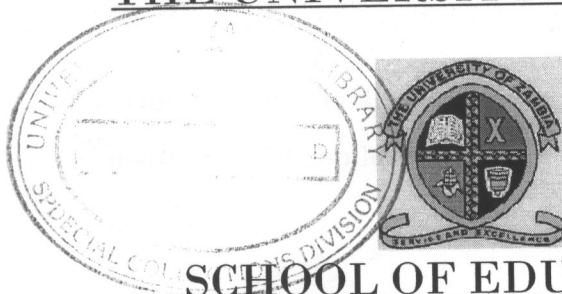


THE UNIVERSITY OF ZAMBIA



SCHOOL OF EDUCATION

DEPARTMENT OF LIBRARY AND INFORMATION STUDIES

COURSE:

LIS 422 (Development Information Systems and Services Africa)

FINAL RESEARCH REPORT:

*The effectiveness of Zambia Agriculture Research Institute (ZARI) in disseminating agricultural information to smallholders:
A case study of Mweembeshi Settlement Village (MSV).*

By

Kasuba Chibesa Kelvin

Computer #:

25002422

For the attention of the Co-ordinate /Lecturer:


Mr. Hamoya, T.

[Due Date – 30th April, 2009]

*Submitted in partial fulfillment for the award of Bachelor
of Arts Degree in Library and Information Studies.*

Declaration


This piece of work is truly my own and has not been previously presented at this University or indeed any other institution for similar purposes.

Signature of student: 

Name of student : **KASUBA CHIBESA KELVIN**

Date : **30TH APRIL, 2009.**

Signature of Supervisor:


Name of Supervisor : **MR. HAMOOYA CHRISPIN**

Date : **30TH APRIL, 2009.**

Dedication

This Final Research Report is devoted to my God and my loving and caring family and friends, who gave the earnest support for this Final Research Report to be completed.

Acknowledgements

First foremost, I give glory to my LORD and GOD Jesus Christ for giving me the grace to accomplish this task.

In writing this Final Research Report, I am indebted to the following people and most thankful for their tireless efforts, advice and assistance with which I would have find it too difficult to finish this Report. Mr. Davey Simumba, Zambia Agriculture Research Institute (ZARI) and Ms. Anne Nawa, Agriculture extension officer (Mweembeshi Settlement Village) for all the technical assistance and support they rendered to me. I further thank Mr. Chrispin Hamooya, (My Lecturer and Coordinator: The University of Zambia) who found time to guide me in writing and gave me the inspiration and advice.

My gratitude cannot be complete without thanking the Zambia Agriculture Research Institute and individuals too many to mention for their assistance and contribution in my effort to write this Final Research Report.

I really thank them all truthfully.

KASUBA CHIBESA KELVIN

30th April, 2009.

Table of Contents

Contents	Pages
Declaration.....	i
Dedication.....	ii
Acknowledgements.....	iii
Table of contents.....	iv
Acronyms.....	vi
Abstract	viii
 1.0 CHAPTER ONE.....	 1
1.10 Introduction.....	1
1.11 Role of Information.....	1
1.20 Background/Research Context.....	3
1.21 Overall Goal.....	3
1.22 Activities.....	4
1.23 Crop Improvement and Agronomy.....	4
1.24 Soil and Management Programmes.....	4
1.25 Plant Protection and Quarantine Programme.....	5
1.26 Farming Systems and Social Sciences Programme.....	5
1.30 Statement of the Problem.....	6
1.40 Research Objectives.....	6
1.41 General Objective.....	6
1.42 Specific objectives	7
1.50 Rationale/Significance of the Study.....	7
 2.0 CHAPTER TWO.....	 8
2.0 Literature Review.....	8
 3.0 CHAPTER THREE.....	 13
3.0 Research Methodology.....	13
3.10 Description of the Population.....	13
3.11 Study Design.....	13
3.13 Sampling Procedure	13
3.14 Sampling Unit.....	14
3.15 Data Collection Plans.....	14
3.20 Data Analysis.....	15
3.30 Limitations/Constraints.....	15

4.0 CHAPTER FOUR..... 16

- 4.0 Study Findings 16
- 4.10 Introduction..... 16
- 4.20 Characterization of Respondents..... 16
- 4.30 Profile of Respondents.....16
- 4.40 Smallholders’ Information Needs17
- 4.50 Zambia Agriculture Research Institute..... 18

5.0 CHAPTER FIVE..... 21

- 5.0 Discussion 21
- 5.1 Recommendations 27
- 5.2 Conclusion..... 28
- 6.0 Appendices..... 29
- 6.1 Appendix I: Questionnaire..... 29
- 6.2 Appendix II: Cross-Tabulation..... 35
- 7.0 References 36

List of Acronyms

ADB	African Development Bank
ACP	African, Caribbean and Pacific
ATMs	Automatic Teller Machines
CDC	Centers for Diseases Control and Prevention
CSO	Central Statistical Office
CRC	Constitution Review Commission
BoZ	Bank of Zambia
FAO	Food and Agriculture Organization
FDD	Forum for Democracy and Development
GDP	Gross Domestic Product
HIV/AIDS	Human immune Virus/ Acquired immune Deficiency syndrome
ICT	Information Communication Technology
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
MMD	Movement for Multi Party Democracy
NAIS	National Agriculture Information Services
PACRO	Patents and Companies Registration Office
PEST	Political, Economic, Social and Technological factors
PRS	Poverty Reduction Strategy
SMEs	Small and Medium Enterprises
UNCTAD	United Nations Conference on Trade and Development
UNIP	United National Independence Party
UPND	United Party for National Development

WHO	World Health Organization
ZARI	Zambia Agriculture Research Institute
ZDA	Zambia Development Agency
ZIC	Zambia Investment Center
ZIP	Zambia Investment Policy
ZNFU	Zambian National Farmers’ Union
ZPA	Zambia Privatization Agency
ZRP	Zambia Republican Party

Abstract

The aim of the study was to investigate the provision and accessibility of agricultural information to farmers in Mweembeshi Settlement Village a Farming Block in Kafue District. The objectives of the study were establish the agricultural information needs and sources of farmers as well as identifying the gaps smallholders encounter in obtaining agricultural information. The study population consisted of all 300 farmers located within the area. The findings of the study revealed that all farmers need information to do farming. The most vital source of the information was ZARI, and extension officers. However, smallholders indicated that they experienced gaps in obtaining information relating to credit and loans availability, markets information and information on methods of farming. The study recommends that there should be a strengthening link between research and extension as the main source of agricultural information and that other stakeholders, such as Ministry of Agriculture and Cooperatives, as well as among the extension wing, research, NGOs work in handy to develop information systems to support the activities of smallholders.

No. of Pages 1-38

No. of Bar Charts: 3

Key Words: Technological Information, Agricultural Information, Rural Farming in Zambia, and Information needs/smallholders.

Chapter One

1.10 INTRODUCTION

Agriculture can be defined as a “food production, soil management as well as involving animal husbandry which encompasses different livestock such as cattle , pigs goat , chickens, ducks and many more” (MACO,2005:4)

Agriculture is the main source of income for the majority of rural household in Zambia, and while they have been some improvements in agriculture production diversification and cash cropping in the mid-1990s through the current time, small and medium scale farmers still constitutes the largest group in income poverty in the country. About 84% of these household exist below the national poverty line, and 72% of farm households are in extreme poverty (PRSP2001). Combined, small and medium scale farmers contribute about 60% of Agriculture output (Saasa2003). At national level the sectors contribution to the Gross Domestic Product (GDP) average over 18% in the past decade. The real growth rate in the sector has, however, fluctuated significantly mainly due to heavy dependence on seasonal rainfall, poor communication network and low farmer access to improve technologies that are resilient to some of the natural shocks such as drought, pest and diseases. Nevertheless, increasing small and medium scale farmers’ production and productivity has the potential to make an important contribution to agricultural output and general economic growth of the country of the country (Thurlow and Wobst 2004).

1.11 THE ROLE OF INFORMATION INSUSTAINABLE AGRICULTURE

Information plays a vital role in agriculture development in Zambia. This means that agricultural development can only happen when there is effective information increased in dissemination which may aid agricultural productivity among small-scale farmers. Kaniki (1999) defines information as “ideas, facts, and imaginative works of the mind and data of value potentially useful in decision-making, question, answering, problem solving, that which reduces uncertainty. Therefore, appropriate, accurate and complete information provision to smallholders is hoped to bring really good crop production.

Information helps farmers in dealing with many central issues affecting farmers today. For instance, farmers need information on crop diversification and different methods of farming practice in order to reduce soil erosion and promote soil fertility. Small-holders need information on other crops rather than just maize. They need to be exposed to a variety of crops which suit their environment and climatic conditions so as to enhance crop diversification and methods of practices in order to prevent soil erosion and promote soil fertility. For example, in a season of drought they would have the option of farming crops which are drought resistant or require less water and mature early.

