SOCIO-ECONOMIC, INSTITUTIONAL AND BEHAVIOURAL DETERMINANTS OF ACCESSIBILITY AND UTILIZATION OF AGRICULTURAL INFORMATION BY WOMEN FARMERS IN KOROGWE DISTRICT

BY

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ABSTRACT

This study on the socio-economic, institutional, and behavioural determinants of accessibility and utilization of agricultural information was conducted in Korogwe District. Two wards were selected, these were Vugiri and Magunga and thereafter four villages were purposively selected namely; Vugiri, Bagamoyo, Kwesemangube and Magunga. The broad objective of this study was to investigate the accessibility and utilization of agricultural information for production among women farmers in Korogwe District. The study involved 100 women farmers randomly selected from four villages. Data were collected using a structured questionnaire supplemented by interview checklists for key informants and FGDs. The SPSS software was used to analyse data to obtain frequencies, percentages, and means. Chi Square test was used to determine the association between some of the variables. The findings of this study showed that education, age, extension services, and mass media determine the access and utilization of agricultural information. Furthermore, the results showed that poor household production was due to the lack of extension services, low education of the respondents, lack of financial credit and ignorance of sources of information. Moreover, the study found out that, sources of agricultural information (extension services, mass media, and farmers own efforts) have a direct linkage with the accessibility to agricultural information. The following recommendations were made from this study. First, since the results indicated that there is limited accessibility to agricultural information to women farmers, therefore efforts to increase the accessibility of agricultural information should be increased. Secondly, there is a need of improving extension services so as to reach targeted clients. The fact that Vugiri ward is located in the highlands, and soil erosion is among the problems which have contributed to poor production it is thus suggested that efforts should be made to introduce soil management programmes so as to increase crop production.

DECLARATION

I, Mntambo Betty David, hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my own original work and has never been submitted for higher degree in any other University.

Signature---------- Date----------

BETTY D MNTAMBO

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Signature---------- Date----------

PROF A Z MATTEE

(Supervisor)

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DEDICATION

This work is dedicated to my treasured parents David and Lydia Mntambo who planted the seeds of my education.

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

Information is an essential production factor in agriculture, and has evolved into the fourth production factor next to labour, capital and natural resources (Ulrich, 2004). It is also noted that, with other factors being equal, improving information access can contribute to increased production from efficient utilization of available resources. Ochieng (1999), asserts that accessibility to information is a vital tool for empowerment of individuals to take informed decisions or actions for themselves or for community development. According to Durutan (1999), agricultural producers already know that information is important and valuable, thus both female and male farmers require relevant and timely information in order to improve their production. Moreover, Manda (2002), urges that there is a potential positive relationship between the increased flow of information, agricultural development and change in any social system.

From the diffusion and innovation model, as an innovation is introduced into any social system, it is first adopted by a small but highly innovative group of farmers known as progressive farmers. Furthermore, the innovation then trickles down from progressive farmers to medium socio-economic farmers and finally it spreads throughout the social system. According to Manda (2002), various channels of communication become important at the different stages of the adoption process. In addition, Van den Ban and Hawkins (1996), asserted that information is communicated to farmers through varieties of channels such as mass media like radio and farm magazines, and extension techniques such as farm demonstrations, extension meetings and visits. Other channels include personal contacts with neighbours, friends, and relatives. Ochieng (1999), noted that information only

becomes useful if it is relevant, timely, and appropriate, and thus, choice of channel through which information is transmitted must be appropriate, perceivable, and affordable to the user. Besides, Mbwana (1994), noted that although farmers in Tanzania have access to a number of information channels, information flow which greatly helps agricultural development is faced by many barriers such as insufficient production and distribution of mass media, content of information and low level of education.

There are various problems facing agricultural production in developing countries; these include increasing prices of agricultural inputs and ineffectiveness of the extension systems, to mention but a few. Weakness in the extension system has been noted as the major cause of failure to influence farming practices (Mattee, 1989). Consequently, an effective extension system has a crucial role to play in solving some of the agricultural related problems. However, literature shows that extension system has failed to solve some of these problems, partly because farmers do not have ready access to relevant information, which would have assisted them to increase agriculture productivity. Mlambiti and Isinika (1999), asserted that in Tanzania, agriculture is the most important sector of the economy which contributes significantly to the GDP, export earnings, and employs the vast majority of the working population. However, there are a lot of constraints which really militate against agricultural development. Constraints to agricultural sector development include low input capacity, poor transportation, and poor communication (information) infrastructure. The latter cuts across all spheres of the agricultural sector, mainly research which generates and disseminates pertinent agricultural information. However, the main barrier to information flow to farmers lies in the dissemination and utilization of information.

A study carried out by MAFS through NALERP in Eastern Zone (Dar es salaam, Coast, Morogoro, and Tanga Regions) and Northern Zone (Arusha, and Kilimanjaro Regions) revealed that at divisional, ward and village levels agricultural information is availed through farmers' monthly training sessions, field visits, radio programmes, public meetings, seminars and short courses (Simbeye et al, 2005). He further pointed out that at village level, farmers and extension staff singled out radio as a major source of agricultural information while "*Ukulima wa Kisasa*" magazine was reported by small proportion (Ibid). In terms of accessibility, the study showed that, "*Ukulima wa Kisasa*" awareness was 34% and receivership/readership was 18%. On the other hand, possession of radio set was 70% and listenership of the agricultural programme was 25%. The study also examined the dissemination methods of agricultural information to farmers, where the methods ranged from individual, group, and mass media. At national level, agricultural information was disseminated through publications, radio programs, video shows, agricultural exhibitions, and field visits. While at regional and district levels the dissemination was through monthly training sessions, bimonthly training workshops, seminars and meetings. Besides, at community level, extension staff (VEOs) used farmer's groups, village government leaders, and community development staff (Simbeye et al, 2005). Likewise, Kachemela (1997), noted that, in Tanzania, the most potential sources of agricultural information for the farming households are through extension workers, 68.0%, radio, 60.0%, and other sources 29.1%. Despite the fact that small scale farmers' accessibility to agricultural information is often limited by unfavourable economic, socio-cultural, and institutional conditions, they have achieved certain level of efficiency through deployment of their indigenous knowledge. Therefore, if provided with the right inputs, feasible technology and relevant information, small scale farmers are capable of transforming traditional agriculture (Ozowa, 1997).

Although women dominate agricultural activities in developing countries, they are often not the targets of extension information but rather this is targeted to heads of households who are mostly men (Manda, 2002). Development planners have assumed that information given to male farmers will be passed along to female farmers. Contrary to this assumption Durutan (1999), found out that, agricultural knowledge acquired by male farmers often does not trickle across effectively to women in the family. Okunade (2006), noted the same trend in Nigeria that excluding women from extension services on agricultural development adds its own bit to the low productivity of output in agriculture. Thus, women were not seen as having any potential to contribute to the economy of country other than to play a supportive role to their husbands/families. Meanwhile, Ochieng (1999), noted that access to timely and appropriate information is the missing link to women's effective contribution to agricultural sector. Moreover, inadequate consultation with rural women on various issues regarding their priorities in agricultural activities has also limited the opportunities of availing women with gender specific information relevant to their needs. Surprisingly, despite these shortcomings, women in Africa make up more than one-third of the work force; account for 70 percent of agricultural workers and produce 80 percent of food crops (FAO, 1995).

1.2 Statement of the Problem

Agriculture remains the dominant sector in Tanzania's economy and thus its performance has a significant effect on output and corresponding income and poverty levels. It is estimated that about 70% of the population in Tanzania lives in rural areas and about 80% of this population lives on less than US$ 0.65 a day (Tumsifu, 2005). In Tanzania, the role that can be played by information in the process of agricultural development is greatly constrained. Since majority of people are illiterate, access to mass media is limited, the social and economic infrastructures is completely underdeveloped and thus interpersonal

communication is the dominant means of communication (Manda, 2002). Besides, it has been pointed out that ineffectiveness of extension services in Tanzania is a result of inadequate number of extension agents to cover wide geographical areas and lack of motivation to extension workers.

Studies indicated that women who are the main producers and providers of food are estimated to perform about 70-80% of all subsistence farming in Africa, and that farming is a woman's principle duty (Mdoe and Macha, 2002). Surprisingly, women receive only between 2 and 10 percent of all extension contacts and 5 percent of extension resources worldwide (FAO, 1995). Women farmers have always been excluded from the target audience of agricultural extension programmes, although Ministry of Agriculture's extension service is currently implementing programmes targeted at both female and male-headed households (FAO, 1998). This implies that despite their contribution in agricultural production and national economy in general, women have remained least informed and their role is still neglected. Thus, there is a need of investigating how women farmers in Korogwe District access and make use of agricultural information and how such information can assist them to increase production and household income.

