that there was no difference between the two consecutive years. There were 84 staff members in the different organisations working with farmers in the Oshikoto region. Of these, there were 22 male staff members and 15 females in senior management positions. There were only ten agricultural support officers, which comprised four males and six females. Field staff was in the majority with 37 workers, of which 23 were male and 14 were female. ASS providers such as AMTA, the DVS, and the DEES had professionals

distributed over various levels of the organisations. The DVS had 18 field staff members, of which 14 were males and four were females. The DEES had 12 field staff members, of which six were females and six were males. The latter brings the current Agricultural Extension Technicians (AET)-to-farmers' ratio to approximately 1:1783[3]. This ratio is higher than other countries such as South Africa, India, Zambia, and Zimbabwe, where the ratio is 1:878, 1:1000, 1:800, and 1:700 respectively (Department of Agriculture, 2005).

The ASS providers were asked to list the categories of positions and the level of education in their organisations. The results are indicated in Table 5.23.

Table 5.23: Number of ASS providers by category of position and level of education

Organisation	Secondary School Certificate	2-3 year Agriculture diploma	BSc Degree	MSc	PhD
ORC		3	1		
FSP			3		
OCORS	1			1	
OMC	5	3			
OFU	6	2			
NNFU	2	2			
MW	4				
AMTA	4		8		
The DVS	14	4	3		
The DEES	0	14	3 (1 on study leave)		
UNAM			1		
Total	**36**	**28**	**19**	**1**	

Source: Compiled from questionnaire data

Table 5.23 shows that most of the employees only possessed secondary school education or a certificate. The DVS mentioned that their Directorate had demoted all those with secondary school certificates to clerical assistance. Technicians were required to have a minimum of a diploma in Agriculture or in Animal Health in order for them to qualify as technicians. Only 28

[3] Total number of communal farming households = Regional population (181 973) divided by the average household size (7.4) multiplied by percentage of rural population (87). At the time of writing this research there were 12 AET working with farmers. The AET-farmer ratio is 1:1783.

of the regional staff members had two- or three-year Agriculture diplomas; 14 of those were employed by the DEES. Nineteen of the employees had BSc degrees; eight from AMTA, and only four from the DEES, with one on study leave pursuing an MSc degree. The other three were from the DVS. The OCORS had one person with an MSC degree. No one in the region possessed a PhD degree.

The ASS providers were asked about the Subject Matter Specialists (SMSs) in their organisations.

There were only four Subject Matter Specialists in the Oshikoto region at the time of the interviews. Three were livestock specialists; one from the DEES and the other two from the DVS, and there was one agronomist at the NNFU. More specialists are needed in the region for the organisations to be able to work effectively with the farmers.

5.11.2 Summary of the important findings

Most of the ASS providers' staff members still operate only with senior secondary certificates and diplomas and need to be encouraged to further their studies. The number of females in managerial positions was very low and the organisations need to be encouraged to have a better gender balance. There were only four Subject Matter Specialists in the whole region, which are far too few for the region to operate effectively. In general, technical staff had a low number of professional staff members; which needs to be increased for the maximum benefit of the farmers. It is of utmost importance that the ASS staff members be given short courses in interpersonal skills, communication skills, group facilitation skills, extension management skills, and strategic skills for effective coordination among all stakeholders to be effective.

5.12 OBJECTIVE 5: PERCEPTIONS AND ATTITUDES OF STAKEHOLDERS TOWARDS COORDINATED, PLURALISTIC ASS

5.12.1 Introduction

Many public extension services worldwide are criticised in the literature for being inefficient, ineffective, lacking clear objectives, and not addressing the farmers' problems (Haug, 1999). Most of the public extension services have been found to have low coverage of only about 10% of the potential clients, with a small number being women (Zhou, 2008). It is, however, also true that the impact of extension on the community is very difficult to measure as some of the impact can only be seen after some years (Davis, 2008). According to Zhou (2008), one of the most strategic ways of addressing the failures in agricultural extension is to involve other organisations such as NGOs, Community-based Organisations, and the private sector in the management of extension services to deliver improved extension activities. It is against this background that this section will examine the perceptions and attitudes of stakeholders towards coordinated ASS.

5.12.2 The importance of coordinated, pluralistic ASS

According to numerous literature sources, a lack of coordination between different organisations leads to duplication of activities, which leads to wasting resources (Düvel, 2002). It is against this background that the 11 ASS respondents were requested to provide an indication among the different choices of their closest idea of good coordination. The results are presented in Table 5.24.

Table 5.24: Perceptions of ASS respondents of ideal coordinated, pluralistic ASS

Reasons/Purpose	Frequencies	Percentages (%)
ASS providers assist one another and work together to be more effective and efficient (cooperation).	1	9.1
ASS providers work in such a way that they do not do the same work, but complement one another by either focusing on different areas, different communities, or different functions.	2	18.2
Both of the above.	8	72.7
Total	**11**	**100**

Source: Compiled from questionnaire data

Table 5.24 shows that 72.7% of the ASS providers perceived good coordination as ASS organisations assisting one another and working together to be more effective and efficient, as well as when ASS providers work in such a way that they do not do the same work, but complement one another by either focusing on different areas, different communities, or different functions. Only 18.2% of the respondents perceived good coordination as ASS providers working in such a way that they do not do the same work, but complement one another by either focusing on different areas, different communities, or different functions, and only 9.1% perceived coordination to be best if ASS providers assist one another and work together (cooperate) to be more effective and efficient.

How some of the organisations work is simply by harmonising their work plans with one another or by attending meetings whenever they are invited. All the ASS provider respondents agreed that coordination is very useful and for Vision 2030 to be achieved, all organisations need to put aside their differences and work together. Coordination was also mentioned to be useful in sharing different types of skills from other organisations.

The respondents were asked to list the seriousness of the problem of lack of coordination in their areas on a five-point scale (1 being unimportant and 5 being extremely important).

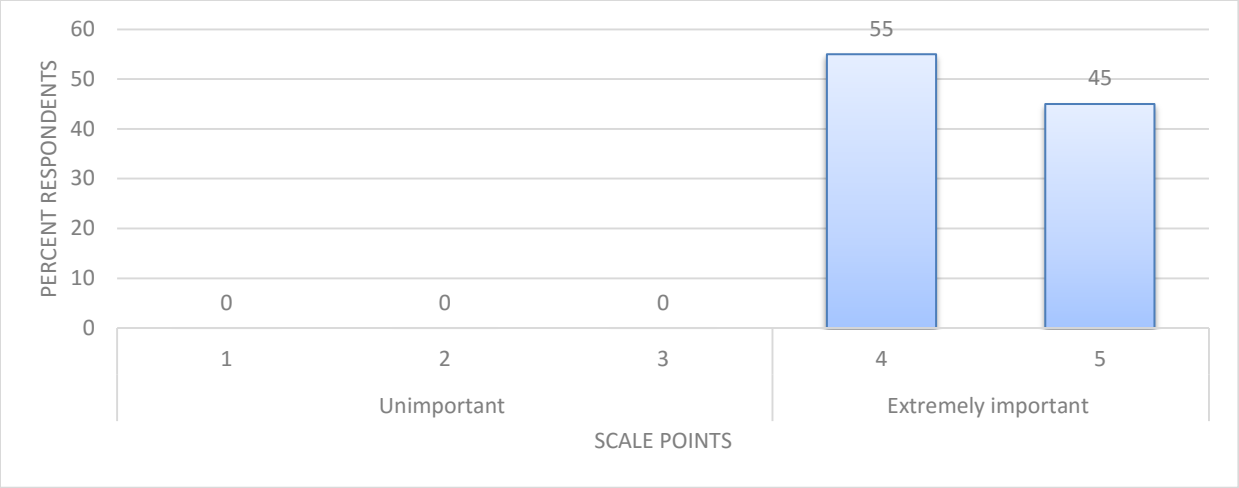

Figure 5.8: Distribution of ASS providers according to their assessment of the seriousness of the problem of lack of coordination (n=11)

Source: *Generated from survey data*

According to the findings, proper coordination was important to the respondents. No respondent regarded coordination as unimportant. All the respondents regarded coordination as important as they chose 4 to 5 on the five-point scale. Of the respondents, 55% scored the importance at 4; followed by 45% of the respondents who scored it at 5 as extremely important. It shows that the respondents regarded coordination as very important in the Oshikoto region and, as such, an enabling environment should be created for the organisations to effectively coordinate their agricultural support activities.

It is very important to consider the problem of poor coordination in a combined view with the other problems ASS providers experience. The ASS providers were requested to provide their viewpoints regarding the seriousness of a lack of coordination and collaboration as a problem in regards to other problems on a seven-point scale (1 being important and 7 being unimportant). Table 5.25 highlights the findings.

Table 5.25: Respondents' ranking of the seriousness of lack of coordination, considered together with other problems

	Problems	No response (%)	Important (%)	Unimportant (%)
1	Lack of farmers' interest	27	54	18
2	Poor competence of ASS providers	18	36	45
4	Poor management of ASS	36	36	27
3	Lack of commitment of ASS personnel	27	27	54
5	Inappropriate ASS approach	45	27	27
6	Lack of credit and other input resources	27	27	45
7	Lack of land	82	0	18

Source: Compiled from survey data

According to Table 5.25, 54% of the respondents regarded lack of farmers' interest as being the biggest problem, while 45% of the respondents ranked poor competency of ASS providers as unimportant and 36% of the respondents ranked it as a secondary problem. Poor management of ASS was also ranked at second place with 36%. Fifty-four per cent (54%) of the respondents regarded lack of commitment of ASS personnel as unimportant, while 27% of the respondents regarded it as important. The same goes for lack of credit and other input resources, where 45% of the respondents regarded it unimportant and 27% regarded it as an important problem. Lack of land did not seem to be a problem as it was ranked in the last place.