The importance of information to smallholders is that it can help to enhance their crop productivity. For example, farmers need to use information to analyze their soils before they plant anything. Soil analysis is cardinal to farmers as this helps in determining and planning for the cultivation. Upon analyzing the soil, farmers would have known the fertility of their soils in question, and thus be able to decide on the best possible crops that are suitable for such soils. This also would indicate for instance what kind and how much fertilizer or organic manure that is required.

In addition, for agriculture to be viable it requires information. So information on plant nutrients, pests and diseases control is needed to farmers in order for them to protect their crops and animals. Also information on storage is really vital to farmers, as farmers need information on how they can best preserve and conserve their product till determine the capacity of food produced and food security. However, farmers on the other end need information on market trends concerning the demand and supply for the produce as well as marketing sources. This information is important to farmers as it helps them to closely estimate their incomes. When farmers have marketing information, they will be aware of changes in demand for the different type of crops and hence adjust their supply to match the demand. As a result growing of crops will be determined by the prevailing demand for them, this in turn will regulate then supply of crop and give the market price for the crop (CSO: 2000).

Information has a key role to play in sustainable agriculture. It serves as a tool for communication between the actors, as the channel for assessing trends, and as the tools for shaping decisions by both producers and policy makers. The priority must be to ensure the accessibility to information, its delivery, its free flow and its outreach so that informed decision are made which will in turn lead to better methods of farming and thus increasing food production and self sufficiency at the small-scale level. Further the important contribution of agricultural information is that it helps create awareness on any upgrades on farming technology and how to obtain any of

1.22 Activities

The station comprises of the research management team which co-ordinates, manages and controls the human, physical and financial resources of four technical division central services and administration. The technical divisions are crop improvement and agronomy, soil and water management, plant protection and quarantine and farming systems and social sciences. Central service provides biometrics, library, documentation and information services to the department. Administration provides the remaining support services (ZARI: 2007).

The following are the activities which the activities which ZARI undertook in the various districts according to the 2007 annual report.

1.23 Crop Improvement and Agronomy

There are eight (8) programmes under the Crop Improvement and Agronomy Division conducted nine tasks in crop variety development and improvement, crop germplasm, mobilization and conservation. Some of the outputs were: research conducted which covered Breeding, Developing Production Packages and Collecting and Characterizing Plant Genetic Resources in the plant genetic resources in the following programmes and locations: Mt Makulu; Maize, Tree and Plantation, Crops and Genetic Resources: Mogue; Pearl Millet and Rice: Mochipapa: Food Legumes: Msekera; Food Legumes: Nanga; Vegetable: Food Legumes and Kenaf.

1.24. Soil and Water Management Programme

There are three (3) research programmes under the Soil and Water Management. This division's activities include soil management, fertilizer rates for different soil types, advice on sustainability of irrigation equipment. Some of the Research conducted involved Soils (Soil fertility, physics, survey and microbiology), Agroforestry and Irrigation. The activities carried were the following: Mt Makulu; Soils and Agroforestry.

1.25 Plant Protection and Quarantine Programme

There are four (4) research programmes under the Plant Protection and Quarantine. This division's activities facilitates the identification of insect pests on samples are brought to the Plant Clinic and recommendation of appropriate

control measures and sustainable insect management is made to stakeholders some of the activities includes Research which was conducted in Entomology, Pathology, Food Storage and Plant Quarantine and Phytosanitary Service. These were some of the activities carried out in the following location: Mt. Makulu; Entomology, Pathology, Food Storage and Plant Quarantine and Phytosanitary Service; Misamfu: Entomology; Msekera; Entomology, Food Storage and Quarantine and Phytosanitary service; Nanga; Pathology; Plant Quarantine and Phytosanitary Service are now also been offered at the border Areas including the Lusaka International Airport, Livingstone, Nakonde, Sesheke and Mufulira.

1.26 Farming Systems and Social Programme

There are four (4) research programmes under the Farming Systems and Social Sciences Division. This division generates data on Pit Farming. The other activities include on-farm trials and surveys (ZARI: 2004). Furthermore, the activities of these division include research which covers on- farm trials and surveys. This was done in conjunction with other programmes within ZARI and with the Department of Agriculture and Cooperatives. These activities were carried out in the following location: Mt Makulu; Agriculture shows and Field Days, on-farm trials on Maize and Beans, Mongu: Cassava, Pearl Millet and Cowpea intercropping; Maize, Legume rotation; Njimo newsletter; Mufulira: Trade Fair; sweet potato variety trial; Cassava variety trial; Improved fallow species. Mochipapa: Green manure as sustainable Production Systems for Sorghum-Maize and Maize livestock based farming systems in the valley and plateau farming systems (ZARI, 2007).

Ultimately, ZARI basically facilitates the dissemination of research results that are readily available technologies to stakeholders. All in all, ZARI (2007) holds at list more than five specific activities done in dissemination of research results to the small holders in the past five years. To begin with, the institute generated and adopted crop soil technologies in order to increase smallholder information on agricultural productivity and diversify production. The institute further developed information products in form of brochures, posters, flyers, video, leaflets and pamphlets for commercial farmers and medium and small-scale farmers. A sorghum and pearl millet in Zambia production Guide under the sponsorship of GRZ, INTSORM and USAID has been published. The other activities done in dissemination of research results to smallholders for past five years, ZARI has been participating in the national, Provincial and District Agriculture and Commercial Shows. Field days in various research

stations including ZARI were held to exhibit different technologies from research programmes to commercial farmers, researchers, and medium and small scale farmers. Finally, ZARI has published a manual on sustainable Agriculture in collaboration with Japan International Cooperation Agency (JICA) and a Crop Disease Manual. The institute has been disseminating the two manual to smallholders.

1.30 STATEMENT OF THE PROBLEM

Smallholders in Mweembeshi settlement Village (MSV) are having low yields and poor productions. This situation implies that there has been a continuation of food insecurity and low income levels at household levels. These problems have consequently have led to the increase of poverty at household and national level. Food insecurity implies that households do not have adequate to sustain them till the following harvest. This means that farmers will go hungry and these results into lack of vital nutrients to someone's life. The lack of vital nutrients to someone's life implies that people suffer from preventable diseases such as Kwashiorkor and Malnutrition among children.

Small incomes amongst farmers' this means that households can hardly afford descent livelihoods. Low incomes put farmers in awkward positions as farmers cannot afford to pay for loans in order to enhance or expand their production. On the other hand, farmers are faced with problems of not affording to take their children to school. Due to lack of stable income, farmers strive very hard in trying to meet ends meet so they can afford to pay for their children at school as well as medical care. Children as well cannot go to school hungry. Thus, this scenario increases high drop-outs from school consequently increasing the illiteracy levels in the country. Lack of stable incomes also implies people dying from preventable diseases such as Malaria, Dysentery and Cholera. Finally, Poverty Reduction Strategy (PRS) has not worked out well to address agricultural programs. Agricultural Sector has continued to recording poor production and yet, it's a sector which is a key to economic growth and development.

1.40 RESEARCH OBJECTIVES

1.41 General objectives

To investigate if smallholder are provided with effective agricultural information service

1.42 Specific objectives

- To investigate if farmers have been receiving information in an appropriate manner
- To identify information needs of smallholders
- To investigate what technologies are used by smallholder to gather information about agriculture
- To make recommendations on the effectiveness and efficiency of the institution agricultural information delivery systems

1.50 RATIONALE/SIGNIFICANCE OF THE STUDY

This study would very significant and helpful to agriculture extension service provide in that it will bring out best possible ways of providing information to the intended people effectively. It would also highlight strengths and weaknesses of the information system based on the people's needs, how people are utilizing it and how they benefit the information service provided.

Furthermore, the study results would give an insight to policy and decision makers on what needs to be done to re-design the Policies and Information Systems. Not only will the study results give an insight to policy and decision makers but also open information access to many major international funders and aid agencies looking for potential investment opportunities in Zambia particularly in the area of Agriculture Information. Finally, the results from this study would at large extent be useful in measuring the efficiency of the institution agricultural information delivery system.

Chapter Two

2.0 LITERATURE REVIEW

In order to have an insight and to enhance a deep understanding of what is been studies, different related studies were review.

Agricultural information and rural extension is the responsibility of various technical and service units and serves many purposes. Accordingly, (FAO: 1978) puts that there are various technical and service units and service many purposes: livestock development, forest use and conservation, fisheries engineering and capture, food and nutrition education, as well as crop development. Even in programmes designed to foster agricultural crop production, extension may be concerned with providing information on other crucial issues such as food storage development, processing, farm management and marketing. Thus, the provision of agricultural information is vital in any country. This can be evident by Kaniki (1989) who argues that information is necessary if the farmer is going to make meaningful decision and solve his or her problems effectively.