1.3 Justification of the Study

This study is in line with Millennium Development Goals that call for promotion of gender equality and empowerment of women and halving poverty by 2015.

In Tanzania, policy makers during the colonial and post-colonial periods accorded the provision of agricultural information to farmers a priority and considered it a central factor in improving agricultural production (Manda, 2002). This implies that access to information about a particular farm innovation was viewed as being just as important as the innovation itself. Hence access to information became one of the key determinants of

agricultural change and development and agriculture was to depend on information for its efficient and effective functioning.

Several studies have identified women's access to land use, control and entitlement as important to improve their participation in extension services. However, less has been done to appropriately identify women's agricultural information needs and constraints, priorities and opportunities and ensure that extension packages meet their requirements (FAO, 2000). It follows that access to timely and appropriate information contributes to increasing production and income. Therefore, the findings of this study will provide necessary information to extension agents, development planners, policy makers and the Government to facilitate the accessibility of reliable and accurate information among women and enhance its utilisation in order to increase production and income for women.

1.4 Objectives

1.4.1 The broad objective

To investigate the accessibility and utilisation of agricultural information for production among women farmers in Korogwe District.

1.4.2 The specific objectives

The study had the following specific objectives;

i. To determine the needs of women farmers for agricultural information.
ii. To identify channels of communication used to deliver agricultural information to women farmers.
iii. To determine the extent to which information on agricultural innovation is available to women farmers.

iv. To establish how agricultural information is utilised to initiate income generating activities.

1.5 Research Questions

The study was guided by the following research questions;

i. What are the needs of women farmers on agricultural information?

ii. What types of communication channels are used to deliver agricultural information to women farmers?

iii. To what extent is information on agricultural innovation available to women farmers?

iv. How is agricultural information delivered to women farmers assisting them in initiating income generating activities?

1.6 Conceptual Framework

The conceptual framework (attached in Appendix 11) provides the variables which were investigated and their relationship. It shows the set of independent variables (socio-economic factors, institutional factors and information seeking behaviour) that influence the dependent variable (accessibility and utilization of agricultural information).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Information flow to farmers is an important factor in agricultural production. Farmers need information for their day to day activities as it helps them to become aware of new ideas and practice and either accept or reject them for adoption (Mbwana, 1994). Picking the same argument, Wesseler and Brinkman (2002), noted that information acquisition is the opposite side of the coin that farmers whose crops are being eaten by pests cannot wait for the research organisation to release a new variety, or for the extension worker to make his next visit. Ochieng (1999), asserted that information is a powerful tool that can affect rapid change in the lives of rural women. Moreover, reliable and accurate information accessed and utilized by rural women can lead to increased food production and income for households, prevention of diseases and increased participation by rural women in the formulation and implementation of local initiatives.

While the world is experiencing information explosion and revolution, Africa has a different story. Small-scale farmers in the rural areas and in particular rural women, are generally experiencing limited access to agricultural information, training and other basic resources that could facilitate their tasks and increase their productivity (World Bank, 1992). Although information is an essential ingredient in agricultural development programs, Nigeria farmers seldom feel the impact of agricultural innovations either because they have no access to such vital information or because it is poorly disseminated (Ozowa, 1997). In Tanzania even though farmers have access to a number of information channels, information flow which greatly helps agricultural development is faced by many barriers, like insufficient production and distribution of mass media, contents of information as well as low level of education to farmers (Mbwana, 1994). The same has been noted in Nigeria

where there are some limiting factors and constraints in agricultural information dissemination like, poor reception and the area covered in the broadcasting media, differences between extension agents and their clients. In addition, technical language used in communicating information in the print media is incomprehensible to the farmers; and lastly the inadequacy of existing extension programs (Ozowa, 1997).

2.2 Sources of Agricultural Information

2.2.1 Mass media

Mass media are important for educating people on innovations, and for stimulating their interest. It plays a very important role in introducing knowledge, opinions, and entertainment. Van de Ban and Hawkins (1996), noted that new ideas diffused through the media are more acceptable if they link up with existing knowledge than when they attempt to modify this knowledge.

Mass media consists of printed media, audio-visual media are important sources of information to farmers, making them aware of new ideas and providing them with general information about new ideas (Mbwana, 1994). In addition, studies carried out in Tanzania showed that printed media are important in disseminating information among farmers in villages. Likewise in Nigeria studies proved the importance of using printed media like leaflets, newsletters, posters and radio programs in communicating agricultural information (Ozowa, 1997).

2.2.1.1 Radio

Radio is the most important mass media for farmers in less industrialized countries. When used effectively, radio can provide general information about agriculture quickly and accurately to a large number of farmers and create awareness of extension's production

recommendations (Ozowa, 1997). It must be emphasized that, besides modern ICTs, traditional media such as radio have remained extremely popular and are useful for dissemination owing to their wide coverage, affordability, and appropriateness in content and language (Kapange, 2005). Effectiveness depends upon the ability of broadcasters to win their listener's confidence by basing their programmes on local problems and by using language the farmers can understand (Van de Ban and Hawkins,1996). On the contrary, in Nigeria radio programmes are popular although controlled by government with its attendant problems regarding the choice of programs (Ozowa, 1997). In Uganda, it was observed that women's access to agricultural information did not necessarily depend on their ownership of radios or on their being directly targeted by their public extension workers. Rather, the studies show that women's access to agricultural information was directly related to their direct communication with members of different communities to which they had access (Achia, 2002). The women however have more problems, which make it difficult and sometimes impossible, for them to take advantage of available media. An excessive burden is being placed on women farmers, for they spend long hours everyday on agricultural and domestic task. Studies conducted in Syria, Thailand and Nigeria reported that women spent 11.7 hours or more on agricultural and domestic tasks. Dual domestic and production roles take up rural women's whole day and they become so exhausted to listen to the radio programs and also prevent them from participation in extension services. (Ozowa, 1997).

Since the 1960s, radio programs in Tanzania have been playing a key role in information dissemination. On the other hand, many farmers cannot afford to buy radios in Tanzania because they are too expensive and also during planting and harvesting time, many of them are too busy to listen to radio (Mbwana, 1994). Moreover, Kapange (2005), reported that Tanzania has 34 operational radio stations which are: 31 FM and 3 AM stations respectively. Moreover, popular twice-weekly radio programmes such as *Ukulima wa*

Kisasa (modern farming) have imparted awareness and knowledge to farmers covering not only agricultural, but also agriculture- and livelihood-related information. TCRA (2005), noted that, in most developing countries, including Tanzania, radio is still the most appropriate communication technology available to most people, particularly the disenfranchised rural communities, women, and the youth.

2.2.1.2 Farm magazines

Farm magazines together with other printed materials like leaflets are now the most favoured and widely adopted media for communication. Their effectiveness depends upon the extent of literacy and communicative nature of the people. In areas of high literacy, this medium is very effective if certain preconditions including a good level of education among the farmers are met (Wambura, 1992). In Nigeria, however, the use of printed materials has not been effective in imparting agricultural information to rural peasants because message carriers are of limited use in reaching illiterate farmers because technical language used in communicating information is incomprehensible to the farmers (Ozowa, 1997). In Tanzania, magazines are important in explaining and interpreting news and development. According to Mbwana (1994), in Tanzania "*Ukulima wa Kisasa*" (Modern Agriculture) is the main agricultural monthly magazine for farmers. It is further noted that as a national agricultural magazine it is vital source of information pertaining to modern methods of cultivation, price trends, processing etc. Mbwana (1994), further noted that most farmers benefit from "*Ukulima wa Kisasa,*" monthly Swahili language magazine. Moreover, production and distribution barriers also affect usefulness of "*Ukulima wa Kisasa*".

2.2.2 Extension services

Extension services have been defined as furthering and popularisation of knowledge and it provides farmers with access to information and training. Kyomo (2000), pointed out that extension means information flow from researchers to the farming communities and such information includes inputs, services, and suppliers. Ozowa (1997), repeated that in Nigeria, of all existing channels of agricultural communication, Nigerian farmers rank extension highest in terms of providing credible information and advice especially on agricultural technology. However, the ratio of one extension worker to 3,000 farmers is too low for effective agricultural information diffusion. Supporting the same argument, Mbwana (1994), pointed out that in Tanzania extension services is the most effective source of information flow to farmers for adoption of farming practices. In addition, since the 1960s in Tanzania, useful innovations have been cited which farmers have accepted. These innovations include: hybrid maize, early planting (of tobacco), contouring of steep land etc. However, the performance of extension services in Tanzania has not been very impressive although of late there are some improvements.