The respondents were requested to mention the level at which coordination is most important. The results are shown in Table 5.26.

Table 5.26: The level at which coordination is most important

Level	Frequencies	Percentage (%)
Village	1	9
Constituency	3	27
Regional	1	9
National	0	0
All of the above	6	55
Total	**11**	**100**

Source: Compiled from survey data

Table 5.26 clearly shows that over 55% of the respondents agreed that all levels need coordination. Of the respondents, 27% were of the opinion that coordination was most important at the constituency level, and 9% of the respondents were of the opinion that coordination should only take place at the village and regional levels respectively.

The respondents were requested to mention who they thought should manage a coordinated structure of ASS providers at different levels. The next section summarises their responses.

5.12.3 Village level

Most of the respondents agreed that the headmen should lead at the village level, but there was a division of opinion regarding who should assist them. Some of the respondents were of the view that the headmen should be assisted by agricultural technicians and community animal health workers, while others thought they should be assisted by local or lead persons in the community. Others thought the headmen should have agricultural advisors. Some organisational respondents were of the opinion that the farmers themselves should take the lead at the village level.

5.12.4 Constituency level

Although the majority of the respondents were in agreement that the councillors should be involved in leading the constituency, some of the respondents were of the opinion that they need to be assisted by agricultural and veterinary technicians and a development agency. Some of the

respondents strongly felt only councillors, farmers' organisations, and chief technicians should take the lead.

5.12.5 Regional level

The majority of the respondents were of the view that only the governor should take the lead, but some respondents thought the governor should be assisted by extension officers, chief technicians, veterinary technicians, and regional heads. Some thought the Ministry of Agriculture, Water and Forestry should take the lead, and others thought councillors and other stakeholders involved in agriculture should take the lead.

5.12.6 National level

At the national level, some respondents expressed that only the minister should take the lead, while others mentioned that they should be assisted by agricultural directors and deputy directors. Some thought all the line ministries in agriculture should be in charge, while others stated that the Ministry of Agriculture, supported by directors and deputy directors, should take the lead.

5.12.7 Summary of the main findings

The results indicate that all the ASS providers regarded coordination as being extremely important. It is, however, very difficult to believe that they blame the seriousness of the lack of coordination on the farmers' lack of interest. The majority of the ASS providers were of the opinion that all levels, from village to national level, need coordination.

5.13 OBJECTIVE 6: FRAMEWORK FOR IMPROVING COORDINATION IN THE PROVISION OF ASS TO FARMERS IN THE OSHIKOTO REGION

5.13.1 Introduction

It is very evident from the literature that organisations working in agricultural extensions in many countries have increased and many work with farmers in an unorganised way. According to Moumouni and Labarthe (2012), public extension has weakened financially and plays less important roles in the quality of knowledge and information provided to farmers. Rivera and Alex (2004) were of the opinion that agricultural extension should be seen as a multi-sector network for knowledge and information support for farmers where different organisations meet to provide services to the different needs of farmers. According to Düvel (1999), unplanned and uncoordinated activities take place in communities, sometimes with three or four organisations promoting the same projects in the same communities without being aware of one another, which usually leads to confusion among the farmers. An absence of coordination results in conflicting technical recommendations, which confuse the farmers (Qamar, 2005). Rivera and Alex (2004) commented that poor coordination results in the failure of quality control and ineffective knowledge sharing.

Düvel (1999) and Okorley *et al.* (2009) recommended that collaboration and coordination of activities avoid duplication and the wastage of scarce resources. Therefore, good organisational platforms can lead to collective insight and better understanding of farmers.

In this section, the terms “platform” and “framework” will be used interchangeably. According to Düvel (1999:1), for organisational platforms to be appreciated by all stakeholders, they should:

- share common goals;
- purposefully plan activities; and
- have mutual understanding of one another’s goals and functions.

Apart from the above factors, Düvel (2005) also pointed out that the organisational platform structures should consist of different farmer interest groups in agricultural as well as developmental institutions. The implementation of such platform structures should be based at the community level for the community to regard such structures as their own. If based on higher levels, the community will have difficulties regarding such structures as their own, which may result in partial participation of communities (Düvel, 2005). It is also important that such organisational platform structures serve the community's primary interests and their purpose, and not those of their organisations they work for (Düvel, 2005).

Düvel (2005) further mentioned that organisational structures beyond the community level, such as regional and national, will not be a solution to communities as they are situated at higher levels. However, such organisational platforms should coordinate functions that arise from the community level otherwise they will only be regarded as instruments of development and not as agents of change.

According to Okorley *et al*. (2009), organisational framework structures bring different organisations together to exchange information and to develop new partnerships. Rivera and Alex (2004) also noted that a common framework can guide stakeholders in contributing their share of development. Moumouni and Labarthe (2012), however, were of the opinion that such organisational platforms should be started with internal funding as donor-funded platforms end when the project comes to an end. Moumouni and Labarthe (2012) were also of the opinion that for such platforms to be sustainable, financing mechanisms and a policy vision will have to govern them and all the organisations involved should be trained to have a common understanding of shared concepts. The same authors further mentioned that the quality of extension programmes depend on how good the linkages are with the programmes of other developmental organisations. Agricultural extension should therefore not be seen in isolation, but as a multi-sector network of knowledge or information support where public and private organisations meet the needs of the farmers.

It is based on this background that this chapter attempts to develop a framework for improving coordination in the provision of ASS to farmers in the Oshikoto region in Namibia. The

framework will be developed based on the information provided by the farmers and different ASS providers in the Oshikoto region.

The next section will first attempt to provide an overview of the current decentralisation structure that was launched in March 1997 through the Decentralisation Policy by the Ministry of Regional and Local Government, Housing and Rural Development (MRLGHRD), which has since been changed to the Ministry of Urban and Rural Development in April 2015. The aim of the Decentralisation Policy was to bring services closer to the community, to improve the capacity of the government, and to plan the administration of developments in the country (MRLGHRD, 1998: 5). The Decentralisation Policy was implemented with new structures from the local level to the regional level with the aim of making the structure more participatory to the community. The above policy is in agreement with Rivera and Alex (2004), who stated that the agricultural sector should be an integrated part of the rural economy that incorporates all sectors, such as education, health, finance, forestry, and environment.

Figure 5.9 presents the current decentralisation structure in the Oshikoto region.

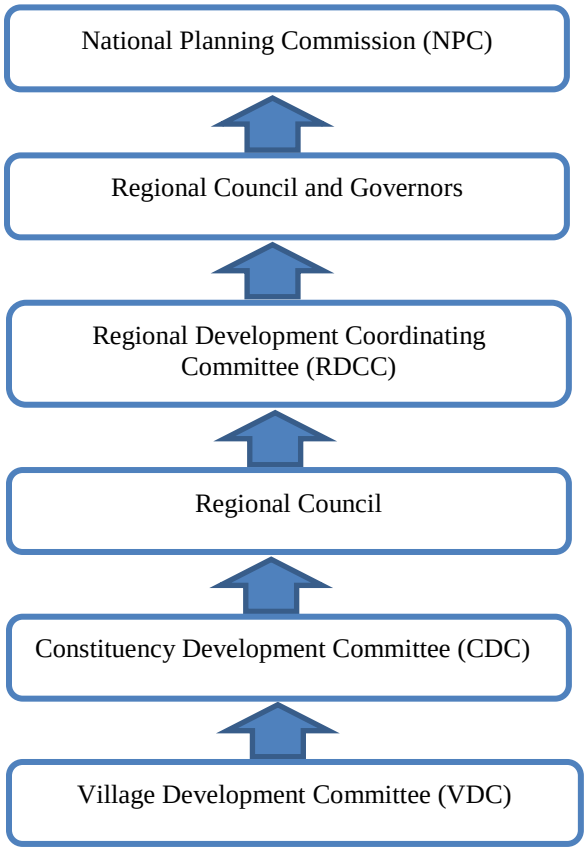

Figure 5.9: Decentralisation structure in the Oshikoto region

Source: MRLGHRD, 1998

5.13.2 Overview of the decentralisation structure in the Oshikoto region

The overall decentralisation structure in the Oshikoto region starts at the village level and goes up to the national level. The structure deals with all the development projects in the region from the different ministries. The functions of the all the different levels provided in Figure 5.9 are detailed in the next sections.

5.13.2.1 Village Development Committee (VDC)

The structure starts with a regional planning process at the village level, called the Village Development Committee (VDC), which is the lowest level at the community level. The VDC members consist of volunteers from different organisations, such as churches, village

development groups, other organisations and community activists, etc. The VDC is chaired by a community member nominated by members of the community. The nominated secretary among the members is responsible for writing the community project proposals. The functions of the VDC are to identify and evaluate local-level need problems and to come up with different development projects. The VDC reports to Constituency Development Committee (CDC) (Larsen, 2003; MRLGHRD, 1998).