Information on the other end is disseminated in many ways to the smallholders. An extension service is one the major ways of disseminating agricultural information to rural communities. By using communication and education methods, extension provides smallholders with information on technology that can increase their production and consequently income. Amani (1992) recommends that there is need for accurate dissemination of agricultural information and economic trends to encourage small scale-farmers to diversify into crops that a sustainable record of a good market.

Agriculture extension and rural information services provide critical access to the knowledge and information that smallholders need to increase the productivity and sustainability of their production systems, and thus improve the quality of their lives and livelihoods. This can evident by Aina and Gooch (1990; 1994) who contends that agriculture information as observed enhances productivity as it is continuing to assume greater importance because of the link between its uses and increased and sustained agricultural production.

However, if agricultural information extension is combined with rural extension goals, the extension function ranges even more widely in its purposes. Rural extension, for instance, includes non-governmental organizations' activities such as microenterprise development (Echeverria 1998) puts it that it's a priority which is

being advanced by the inter-American Development Bank. While on the other hand, (CDC: 2003) contends that the above observation was supported by findings from a study in Zambia showed that the most helpful sources of information among most small-scale farmers are the Non-governmental Organization such as Zambia farmers union (ZNFU), DUNAVAT, OPAD, (63.9 percent) who act as information intermediaries and also information centers that are established by the ZNFU (65.5 percent). Results also indicated that only 36.7 percent felt that the government provided them with the relevant information for their farming activities.

Another point to consider is that agricultural knowledge or information is critical in the economic development of any developing country. Calvelo Rios (1996) observes that with knowledge, small producers can have a competitive edge over larger farm operations and corporate agriculture. Small producers often have the flexibility to quickly change crop choices, develop products for small niche markets and even market directly to the consumer or commodity broker in distant countries. Osborn et al (1996) observes that farmers need experiences of others in similar situations in order for their experience to be adapted and replicated. Additionally, Alemma (1995) contends that farmers also need to be access to agricultural information from research station.

Furthermore, an observation by Conroy (2003) holds that there has also been poor internal networking for agricultural information adaptation, dissemination and exchange in African, Caribbean and Pacific (ACP) countries. As evident in the (CTA: 2005) information services in the agricultural sector are seen to be fragmented, poorly managed and administered in isolation from each other. Where relevant information may have been available at the level of, for example, a government ministry, research institute or non-governmental organization, it often did not reach those who needed it, while those who are in need of information did not know where it could be found. Additionally, in many cases, it was deemed that the available information had not been adapted and packaged for specific programme areas because the cultural requirements and local context had not been taken into account.

Nevertheless, agriculture is the dominant sector for instance, (PA: 2005) holds that Kenya's economy as it is in most of Africa, representing more than 30% of GDP, 45% of government revenue and providing employment for 75% the workforce. It contributes 70% of industrial raw materials and 65% of export earnings from major export commodities namely tea, coffee, fisheries, livestock products and more recently horticulture. The horticultural sector is becoming one of the fastest growing in Kenya representing the country's third largest foreign exchange earner after tea and coffee. Small-scale farmers account for 70% of the total agricultural production and 50% of

market output. Yet Kenya remains a low-income food deficit country with overall national incidence of poverty at 56% in the rural areas and 49% of urban population. In context of Kenya, poverty in this East African country has risen from 3.2 million in 1972/3 to 11.5 million in 1994, 12.5 million in 1997 and an estimated 15 million today. Thus, at national level the above scenario does come as a surprise. The last decade has witnessed the collapse of government agriculture extension information systems and extension services. In addition, for any agriculture extension information services and agriculture productivity to correlate, agricultural information systems should operate effectively in order to meet the interests of all farmers.

It is important to note that there has been extraordinary recent advances in digital communications have brought with them major socio-economic transformations. One of these are in the management and communication of techniques and knowledge for development. Moreover, CTA (2005) indicates that for African, Caribbean and Pacific (ACP) countries in general, and Africa's member states in particular, radio is still, however, the most affective method of communication and source of agricultural information and dissemination and as such plays an essential role within ACP rural communities. Likewise, Kasoma (2001) also asserts that more than three in five Africans can be reached by radio transmitter networks. Therefore, technological advances bring with them hope and increased expectations for the many broadcasters and their rural listeners. However, the case of Zambia, the rural information system and extension services supported mostly by National Agriculture Information Services (NAIS) which provides mass media support for extension services through radio and television, audio visual aids and publication of pamphlets, magazines and leaflets.

Additionally, it is established that agricultural information provision plays a very vital role in agriculture development in any country. This is backed by several researches in information flow and dissemination (Gessesse, 1987; Wapakala, 1982; Williams and Williams, 1987) who has studied the importance of effective agricultural information services in general, and information flow/transfer in particular. They have argued that there is a direct relationship between effective flow and transfer, and agricultural development. Wapakala (1982), for example, observed that there are several key areas in agriculture where improvements would have an impact on the productivity and on the income of small-scale-farmers in the country. He identified the key areas as: agricultural extension, local farmer participation, credit, and marketing, social services, project administration and training. Accordingly, each of these areas involves an element of information. In extension service, for example, the agent is basically the source of new information necessary for the survival of small-scale farmers. Thus, in the Zambian agricultural sector which is characterized by

diversity, in terms of agro-ecological conditions farming systems, access to markets and support services, that role of information and its communication in supporting the work of extension staff (intermediaries) is particularly cardinal.

Another related study is by McAnany (1980) who asserted that in most third world extension workers are in short supply that they can reach only a fraction of the farmers. This was supported by Suzuki (2003) who discovered that in Zambia, despite an extension system being in place; it was inadequate despite its recognition in knowledge transfer to farmers. The study actually reviewed that Zambia agricultural extension services were below 50% on average. It was further observed that the situation was unlikely to change within a short period of time since the number of extension staff cannot be increased due to budgetary constraints.

Van Dan Ban Hawkins (1988) carried out a research on the returns on investments in agriculture production and agricultural information services studied in developed and less developed countries showed that the returns were between 30 and 60 percent. This increase in return is related to the dissemination of relevant and timely agricultural services.

Conversely, a research by Kordylas (2003) in Bolivian Aedes' eastern slope mountain valley region indicated that farmers when provided with regular information incorporated in research and given extension services on regular basis can adopt new farming practices easily. In 2002, a farmer's association with the help of United States Agency for International Development (USAID) developed an oregano crop with over 400 families participating. Farmer in the area live in adobe house and were mostly involved in cultivation of low value potatoes forage corn which gave the average annual incomes of only US\$ 350 dollar. PA (2005) contends that farmers are taught better production, post harvest and dry practices, and crop management on a monthly harvest cycle. Results indicate that, although most participating farmers had 30 meters by 30 matter plots, they were able to raise their incomes by an average of fifty percent. Improved productivity and marketing also helped to raise their income by a further twenty five percent.

According to Richardson (1997) also studied that most rural communities and small-scale agricultural producers in the developing countries are now influenced by "global economic, environmental, and political trends". He contends that this is because global trade relationships now place small-scale agricultural producers squarely in the middle of global market realities. It is now true that interest rates, global commodity in the situations, changing trade patterns, transportation developments and tariffs structures all impact on even the smallest farm operation. Thus, without knowledge

and without the communication capabilities required to access, analyze and share the information required to create knowledge small producers remain at the mercy of global market forces.

In Africa, most studies on information support for agriculture or rural development particularly in Zambia; indicates that the main challenge has been build institutional linkages among the key stakeholders in order to make information a development tool in its various functions (Kalusopa, 2003; Richardson, 1997; Chifwepa, 1993; Kaniki, 1989). The recent research by Kalusopa (2003) on key information system in the agricultural sector in Zambia and their methods of information processing, handing and utilization still show that there is no co-ordination and collaboration in terms of their respective functions and roles and does not constitute an information network. He further asserts that the existing information systems at present do not facilitate easy electronic data exchange relevant for agriculture development. The capacity of the local ICT resources available and the national capabilities to acquire, produce, process and disseminate information on agriculture is, thus, weak.

Due to the above problems that smallholders face, Zambia Agriculture Research Institute (ZARI) commits to aid in such instance. Nevertheless, the aim of this study is to find out why they are low income, low yields and at large the increase of poverty amongst smallholders, despite all the efforts be done by the institution to disseminate information effectively.

Chapter Three

3.0 RESEARCH METHODOLOGY

A non experimental research design will be carried out in uncontrolled environment, with elements treated equal regardless of sex, gender and marital status. This study will use a survey method.