Durutan (1999), noted that although there is a growing awareness of the need to reach women farmers, agricultural extension services are generally geared towards male farmers. Literature illustrates that women's access to agricultural extension and their ability to understand and utilise information is compromised when they lack basic education, and thus illiteracy makes rural women less responsive to written extension messages. FAO (1998), noted that in Tanzania women farmers have always been excluded from the target audience of agricultural extension education programmes however, it was revealed that both women and men are equally denied access to extension services in villages where there are no extension agents. The success of modern agriculture depends to a large extent on the ability of the extension services to deliver, direct and ensure a steady flow of useful

agricultural technical information to the villagers. A successful extension worker therefore needs to acquire the knowledge of better communication methods (Wambura,1992).

2.2.2.1 Field demonstrations

Field demonstrations are the most widely used techniques in imparting farm information. Van de Ban and Hawkins (1996), asserted that demonstrations may stimulate farmers to try out innovations by themselves. They can show causes of problems and possible solutions without complicated technical details for example farmers can be shown the results of applying fertilizers at different times. Demonstrations allow farmers to observe, hear, and learn by doing. In countries where the mass media play a limited role because of illiteracy or limited access to media outlets, demonstration is very important for making people aware of innovations (Van de Ban and Hawkins, 1996). Studies show that even where demonstrations are used, they seem not to have succeeded in convincing farmers, because extension workers failed to secure and use necessary inputs due to economic hardship they face (Ozowa, 1997).

2.2.2.2 Extension visits and meetings

Extension meetings are useful in propagating and spreading agricultural information. It provides a good forum for exchange of ideas, pooling of experiences, developing a proper understanding, encouraging thinking and modifying views and getting ideas accepted. Therefore, meetings are very effective in changing and moulding the minds of farmers (Wambura, 1992). Time constraints and customs prevented women from attending the meetings, as they do not benefit from the extension contact and meetings. A study carried out by FAO (1998) showed that in the area under study (that is Ileje, Dodoma Rural, and Zanzibar North) the accessibility of extension services to women farmers was limited since most women could not attend meetings as a result of their increased workload.

2.2.3 Farmer to farmer contacts

Farmer to farmer contacts enables the farmer to exchange news and to adopt new technology specially from fellow experienced farmers. Mbwana (1994), asserted that Tanzanian villages, farmer to farmer contacts have served as instrument of diffusing technological knowledge. Besides, Manda (2002), mentioned in order of importance sources of agricultural information that are most often used in Arumeru District as: peer farmers, the radio, and spouses. Furthermore, sources that are occasionally used include extension agents, village leaders, magazines, and newspapers. On the other hand, the major negative aspect of the farmer to farmer contacts in relation to information flow is that social and personal characteristics and lack of educated farmers hinders the impact especially in developing countries.

Women's access to agricultural information is based considerably on their everyday interaction within the communities of which they are a part and the groups of individuals with whom they regularly come into contact (Achia, 2002). Furthermore, direct and interpersonal communication offer rural women the freedom to select information they require, to exercise control in eliciting information, and to play the role of active interpreters of knowledge rather than of passive consumers.

2.3 Determinants of Accessibility and Use of Agricultural Information

Literature cites various factors that influence accessibility and utilisation of agricultural information to farmers. Some of these factors are education level, socio economic status, institutional factors, and information seeking behaviour. The following section explores each of these factors in turn.

2.3.1 Education level

Education level of the farmers enhances their ability to acquire accurate information, evaluate new farming practices and enhance the ability to utilise new agricultural inputs efficiently. Likewise it gives people access to information both print and electronic media and opens up avenues of communication that would otherwise be closed (Okunade, 2006). It is further noted that education level is an important factor that facilitates the ability of the farmers to gather reliable information through mass media such as radio, farm magazines and field demonstrations. Ozowa (1997), concluded that generally, lack of awareness among small-scale farmers is attributed to, among other factors, their high level illiteracy, which contributes to the low level of adoption of agricultural production technology. Madonsela (1998), noted that education levels are generally lower among women and particularly those living in the rural Africa. FAO (1998), repeated that, there is a higher illiteracy rate in Tanzania among rural women than among their male counterparts. For example in Tanzania illiteracy rate for women in 2003 was 29.4 percent compared to 14.2 percent for men. Similarly, women's access to agricultural extension and their ability to comprehend and use agricultural information is compromised when they lack basic education. It is further noted that illiteracy makes rural women less responsive to written extension messages, thus lower educational level and limited contact with the outside world makes women shy in communicating with extension agents. The relationship between education and poverty reduction is thus quite straight and linear as education is empowering, it enables the person to participate in the development process, it inculcates the knowledge and skills needed to improve the income earning potential and in turn the quality of life.

2.3.2 Socio-economic status

Farmers with membership in social organizations are likely to have higher chance of being exposed to different sources of agricultural information. Wambura (1992), noted the relationship between socio-economic status and sources of information utilised by farmers. It thus follows that farmers with high socio-economic status are likely to obtain most of their agricultural information from extension services, farm magazines, and radio. On the contrary, FAO (1995), noted that farmers with low socio-economic status are likely to obtain a high proportion of their agricultural information from friends, neighbours and relatives. Similarly, Achia (2002), indicated that there was a big difference in information networks used by poor and better-off rural women. While relatively poor rural women received agricultural information from within their community (neighbours, friends, local markets and the church), relatively wealthy women had networks extending beyond their villages and trading centres to external, far-off communities and larger town. Thus, it is noted that socio-economic status plays an important role in accessibility of information among the farmers. However, literature challenges the assumptions that socio-economic status is an important factor for accessing agricultural information. It is remarkable to note that although studies support the tendency for access to extension services to increase with socio-economic status, Achia (2002), noted that women with high socio-economic status were ignored by extension agents the same way as the women with lower socio-economic status.

2.3.3 Institutional factors

Samanta et al (1994) urged that agricultural extension services still do not attach much importance to reaching women farmers or women on the farm. Thus, findings on the impact of extension services on women show that, women receive between 2 and 10 percent of all extension contacts and 5 percent of extension resources worldwide. From the

same observations, therefore, it can be concluded that women marginalization from these services is closely interrelated with their lack of access to land and consequently financial resources like credit. Furthermore, women in the rural areas have limited access to resources for agricultural production such as land, capital, and credit. Moreover, access to credit is essential for purchasing of inputs such as good seeds, fertilizers, and pesticides. Mdoe and Macha (2002), noted that women in Tanzania face major difficulties in getting credit, because financial institutions seldom take women constraints and needs into account. Thus as women they cannot qualify for loans because they lack initial capital and collateral. According to Madonsela (1998), limited access to resources have strained women to face tremendous difficulties in purchasing agricultural inputs, which are very crucial in undertaking the agricultural innovations, recommended by extension services.

2.3.4 Socio-cultural factors

Socio-cultural factors as relating to marriage have been noted to be obstacles for women to access agricultural information. For example, Ozowa (1997), noted that in patrilineal societies, a married woman is controlled by her husband and as such, it limits her chances to make contacts easily with a male extension officer. Agricultural advice in activities performed by women may have to be channelled via male family members, in circumstances like this there is a problem of delivering reliable message as intended as well as absence of practical teaching. On the contrary, a study conducted in Ileje showed that women claimed that they do not have restrictions on the part of their husbands, even though the extension workers were men. Informal interventions with the extension officers revealed that contacts with women farmers were a common phenomenon and that, as long as farmers trusted the extension workers, no conflicts arose (FAO, 1998). However, the accessibility of extension services to women farmers was restricted overall, since most women could not attend meetings as a result of their increased workload.

2.3.5 Information seeking behaviour

Information seeking behaviour resulted from the recognition of a need, perceived by the user who as a consequence makes demands upon formal systems such as information centres in order to satisfy the perceived needs. Ozowa (1997), noted that no one can categorically claim to know the information needs of farmers especially in an information dependent sector like agriculture where there are new and rather complex problems facing farmers every day. However, information needs may be grouped into five headings: agricultural inputs; extension education; agricultural technology; agricultural credit; and marketing. Literature documents that the type of information needed and the information seeking behaviour of an individual are dependent on place (geographical dimension), technology, economic situation and social system (Achia, 2002). Women's access to agricultural information is based considerably on their everyday interaction within the communities of which they are part and the groups of individuals with whom they regularly come into contact (Achia, 2002). It was observed that in societies where information flows widely, markets and government institutions are likely to become more efficient, transparent, and accountable. Therefore, it is further noted that increase in the flow of information and knowledge in ways that benefit the poor is therefore a critical component of poverty reduction and sustainable development.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 The Study Area

This study was conducted in Korogwe District in Tanga Region. Tanga Region has seven Districts namely Muheza, Korogwe, Handeni, Pangani, Lushoto, Kilindi and Tanga. Korogwe District lies in the latitudes 4°15′ and 5°15′ South, and in the longitudes 38°0′ and 38°45′ East. Korogwe district is bordered by Lushoto and Muheza district to the North and East, while Handeni and Kilindi districts are located in the Southern side. Likewise, on the Western side, the district is bordered by Kilimanjaro and Manyara Regions. The District has an area of 3,756 square kilometres, which is about 14 percent of the total land area of Tanga Region. Korogwe District was selected because agriculture is the main economic activity and majority of the population depends on crop farming and livestock husbandry for their daily subsistence.