5.13.2.2 Constituency Development Committee (CDC)

The CDC is chaired by a nominated councillor, who is also referred to as the chairperson of the region. The administrator from the councillor's office writes proposals. The CDC structure has similar functions to those of the VDC, but the difference is that the CDC operates at the constituency level. The CDC identifies and evaluates local needs/problems and monitors different developmental projects that originated from the VDC level. The CDC consists of selected committee members from the different ministries which are based at the constituency level. The CDC reports to the Regional Council (Larsen, 2003; MRLGHRD, 1998).

5.13.2.3 Regional Council

The Regional Council consists of the selected councillors of different constituencies in the region. The potential projects that were identified at the CDC level are forwarded to the Regional Council for further scrutiny based on the availability of financial resources. The secretary nominated by a regional management committee (RMC) writes the proposals on this platform. The Regional Councils at this level approve and reject plans according to the priority of the region. Approved projects are forwarded for further consideration to the Regional Development Coordinating Committee (RDCC) for funding based on the availability of resources (MRLGHRD, 1998).

5.13.2.4 Regional Development Coordinating Committee (RDCC)

The RDCC is chaired by the Regional Governor and consists of the constituency's councillors and the senior administrative staff of the different departmental heads of different ministries in the region. The RDCC coordinates the overall development projects of the region by prioritising the projects and forwarding them to the Regional Councillors and Governor for approval (MRLGHRD, 1998).

5.13.2.5 Regional Councillors and Governor

This structure is chaired by the Regional Governor of the Oshikoto region. The chief regional officer, who has a higher position than the directors and deputy directors in the region, writes the proposals. The Regional Councillors and the Governor approve priority projects from the RDCC and forward them to the relevant ministries for consideration. The line ministries prepare the budgets for possible funding and send them to the Ministry of Finance for consideration. Once the project is approved and budgeted for, the Regional Council carries out a feasibility study on the project. This is followed by the advertisement of a tender, which is mostly awarded to the local people with the aim of empowering local companies before considering outsiders. Once the tender is awarded, the Regional Council (Development Planner) monitors and evaluates the progress of the project (MRLGHRD, 1998).

5.13.2.6 National Planning Commission (NPC)

The NPC plans the national priorities of the country from all 14 regions of Namibia. The NPC also coordinates and implements the National Development Plan (NDP), which is part of the implementation process of Vision 2030. This body only attends regional meetings on invitation or when monitoring projects for planning purposes. The potential projects identified are only funded in the following financial year upon prioritisation of tabled potential projects (MRLGHRD, 2011).

5.13.3 Strengths and weaknesses of the current decentralisation structure

The mentioned structure seems to be participatory in nature and accommodates all the people at the regional level. However, according to the report written by the Auditor General on the performance of service delivery by all regions in Namibia for the financial years 2006, 2007, 2008, and 2009 (MRLGHRD, 2011: 1), "the Namibian decentralisation process is still at the delegation phase, which means little or no progress has been made since the adoption of the Decentralisation Policy in 1997". The report further stipulated that the effectiveness of the smooth implementation of decentralisation was hindered by delays of harmonisation of the various acts and some problems observed, such as a staff shortage in the Ministry, which resulted in certain services such as revenue collection not being properly delivered.

Larsen (2003) was of the opinion that the lower levels of the decentralisation structure were weak and not well established, especially at the VDC and CDC level. In addition, there is a lack of cooperation between different ministries and agencies' members serving on the platforms, which hinders proper implementation of the development plan. Larsen (2003) also commented that the participation of the community in the development of the projects was limited as most community members were not aware of the decentralisation policy that enables them to participate in their own development.

In the absence of proper harmonisation of the acts and policies, the current decentralisation structures in Namibia might not function fully and will remain at this "fragile" stage. It is time that the decentralisation structure graduates from the delegation stage to the devolution stage, whereby all administrative, legislative, and financial authority is fully handed over from the national level to the regional level.

Although the current structure seems participatory in nature, one can argue that it is a top-down structure because the priorities of the community are based on the predetermined objectives by the NDP rather than the community's needs. The community FBOs do not seem to be well represented at all the levels of the decentralisation structure. There seems to be no proper needs analysis conducted at the village level, as it is only inclusive of volunteers and community members, and exclusive of ASS providers.

5.13.4 Proposed framework structure for a coordinated pluralistic ASS in the Oshikoto region

The framework (presented in Figure 5.10) that this study proposes will not change the current structure of the decentralisation system that was developed through the Decentralisation Policy of 1997, but will rather complement the current structure by improving the coordination of ASS to farmers in the Oshikoto region of Namibia, and suggest ways on how best to develop work plans and projects based on the farmers' needs. Most of the information used in the development of this framework was collected from 200 farmers and 11 active ASS providers in the Oshikoto region who were interviewed in this study. Some of the ideas were borrowed from the Düvel institutional linkage structure for participatory development (2005) and the ATMA model by Swanson, Singh and Reddy (2008). According to the literature and the conceptual framework (see Figure 1.2), the author is of the opinion that the proposed coordination structure will only be practically effective if:

- a policy on ASS is developed to protect all the stakeholders involved;
- all the functions of the decentralisation policy are fully operational (inclusive of financial administration powers);
- there is transparency and accountability among all stakeholders, and proper monitoring and evaluation of activities take place;
- the minimum qualification of field workers is at least a Bachelor of Science degree in Agriculture, including the following:
    - Strong interpersonal and facilitation skills with the ability to talk to different groups;
    - Strong communicators who are able to think strategically; and
    - Strong motivation and commitment to deliver results.
- field workers are better trained on how to interact with farmers, researchers, and Subject Matter Specialists;
- the approach used is the participatory approach and farmers are fully involved; and
- resources are shared among all the stakeholders.

If all the above conditions have been satisfied, the proposed framework will lead to the:

- Harmonisation of different activities among different stakeholders in the region;
- Sharing of different skills and knowledge of different stakeholders;
- Efficiency of service delivery among all stakeholders; and
- Responsiveness of activities delivery.

The proposed coordinated framework was influenced by the ATMA model due to the following reasons:

- The model is a decentralised, market-driven model, and was tested between 1998 and 2005 by both the Indian government and World Bank;
- It started with 28 districts and increased to 567 districts, covering more than 60% of India;
- The model was designed to diversify into high-value crops and livestock enterprises; and
- The model transformed the top down approach into a farmer-driven and farmer-accountable approach.

The evaluation of the piloted study revealed:

- A 14% increase in the diversification of crops; and
- A 24% increase in yield, which is 5% more than any other district.

According to Ghosh and Ganguly (2008:5), the model constituted:

i. integrating of extension programmes across all the line departments and other extension agencies;
ii. linking research and extension activities in a district; and
iii. decentralising extension decision making through a participatory approach.

The above factors attributed to the design of Figure 5.10, which most importantly represents a bottom-up approach.

Figure 5.10 presents the proposed framework structure for coordination in the Oshikoto region.