3.10 Description of the Population

The population of interest in this research constitutes smallholders in Mweembshi Settlement Villages in Kafue District about 40km along Mumbwa road. Kafue is in agro-ecological region I/II in Zambia which is characterized by low to medium rainfall. This area has a population of more than 300 smallholders of both sexes. Basically, smallholders in this area are literate as the population comprises of retirees or workers at nearby private sectors.

3.11 Study Design

A sample of 100 smallholders out of the population of 300 smallholders, regardless of sex will be sampled for the research. Simple random sampling method will be used in order to shun biasness and achieve high level of representative. It has been opted to use a computer because computers are more systematic, accurate and impersonal in picking sample elements.

3.12 Sampling Procedure

The sampling to be used is systematic random sampling. This will involve selection every K^{th} name or unit on the list, where the K^{th} stands for a number between 0 and the size of the required sample, and $K=N/n$ where N is the total population size and n is the sample size. This implies that to get K , divide the total population N by the sample size n . For instance, in this research, the required sample (n) is 30 out the total population (N) of 200 smallholders. Thus, K will be calculated as:

$$\begin{aligned} K &= N/n \\ &= 300/100 \\ &= 3 \end{aligned}$$

Our $K = 3$, therefore, every 3th name of the list will be picked after the first name or element has been randomly selected using random numbers generated by the computer, using the “closing eyes pointing method”.

To do this the names will be serially numbered from 001 to 300 and entry 3th element or name will be picked the after first element has been picked.

The reason advanced for using this sampling design is that it is easy and less cumbersome. Biasness in selecting names or elements is avoided because it is not known who the ‘Kth’ element or name will be. Hence equal chance is given, and more over all the element or names will be treated equal regardless of such variables as gender, age and marital status. This is because there is no relationship established between the area of research and the above variable; thus stratified sampling may not be necessary.

3.13 Sampling Unit

A total of 100 smallholders in Mweembeshi village will be randomly selected using the above sampling produce out the total population of 300 smallholders. These will consist of individual smallholders of either sex.

The sample of 100 was chosen because it is more than representative of the population of 300 smallholders, which is also more than 15% of the total, population. This sample is also convenient and less costly looking at the time and resources available.

3.14 Data Collection Plans

Both Primary and Secondary data will be used. Primary data, which is first hand information, will be collected using close-ended questionnaires from respondents and special interview guides will also be used to complement the questionnaires; the questionnaires will be self-administered, because the population consists of literate people. Also the desire to quantify the data statistically using the computer is reason advanced for this choice.

Secondary sources source of information will be collected using various sources such as the internet, journals, text books, newspaper, MACO and ZARI annual reports and other such documents and literature.

3.20 DATA ANALYSIS

Computer software called, Statistical Package for Social Science (SPSS), will be used for analyzing data this is because the software is user friendly in the sense that it can automatically convert data into statistical graphs, percentages, frequencies, cross-tabulation and other such statistical interpretation. In short Powell (1991) holds that SPSS offers a comprehensive solution for reporting, modeling and analysis of data.

3.30 LIMITATIONS/CONSTRAINTS

Lack of financial resources was a great challenge in that it posed a hindrance in the smooth operations of the research programme. This meant that things were not done in good time. This was due to the late disbursement of the project allowance by the sponsors. Therefore, funding the report was one of the major limiting factors.

In relation to the first limitation, the money was not only inadequate but also was always not on time. Also access to computer facilities for analyzing the data and typing the report tended to be a problem also.

Some respondents proved to be difficulty in the field during data collection. They were not to cooperative when it came to answering the questionnaires. A number of respondents had mixed feelings on why they were participating in the research.

Last but not the least, getting the sampling frame of Agriculture Local Extension tended to be a problem as there were a number of bureaucratic procedures to be followed.

Chapter Four

4.0 STUDY FINDINGS

4.10 INTRODUCTION

The survey used both qualitative and quantitative approaches to capture information on the effectiveness of the Zambia Agriculture Research Institute (ZARI) in disseminating agricultural information to stallholders: a case study of Mweenbeshi Settlement Village (MSV). The survey covered 73 respondents using structured questionnaires out of the 100 respondents targeted.

4.20 CHARACTERIZATION OF RESPONDENTS

This chapter aims at presenting the findings according to the responses obtained through the questionnaires during the collection of primary field data in the process of evaluating the effectiveness of the Zambia Agriculture Research Institute (ZARI) in disseminating agricultural information to stallholders: a case study of Mweenbeshi Settlement Village (MSV). The findings to be presented here will start by giving a background of the respondents (characterization of Respondents), then those findings on the identification of the information needs of Smallholders and then those focused on analyzing the information system put in place for purposes of providing information to Smallholders. The full analysis of the Cross tabulations of the research are shown in Appendix II.

4.30 PROFILE OF RESPONDENTS

In terms of sex the sample consisted of both males and females. This was aimed at getting views from both Males and Females respondents, who were the smallholders, thus the study being non-gender biased. The results showed that males were accounting for about 63 percent and females accounting 37 percent of total respondents. The results on the findings of Age distribution reviewed that respondents aged above 30 years accounting were for about 98 percent of total respondents. About 1 percent of respondents were aged between 25-29 years; about 1 percent of total respondents were aged between 20-24 years while 0 percent of total respondents were aged 15-19 years. Out of our 73 respondents, the findings highlights that married were accounting 71 percent followed by the widowed accounting 12 percent, the singles accounting 8 percent then the divorced being the least accounting 0 percent. Also several respondents had the family size between 4-6 people accounting 47 percent of total respondents. About 30 percent of respondents were sized 7-9 people, about 14

percent of total respondents were 10 people and above while 10 percent of total respondents were sized between 0-3 people.

In terms of education background, the results showed that grade nine were accounting 30 percent of the total respondents. About 23 percent of total respondents were those who reached grade seven, about 19 percent of total respondents were those who reached grade twelve, and 14 percent of total respondents were those who have reached college level. About 14 percent of total respondents have never been to school while 0 percent of total respondents of have never been to the university. In terms of a major food crop the 73 respondents accounting for 100 percent consented to maize being their major food crop. While in terms of acreage of farming land, the results revealed that accounting 60 percent of total respondents had a size between 3-5 acres. About 30 percent of total respondents had a size between 1-3 acres. About 10 percent of total respondents had a size of over 5 acres, and about 0 percent of total respondents had a size less than 1 acre. In terms of income earned in the previous season, the respondents accounting 49 percent of the total respondents earned less than K 900,000.00. About 44 percent of total respondents earned between K 1,000,000.00-K 3, 000,000.00, about 7 percent of total respondents earned between K 3,000,000.00-K 5,000,000.00, and 0 percent of total respondents earned K 5,000,000.00 and above.

4.40 SMALLHOLDERS INFORMATION NEEDS

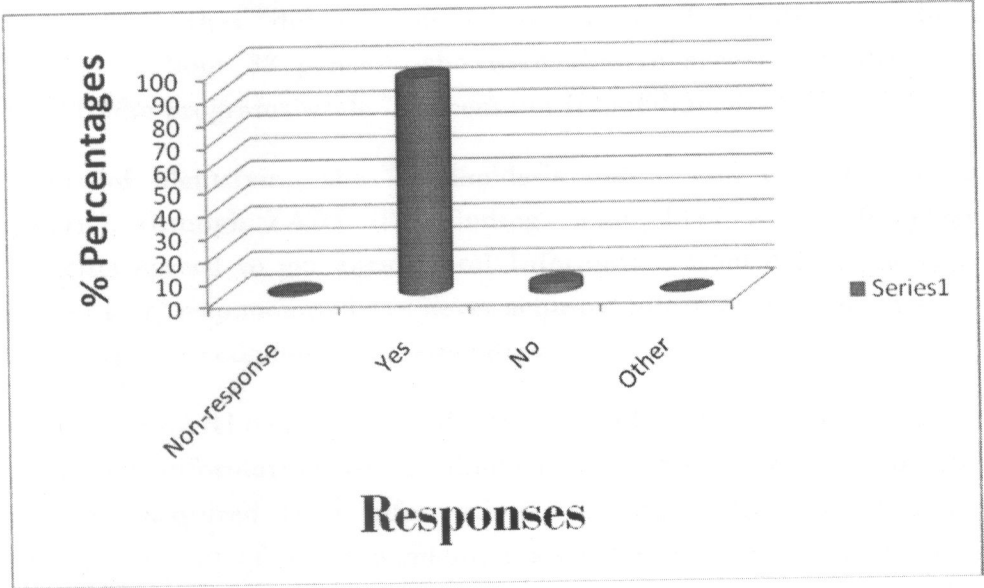
This part presents the findings for objective two and three of the study. It aims at presenting the identified information needs of smallholders of Mweembeshi Settlement Village. This stretched fro issues of markets, seeds and crops, pesticides and fertilizers, credit and loans, land preparations, weeding and harvesting and many others.