3.2 Profile of Korogwe District

3.2.1 Topography

The scenic Usambara Mountains and Pangani river basin dominate the topography of Korogwe District. The District is divided into low wetland, mountainous and semi-arid zones. The low wetland zone occupies 35 percent of the District and lies between 600-800 meters while the mountainous zone occupies about 25 percent of the District and lies between 900-1500 meters above sea level. Lastly, the semi-arid zone occupies about 40 percent of the District and lies between 400-700 meters above sea level.

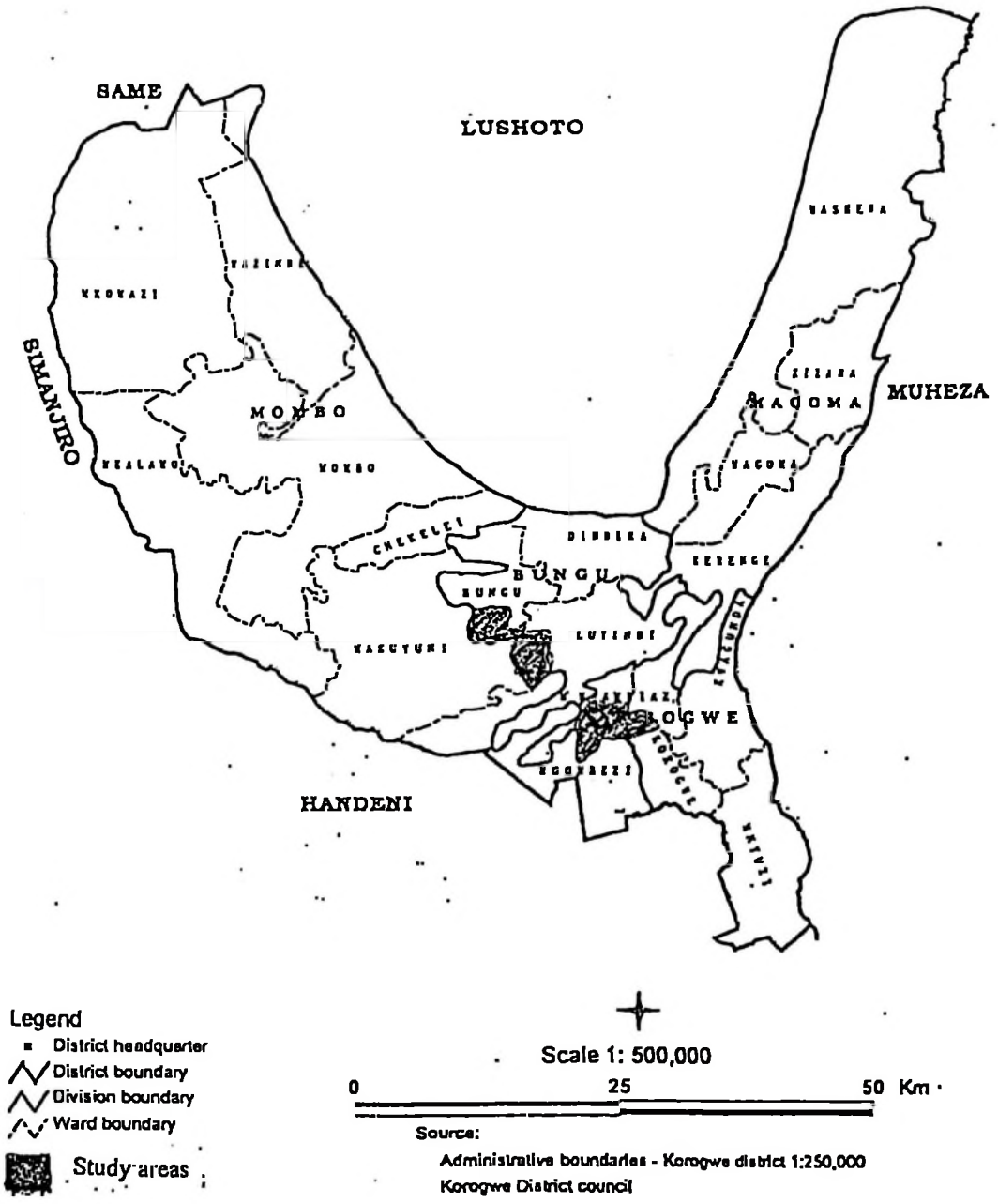


Fig. 1: Map of Korogwe District

3.2.2 Climate

The climate of Korogwe District is closely associated with the topography which ranges from tropical to sub-tropical with a mean annual rainfall of 500 mm in the lower areas and 2000 mm in the mountains. There are two rainy seasons, the long rains which come in February to May, and the short rains during September to November. Average temperature in the mountainous areas ranges between 15 to 30°C, while the low lands are warmer with hot seasons especially from October to February when temperatures rise to about 38°C. The mountainous zone has a temperate climate and between 1000-2000 mm of annual rainfall. The low wetland zone is hot-humid and has an average rainfall between 800-1000 mm per year, while the semi-arid area has less than 600 mm of mean annual rainfall.

3.2.3 Population

The population and housing census of 2005, indicated that Korogwe District had a total population of 260,238 with males being 127,653 and females 132,585, in 2004 the district had a population growth rate of 1.2%.

3.2.4 Administration

Korogwe District has 4 divisions, 20 wards, and 135 villages. There are 62 agricultural extension officers, 53 being male and 9 female. For livestock officers, there are 43 extension officers, 38 male and 5 female. Basing on the fact that the District has large number of villages which are scattered one extension officer saves two villages. For example, in Bungu division with 4 wards is served by 10 extension officers. Consequently, the number of the villages and distance from one village to another have forced extension officers to deliver agricultural information through farmers groups.

3.2.5 Economic activities

Agriculture is the main economic activity of the District. Livestock keeping and crop cultivation are the major activities and the livelihoods of 90 percent of the population depend on them. Common food crops cultivated by the inhabitants of the District are maize, beans, paddy, and cardamom. Average plot size range from 1 hectare to 2 hectares. The District Investment Profile indicated that food crops are mainly grown for subsistence and surplus is sold in local markets. Likewise, the most common cash crops grown in the District are sisal, tea, cashew nuts, cotton, coffee, and fruits. For food crops production trend in Korogwe District from 2002/03 to 2005/06 seasons refer to Appendix 1.

Livestock keeping is the second most important activity in the District. Animals kept are mainly indigenous cattle, goats, sheep, and chicken. Besides, pig rearing is unpopular due to religious taboos. Livestock extension services are inadequate due to a shortage of drugs, trained personnel and the nomadic ranging of livestock.

3.3 Research Design

The researcher employed a cross-sectional design for collection of data for this study. This method enabled the researcher to study the population at a single point in time. Bailey (1994), noted that cross-sectional design is the most appropriate research design as long as the researcher can identify the population relevant to his/her interest.

3.4 Sampling Procedures

Stratified sampling was employed in selecting two wards out of twenty wards in Korogwe District. One ward was selected from a rural and mountainous area and the second from a sub-urban or within the Korogwe town council. The two wards were selected basing on the following criterion, one ward was selected from an area which is far from Korogwe town

and thus assumed that there will be shortage of extension services. The second ward was picked from the area near Korogwe town expected to have extension services. In each ward, two villages were selected purposively making a total of four study villages. In addition, twenty five women farmers were randomly selected from each village to make a total sample size of 100 respondents.

3.5 Profile of the Villages

3.5.1 Vugiri village

3.5.1.1 Location and population

Vugiri village has 281 households with total population of 1372 (703 male and 669 female). The village is located approximately 20 kilometres from Korogwe town. The road from the village to Korogwe is accessible almost throughout the year though with difficulties during the rainy season.

3.5.1.2 Social services

The village has a primary school, a secondary school, and a vocational training centre, and also there is a dispensary which also offers maternal care for women and children.

3.5.1.3 Crops grown

Villagers cultivate both food and cash crops. While food crops are maize and beans, cash crops are tea, beans, and cardamom. However, surplus beans are sold for cash.

3.5.1.4 Development programmes

There are two development programmes in the villages. These are Area Development Project (A.D.P) and Ambangulu Forest Conservation (A.F.C) which assists farmers in

knowledge but not financially. The project like A.F.C was not sustainable and has failed since 2004.