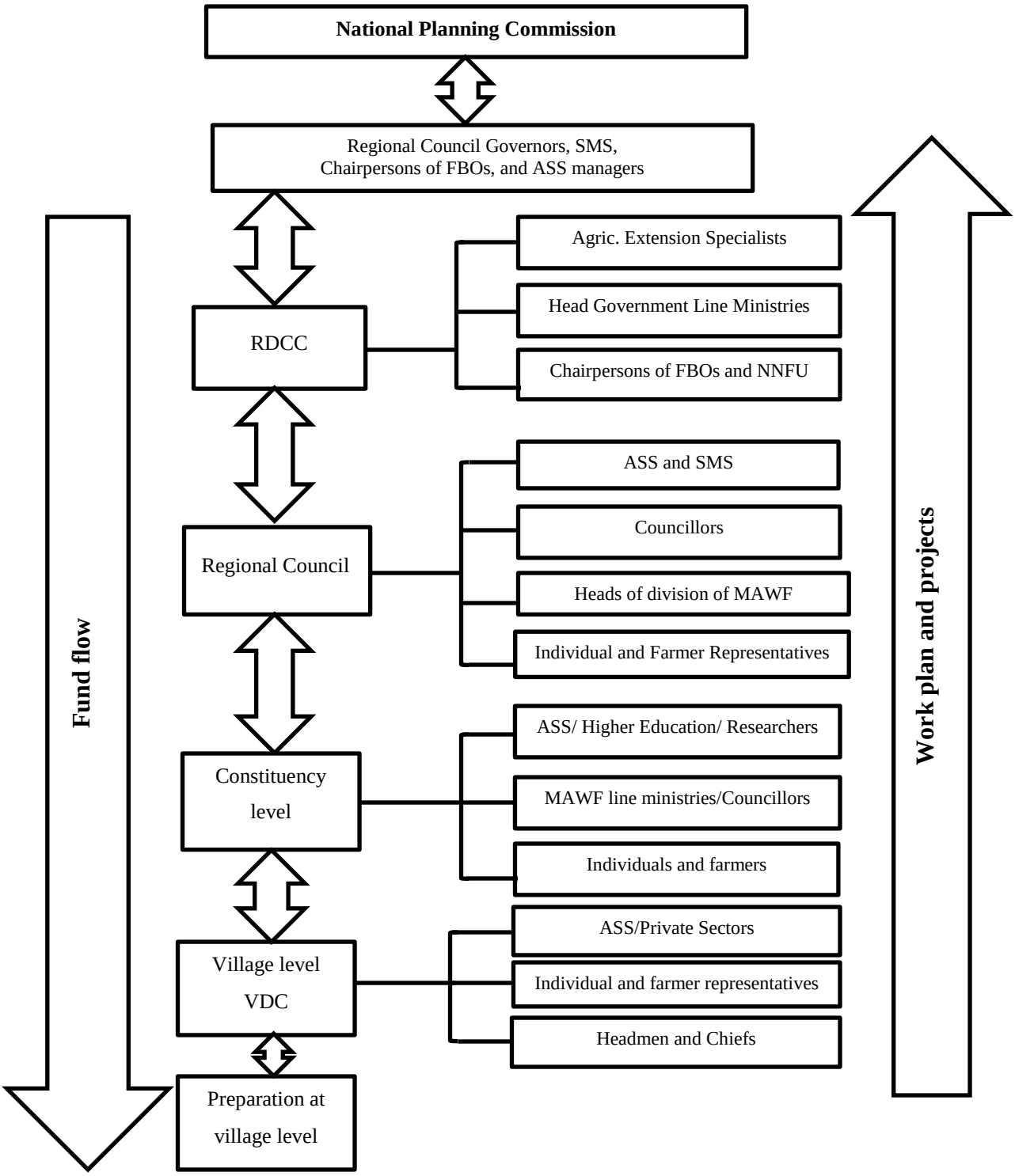

Figure 5.10: Proposed framework structure for coordination in Oshikoto region

Source: Survey figure

5.13.4.1 Preparation at the village level

The village level is the lowest structure at the regional level, but also the most crucial and important structure. The success of this structure will determine the quality of the projects to be carried out and the work plan that needs to be executed by the ASS providers. ASS providers should work closely with the headmen and the communities in all the villages to identify the farmers and categorise them into different typologies according to farming activities or interests because different farmers have different farming needs and need to be assisted differently. After the groups of farmers have been placed into different categories based on their needs, the ASS providers need to conduct a participatory needs assessment with each of the group members identified. Influential farmers should be identified in each of the groups, and a work plan and possible projects for funding should be developed by the ASS providers, which must be approved by the community. This process should be revised on at least a yearly basis. From the 200 farmers interviewed, only 35% participated in FBOs in the region. It is evident that there is a need to develop more FBOs and to strengthen the current developed FBOs into functional groups.

5.13.4.2 Village Development Committee (VDC)

After the above-mentioned process has been completed, the VDC members can be selected. All the chairpersons of the interest groups should be part of the VDC. Because 29% of the farmers interviewed indicated that they rely on fellow farmers for information, the chosen influential farmers from the villages should also be part of the VDC. Of the respondent farmers, 37.5% were of the opinion that the headmen should be assisted on leading this level; the majority of the ASS providers agreed on this point. The selected headmen should be chairpersons in this committee. Most of the farmers and ASS providers were divided on the suggestion of who should assist the headmen in leading the committee. The headmen should be assisted by fellow farmers who have some qualifications or experience in agriculture, or by one of the ASS providers and private sector. Thus, the VDC will compromise the headmen, fellow farmers, chairpersons of the different FBOs, and the ASS providers. The meetings should not exclude any community members and officials who want to attend. The group should prioritise the activities

in the work plans and the projects decided on during the village preparation meetings, and the work plan should be approved by the farmers.

Currently, all the volunteers sitting on this committee, especially the farmers, are not remunerated. The researcher is of the opinion that farmers who are not on the government payroll should be given an incentive by the government to compensate for their transport and accommodation when they travel. The chairperson of the VDC, his/her assistant, and the ASS providers should represent the group in the CDC.

5.13.4.3 Constituency Development Committee (CDC)

The CDC functions at the constituency level. The group members selected from the VDC will serve on the constituency level. The majority of the farmers and the ASS respondents agreed that this level should be chaired by a councillor and assisted by an ASS provider or fellow farmers. At this level, the farmers should work closely with the ASS providers to transform prioritised problems and their tentative work plan into a regional work plan. The Subject Matter Specialist (SMS) should constantly give advice at this level. The higher education institution as an ASS provider should also be part of the committee to assist with the staff and farmers' training needs. The work plan activities should be prioritised and budgeted for at this stage. All the activities that need to be researched further should be identified at this stage. The work plans at this stage should be approved by the individual and farmers' representatives. Larger projects that need funding should also be prioritised and forwarded to the regional level for consideration. The chairperson, SMSs, all ASS providers and researchers should represent the group at the regional council. The other representatives should give feedback at the VDC.

5.13.4.4 Regional Council

This level operates at the regional level. Apart from the Regional Councillors who serve on this committee, the ASS providers, SMSs, and heads of divisions of MAWF should also serve on this committee, as well as individual farmers and farmer representatives. The SMS will give advice to the councillors, the heads of divisions, and the farmers to support their work plans and projects. At this stage, all the work plans and projects will be finalised and approved. The responsible ASS provider for the different activities shall be identified based on experience and

qualifications. All the activities that need further research will also be prioritised and finalised. The projects will be further scrutinised and reprioritised based on the regional budget. The SMS will give advice as needed. Some SMSs and individual farmer representatives to represent the group in the RDCC will be selected at this stage and the others will give feedback to the CDC.

5.13.4.5 Regional Development Coordinating Committee (RDCC)

This level also operates at the regional level. Apart from the usual representatives of the different heads of the ministries in the region and the councillors who form part of this committee, some SMSs and individual and farmer representatives should also form part of this committee. The reason is that the SMSs will give advice concerning agricultural matters, and the farmers will witness the transparency and understand why certain projects are prioritised above others. The selected SMS members and farmers who will represent the group at the Regional Council and Governors should be chosen at this stage. Other representatives that are not selected should give feedback at the regional level.

5.13.4.6 Regional Council and Governors

The work of this committee seems to be the same as that of the RDCC. This committee may consist of some SMSs and farmer representatives. The SMSs will advise the Councillors and Governors because most of them are politicians and need advice to understand some technicalities in agriculture. The farmers will be responsible for giving feedback to fellow farmers.

5.13.4.7 National Planning Commission (NPC)

This body is at the national level. The NPC plans together with the Ministry of Finance and when the budget is allocated to other line ministries, it considers projects from the regions.

It will, however, be important for the NPC to give the region the mandatory power to administer their own finances. As the framework suggests, the work plan will come from the village level to the national level and the budget should flow from the regional level to the community level.

5.14 OPERATIONALISATION OF THE FRAMEWORK

This framework will only be operational based on an Agricultural Support Services policy that needs to be developed and which clearly outlines the following aspects:

5.14.1 Signatory of agreement

All the ASS providers should sign an agreement of understanding and cooperation to ensure that the coordinated extension framework is approved by all ASS providers. The ASS providers should also agree on the responsibilities they are going to execute in the framework. There should also be a memorandum of understanding for all the ASS providers to form linkages with one another.

The memorandum of understanding should also ensure that the ASS providers have the minimum qualification of a Bachelor's degree in Agriculture to execute their tasks. There should be a process of continuous professional development for all the ASS providers in the region on how best to work together and to execute activities on the work plan. ASS providers with lower qualifications should upgrade their skills and knowledge by means of higher qualifications and attending short courses for career improvement.

5.14.2 Professional bodies

It should further ensure that all the ASS providers are registered with a professional body and they are known in the region as well as on a national level. A current example is the way it is done in South Africa where all the agricultural advisory extensionists must be registered with the professional body at the South Africa Council for Natural Scientific Professions (SACNASP). This body is the legislated regulatory body that registers natural scientists who adhere to a specific code of conduct. A similar body for ASS providers is necessary to regulate the provision of ASS to beneficiaries. A professional body of this kind will have the authority to deregister and take action against ASS providers who default on their activities.

5.14.3 Time

All the ASS providers must make time to participate in a participatory needs assessment of the farming community, as well as to avail themselves to activities they had agreed to implement. The work plan of ASS providers will not be approved if they do not participate in the need assessment.

5.14.4 Financial investment

Concerning the current decentralisation structure, the financial budget is still operated from the national level. The latter delays activities to be implemented on time as it involves much bureaucracy.

The ASS providers' policy must clearly outline a business plan to be put in place by all the ASS providers. All the ASS providers must participate in the development activities to be part of the business plan. The financial plan should clearly state what all the ASS providers will contribute towards the budget and how they plan to execute the funds. There should be a time limit to the release of funds for the activities to be executed on a timely basis.

5.14.5 Monitoring and Evaluation

Monitoring and evaluation (M&E) should be done at all the levels by the community and public and private organisations. The regional level needs to properly devise how best to monitor and evaluate activities at village and constituency level. Once the key variables to be monitored at each level have been agreed upon, then an integrated M&E system, which incorporates all levels, can be developed and applied. The regional level should occasionally be carrying out validation, possibly monthly, quarterly, or twice a year – depending on financial availability and practicability. The M&E needs to be responsive to challenges and the success of the framework, and may evolve, adapt, or change to be able to ensure the success of the framework and the delivery of a professional agricultural support service to the farmers in the Oshikoto regional of Namibia.

5.15 SUMMARY AND CONCLUSION

The researcher is very much aware that the decentralisation structure is not only applicable to the Ministry of Agriculture and Water and Forestry (MAWF), but to all the ministries in the country. The structure is merely created for coordination of Agricultural Support Services to coordinate service providers' activities and not to work in isolation.

The structure will also be effective if there is continuous monitoring and evaluation of activities taking place and if there is transparency between all the stakeholders involved.

Farmers should also be assisted on how to identify their own needs until they are conversant to do so on their own without outsiders' help.