In terms of determining the need for information on markets, the findings highlighted that about 85 percent of total respondents saw the need for information about markets, about 11 percent of total respondents said it wouldn't help, and about 4 percent of total respondents recorded non-response. Out of 73 respondents on need for information about seeds and crops, the findings also highlighted about 92 percent said it would help. About 3 percent of total respondents thought this information would never while about 5 percent recorded a non-response.

In terms of rating the need to make information about credits and loans available, the results showed the respondents who recommended the need of information accounting

95 percent of total respondents. About 4 percent of total respondents never saw the importance and about 1 percent of total respondents recorded non-response. To stay close to facts, the bar chart below shows this presentation.

Figure 4.0: Information needs on credit and loans



SOURCE, Bar 1: Field Data

In terms of rating the information need about land preparation from smallholders. The findings highlighted about 64 percent of total respondents rendering this information need and about 32 percent of total respondents thought it would actually help while about 4 percent of total respondents recorded non-response. Information need on weeding and harvesting. The shows that about 71 percent of total respondents rejecting this information need, about 26 percent of total respondents actually thought it would help while about 3 percent of total respondents accrued to non-responses.

4.50 ZAMBIA AGRICULTURAL RESEARCH INSTITUTE (ZARI)

There are various sources of information that smallholders use to source their information in Mweembeshi. Some include Television programs, Radio programs, agricultural cooperatives and at times friends; however some respondents argued some of these were not accessible to them.

In terms of identifying the smallholder’s source and type of any agricultural information from TV programs. Out of the 73 respondents interviewed 63 percent refuted getting their information from Television programs and other 30 percent

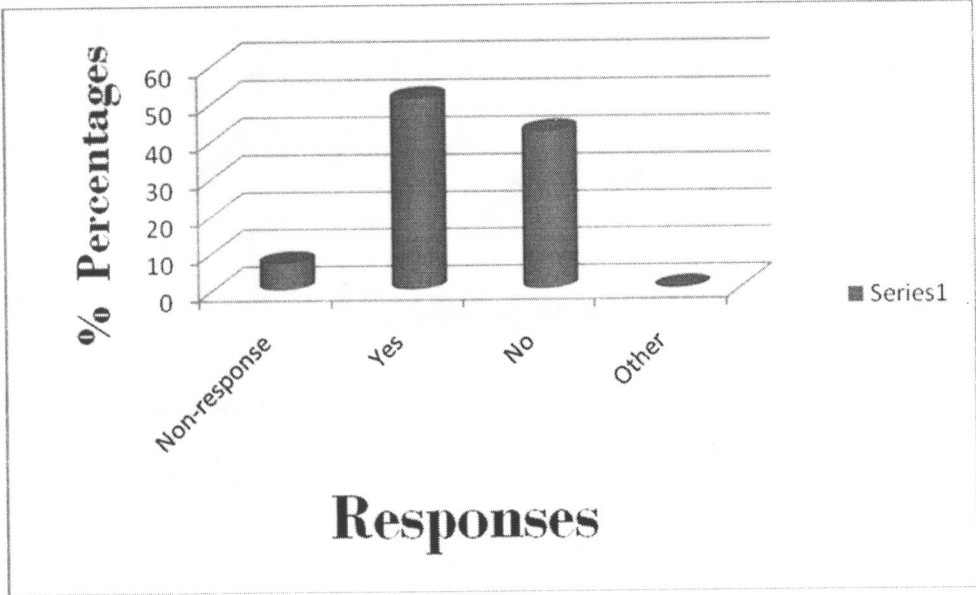
agreed they access some of their agricultural information from TV programs with about 7 percent not responding.

In terms of smallholders who access their information through Radio programs. It was actually discovered that out of the 73 respondents that were sample about 62 percent stated they did not access any type of information through Radio programmes, about 32 percent who were able to access agricultural information through Radio programs while 7 percent not responding.

In terms of identifying the smallholder’s source and type of any agricultural information through ZARI. The findings highlighted about 80 percent of total respondents agreed to get agricultural Information from ZARI and only about 20 percent of total respondents have never acquired information from this source while 0 percent of total respondents not responding.

In addition to ZARI coming in handy, the Agricultural Extension Officers also helped in providing information to smallholders of MSV. About 51 percent of total respondents acquired their information from Agricultural Development Officers whereas 42 percent of the respondents stated they have never acquired information from this source and about 7 percent of total respondents not responding. To stay close to facts, the bar chart below shows this presentation.

Figure 4.0: Agricultural Information from Agricultural Extension Officers

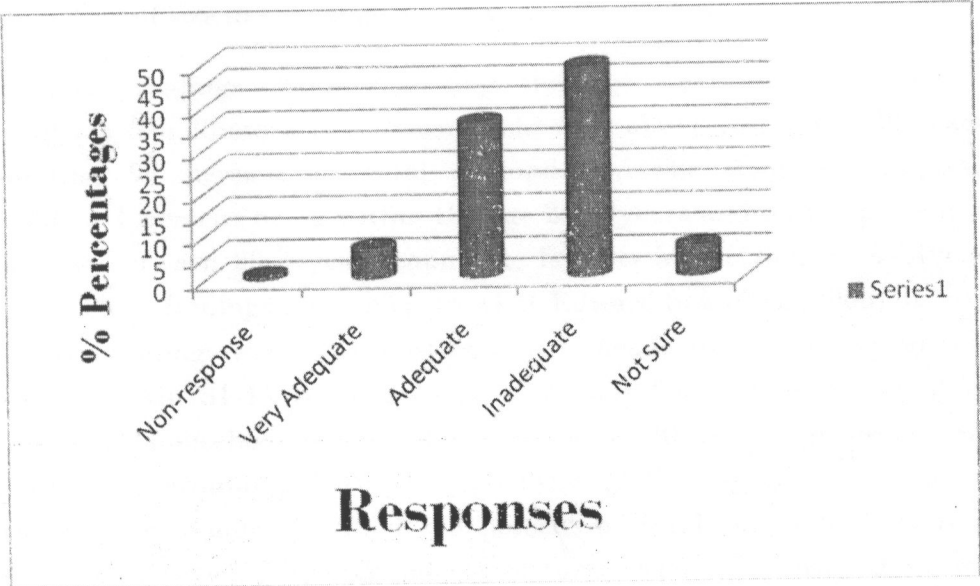


SOURCE, Bar 2: Field Data.

In terms of smallholders who access their information from fellow friends. The findings highlighted about 52 percent of total respondents agreed to having accessed agricultural information from their fellows, whereas 47 percent of total respondents refuted that friends were not helpful and about 1 percent of total respondents not responding.

In finding out if farmers have been receiving information in an appropriate manner from information services provided by ZARI in terms of satisfaction, the findings highlighted that accounting 49 percent of total respondents rendered ZARI inadequate, about 36 percent of total respondents that it was adequate, whereas about 7 percent of total respondents said it was very adequate, about 7 percent of total respondents they were not sure and about 1 percent of total respondents not responding. To stay close to facts, the bar chart below shows this presentation.

Figure 4.0: How do you rate the Information Services provided by ZARI?



SOURCE, Bar 3: Field Data

Chapter Five

5.0 DISCUSSION OF THE FINDINGS

The majority of smallholders farming activities in MSV are dominated by the males (63 percent) and their counterparts (females 37 percent) are not much in this activity. The findings further showed 100 percent that the major food crop for the smallholder farmers in Mwembeshi Settlement Village was Maize such that no one had an alternative major food crop and it would be safe to say Maize is the major food crop of the people of Mweembeshi Settlement Sillage (MSV). While on the other hand, the amount of land that was utilised by the smallholders varied from one farmer to the other. It was discovered from these findings that the majority of smallholders had a size of 3-5 acres about 44 respondents with a 60 percent. Very few respondents had farming land that was over 5 acres and this was only 10 percent in terms of percentage. Therefore most small holders in Mweembeshi district are holders of farming land of size in the range 3-5 acres.