3.5.2 Bagamoyo village

3.5.2.1 Population and location

Bagamoyo village has a total of 292 households. Population wise, the village has 891 inhabitants, out of which, 394 are male, and 417 are female. The village is located approximately 25 kilometres from Korogwe town and its road accessibility is similar to that of Vugiri village.

3.5.2.2 Social services

The Village has one primary school, a secondary school, a dispensary, and a health centre which is shared with Vugiri village.

3.5.2.3 Crops grown

Major crops grown are tea, beans, and cardamom regarded as cash crops, while maize and beans are food crops. However, beans can also be important source of income for the families which can produce surplus.

3.5.2.4 Development programmes

Like most of the rural areas, the village has no financial institution which supports farmers. However, there is development programme like ADP which offers training and inputs to farmers. There are two women groups, Furaha and Kimaba which deals with aquaculture and vegetable production.

3.5.3. Kwasemangube and Magunga villages

The villages are located within Korogwe town council with 1200 households and a population of 4252, with 2099 female and 2153 male.

3.5.3.1 Social services

The villages have two primary schools, a secondary school, and a hospital.

3.5.3.2 Crops grown

Food crops grown are maize and beans which are staple food of the villagers. Beans production is regarded as the major cash crop grown in the villages.

3.5.3.3 Development programmes

Due to this closeness to Korogwe town, the villagers have access to financial services. Financial institutions which offer loans to farmers include CEDA which offers loans to farmers groups ranging from Tsh 50,000-Tsh 1,000,000. In addition, the village has just formed a SACCOS although it has not yet started to offer loans to farmers. Besides, the community development office also offers loans to women with income generating activities. World Vision offers training to farmers on various aspects such as agricultural development. Women have also organised themselves into groups in order to collaborate in solving various social-economic problems. There are three women groups which deal with vegetable production and livestock keeping, namely; Juhudi, Tegemeo, and Furaha.

3.6 Methods of Data Collection

Both primary and secondary data were collected for this study.

3.6.1 Primary data

The primary data were gathered from the selected respondents through the following methods.

3.6.1.1 Household survey

The questionnaire was the main tool for data collection during household survey. The questionnaire included both closed and open-ended questions in order to allow flexibility of asking questions and seeking clarification during the interviews. The questionnaire collected data related to local perception on accessibility and utilisation of agricultural information among women. Likewise, data related to socio-economic information such as education, house ownership assets and production were also gathered.

3.6.1.2 Interviews with key informants

The researcher employed checklists during the interviews with village leaders who were key informants. Two village leaders were interviewed from each village, one from rural areas and another from sub urban in Korogwe town. Interviews with the key informants assisted the researcher to gather data regarding the availability of extension services and social economic profile. Likewise, the checklist gathered information on availability of financial institutions, contact between extension agents and women.

3.6.1.3 Focus group discussions

After completion of the data collection, the researcher conducted Focus Group Discussions (FGDs) in the selected villages. The Focus Group Discussions (FGDs) were aimed at validating information obtained from other sources of data. FGDs assisted in acquiring information such as local perception on channels of communication to be used for effective delivery and information seeking behaviour of women. Two FGDs (one from each ward)

were conducted whereby eight respondents in each two wards were selected randomly for the discussion. The participants of the FGDs constituted women whose income is delivered from agricultural activities.

3.6.2 Secondary data

Secondary data were collected from various sources like libraries, internet, NGOs documentation, and also research works. Likewise, reports, and other materials such as project documents in Korogwe District Council and in the villages under the study.

3.7 Data processing and analysis

Data from the respondents were verified, compiled, coded and summarized before analysing so as to make reasonable conclusion based on the study sample. The Statistical Package for Social Sciences (SPSS) software was used to develop summary of quantitative information (e.g. frequencies, means, and percentages) to determine distribution of individual variances among the respondents. Chi-square test was used to determine the associations between the variables. Cross tabulation was also used to show the linkages between the variables while Index scale was employed to measure the community awareness on the items indicated.

3.8 Limitations of the Study

This study faced some constraints during data collection.

- The most important constraint during data collection was the difficulty to reach respondents due to the topography of the study area. The wards are far apart, one from the mountainous area and the other ward near Korogwe town. Respondents from the highlands were not accessed easily because they were scattered and it was during the rainy season.

- Inability of respondents to estimate number of acres they cultivated last season. This is because some of their farms were situated on the mountains and it is difficult to measure them.
- Respondents could not remember how much income they earned per month. This information was very important as information on socio-economic status of respondents could be established.
- Lack of fund was also a problem because the researcher had to pay for transport for the data collection assistants and some of the village leaders needed to be paid before giving any information.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents major findings of the study. Section one presents background information of the respondents. Section two presents household production, whereby source of income, crops produced, and sources of market and utilization of crops income were analysed to obtain more information from the respondents. Section three explores and presents the main theme of this study which is determinants of accessibility and utilization of agricultural information. Lastly, section four presents respondents' cultural practices and agricultural information.

4.2 Background Information of the Respondents

4.2.1 Age of the respondents

Table 1 indicates the age of the respondents. Most of the respondents fall in the age group between 21 -60 years and these represents 87 percent of the respondents. This group was selected deliberated to capture women respondents who are at the productive age. The other groups, below 20 years represents 5 percent while above 60 years old represents 8 percent of the sample. Younger generations are normally less conservative than elders and therefore are more likely to take risks of adopting new technologies. This is due to the fact that they acquire and absorb information about new technologies faster and readily utilize them (Van de Ban and Hawkins, 1996). Thus, the researcher assumed that young generations are likely to follow agricultural information and adopt when possible.

Table 1: Age of the Respondents (N=100)

Age(years)	Frequency	Percentage
Below 20	5	5.0
21-30	25	25.0
31-40	23	23.0
41-50	19	19.0
51-60	20	20.0
61-70	8.0	8.0
Total	100	100.0

4.2.2 Marital status

Table 2 shows that most of the respondents (68 percent) are married, while 15 percent are widowed. Besides, 9 percent of the respondents are single, and 8 percent are divorced.

Table 2: Marital status of the respondents (N=100)

Marital status	Frequency	Percentage
Single	9	9.0
Married	68	68.0
Divorced	8	8.0
Widowed	15	15.0
Total	100	100.0

Researchers have found that marriage is an institution that has great control or influence on family matters (Mdoe and Macha, 2002). Furthermore, women farmers are more often a combination of "squatters on husbands" (cash crop) land, and "farming agents" of their husbands where ultimate control over productive decision-making lies in the hands of husbands. This is not the case in the study area where married women have the support from their husbands in the farms and both of them make some of the production decisions.

4.2.3 Education level

Table 3 indicates education of the respondents. It shows that majority of the respondents (78 percent) have attained primary education, whereas 15 percent of the respondents have not attained formal education. In addition, 5 percent of the respondents have attained

college education (i.e. teaching and health assistant certificate) and only 2 percent attained secondary education.

Table 3: Education of the Respondents (N=100)

Education	Frequency	Percentage
None	15	15.0
Primary	78	78.0
Secondary	2	2.0
College	5	5.0
Total	100	100.0

Education enables farmers to read and understand what is written in the mass media and utilize such information for their benefits. Moreover, education is perceived as one of the factors, among others, that influence individual's perception of an innovation before making adoption decisions. Therefore, low level of education acts as a barrier to agricultural information flow and utilization (Mbwana, 1994). This explains that respondents without education have less chance of accessing agricultural information except for radio programmes and extension visits. With few extension services, their chances of accessing agricultural information are very limited.

4.2.4 Occupation

Occupation of the respondents is shown in Table 4. It shows that all respondents were crop producers, they mainly produce maize and beans, very few respondents produce banana, tea and sugarcane in addition. Besides 31 percent were keeping livestock, mainly indigenous cattle, goats, pigs and chicken. Pig farming is not very popular in the study area due to religious taboos. In addition 28 percent were engaged in income generating activities like selling snacks, brick making, tailoring, local brewing, retail shop, selling firewood and traditional medicines. Seven percent of the respondents were employed as teachers or health assistants.

Table 4: Occupation of the Respondents (N=100)

Occupation	Frequency	Percentage
Crop producer	100	100.0
Livestock keeper	31	31.0
Business	28	28.0
Employed	7	7.0

N.B Respondents had more than one occupation

The results show that, apart from engaging in other activities, all respondents are engaged in agriculture related activities. This is in line with other studies that concluded that, agriculture is the backbone of Tanzania's economy. Similarly Mbwana (1994), noted that about 90 percent of the total population in Tanzania (of about 28 million people) depends on agriculture for a living and it contributes to about 40 percent of the country's GDP.