It is of paramount importance that the clients (farmers) be represented at all the decentralisation levels and that those who are not on the government payroll be given sitting allowances for motivation or at least to be recognised in one way or another.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

In the previous chapter, both the qualitative and the quantitative results that led to the development of the framework for the Oshikoto region were discussed. The main objective of this study was to develop a framework for improving coordination in the provision of Agricultural Support Services (ASS) in the Oshikoto region of Namibia by considering both the farmers' and the ASS providers' inputs.

The study was guided by the following objectives:

1. To determine the perceptions and attitudes of the stakeholders (farmers) towards coordinated ASS providers, with the following sub-objectives:
    a) To determine the farmers' perceptions of the contact frequency, adequacy, relevance, and quality of Agricultural Support Services (ASS) in the Oshikoto region;
    b) To analyse the different information sources used by the farmers in the Oshikoto region;
    c) To analyse farmers' participation and involvement in groups, as well as the group structures and problems; and
    d) To identify factors affecting farmers' perception of coordination in the Oshikoto region.
2. To identify the current role players in terms of ASS providers in the Oshikoto region of Namibia;
3. To determine coordination linkages among the various stakeholders of Agricultural Support Services (ASS) in the Oshikoto region of Namibia;
4. To analyse the capacities and skills of ASS providers and the required capacities;
5. To determine the perceptions and the attitudes of ASS providers towards coordinated activities; and
6. To develop a framework for improving coordination in the provision of Agricultural Support Services to farmers in the Oshikoto region in Namibia.

In order to develop an effective framework, a mixed method was used whereby 200 farmers were randomly interviewed in six constituencies using a semi-structured questionnaire, 11 active Agricultural Support Services key informants were interviewed, and focus group discussions were held in the region.

This chapter will discuss those results; categorising the discussion according to the objectives. This chapter will also discuss recommendations to policy makers and for further research.

6.1 OBJECTIVE 1(A): TO DETERMINE THE FARMERS' PERCEPTIONS OF THE CONTACT FREQUENCY, ADEQUACY, RELEVANCE, AND QUALITY OF ASS IN THE OSHIKOTO REGION

This first objective sought to ascertain whether the farmers were aware of the different ASS providers operating in the Oshikoto region. The question on frequency was asked to determine whether the ASS providers were easily accessible to the farmers. The question on the adequacy, relevancy, and quality was to determine whether the farmers were more satisfied with certain ASS providers than others. The results showed that government institutions such as the DEES and the DVS were in contact with many of the farmers, but the farmers were not very satisfied with their services. The few farmers that were contacted by the Private Extension Services Providers, NGOs, and Agricultural Mentors perceived their services as being more relevant and adequate compared to the DEES and the DVS. Although Input Traders were ranked in fourth place regarding contact with farmers, it was second last in terms of adequacy, relevancy, and quality of information. The farmers were not satisfied with the quality of the information provided to them. Perhaps Input Traders should receive more in-service training on new agricultural products to provide the farmers with better customer service. These results should, however, be handled with caution since only one Input Trader was willing to participate in the study. The Okashana Research Station was at the bottom of the ranking regarding contact with the farmers and satisfaction with services, although the DEES claims to make use of the FRSE approach; where the researchers and extension officers are supposed to be working as equal partners to identify and solve the farmers' problems.

It is high time for all the ASS providers to work together as partners and to concentrate on one another's strengths rather than being competitive on the ground. Continuous training should be provided to the ASS providers on how best to improve agricultural extension to accomplish the common goal, which is to improve the livelihood of the community.

6.2 OBJECTIVE 1(B): TO ANALYSE THE DIFFERENT INFORMATION SOURCES USED BY FARMERS IN THE OSHIKOTO REGION

The objective was to explore the information sources available to farmers and why certain information was not accessible. An estimated 86% (or 171) of the farmers indicated the radio as their main, primary source of information. The radio has many advantages; such as timely dissemination of information, no transport cost, and no discrimination when listening, since some extension officials are known to favour some households over others in their wards (Nyareza & Dick, 2012). It also has some disadvantages; such as the signal being affected by bad weather, some communal farmers still find radios expensive, some information may be politically motivated, and practical demonstrations are not possible when using a radio. It is also important for agricultural messages to be aired at the most appropriate times to make an impact on the majority of the farmers.

Of the farmers in the Oshikoto region, 45.4% owned mobile phones, which can be used to complement the radio as an information source by sending farmers short message services (SMSes), especially regarding meteorological data, rain figures of a specific community, livestock auctioning, and specific meetings or counsel meetings to be held. Since the literacy rate stands at 87.9% in the region, most of the farmers should be encouraged to make use of reading materials. It is, however, very important for the reading materials to be translated to the vernacular language for the old people who can read not to be excluded from the messages, as most older people still face challenges with reading English.

The ASS providers should also be encouraged to host more field days and demonstrations because farmers believe more in what they see than what they hear.

6.3 OBJECTIVE 1(C): TO ANALYSE FARMERS' PARTICIPATION AND INVOLVEMENT IN GROUPS, AS WELL AS THE GROUP STRUCTURES AND PROBLEMS

Most organisations prefer to work with groups rather than individual farmers; not only because it is cost-effective, but also because a large number of the farmers can be reached in a very short period of time – as opposed to working with individual farmers. The question was asked to analyse the current farmers' participation and involvement in groups and the problems they were faced with. From the 200 farmers interviewed, only 65 (or 35%) of the farmers belonged to an FBO. There is a need for more FBOs to be formed in the Oshikoto region. Of the farmers, 64.6% mentioned that they participated in groups at the constituency level, which is worrisome because one would expect more groups at the village level. It is important for the group members to be homogenous to avoid conflicts, as well as to be at a lower level of the structure for the community to feel a sense of belonging to a group and owning it.

The farmers in the groups indicated having some problems; 83.1% of the group members experienced problems with members not attending meetings. The second most common problem (78.5%) was members not paying registration and annual fees. Of the farmers, 47.7% mentioned that the Agricultural Extension Officers attended their meetings. These problems show that group members are not motivated or might not have clear goals. The ASS providers need to empower the groups' leaders and members in management courses covering planning, implementing, and monitoring of activities. It is also important for groups to receive continuous training in soft skills and how to manage conflict among themselves, as well as training in groups, group dynamics, and leadership. A group that is functional can have many advantages; such as access to various types of capital (e.g. physical and natural). Groups can also provide mutual support and friendship to the members (Chamala & Shingi, 2005).

The different types of farmers in the Oshikoto region were faced with diverse problems. Approximately 84% of the commercial farmers were faced with marketing problems, 66% noted high input costs, and 64% struggled with transport costs. These problems were, however, expected since these farmers' aim is to make profit. It is high time that the government

subsidises commercial farmers who are financially challenged. Of the communal farmers, 77.3% were faced with inferior agricultural tools and equipment. Marketing problems ranked second with 72%. Both the communal and the commercial farmers need to be encouraged to work closely with AMTA for them to agree on what to grow so that AMTA would be able to buy their products. Small-scale farmers should be encouraged to work with big, established farmers since the latter have experience and expertise. The government can also develop a programme whereby the commercial farmers mentor small-scale and resettled farmers.

6.4 OBJECTIVE 1(D): TO IDENTIFY FACTORS AFFECTING FARMERS' PERCEPTIONS OF COORDINATION IN THE OSHIKOTO REGION

This objective attempted to ascertain whether the farmers were satisfied with the way the ASS providers coordinated their activities in the region. Approximately 62% of the farmer respondents indicated that coordination and collaboration of activities was an extremely serious problem in the Oshikoto region. Only 5% of the farmers indicated that it was not an issue. If the farmers viewed coordination as a problem, then it is of paramount importance for the ASS providers working in the Oshikoto region to start collaborating on activities. For example, instead of using two or three different cars to go to the same communities, the ASS providers can use one car, which will be more economical. About 59% of the farmers, however, suggested the solution to the poor coordination was for the ASS providers to build good working relationships with one another. About 62% of the farmers regarded coordination as important on all the levels. Twenty-two per cent (22%) regarded coordination as important at the village level. At the village level, 75% of the farmers wanted the headmen and the DEES to manage coordination; however, 62% thought it should be the headmen alone. The researcher is of the opinion that the headmen need to be assisted. Although they might have experience in farming, the ASS providers can assist them in the technical aspects. At the constituency level, 23.5% of the farmers perceived councillors and the DEES to manage coordination. However, 39.5% were of the opinion that councillors alone should manage coordination, and 45% were of the opinion that the regional heads should manage coordination. Maybe not too much thought was given to this question, as all regional heads cannot manage coordination as it will be chaotic. None of the farmers

mentioned that they wanted to be represented at the regional level. The majority of the farmers were discontent with the current status of service delivery and wanted them to improve.

6.5 OBJECTIVE 2: TO IDENTIFY THE CURRENT ROLE PLAYERS AMONG ASS IN THE OSHIKOTO REGION OF NAMIBIA

This question was posed to assess the main objectives of the current ASS providers, when they were established, and the agricultural approaches they make use of. The question further explored the sources of their funding and the levels the different organisations are operating on. Nine of the ASS providers' main aim was to improve the community's livelihood and standard of living. The higher education institution's (UNAM) projects' main aim seems to be more research oriented, such as trials and demonstrations in the community. The Medicine World Trader's main aim is to make profit – they seem to have very little knowledge of agriculture. Traders who work with farmers should be given a "crash course" in Agriculture. The fact that they vaccinate animals on the farmers' request is even more worrisome, as they have not studied for it.