The major findings when analyzing the age distribution showed that most respondents (smallholders) in Mweembeshi were above the age of 30 years and only accounting 98 percent of total respondents. The remainder represented one respondent 1 percent being within the age 25-29 years and only 1 percent respondent again was between 20-24 years countable farmers in the ranges 20-24 years and 20-24 years. These findings are similar to what Edward Sakufiwa (2006) discovered in his study. His findings were that most household heads are above 45 years old (48.8%), 41.9% are in the 31-45 years category while only 8.9% of the households are youth headed with household heads falling in the 15-30 years age group. In terms of education background, the study revealed that grade nine were accounting 30 percent of the total respondents. About 23 percent of total respondents were those who reached grade seven, about 19 percent of total respondents were those who reached grade twelve, and 14 percent of total respondents were those who have reached college level. About 14 percent of total respondents have never been to school while 0 percent of total respondents of have never been to the university. Lack of education has a major impact on the socio-demographic of any human inhabited area, such as uncontrolled birth which brings about family sizes which in turn brings about food shortage. Therefore, it would be logical to say that Mweembeshi Settlement village had a high level of attendance of school. From the above findings, Yondeowei et al (1996) observes that where the vast majority of agricultural products may not be able

to read and write, extension officers are unable to disseminate relevant information as it makes it difficult for them to employ extension methods such as audio-visual communications and national language materials where necessary.

It was discovered in this study that the majority were married followed by the divorced, the singles then the widowed being the least. It's evident that most respondents were married and there were 71 percent of such marital status 52 respondents out of 73, the widowed came in second at 12 percent about 9 respondents and the singles at 8 percent, with only 6 respondents. Therefore it would be logical to say most smallholders in Mweembeshi village were married. These findings could be attributed to the early marriages being practiced in rural area. Furthermore, this study revealed that following the high number of marriages stated above we saw that Mweembeshi smallholders also have big family sizes, since marriage increases the chances of child bearing. This was clearly seen by majority of respondents having family sizes between 4-6 people, followed by those with family size the range 7-9 people then those with 10 members and above with the least members in the group 0-3 years. Thus, it is right to say that the above family sizes are too large requiring the need to have enough finances to support them. This now brings to a question as to whether the smallholders of Mweembeshi village earn enough income at the end of their farming season to support their families? Can these small holders actually raise enough with the prevailing agriculture situation in their country?

To answer the questions above, we assessed the duration they have been farming so as to assess how they how long they had been raising income from agriculture to support their families. The following results entails us that most smallholders have been doing farming for a period between 5-9 years and this had about 41 respondents out of 73, followed by those who had been doing it for the period 10-14 years and 7 respondents had been doing for over 15 years. Those below 4 years in farming were about 12 years.

It has been revealed in this study that apart from farming years of smallholders, there was the issue of income earned in the previous farming season. In which most respondents earned less than K9, 000,000 and there were about 36 of the respondents who were earning this much and they accounted for about 49 percent. Those in the range K1,000,000-K3,000,000 were about 44 percent representing about 32 respondents and those between K3,000,000-K5,000,000 had 5 respondents with 7 percent. Therefore, figure tells us that most small scale farmers in Mweembeshi were earning less than K9, 000,000 at the end of their farming seasons and very few earn more than K3, 000,000. FAO (2006), points out that given the importance of the sector as a source of livelihood for the large majority of the population, income

earnings and a base for industrial development, attaining and maintaining a high agricultural growth rate remains a critical challenge for all sub-Saharan Africa (SSA) countries in their endeavor for achieving broad economic development. Thus, Information is one of the most critical needs for countries in order to achieve the Millennium Development Goals. Access to Financial information is essential for strengthening teaching and research, improving medical and agricultural practices, empowering experts to find locally relevant solutions, and enabling government officials to formulate sound policies (Aguolu 1997; WHO 2006).

It was observed from our analysis that small holder farmers had information needs that needed to be addressed critically. This stretched from issues of markets, seeds and crops, pesticides and fertilizers, credit and loans, land preparations, weeding and harvesting and many others. This section analyses some of the information needs addressed by the smallholders of MSV.

One of the factors that was seen fundamental in this research was the need for information on markets. It was discovered that several respondents accounting about 85 percent of total respondents had called for information on markets and this was far more than their counterparts that thought it wouldn't help and was about 11 percent with 4 percent recorded as non-response. This is an important information need as (FAO: 1987) concurs and suggests that there are various technical and service units and service many purposes: livestock development, forest use and conservation, fisheries engineering and capture, food and nutrition education, as well as crop development. Even in programmes designed to foster agricultural crop production, extension may be concerned with providing information on other crucial issues such as food storage development, processing, farm management and marketing. Thus, the provision of agricultural information is vital in any country. This can be evident by Kaniki (1989) who argues that information is necessary if the farmer is going to make meaningful decision and solve his or her problems effectively. In addition, Amani (1992) recommends that there is need for accurate dissemination of agricultural information and economic trends to encourage small scale-farmers to diversify into crops that a sustainable record of a good market.

This study established that that most smallholders stressed out the need to have information bordering around seeds and crops. The majority of smallholders of MSV addressed the need to be informed about the seeds and crops in that information should be availed to them. It was realized that a greater proportion of the respondents were calling for such information. According to our results about 92 percent of total respondents had called for the information on seeds and crops with only a few of about 3 percent of the respondents who thought this information would never help

which was even lesser than the non-respondents at 5 percent. Further, information need that was discovered was the need to have information on pesticides and fertilizers. Like other information this was strongly recommended with 88 percent of the respondents who called for increased information on pesticides as well as fertilizers. However 10 percent of total respondents had little confidence that information on pesticides and fertilizers would have changed things. It is evident on the need of information on seeds and crops, and pesticides and fertilizers by Van Dan Ban Hawkins (1988) who carried out a research on the returns on investments in agriculture production and agricultural information services studied in developed and less developed countries showed that the returns were between 30 and 60 percent. This increase in return is related to the dissemination of relevant and timely agricultural services.

The study also revealed that smallholders of MSV called for increased information on credit and loans. This was clearly seen that smallholders in MSV really saw the need of making available the information on credit and loans to them. To stay close to facts, 95 percent of total respondents recommended the need to make credit and loans information available to farmers and only 4 percent of total respondents never saw the importance of this with only 1 percent not responding. According to Barrett (2001) supports the above observation that accurate information about the area where a smallholders project with revolving from component will be carried out is to the design and implementation of a successful programme. Kostas Stamolis (2001) urges that access to capital is the other major factor for improving the material conditions of smallholders and other rural poor. Greater access to credit by the rural poor would entail improvements in a whole range of financial services, including appropriate saving facilities, banking standards and management, forms of insurance, the use of innovative financial practices that may reduce transaction costs and risks, and the support of a variety of financial structures (formal, semiformal and informal) in the supply of credit.

Another information need that was identified was information on land preparation. Unlike other information needs identified, this subject was very controversial with about 64 percent of total respondents rendering this information need useless and 32 percent of total respondents thought it would actually change things. Non-response amounted to about 4 percent of total respondents. Apart from information need on land preparation, the information need on weeding and harvesting also wrecked controversy and it was totally disapproved by the small holders of MSV as an information need that would have brought change in the area. With 71 percent of total respondents rejecting this information need and only 26 percent actually thought it would help and 3 percent accrued to non-responses. On the basis of this

information, planners can then work out how land use patterns should be changed and developed in the future.

Therefore, It was established in this study that there various sources of information that smallholders use to source their information in Mweembeshi. Some include Television programs, Radio programs, agricultural cooperatives and at times friends; however some respondents argued some of these were not accessible to them.

The findings highlighted that out of the 73 respondents interviewed 63 percent refuted getting their information from Television programs and other 30 percent agreed they access some of their agricultural information from TV programs with about 7 percent not responding. From these findings it's quite evident that smallholders are not able to get their agriculture information from TV programs and this was limiting their access to agricultural information. This could be attributed to a number of factors. The first major factor is lack of Electricity in three-quarters of the MSV limited the smallholders in the use of TVs, Radios and other electrical devices. The second factor is the lack of interest and high illiteracy levels has caused a major impact on the use of TVs.

This study also established how the Mweembeshi smallholders access their information through Radio programs. This was clearly seen by most farmers in the area had little access to agricultural information through Radio programs. It was actually discovered that out of the 73 respondents that were sample about 62 percent stated that Radio programs do not offer them information on agriculture and the rest had contrary views, with 32 percent who were able to access agricultural information through Radio programs and 7 percent of the respondents did not respond. It was therefore observed that the smallholder settlements in Mweembeshi had majority of persons that could access agricultural information through Radio programs. But unlike this research, the report by (WorldAgInfo:2008) has found out that due to the fact that community radio has long been a one-way information delivery methodology simply because there was no effective method by which listeners could contact the radio station. The rapid (and accelerating) adoption of cell phones changes this equation. Furthermore, visits with local farmers and with the staff of community radio stations indicate that interaction is desired. This mutual desire for interaction is rarely made manifest. However despite not being able to access agricultural information through Television and Radio programs it was quite delightful to know that ZARI came to the aid of the MSV farmers. The results suggested that most respondents expressed confidence in ZARI provision of information. Accounting about 80 percent of total respondents agreed to getting agricultural information from

ZARI and only about 20 percent of total respondents expressed dissatisfaction at the were ZARI were providing their information services. These findings are related to other studies like, Kidd (1968), Williams (1969), Watt (1969) Namponya (1992) and Suzuki (2003) where farmers stated that the government extension officers were the important source of information and radio programs were identified as the second important source.