4.2.5 Household assets

Table 5 indicates household assets of the respondents. Majority of the respondents (85 percent) own land. Since all respondents were farmers, access to land was an important determinant of women's capability to improve their well being. In the study area, respondents interviewed had access to land obtained through inheritance, renting, and purchase and it happened that some of the respondents had control on such land. Likewise most of the respondents (83 percent) own a house, while 60 percent of the respondents own a radio.

Table 5: Ownership of household assets of the respondents (N=100)

Assets	Frequency	Percentage
Land	85	85.0
House	83	83.0
Radio	60	60.0
Bicycle	19	19.0
Sewing machine	4	4.0
Motor cycle	1	1.0

Respondents mentioned more than one asset

As stated earlier, in Tanzania, radio is still the most appropriate communication technology available to most people, particularly the rural communities, women and the youth (TCRA, 2005). Therefore possession of a radio set is very important source of agricultural information. This is in line with the study done in the Eastern Zone (Dar es Salaam, Coast, Morogoro and Tanga) which concluded that possession of radio set was 70 percent (Simbeye and Nyangi, 2005). Moreover 20 percent of respondents own transport facilities (that is bicycle or motorcycle) and 4 percent own a sewing machine. From the results other assets like sewing machine, and transport facilities were also owned by some of the respondents.

4.3 Household Production

4.3.1 Sources of income

Table 6 shows sources of income of respondents. Agriculture is the main source of income for 94 percent. Women in the study area are engaged in production of crops like maize and beans in high proportion while banana, tea and sugarcane are at low proportion. As mentioned earlier, agriculture is the main economic activity and 90 percent of the population in Korogwe district, depends on crop farming, and livestock husbandry for their daily subsistence. Petty business is another source of income for 8 percent. Some respondents were engaged in non-farm income generating activities like selling snacks, bricks making, tailoring, local brewing, retail shop, selling firewood and traditional medicines. Likewise 6 percent of respondents mentioned livestock keeping as a source of income and only 5 percent of respondents earn their income through employment, that is, primary school teachers and health assistants.

Table 6: Source of Income of Respondents (N=100)

Source of income	Frequency	Percentage
Agriculture	94	94.0
Petty Business	8	8.0
Livestock	6	6.0
Employment	5	5.0

Respondents indicated more than one source of income.

4.3.2 Maize production

Table 7 below presents trends of maize production in the study area. It shows the minimum, maximum and average (mean) production of maize.

Table 7: Trend of maize production (N=93)

Production	Frequency	Minimum	Maximum	Mean	Std. Deviation
No of acres	93	1	4	1.59	.754
Kilograms produced	93	40	1600	483.98	376.333
Kilograms consumed	81	40	1500	411.60	322.852
Kilograms sold	24	80	1500	320.00	305.657
Income obtained (Tshs)	24	10,000	245,000	51,745.83	58,357.317

Percentages do not add to 100 because not all respondents produced, consumed, and sold maize.

From the table, majority of the respondents (93 percent) produced maize. The minimum acreage was 1 and maximum was 4 while average number of acres cultivated was one and a half. This implies that, respondents could not go beyond four acres. Furthermore, 40 kilograms was the minimum production while 1600 kilograms was the maximum production. The average production was 483.98 kilograms which is equal to 4 to 5 bags of maize. Further analysis showed that, majority of the respondents produced between 100 to 500 kilograms of maize. Maize is the most important cereal grown in Korogwe District. However, the yields are often poor due to the use of local seeds whose yield potential is low compared to that of improved varieties, untimely planting, low rainfall, little use of fertilizers and storage system is also a problem. Similarly, the majority of farmers use hand

hoe for cultivation consequently, they can not cultivate more acres. In addition, 81 percent consumed while only 24 percent sold their maize produce respectively. First, it was observed that, 93 percent of the respondents produced maize and only 24 percent of them sold their produce. This explains that maize production is considered as food crop and what left is sold. The minimum income obtained after selling the produce was Tshs 10,000 while the maximum was Tshs 245,000. Further analysis indicated that, majority of the respondents obtained the income between Tshs 20,000 to Tshs 72,000. The average income obtained was Tshs 51,745.83. Overall, maize production is very low in the study area such that farmers only depend for daily consumption.

4.3.3 Beans production

Table 8 presents trends of beans production in the study area. It shows the minimum, maximum and average (mean) production of beans.

Table 8: Trend of Beans Production (N=76)

Production	Frequency	Minimum	Maximum	Mean	Std.Deviation
No of acres	76	1	5	1.32	.869
Kilograms produced	76	20	800	227.89	186.964
Kilograms consumed	53	20	400	107.55	90.083
Kilograms sold	67	20	600	149.40	131.574
Income obtained(Tshs)	67	10,000	360,000	76,567.16	71,992.471

Percentages do not add to 100 because not all respondents produced, consumed, and sold beans.

From the Table, 76 percent of the respondents produced beans. The minimum was 1 and maximum was 5 acres cultivated respectively. On the other hand, the average number of acres cultivated was 1.32. The minimum production was 20 kilograms while 800 kilograms was the maximum production. Average production for beans was 227.89 kilograms which is equivalent to 2 bags. From the supplementary analysis, majority of the respondents cultivated between quarter to one acre, the rest cultivated between one and a half to three

acres. Only one respondent cultivated five acres. Similarly, majority of the respondents produced between 100 to 200 kilograms of beans. This explains that beans production is mainly grown for subsistence even though is the District cash crop. This is one of the reasons of poor production; others are soil erosion, during the research in the highlands it was observed that majority of the farmers cultivated without conserving the soil (that is, use of ridges and the like). This is a very big problem due to the fact that Usambara Mountains rise in altitude to about 1219 meters above sea level, therefore food crops cultivation especially beans need ridges to increase production and also prevent soil erosion. It was noted that farmers do not have this education on how to use ridges, fertilizers, and so on. Besides, 53 percent consumed and 67 percent sold beans produced respectively. As noted earlier, 76 percent of respondents produced beans and majority of them (67 percent) sold their produce. This implies that beans production is considered as cash crop even though the production is not high contrary to the district estimates that beans production is about 25 bags per acre. The minimum income obtained was Tshs 10,000 and maximum was Tshs 360,000. Further analysis indicated that, majority of the respondents obtained the income between Tshs 20,000 to Tshs 120,000 while very few respondents obtained between Tshs 205,000 to Tshs 360,000 income. The average income was Tshs 76,567.16. To sum up, beans production is considered as cash crop even though the production is very low; therefore, efforts need to be made to assists women farmers in the study area to improve production so as to increase their income.

4.3.4 Market sources and problems

Table 9 indicates sources of market and problems experienced by respondents.

Table 9: Sources of Market and Problems Experienced by Respondents (N =82)

Name of ward	Market place	Problems experienced					Total
		Price fluctuation	Transportation	Low price	No specific market	Difficult negotiations	
Vugiri	In the village	4	9	19	1	7	40
	Outside the village	3	2	1	0	3	9
	Total	7	11	20	1	10	49
Magunga	In the village	0	7	12	0	3	22
	Outside the village	0	3	8	0	0	11
	Total	0	10	20	0	3	33

NB: The percentages do not add to 100 because; in Vugiri ward 49 and Magunga ward 33 percent respondents sold their produce respectively.

From the results, Vugiri ward, 40 percent of respondents sold their produce in the village and only 9 percent outside the village. Nineteen percent of respondents claimed to have sold their produce in the village to the middlemen for low price. Those who sold their produce outside the village (1 percent) experienced the problem of low price. In Magunga ward, 22 percent of respondents sold their produce in the village and 11 percent outside the village. Similarly, in Magunga those who sold their produce in the village, 12 percent of them also experienced the problem of low price while those who sold outside the village (8 percent) experienced the same. This explains that most of the respondents who sold their produce at the village are exploited by the middlemen who will make a profit. On the other hand, transportation is a problem, especially in the highlands where the roads are rough and they are not accessible during the rainy seasons, it affects both those who sold inside and outside the village.

4.3.5 Utilization of crops income to support families

Table 10 shows how income from crops supports respondents' families. Forty three percent of respondents use maize income for daily consumption while 70 percent of respondents mentioned to use beans income for the same purpose. Moreover 24 percent of respondents used maize income for health services while 53 percent of respondents mentioned beans income to be used for the same purpose.

Table 10: Utilization of Crops Income to Support Respondents Families (N=100)

Expenditures	Maize income		Beans income	
	n	%	n	%
Paying school fees	18	18.0	41	41.0
Daily consumption	43	43.0	70	70.0
Health services	24	24.0	53	53.0
Credit rotation/saving	3	3.0	6	6.0
Invest in livestock keeping	3	3.0	19	19.0
Paying for labour charges	5	5.0	20	20.0
Supporting other IGAs	3	3.0	10	10.0

Respondents used crop incomes for more than one expenditure.