The higher education institution should graduate from demonstrations to fully participating in the development of the community. Apart from lecturing and research, the lecturers are also supposed to do community work.

Although the planning of activities seems to be done at the regional level, the finances are handled at the national level. The government should put mechanisms in place for the regions to gradually start administering their own finances. The latter will decrease a lot of bureaucratic paperwork, which will result in the faster delivery of the activities, as well as the projects.

Although AMTA is new and started operations in 2011 in terms of facilitating marketing activities, the organisation seems unknown to the community as no farmers mentioned AMTA. AMTA should embark on awareness campaigns for the organisation to be better known in the region. By doing so, the communal farmers and commercial farmers will know what to grow, as well as where to sell their produce.

Most of the ASS providers seem fixed on using the top-down approaches of the T&V approach. The DEES mentioned using FSRE, an approach which requires all stakeholders involved to work as partners, but it seems there is no partnership between the organisations as Okashana Research Station mentioned working indoors and only training farmers when requested by the DEES to do so.

The facility of transport seems to be a concern in the region, but is a problem that can easily be avoided if all the ASS providers involved plan and coordinate activities accordingly.

Most of the ASS providers clearly mentioned that the farmers did not participate in the extension advisory boards or in the development of policies. The farmers as clients should start to be taken seriously and represent themselves on the boards of the organisations instead of simply being recipients of information and having projects planned for them without their input.

6.6 OBJECTIVE 3: TO DETERMINE COORDINATION LINKAGES AMONG THE VARIOUS STAKEHOLDERS OF ASS IN THE OSHIKOTO REGION

This question sought to determine how the different organisations rated one another's importance when working together, as well as the organisation(s) they found useful to work with. The ASS providers seemed to choose their partners strategically; based on their influence or what they could benefit from them, rather than on their strengths and knowledge. For example, since the DEES has offices in most of the constituencies, most of the organisations preferred working with the DEES in order to have access to different types of farmers in the different constituencies. The Oshikoto Regional Council was also chosen because of its political influence due to different councillors belonging to the organisation.

The ASS providers would like to work closely with other organisations but because they plan activities individually, it becomes difficult. The other problem mentioned was that ASS providers report to different coordinators. The ASS providers can only remain loyal to and honest with one another if they report to the same supervisor. Most of the ASS providers mentioned transport as one of the biggest problems in the region that hindered effective job

performance. Most of the villages in the communities are far apart, and without transport it is difficult to work effectively. The second biggest problem was the coordination of activities with other organisations, and the third biggest problem was bureaucracy. The three biggest problems can be minimised if the organisations are administrated by the same umbrella body, plan and execute their activities together, and share the same resources, such as transport.

It is very worrisome that the DEES still makes use of the 1995 agricultural policy. A policy that was developed 20 years ago will be very outdated since technology and certain rules keep changing and policies need to be amended constantly. It is also very worrisome that Agricultural Extension never developed their own extension policy as an organisation but rather depended on the general agricultural policy of 1995. It is high time for Agricultural Extension to distance themselves from the agricultural policy of 1995 and develop their own policy of agricultural extension, taking into consideration all the service providers involved in agricultural support services.

Regarding the coordination of activities, most of the organisations perceived the idea as very important. However, they were of the opinion that it would only be effective if the organisations involved had competent officers. Honesty and sharing resources with one another, constant communication between the different organisations, and budgeting activities together that need to be executed will be very important.

Some of the ASS providers felt that the higher education institution was too theoretical and not practical enough, and does not consult with organisations on the ground. The higher education institution should work hand in glove with the organisations on the ground and develop an education curriculum that is both practical and theoretical. The higher education institution should also perform an educational needs analysis of its staff members and design proper training materials tailored to their needs.

6.7 OBJECTIVE 4: TO DETERMINE THE REQUIRED CAPACITIES AND SKILLS FOR COORDINATED ASS PROVIDERS IN THE OSHIKOTO REGION

This question explored the current qualifications of ASS providers and their perceptions of the appropriate qualifications needed for ASS providers to carry out their work confidently. It was very worrisome that most of the ASS providers mentioned that a diploma in agriculture would be sufficient for them to carry out the work effectively. Out of the 84 ASS provider staff, only 36 possessed a Secondary School Certificate and 28 had diplomas in agriculture-related courses. Most of the Secondary School Certificate and diploma holders might experience challenges in conducting research – let alone doing proper needs analyses with the farmers. Since most of the specialists have master's degrees, the diploma holders might experience challenges in confidently communicating with them. It should be of great help to the staff members with diplomas and less to receive continuous in-service training or to be motivated to obtain a bachelor's degree. According to Swanson (2006), most of the extension field staff should at least have an agriculture-related bachelor's degree. The current agricultural diploma and degree courses at the University of Namibia covers very few agricultural-extension related courses in the entire curriculum, such as communication, rural sociology courses, extension approaches, and agricultural extension. A diploma or a higher Agrarian Extension diploma may be introduced for ASS providers to confidently work with Subject Matter Specialists and to conduct proper needs analyses, as well as to carry out their work confidently.

The Oshikoto region was also mentioned to have only four specialists, which is very few for the whole region. This problem can, however, be overcome if specialists at the University of Namibia render their expertise to the region.

6.8 OBJECTIVE 5: PERCEPTIONS AND ATTITUDES OF ASS PROVIDERS TOWARDS COORDINATED SERVICES AND SUGGESTIONS ON WHO SHOULD LEAD THE COORDINATED STRUCTURES

This objective asked the farmers and the ASS providers to give their views on the ideal of good coordination. All the ASS providers and farmers regarded coordination and collaboration of activities as extremely important in the region. Of the ASS providers, 72.7% were of the opinion that good coordination is when all ASS organisations assist one another and work together to be more effective and efficient, as well as to work in a way that does not duplicate the same activities but that complements one another's activities. The reality of the above statement can only be realised if an enabling environment is created whereby all the ASS providers belong to one umbrella organisation and report to same supervisor.

When the ASS providers were asked about the problems they experienced in the region, it was interesting to note that they were of the opinion that the lack of coordination was firstly caused by a lack of farmers' interest and secondly by poor competence and commitment of ASS workers. The ASS providers need to be motivated and encouraged to carry out their work effectively and efficiently. This can also be achieved by giving the ASS field workers appropriate rewards when they do well.

Just like the farmers, the ASS providers, regarding the question of who should lead the coordinated structures, mentioned that the headmen should be assisted by either agriculture advisors or ASS providers at the village level. At the constituency level, the ASS providers mentioned that the structure should be led by the councillors but assisted by ASS providers, and the governor should lead at the regional level. It seems both the farmers and the ASS providers have a lot of trust in their politicians and elders and it would be good for them to be included in the structures. It would, however, mean that a project might not be accepted if the leaders are bypassed.

6.9 OBJECTIVE 6: TO DEVELOP A FRAMEWORK FOR IMPROVING COORDINATION IN THE PROVISION OF ASS TO FARMERS IN THE OSHIKOTO REGION

Objective 6 was discussed in Chapter 6. The most important aspect is that it should be a bottom-up approach, and all ASS providers and farmers must be represented at all levels. It is very important for Agricultural Extension Specialists to be represented at all the levels, as well as Subject Matter Specialist to give constant advice to the Headman and Councillors in the region. There is already a decentralised structure available that needs to be supported and that should ensure that there are representatives at such level from all ASS providers, specifically farmer representatives.

6.10 SUMMARY OF RECOMMENDATIONS

For a basic fundamental framework to be available:

1. Input Supply Traders should receive more training on agriculture-related courses to assist farmers with confidence, as well as to properly vaccinate livestock.
2. The research stations should work closely with the farmers and the ASS providers to identify researchable activities that would benefit the region as a whole.
3. AMTA should launch more awareness campaigns to the committees and on the radio for it to be known to farmers in order for the farmers to be able to sell their produce and graduate from subsistence to small-scale commercial farming.
4. The ASS providers ought to assist in the formation of more FBOs at the village level in the Oshikoto region.
5. Subsistence farmers and small-scale farmers must be encouraged to work closely with progressive commercial farmers since they have the experience to assist them.
6. Farmers' needs assessments should be carried out by all ASS providers at the village level; this will result in proper work planning and fundable projects.

7. The use of ICT methods such as sending SMSes can be used as complementary to the radio as an information source. The region's residents should also be encouraged to read more agricultural materials, and these should be translated to the vernacular language.
8. The higher education institution must work closely with the ASS providers on the ground and develop a curriculum that is tailored to their needs.
9. The higher education institution should conduct an education needs analysis with all the ASS providers on the ground to be able to develop short courses tailored to their needs.
10. A decentralised platform could be created consisting of all local committees, representatives of small and medium-scale farmers, and ASS providers where information can be shared, as well as where interaction and effective collaboration with different farmers and ASS providers can take place.
11. Farmers' associations and groups should be strengthened and linked to different ASS providers in order to provide assistance to farmers when they face problems (Neuchâtel Group, 2007).
12. ASS providers should involve farmers in terms of relevant technology in defining and solving problems. Participatory approaches such as the Farmers' Field School (FFS) approach could be introduced to educate and empower farmers through the process of learning and teaching, as well as to disseminate information and technology among the farmers (Davis, 2006).
13. An Agricultural Extension policy, taking into account all ASS providers, can be developed to create an enabling environment and to guide the interests of direction, coordination, and the quality of services (Rivera & Qamar, 2003). The policy could also regulate how extension services should operate in order for farmers to receive optimum benefit from ASS.