In addition to ZARI coming in handy, the Agricultural Development Officers presenting Non- governmental organization (NGOs) also helped in providing information to smallholders of MSV. Accounting about 51 percent of total respondents acquired their information from Agricultural Development Officers whereas 42 percent of total respondents stated they have never acquired information from this source and about 7 percent had not responded as whether they had ever accessed information before or not. These findings are in line with (CDC: 2003) contends that the above observation was supported by findings from a study in Zambia showed that the most helpful sources of information among most small-scale farmers are the Non-governmental Organization such as Zambia farmers union (ZNFU), DUNAVAT, OPAD, (63.9 percent) who act as information intermediaries and also information centers that are established by the ZNFU (65.5 percent). Results also indicated that only 36.7 percent felt that the government provided them with the relevant information for their farming activities. In addition, Smallholders of MSV further agreed to the fact that Friends in most cases fellow farmers were so very instrumental in providing them with information as pertains agricultural related subject, some respondents however saw this as one of the most important source of information as you don't have to follow protocol or any laid down procedures especially in cases of agricultural institutions. About 53 percent of total respondents agreed to having accessed agricultural information from their fellow farmers, whereas 47 percent refuted this, claiming that friends were not helpful and had never accessed any sort of information from them.

In finding out if farmers have been receiving information in an appropriate manner from information services provided by ZARI in terms of satisfaction, the findings highlighted majority accounting 49 percent of total respondents rendered ZARI inadequate, about 36 percent of total respondents that it was adequate, whereas about 7 percent of total respondents said it was very adequate, about 7 percent of total respondents they were not sure and about 1 percent of total respondents not responding. The above observation is supported by findings from a study by McAnany (1980) who asserted that in most third world extension workers are in short supplies that they can reach only a fraction of the farmers. Furthermore, this is

supported by Suzuki (2003) who discovered that in Zambia, despite an extension system being in place; it was inadequate despite its recognition in knowledge transfer to farmers. The study actually reviewed that Zambia agricultural extension services were below 50% on average. It was further observed that the situation was unlikely to change within a short period of time since the number of extension staff cannot be increased due to budgetary constraint.

5.1 RECOMMENDATIONS

In a quest to make the Zambia Agricultural Research Institute effective a number of recommendations have been put forward through the findings of this research and the findings of other researchers. It is for this reason why the conclusion and recommendations are aimed at addressing the following three specific Objectives:

- To investigate if farmers have been receiving information in an appropriate way
- To identify information needs of smallholders
- To investigate what technologies are used by smallholder to gather information about agriculture

The following are key notes in the recommendations for this study:

- ✓ In order to advance information dissemination to smallholders, it necessary to improve the Zambia Agricultural Research Institutes' extension – smallholder contact by strengthening the delivery capacity of the field extension staff that forms the extension front.
- ✓ Due to the vital role the institution plays as a major source of Agricultural information, there is need for the Zambia Agriculture Research Institute to be continuously being supported with current information pertaining to various agricultural technologies.
- ✓ There is need for Zambia Agriculture Research Institute to strengthen link between research and extension as the main source of agricultural information and that other stakeholders, such as Ministry of Agriculture and Cooperatives,

as well as among the extension wing, research, NGOs work in handy to develop information systems to support the activities of smallholders.

- ✓ Information is stored in different formats by various stakeholders which makes it difficult to share and exchange such information. Thus, need for Zambia Agriculture Research Institutes' extension-wing to consider involving key experts to deal with issues of content/repackaging of end-user products.
- ✓ Encourage the formation/ increase in following; community information centers, farmer groups/organizations and recruit more Agricultural extension officers of which at the moment are key elements to strengthen such information dissemination methods and need to be supported in terms of information products and linkages with key information dissemination partners operating at community level.

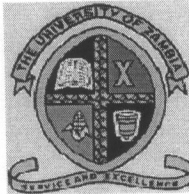
5.2 CONCLUSION

As strongly observed elsewhere in this paper, information must ideally have a three-fold function; as a tool for acquiring knowledge, as a tool for making informed decisions and as process of communication between the stakeholders. After a critical analysis of issues, it is quite clear without any reasonable doubt that the development activities are based on the utilization of information. It is therefore, that in evaluating the effectiveness of the ZARI in disseminating agricultural information to smallholders, the report has categorically found out that, most of the smallholders use the information from Zambia Agricultural Research Institute. However, they also said that the ways of information prevision used by the institution are inadequate. Local Extension Officers have also reported that they work with subject experts in selecting and acquiring materials, among other findings. But for the Zambia Agriculture Research Institute to perform to expectations there is need to improve its finances because Budgetary allocations to the Ministry of Agriculture and Cooperatives have continued to decline over the years such that holding of planning meetings where different stakeholders used to come together and exchange information and contribute to the improvement and development of work-plans is no longer feasible. There is need introduced incentives Agriculture field workers in order to boost their motivation and also to improve the conditions of service. The institution should also increase its stock ICTs tools such as computers and enhance internet accessibility to its users. When these are done, there is no doubt that, the Zambia Agriculture Research Institute will make the majority of smallholders happy.

6.0 APPENDICES

6.1 Appendix I: Questionnaire

THE UNIVERSITY OF ZAMBIA



SCHOOL OF EDUCATION

DEPARTMENT OF LIBRARY AND INFORMATION STUDIES

RESEARCH QUESTIONNAIRE:

Dear Respondent,

I am a Student at the University of Zambia, pursuing a Bachelors Degree in Library and information studies in the School of Education carrying out an academic research on the topic **“The effectiveness of Zambia Agriculture Research Institute (ZARI) in disseminating agricultural information to smallholders: A case study of Mweembeshi Settlement Village (MSV)”**. You have been randomly selected and it is my genuine request that you answer the following questions truthfully. I assure you that Information rendered in this questionnaire will and shall be guaranteed the confidentiality it deserves. Your corporation will be greatly appreciated.

Thanking you in anticipation.



[Questionnaire #.....]

CONFIDENTIAL

Please tick in the appropriate bracket and write down appropriate responses, where necessary, as you answer the questions.

SECTION A: BACKGROUND INFORMATION [Personal Details]

OFFICIAL USE ONLY

1. Sex (a) Male []
(b) Female []
2. In which range does your age fall?
(a) 15-19 years []
(b) 20-24 years []
(c) 25-29 years []
(d) 30 years & above []
3. What is your marital status?
(a) Single []
(b) Married []
(c) Divorced []
(d) Widowed []
4. How many members are in your family?
(a) 0-3 people []
(b) 4-6 people []
(c) 7-9 people []
(d) 10 people & above []
5. What is your education level?
(a)Grade 7 []
(b)Grade 9 []

- (c) Grade 12 []
- (d) College []
- (e) University []
- (f) Never been to school []

6. How long have you been a farmer in this community?

- (a) 0-4 years []
- (b) 5-9 years []
- (c) 10-14 years []
- (d) 15 years & above []

7. What is your major food crop?

- (a) Maize []
- (b) Millet []
- (c) Cassava []
- (d) Groundnuts []
- (e) Others (specify).....

8. What is the acreage of your farming land?

- (a) Less than 1 acre []
- (b) 1-3 acre []
- (c) 3-5 acres []
- (d) Over 5 acres []

9. What was your income level from your previous season's major food crop?

- (a) Less than K900,000.00 []
- (b) K1,000,000.00-K3,000,000.00 []
- (c) K3,000,000.00-K5,000,000.00 []

(d) K5,000,000.00 & above []

SECTION B: INFORMATION NEEDS

10. What type of information do you believe would be helpful to you in farming?

[Tick in the appropriate bracket (s)]	YES	NO
(a) Information about markets	[]	[]
(b) Information about seeds and crops	[]	[]
(c) Information on pesticides and fertilizers	[]	[]
(d) Information about credit and loans	[]	[]
(e) Information on land preparation	[]	[]
(f) Information on weeding and harvesting	[]	[]
(g) Other (specify).....	[]	[]

.....