From the results, unfortunately, very low proportion of crops income was used for expenditures like credit rotation/saving, investing in livestock keeping, paying for labor charges or supporting other IGAs. If maize and beans income would have been utilized more on investment respondents would have more than one source of income and ultimately increase their income as well as living standards. For example, if beans income would be used for paying for labour, respondents would have increased their farm sizes and increased production. This Table indicates that income from beans is higher and supports the family more than that from maize and thus it is a more important source of household income.

4.4 Determinants of accessibility and utilization of agricultural information

4.4.1 Women needs on agricultural information

Table 11: Respondents' satisfaction with the information received (N=100)

Response	Frequency	Percent
Satisfied	29	29.0
Not satisfied	71	71.0
Total	100	100.0

Table 11 presents how the respondents are satisfied with the agricultural information they have received. To determine the respondent's need of agricultural information, respondents were asked if they are satisfied with the agricultural information received. The results show that most of the respondents (71 percent) are not satisfied with the information received. On the other hand, 29 percent of the respondents are satisfied with the information.

Table 12: Respondents' Satisfaction by the Type of Information Needed (N=100).

Satisfied	Type of information needed			Total
	Loan	Extension visits	Improved agriculture	
Satisfied	4	10	15	29
Not satisfied	8	17	46	71
Total	12	27	61	100

$X^2 = 1.533$ Df = 2

Significance = 0.465

Table 12 presents respondents' satisfaction with the agricultural information received by type of information needed. Most of the respondents (71 percent) are not satisfied with the information received while 29 percent of the respondents are satisfied with the information received. The relationship between respondent's satisfaction and type of information needed was tested by chi-square statistics. The results show that there was statistical significance between respondent's satisfaction and type of information needed. Most of the unsatisfied respondents, 46 percent, need agricultural information on how to improve their agricultural activities. In addition, 17 percent need extension visits while only 4 percent

need loans to increase their capital. Besides satisfied respondents also need information on improved agriculture, extension visits and loan. This explains that even though some of the respondents were satisfied but they still need agricultural information to improve further their agricultural activities. Respondents mentioned the need of agricultural information on improved agricultuel they referred to the information related to control of pests and diseases, use of fertilizers, control of soil erosion. This information needs from the study area is the same with the study conducted by Aina (1991), which found out that farmers needed information mainly in the areas of fertilizers, pests and disease control, planting materials and credit and loans.

Table 13: Age of the Respondents and Type of Information Needed for Adoption of Agricultural Innovation (N=100)

Type of information	Age of the respondents (years)						Total
	Below 20	21-30	31-40	41-50	51-60	61-70	
Loan	1	2	2	4	3	0	12
Extension visits	3	4	4	4	7	5	27
Improved agriculture	1	19	17	11	10	3	61
Total	5	25	23	19	20	8	100

$X^2 = 15.677$ Df = 10

Significance = 0.109

Farmers need information regarding sources of loans, location and types of existing credit sources. However, low level of literacy limits their awareness of existing loan facilities (Ozowa, 1997). Table 13 explores age of the respondents and type agricultural information needed.

The relationship between age of the respondents and type of information needed was tested by chi-square statistics, and the results show there was a significant relationship between the two. Respondents with the age group 21-40 years need more information on improved

agriculture compare to age group 51-70 years. This is because they have family responsibilities so increasing production and consequently income is their main concern to support their families. Extension visits is needed by respondents between 51-70 years compared to respondents aged group 21-40 years. This is because older people are normally slow learners, they need time to understand before they can adopt innovations. Thus, elders prefer extension visits because they learn by doing. Younger generation are quick learners and can take the risks of adopting any innovations. Information on loan acquisition is needed by all age groups (except for age group between 61-70 years who do not like to take risk of being in debt) even though at small percentage compared to agricultural information on improved agriculture and extension visits.

4.4.2 Types of communication channels used to deliver agricultural information

Table 14: Source of Agricultural Information (N=100)

Source of information	Vugiri ward (N=50)		Magunga (N=50)	
	n	%	n	%
Extension visits	0	0	2	3.3
Radios	10	18.5	10	16.4
Farm magazines	1	1.9	1	1.6
Extension meetings	1	1.9	1	1.6
My own efforts	42	77.8	47	77.0
Total	54	100	61	100

Respondents were allowed to mention more than one source of information.

Table 14 shows sources of agricultural information by wards. At Vugiri ward, 77.8 percent of respondents use their own effort to improve agricultural production. Respondents mentioned to have learned from other members like relatives, friends, and as well as their own experienced learned since childhood. The findings tally with FAO (2002), that women's access to agricultural information is directly related to their direct communication with members of different communities to which they have access. It was also noted that women's access to agricultural information does not necessarily depend on their ownership

of radios or on their being directly targeted by public extension workers. Besides 18.5 percent mentioned radio as a source of agricultural information. Extension visits was not mentioned as a source of agricultural information while only 1.9 percent mentioned extension meetings and farm magazines as a source of agricultural information.

At Magunga ward, 77 percent of respondents mentioned to use their own efforts, 16.4 percent to use radio as a source of agricultural information, and 3.3 percent mentioned extension visits as source of information. In addition, 1.6 percent mentioned extension meetings and farm magazines as a source of agricultural information. Uses of "*Ukulima wa Kisasa*" magazine as a source of information in the study area was nearly the same with a study conducted in Eastern Zone (Dar es salaam, Coast, Morogoro and Tanga) which showed that "*Ukulima wa Kisasa*" awareness was 34 percent, and receivership/readership was only 18 percent. It is expected that farmers near Korogwe town would be more accessible to extension services and listen more to radio programs. Surprisingly, this study shows that except for extension visits, sources of agricultural information are the same in Vugiri and Magunga ward.

Table 15: Marital Status and Sources of Agricultural Information (N=100)

	Source of information					
Marital status	Extension visits	Radio	Farm magazines	Extension meetings	My own efforts	Total
Single	0	3	0	0	7	10
Married	2	15	2	1	61	81
Divorced	0	2	0	0	7	9
Widowed	0	0	0	1	14	15

Table 15 indicates marital status of the respondents and sources of agricultural information. From the Table, married women (81 percent) have access to most sources of information although other sources like extension visits, farm magazines and extension meetings are

lowly accessible. The results indicate that married women are accessible to most sources of information compared to others (single, divorced and widowed). These results are contrary to the study carried out by Ozowa (1997), which concluded that, in a patrilineal society a married woman is controlled by her husband which limits her chances of making contacts easily with a male extension officer and accessing sources of agricultural information. Likewise, divorced and women who are single mentioned radio and their own efforts as the source of information for increased production. On the other hand, widows mentioned extension meetings and their own efforts as sources of agricultural information. The results explain that women in the study area do have access to sources of agricultural information, but rather employ their own efforts to improve their farming activities. The Results also confirm their poor production system as well as low living standards.

Table 16: Information channels reliable to respondents (N=100).

Channel	Frequency	Percentage
Extension visits	31	31.0
Radios	34	34.0
Extension meetings	26	26.0
Neighbor & friends	14	14.0
Field demonstrations	11	11.0

Respondents picked more than one channel which they thought to be reliable.

Table 16 shows respondents' opinions on which information channel is more reliable. Thirty four percent of the respondents pointed to radio as more reliable channel of information, while extension visits was pointed by 31 percent. Moreover, extension meetings scored 26 percent; neighbor and friends 14 percent, and field demonstrations scored 11 percent. The results therefore indicate that, radio is mostly preferred by most of the respondents probably because almost all respondents own radio. Although extension visits was mentioned as the second channel respondents preferred listening to radio

programs because there are no extension officers in the area. Agricultural information becomes only useful if it is applicable, timely and appropriate; hence the choice of channel through which information is transmitted must be appropriate, perceivable and inexpensive to the user (Ochieng, 1999). The following Table 17 presents frequency of listening to the radio and hours spent on domestic work.

Table 17: Frequency of Radio programs and Hours Spent for Domestic Work

(N =100)

Hours spent	Frequency of listening to radio			Total
	Regularly	Occasionally	Not at all	
1-2	15	10	4	29
3-4	16	19	6	41
5-6	10	9	4	23
7-8	3	2	1	6
11-12	1	0	0	1
Total	45	40	15	100

X^2 =2.719 Df = 8

Significance =0.951

Table 17 indicates frequency of listening to radio and hours spent for domestic work. It shows that, 41 percent spent 3-4 hours in domestic work, 29 percent spent 1-2 hours. In addition, 23 percent spent 5-6 hours, 6 percent spent 7-8 hours, and only 1 percent spent 11-12 hours. Similarly, 45 percent of the respondents listen to radio regularly, 40 percent listen occasionally, and 15 percent do not listen at all. The relationship between the hours spent in domestic work and frequency of listening to radio was tested by chi-square statistics. The results show that there was a significant relationship between the two.