According to these 13 recommendations, it is essential that the DEES, in cooperation with MAWF, should take the lead to implement the framework with the cooperation of all ASS providers and farmers' organisations in the region.

6.11 RECOMMENDATIONS FOR FURTHER RESEARCH

This study was conducted in only one region, and only examined ASS providers and farmers. Similar studies can be conducted by different ministries, as well as expanding the research to other regions. This study only concentrated on agricultural issues. It would be interesting for further research to determine the effectiveness of the decentralisation of structures and committees in other service areas.

6.12 CONCLUSION

Agricultural extension has been too expensive and governments alone cannot meet the demands of all the farmers. It would be in the best interest of the farmers and all the stakeholders involved to pool their resources together and to work together to achieve the common goal of improving the livelihood of the communities.

The latter will only happen if an enabling environment is created whereby all organisations involved work under one coordinating body and have one coordinator that will eliminate the duplication of activities and competition among ASS providers. Needs analyses must be conducted in all the villages, and proper activities and projects should be generated by the communities themselves. The communities should be part of all the level structures and approve the ASS providers' work plans.

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APPENDICES

Appendix 1: Farmer questionnaire

Enumerators, please make sure all the questions are answered by circling an appropriate number in shaded box or by writing your answer in the shaded space provided

Enumerator number	Official use	
	V0	

1. Respondent name

	V1	

2. Constituency

	V2	

3. What is your age at last birthday?

	V3	

4. What is your gender?

Male	1	V4	
Female	2		

5. Respondent marital status

Unmarried	1	V5	
Married	2		
Separated	3		
Widowed	4		
Divorced	5		

6. Number of people in the household

	V6	

7. Highest Educational Level

No formal schooling		1	V7
Primary School	(Grade 1-6)	2	
Junior School	(Grade 7-8)	3	
Secondary School	(Grade 9-12)	4	

8. What is your *main* sector of employment?

I am not employed	1	V8
Public (government)	2	
Private	3	
NGO	4	
Self-employed	5	

9. What type of farmer are you? Select only one.

Small-scale farmer	1	V9
Commercial farmer	2	
Resettled famer	3	
Communal farmer	4	
Others (specify)	5	

10. What is the size of your farm in hectare?

	V10	

11. What is your main farming enterprise?

Livestock	1	V11
Cereal crops	2	
Livestock and crops	3	
Horticulture	4	
Other: Please specify	5	

12. Where does your main income source come from?

Pension	1	V12	
Farming	2		
Relatives	3		
Permanent job	4		
Other: Please specify	5		

13. How frequently are you in contact with each ASS, from whom you get agriculture services advice?

Agricultural Support Services	**Rate Organisation**	**Frequency**		
1. Directorate of Extension		1. A week ago? 2. A fortnight ago 3. A month ago 4. Six months ago 5. A year ago	V13_1	
2. Directorate of Veterinary			V13_2	
3. Farmers' Association			V13_3	
4. Input supply/Traders			V13_4	
5. Okashana Research Station			V13_5	
6. Agricultural Bank/Mentors			V13_6	
7. Manheim Research Station			V13_7	
8. Private Extension Providers			V13_8	
9. Educational Institution			V13_9	
10. NGO			V13_10	
11. Other: Please Specify			V13_11	

14. What is your perception of the adequacy (efficiency, effectiveness) of the agricultural services delivered by various ASS?

Agricultural Support Services	**Rate Organisation**	**Adequacy**		
1. Directorate of Extension		1. Very adequate 2. Partially adequate 3. Somewhat adequate 4. Inadequate	V14_1	
2. Directorate of Veterinary Services			V14_2	
3. Farmers' Association			V14_3	
4. Input supply/Traders			V14_4	
5. Okashana Research Station			V14_5	
6. Agricultural Bank/Mentors			V14_6	
7. Manheim Research Station			V14_7	
8. Private Extension Providers			V14_8	
9. Educational Institution			V14_9	
10. NGO			V14_10	
11. Other: Please Specify			V14_11	

15. In your view, what is the relevance of the agricultural services delivered by various ASS?

Agricultural Support Services	Rate Organisation	Relevance		
1. Directorate of Extension		1. Highly relevant 2. Relevant 3. Irrelevant 4. Not relevant	V15_1	
2. Directorate of Veterinary Services			V15_2	
3. Farmers' Association			V15_3	
4. Input supply/Traders			V15_4	
5. Okashana Research Station			V15_5	
6. Agricultural Bank/Mentors			V15_6	
7. Manheim Research Station			V15_7	
8. Private Extension Providers			V15_8	
9. Educational Institution			V15_9	
10. NGO			V15_10	
11. Other: Please Specify			V15_11	

16. How do you rate the quality of the agricultural service you receive from various ASS listed below?

Agricultural Support Services	Rate Organisation	Quality		
1. Directorate of Extension		1. Very good quality 2. Good 3. Acceptable 4. Not good at all	V16_1	
2. Directorate of Veterinary Services			V16_2	
3. Farmers' Association			V16_3	
4. Input supply/Traders			V16_4	
5. Okashana Research Station			V16_5	
6. Agricultural Bank/Mentors			V16_6	
7. Manheim Research Station			V16_7	
8. Private Extension Providers			V16_8	
9. Educational Institution			V16_9	
10. NGO			V16_10	
11. Other: Please Specify			V16_11	

17. Which information source do you make use of?

Communication channels	Name	Ratings		
1. Agricultural bulletins		1. Very good 2. Good 3. Poor 4. Very poor	V17_1	
2. Newsletter publications			V17_2	
3. Magazine			V17_3	
4. Annual report			V17_4	
5. Radio programmes			V17_5	
6. Training			V17_6	
7. Brochures			V17_7	
8. Field visits			V17_8	
9. Government extension programme			V17_9	
10. TV			V17_10	
11. Others (specify)			V17_11	

18. Are you a member of farmers' association/ organisation? If yes, name it?

Not a member	1		V19	
Yes, name the association:	2			

19. At what level are you a member of this association/organisation?

Different levels	Yes/No	Members			
Village level			V20a		
Constituency level			V20a		
Regional level			V20a		
National level			V20a		

20. To whom do you report in your association/organisation?

Executive committee/secretariat	1	V21	
Chairperson	2		
Secretary	3		
Treasurer	4		
Other: Please specify	5		

21. What is the main objective of the farmers' association/organisation?

Provide technical skills to farmers (training and marketing)	V22_1	
Bargaining powers for farmers (lower prices and fertilizers)	V22_2	
Act as voice for the members	V22_3	
Improve marketing of agricultural produce	V22_4	
Provide legal support to members	V22_5	
Other: Please specify	V22_6	

22. What problems do you experience in your farmers' association/organisation?

Members don't attend meetings	V23_1	
Donor dependency	V23_2	
Lack of communication between members	V23_3	
Members don't pay registration and annual fees	V23_4	
Other: Please specify	V23_5	

23. Is your organisation/s effective (doing the right thing)? Rate on the scale below?

Organisation	Very effective	Effective	Fairly effective	Not effective	V24	
1.						
2.						

24. Is your organisation/s efficient (doing it right)? Rate on the scale below?

Organisation	Very effective	Effective	Fairly effective	Not effective		
1.					V25	
2.						

25. If you are involved in a farmers' organisation/association, when last did you meet as a group?

A week ago	1		V26	
A fortnight ago	2			
A month ago	3			
Six months ago	4			
A year ago	5			

26. Does your organisation own or rent the following facilities. Please indicate in the table below.

Facilities	**Own**	**Rent**		
Transport			V27_1	
Offices			V27_2	
Internet facilities			V27_3	
Telephone			V27_4	
E-mail			V27_1	
Fax machine			V27_2	
Computers			V27_3	
Printers			V27_4	
Photocopiers			V27_1	
Other: Please specify			V27_2	

27. At what level does your association/organisation function?

National	1		V28_1	
Regional	2		V28_2	
Constituency	3		V28_3	
Village	4		V28_4	

28. Do extension officers or representative from ASS attend your association/ organisation meetings?

	Yes	**No**		
Extension officers			V29	
Representatives ASS				

29. If yes, how frequently?

	Never	From time to time	Often	Attend all meetings		
Extension officers					V30_1	
Representatives ASS					V30_2	

30. Does your association have a constitution?

Yes	1	V31	
No	2		
Don’t know	3		

31. What is the management structure of your organisation/association?

Secretariat/executive committee	1	V32	
Chairperson	2		
Secretary	3		
Treasure	4		
Other: Please specify	5		

32. Please rate the effort made by you in maintaining your farmers' organisation/ association.

No effort at all			V33	
Very little effort				
Some effort				
Considerate effort				

33. Which are the most important problems experienced in your farming?
(Please arrange them in order of their relative importance).

List of Problems	**Priorities in order of importance**		
1. Marketing		V34_1	
2. Weak agricultural tools and equipment		V34_2	
3. No availability of agricultural inputs		V34_3	
4. High input price		V34_4	
5. No availability of credit services		V34_5	
6. High transport costs		V34_6	
7. Lack of non-agricultural income		V34_7	
8. Other: Please specify		V34_8	

Objective 2

Coordination and collaboration of ASS providers: *Lack of coordination and collaboration between different ASS providers often result in unnecessary duplication or working at cross-purposes, with the result that the frequently scarce resources are not effectively utilised, thereby seriously reducing or undermining the potential inputs*.