11. Where do you currently get any type of agricultural information?

[Tick in the appropriate bracket (s)]	YES	NO
(a) From TV programs	[]	[]
(b) From radio programs	[]	[]
(c) From local newspaper & Journals	[]	[]
(d) From ZARI information service	[]	[]
(e) From friends	[]	[]
(f) From agricultural development officers	[]	[]
(g) Others (specify).....	[]	[]

12. How do you rate the information service provided by ZARI?

- (a) Very Adequate []
- (b) Adequate []
- (c) Inadequate []
- (d) Not sure []

SECTION C: ZAMBIA AGRICULTURE RESEARCH INSTITUTE (ZARI)

13. What kind of information is being provided by ZARI?

[Tick in the appropriate bracket (s)]	YES	NO
(a) Information about markets	[]	[]
(b) Information about seeds and crops	[]	[]
(c) Information on pesticides and fertilizers	[]	[]
(d) Information about credit and loans	[]	[]
(e) Information on transport	[]	[]
(f) Information on weeding and harvesting	[]	[]

☐

14. How content are you with the information services offered by ZARI?

(a) Very Content	[]
(b) Content	[]
(c) Not content	[]
(D) Not Sure	[]

☐

15. What ways do ZARI use in dissemination of information?

[Tick in the appropriate bracket (s)]	YES	NO
(a) Co-operative societies	[]	[]
(b) Farmer organization	[]	[]
(c) Radio programs	[]	[]
(d) TV programs	[]	[]
(e) Journals, newspapers or newsletters	[]	[]
(f) Fellow farmers	[]	[]
(e) Others (specify).....	[]	[]

☐

.....

16. Do you think these ways of information provision by ZARI are effective to you?

(a) Yes	[]
---------	-----

☐

(b) No []

17. How do rate these ways of information dissemination offered by ZARI?

- (a) Very effective []
- (b) Effective []
- (c) Not effective []
- (D) Not Sure []

18. What information problems do you face in accessing agricultural information?

[Tick in the appropriate bracket (s)]	YES	NO
(a) Inadequate extension workers from ZARI	[]	[]
(b) Non availability of experts when requested	[]	[]
(c) Language used in Content	[]	[]
(d) Model	[]	[]
(e) The curriculum is old	[]	[]
(f) Format (Audio, Visual, electronics etc.) used	[]	[]
(g) Others (specify).....		
.....	[]	[]
.....		

19. What do you think should be done to ensure that this information is effectively Disseminated?

[Tick in the appropriate bracket (s)]	YES	NO
a. Introduce field days in farmer clubs	[]	[]
b. Support Cooperative Societies	[]	[]
c. Introduce educational programmes on Agriculture on community radio	[]	[]
d. Encourage the forming of more farming Associations	[]	[]
(g) Others (specify).....		
.....	[]	[]

THANKS FOR YOUR COOPERATION.

6.2 Appendix II: Cross tabulations

How do you rate the information services provided by ZARI? * Do you think these ways of information provision used by ZARI are effective? Crosstabulation

			Do you think these ways of information provision used by ZARI are effective?			Total
			non-response	Yes:They are effective	No:They are not effective	
How do you rate the information services provided by ZARI?	non-response	Count	1	0	0	1
		% of Total	1.4%	.0%	.0%	1.4%
	Very adequate	Count	0	3	2	5
		% of Total	.0%	4.1%	2.7%	6.8%
	Adequate	Count	1	14	11	26
		% of Total	1.4%	19.2%	15.1%	35.6%
	Inadequate	Count	1	8	27	36
		% of Total	1.4%	11.0%	37.0%	49.3%
	Not sure	Count	0	4	1	5
		% of Total	.0%	5.5%	1.4%	6.8%
Total	Count	3	29	41	73	
	% of Total	4.1%	39.7%	56.2%	100.0%	

7.0 REFERENCES

- Aguolu, I. E. [1997]. Accessibility of information: A myth for developing countries? *New Library World*, 98 (1132), 25.
- Aina, L. O. [1990]. The Provision of Information for Rural Development. Ibadan: Fountain publication, 204p.
- Alemma, A. [1995]. "Agriculture information services in west Africa", *Agriculture information in Africa*, Third World Information Services, Ibadan, pp.67-82.
- Almani, H.K [1992]. Food Security in Southern Africa: Policy Implications: Harare: university of Zimbabwe press.
- Calvelo Rios, M. [1996], FAO Communication for Development in Latin America Project: FAO, Rome.
- Central Statistical Office [1999].Living Condition Monitoring Survey; Lusaka: Government Printers.
- Chifwepa, V [1993]. "Agriculture library co-operation in Zambia": Information Development, vol. 19No.1 pp.76-81.
- Conroy, Czech [2003]. New direction for Nigeria's basic agriculture services: A discussion paper for basic agricultural service (BAS). Natural resources institute, university of Greenwich, United Kingdom vol.1:61pp
- Donovan, C [2000]. Framework and Initial Analysis of Fertilizer Profitability in Maize and Cotton in Zambia; Lusaka; FRSP working paper No.5.
- Edward Sakufiwa [2006]. Agricultural Information Needs Assessment Survey for Small-Scale Farmers in Kasama and Kafue Districts of Zambia: Lusaka: ZARI-INFORNET
- FAO, [1987]. "Towards Universal Food Security: Draft of a Policy Statement and Plan of Action"WFS96/3Rome, March.
- Gessess, K. [1987]. "Perspectives of Agricultural Information System and Service in East and Southern Africa" paper presented at the CGIAR Documentation and Information Service meeting, Lima, May 4-8,

- Gooch, P. [1994]. "Information Flows in Agriculture Research in Vietnam: Status and Prospect", in IALD Quarterly Bulletin, 39940:321-318.
- Kaniki, A. [1989]. "Agricultural Information flows In Zambia: A Study of a Two-Way Information Flow", unpublished PhD, University of Pittsburgh, PA.
- Kalusopa, T. [2003], The Utilization of Information Communication Technologies (ICTs) in Agricultural Development In Zambia, ATPS, Nairobi, Vol. final report for African Technology Policy Studies Network (ATPS).
- Kidd, D. W., [1968]. "Factors affecting farmers' response to extension in western Nigeria", in *Consortium for the study of rural development*. Report No. 2 East Lansing, Michigan State University.
- Kostas, G. Stamolis [2000] Food, Agriculture and Rural Development: Economic and Social Development: FAO, Rome
- Kordylas, J [2003] Processing and Preserving of Tropical and Sub Tropical Foods; London: Macmillan.
- Ministry of Agriculture and Cooperatives, [2004] Annual Report; Lusaka: Government Printers.
- Ministry of Agriculture and Cooperatives, [2005] Annual Report; Lusaka: Government Printers.
- Ministry of Agriculture and Cooperatives, [2006] Annual Report; Lusaka: Government Printers.
- Namponya, C.R., [1992]. "Agriculture Development and Library Service", *International Library Review*, 18 (3) July, 267-274
- Osborn, P et al, [1996] "New Information Technologies, Which needs, which products, which Technologies, which professions?" In The Role of Information For Rural Development In ACP Countries :Review and Perspectives: Proceedings of an International Seminar; Montpellier, Technical Centre For Agriculture And Rural Co-Operation ACPUE, CTA, pp.47-51.
- Richardson, D [1997], "The Internet and Rural & Agricultural Development: Integrated Approach", FAO, Rome,
- Saasa, O. [2003], Joining the Future: Economical Integration and Co-operation in Africa; African Technology Studies Nairobi, Kenya.

Suzuki, A. [2003]. "Zambia Agriculture and Extension Survey (2) - Information Acquisition by Extension Officers and Small Scale Farmers" in Agriculture Today, Vol.1 No3.

Technical Centre for Agricultural and Rural Co-operation ACP-UE, [2005]. Annual Report; Wageningen: University Campus.

Van ban and Hawkins, H.S [1988], "Agriculture Extension ", New York: Longman.

Wapakala, W. W [1982], "The role of Libraries in Agriculture" SCECSAL Proceedings on Libraries and Their Impact on Education, Economics and Culture in Developing Countries, Tanzania library Association, Dar-Es-Salaam.

Watt, E.R., [1969]. "Agriculture Extension in Embu district of Kenya", in East Africa *Journal Rural Development* 2 (1) 63-81

Williams, S.K, [1969]. "Source of information on improved farming practices in selected areas of Nigeria", in *Bull. Rural econ. Sociol.* 4(1), 50-51

Williams, Williams, S.K.T. [1987], "Dissemination of (Technical) agriculture Information ". *Journal of Administration*, Vol. 13, pp.87.

WorldAgInfo. [2008]. "Building Pathways out of Rural Poverty through Investments in Agricultural Information Systems": Final Report; Prepared by the WorldAgInfo Design Team-February.

World Health Organization. [2006]. Access to the world's leading journals. Information brochure on HINARI and AGORA. Geneva: WHO

Yondeowei, A., Diallo, A Spiff, ED. , [1996], "Synthesis of regional studies of agricultural information needs of African countries", in *The role of information for Rural Development in ACP Countries: Review and Proceedings of an International Seminar*, Montpellier, Technical Center for Agricultural and Rural Co-operation ACP-UE, CTA.pp.113-118