34. How serious is this problem in your opinion? Please give an assessment on the following scale.

Extremely serious		V35_1	
Averagely serious		V35_2	
Less serious		V35_3	
Not serious at all		V35_4	

35. Name the institutions that are coordinating agricultural services to farmers at the following levels:

Different levels	Village level	Constituency	Regional level	National level		
1. Directorate of Extension					V36_1	
2. Directorate of Veterinary Services					V36_2	
3. Farmers' Associations					V36_3	
4. Input supply /Traders					V36_4	
5. Okashana Research Station					V36_5	
6. Farmers' Association					V36_6	
7. Agricultural Bank/ Mentors					V36_7	
8. Manheim Research Station					V36_8	
9. Private Extension Providers					V36_9	
10. Educational Institution					V36_10	
11. NGO					V36_11	
12. Other: Please specify					V36_12	

36. What do you see as the solution for poor coordination between different ASS?

	V37	

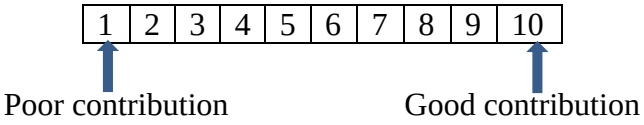
37. At which of the following levels is coordination most important?

Different levels	Name	Importance		
1. Village level		1.Extremely important	V38_1	
2. Constituency level		2.Averagely important	V38_2	
3. Regional level		3. Low important	V38_3	
4. National level		4.Unimportant	V38_4	
5. All of the above			V36_5	

38. Who do you think should manage the coordination structure at each level?

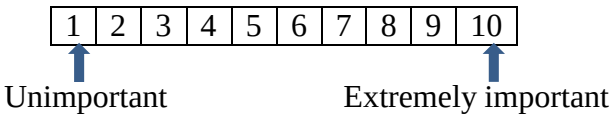
Levels	List		
Village		V39_1	
Constituency		V39_2	
Regional		V39_3	
National		V39_4	

39. How do you judge the following service providers in terms of their a) current and b) potential contribution as knowledge support to the farmers, using the following scale?



Organisation	Current	Potential			
1. Directorate Extension			V40_a	b	
2. Directorate Veterinary Services			V40_a	b	
3. Input supply/Traders			V40_a	b	
4. NGO			V40_a	b	
5. Farmers' Associations			V40_a	b	
6. Okashana Research Station			V40_a	b	
8. Private Extension Providers			V40_a	b	
9. Educational Institutions			V40_a	b	
10. Agricultural Bank/Mentors			V40_a	b	
11. Other: Please specify			V40_a	b	

40. How important do you rate the role of ASS as knowledge support to farmers in the following, using the given scale.



Farming system	Current	Potential			
a) Subsistence farming situation			V41_a	b	
b) Small commercial farmers			V41_a	b	
c) Large commercial farmers			V41_a	b	
d) Resettled farmers			V41_a	b	

Appendix 2: Qualitative survey interview questions

Improve the coordination and linkages of ASS in Oshikoto region in Namibia through an effective framework

Objective 1: To identify the current role players in the ASS.

Survey Interview Questions

1) Status quo of extension service system?
   a) What are your Agriculture Support Services' main/core objectives?
   b) When was your organisation established in Namibia?
   c) Since when has your organisation engaged in Agriculture Support Services?
   d) What is your Agriculture Support Services' outcome?
   e) What is the focus of your Agriculture Support Services' approach?
   f) Who are your main clients? Commercial, communal, or land resettlement?

1. Please indicate which operational level has the primary management authority for administration.

Operational level	Finance	Planning Activities	Evaluation
National level			
Regional			
Constituency			
Village			

2. Details about the organisation?

Name of organisation	Type of organisation	Years in operation	Main service	Major objectives	Major outcome	Primary methods

3. Does your organisation have the following facilities: office, transport, Internet, and telephone at the following levels (management level):

	Transport	**Office**	**Internet**	**Tel.**
National				
Regional				
Constituencies				
Village				

Primary Source (s) of funding for the year 2013

4. Please indicate the percentage of funding received from each source (management level).

National governmental (Ministry)	%
Cost recovery from farmers	%
Private sector financing	%
Donor financing	**%**
Farmers	%
Other (Please specify)	%
Total source(s)	**100%**

5. Programme planning: Which system level has the primary responsibility for programme planning and extension/advisory priority settings (for example in annual work plan)?

In the case of public organisation	Tick	**In the case of an NGO private Firm**	Tick
National level		Head office	
Regional level		Branch offices	
Constituency level		Other: Please specify	
Village level			

6. Please indicate whether representatives of farmers' organisations and producers groups are represented on the extension advisory boards and committees at the following levels to help establish extension priorities based on farmers' needs:

Organisation	Tick
National level	
Regional level	
Constituency level	
Village level	
Other: Please specify	

7. Do you have and Agricultural Extension Policy?

Yes	
No	

If No, why not?

8. If yes, what role, if any, do farmers' groups or organisations play in the following organisations? (Check only one box)

Role of farmers' organisation in:	**Very Important**	**Important**	**Some-what**	**Little**	**None**
Influencing extension policy					
Specifying extension programs					
Helping set extension priorities					
Assessing extensions performance					
Farmer-to-farmer extension activities					

Objective 2: To determine coordination linkages among the various stakeholders of ASS providers in the Oshikoto region of Namibia.

a) Do you develop your own agricultural support services activities?

b) If yes, can you briefly describe how?

c) If not, can you tell us how you execute your activities?

9. Which organisations will be useful to permeate with and why?

Organisation	**Very useful**	**Strong useful**	**Moderate**	**Weak useful**	**No linkages**	**Why**

10. Please characterise your organisation's linkages with the organisations listed below.

Organisation	**Very strong**	**Strong**	**Moderate**	**Weak**	**No linkages**
Directorate of Extension					
Educational institution					

11. What, in your view, are the factors that prevent effective job performance in your organisation? Please prioritise and rank them.

a) Doing activities not in the job description.
b) Management do not support as they are supposed to.
c) There is no coordination with colleagues.
d) Lack of training.
e) No clear policy direction.
f) No coordination with other organisations.
g) No transport.

12. What is the nature and quality of coordination in your area? Please elaborate on this question.

13. What, in your view, are the factors favouring coordination? Please elaborate on this question.

14. What, in your view, are the factors hindering coordination?

Objective 3: Capacities and skills of ASS providers

Guiding Questions

15. What, in your view, are the required capacities for your organisation and why?

16. Number of Professional and Technical Extension Personnel in Selected Years:

Year	**Senior Management staff**		**Subject Matter Specialist**		**Field Extension Staff**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
2013						
2014						

17. Total Number ASS by category of position and level of education:

Major Categories of Staff and No. Male and Female	**Secondary School Certificate**	**2-3 year Agric. diploma**	**BSc Degree**	**MSc**	**PhD**

18. Subject Matter Specialist (SMS) and Primary Subject Matter Areas Covered:

No. of SMS	Primary Subject Area
	Marketing
	Pest Control
	Livestock
	Horticulture Crops
	Soils Scientist

Objective 4: To determine perceptions and attitudes of the stakeholders towards coordinated ASS

Guiding questions on coordination:

19. Which of the following is closest to your idea of good coordination:

a) Agriculture Support Services assist one another and work together to be more effective and efficient (cooperation).
b) Agriculture Support Services organisations work in such a way that they don't do the same work, but complement one another by either focusing on different areas, different communities, different commodities, or different functions (coordination).
c) Both of the above.
d) Do you coordinate your agricultural support activities (marketing, input supply) with any other organisations and/or stakeholder platforms? Please specify.
e) Do you participate in coordination in village, constituency, and regional level?
f) What is your experience with them?
g) Do you collaborate with the other organisations and what are your experiences with them?
h) How useful are these meetings?

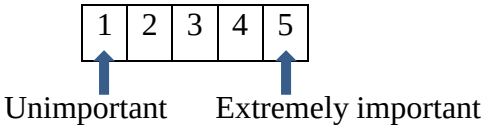
Coordination of extension providers

a) Who do you coordinate with and why?

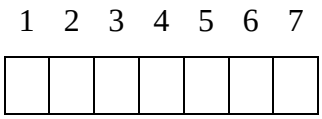
b) Who should you coordinate with and why?

20. Lack of coordination and collaboration between different extension and other organisations services often result in unnecessary duplication or working at cross-purposes, with the result that the frequently scarce extension resources are not effectively utilised, thereby seriously reducing or undermining the potential extension inputs.

a. How serious is this problem in your opinion? Please give an assessment on the following scale :



21. To get another perspective of your viewpoint regarding the seriousness of the lack of coordination and collaboration as a problem, please consider it along with some other problems and list them in order of importance.



1) Lack of farmers' interest
2) Poor competence of extension workers
3) Lack of commitment of extension personnel
4) Poor management of extension
5) Inappropriate extension approach
6) Lack of credit and other input resources
7) Lack of land

22. What do you see as the solution for poor coordination between different extension organisations?

……

……

23. At which of the following levels is coordination most important? Please list in order of importance.

1 2 3 4 5

1. Village
2. Constituency
3. Regional
4. National
5. All of the above

24. Who do you think should manage a coordinated structure ASS structure at ___ level?

Village	
Constituency	
Regional	
National Level	
Other: Please specify	