Contrary to what was expected that respondents who do not listen to the radio spent much of their time in domestic work, the result obtained was different. Informal discussion with respondents revealed that they spent much of their time in farm work and some of them do

not own radio. Similarly, respondents who spent 5-6 hours in domestic work still had time for listening to the radio, and those spent less time from 1-4 hours had more time listening to the radio. The table below presents radio programs preferred by the respondents.

Table 18: Radio Programs Preferred by Respondents (N=85)

Radio programs	Frequency	Percentage
Gospel	2	2.0
"Mkulima wa kisasa"	8	8.0
"Sports"	8	8.0
Greetings	11	11.0
"Chemsha bongo"	4	4.0
News	52	52.0
Total	85	85.0

Table 18 shows radio programs preferred by respondents. To show the extent of listening to agricultural programs respondents were asked radio programmes which they preferred. From the Table, 52 percent of the respondents listen to news program, 11 percent listen to greeting programs, 8 percent opt for "*Mkulima wa Kisasa*" and "Sports", 4 percent for "*Chemsha Bongo*", and 2 percent for gospels program. The results tally with a study conducted in Eastern Zone which showed that "*Ukulima wa Kisasa*" awareness was 34%, and receivership/readership was 18%, this is nearly the same from the results obtained that "*Ukulima wa kisasa*" listenship was only 8 percent (Simbeye and Nyangi, 2005). Furthermore, in Tanzania popular twice-weekly radio programmes such as "*Ukulima wa Kisasa*" (Modern farming) have imparted awareness and knowledge to farmers covering not only agricultural, but also, all agriculture- and livelihood-related information (Kapange, 2005).

The results explained that majority of the respondents do not listen to "*Ukulima wa Kisasa*" program, which means farmers do not get agricultural information through radio as "*Ukulima wa kisasa*" impart awareness and knowledge to farmers.

4.4.3 Availability of agricultural information to women farmers

Table 19 indicates availability of extension officers by wards. In Vugiri ward, 80 percent of the respondents mentioned that there is no extension officers while 20 percent indicated the presence of extension officers. In Magunga ward, 88 percent indicated the absence of extension officers while only 12 percent said there is an extension officers.

Table 19: Availability of Extension Officers by Wards (N =100)

Response	Vugiri Ward		Magunga Ward	
	Frequency	Percentage	Frequency	Percentage
Yes	10	20.0	6	12.0
No	40	80.0	44	88.0
Total	50	100	50	100

It was also observed that respondents who mentioned the presence of extension officer meant officers from Non Government Organizations like World Vision. Results further show that absence of extension services is a big problem in the study area. Literature states that extension is a type of education which is functional rather than formal. Therefore it is better provided by extension workers whose main task is to convey information in a meaningful form to farmers (Ozowa, 1997). In Tanzania, it has been noted that extension services is the most effective source of information flow to farmers for adoption of farming practices, innovation and technology (Mbwana, 1994).

It was expected that villages near Korogwe town would have extension officers, but the findings revealed that situation of extension services is the same as in the highlands. This explains why there is poor adoption of agricultural innovation and poor production. Lack of

extension services is evident as shown further in Tables 20 to 22 which show minimal extension contacts and meetings respectively.

Table 20: Frequency of Extension Contacts (N=100)

Number of contacts	Frequency	Percentage
Once per month	2	2.0
Twice per month	2	2.0
Never	12	12.0
No extension officers	84	84.0
Total	100	100.0

The study also sought to determine the extent to which information on agricultural information was available to farmers. Frequency of extension contacts was used to determine the availability of agricultural information. Table 20 shows frequency of extension contacts in the study area. Although 16 percent of the respondents indicated presence of extension officers, but only 4 percent had contacts with extension officers. In addition, despite presence of extension officers 12 percent mentioned absence of extension contacts. Furthermore, the results show that there is a shortage of extension services in the study area and absence to agricultural information. Surprisingly even respondents who indicated presence of extension officers still, extension contacts were not enough. Besides those who said there are extension officers did not meet with any extension officer.

Table 21: Adequacies of Extension Contacts (N=100)

Contacts	Frequency	Percentage
Enough	3	3.0
Not enough	1	1.0
No extension contacts	96	96.0
Total	100	100.0

Table 21 indicates respondent's opinions on adequacy of extension contacts. It was revealed that 96 percent of the respondents did not have extension contacts at all.

Moreover, 3 percent of the respondents mentioned that extension contacts are enough while one percent mentioned extension contacts are not enough.

Table 22: Meetings Conducted by Extension Officers (N=100)

Meetings conducted	Frequency	Percentage
None	88	88.0
Some of the times	12	12.0
Total	100	100.0

Table 22 presents frequency of meetings conducted by extension officers in the study area. Majority of the respondents (88 percent) indicated absence of extension meetings, while only 12 percent agreed that extension meetings were conducted. Informal discussions with the respondents revealed that meetings were conducted by World Vision and not by Government extension officers. Therefore, results from Tables 13-16 indicated the absence of both extension officers as well as services in the study area. Farmers have been left to practice traditional methods which are not sustainable and detrimental in steep slopes. Probably, low productivity experienced by respondents could have been contributed by absence of extension services.

Table 23: Main Topics Taught during Extension Meetings (N =100)

Themes	Frequency	Percentage
Water supply	5	5.0
Improving farming activities	5	5.0
Vegetable production	1	1.0
Livestock keeping	1	1.0
No extension meetings	88	88.0
Total	100	100.0

Table 23 indicates main topics taught during extension meetings. Most of the respondents (88 percent) did not participate in any meeting. This means that there were very few meetings which were conducted by the extension officers in those respective areas.

Moreover, it was revealed that respondents who indicated that they did not participate, agreed to have participated if there were or will be any extension meetings in the future as they have no any obligations to attend the meetings. This is against the study conducted in Ileje (FAO, 1998), that most of the women could not attend meetings as a result of their increased workload. On the other hand, very few respondents, 12 percent who participated in the meetings indicated main themes discussed during the meetings to be vegetable production, water supply, and livestock keeping and improving farming activities. It was expected that even little information delivered to women for example using improved seeds, fertilizers, planting by spacing could help them. However, results show that women farmers in the study area do not get accurate information for agricultural innovation.

Table 24 shows restrictions from attending meetings and sharing ideas. Ninety nine percent said that they are not restricted by their spouse from attending meetings or sharing ideas while only 1 percent said they were restricted.

Table 24: Restriction from Attending Meetings and Sharing Ideas (N=100)

Response	Frequency	Percentage
Yes	1	1.0
No	99	99.0
Total	100	100.0

This means that husbands do not restrict their wives to attend meetings and share ideas. Thus if extension service would have been available, there is a possibility that production and household income would have increased as well as livelihood of the people improved.

Table 25: Restriction from Owning Land (N=100)

Response	Frequency	Percentage
Yes	3	3.0
No	97	97.0
Total	100	100.0

Restriction from owning land is shown in Table 25. From the Table most of the respondents, 97 percent, said that they are not restricted from owning land while only 3 percent mentioned that they are restricted. Therefore findings show that women are not restricted from owning land and thus those with adequate agricultural information would have used available land to increase production, income and consequently reduce poverty.

Table 26: Restriction from communicating to Male Officers (N=100)

Response	Frequency	Percentage
Yes	1	1.0
No	99	99.0
Total	100	100.0

Table 26 shows restriction from communicating with male officers. Almost all respondents (99 percent) are not restricted from communicating with male extension officers, while only 1 percent is restricted. Further discussion revealed that the only one respondent was restricted by her husband. Inaddition, discussion with the key informants validates that there is no restrictions with women communicating with male officers. Therefore, absence of barrier between women and extension officers would have been capitalized on by women.

Table 27 shows constraints in receiving agricultural information. To assess farmers' attitude towards constraints faced in receiving agricultural information in Korogwe District. Likert-scale interview items were used. From the interview items, respondents were expected to indicate positive or negative attitude towards constraints faced in receiving agricultural information. If respondents agree with the constraints in receiving information, this implies that respondents face constraints in receiving information. If farmers disagree it means that there are no constraints in receiving agricultural information.

Table 27: Constraints faced by respondents in receiving agricultural information

Items measured	Strongly agree		Agree		Undecided		Disagree		Strongly disagree	
	n	%	n	%	n	%	n	%	n	%
Cultural restrictions towards male officers	0	0	0	0	1	1.0	60	60.0	39	39.0
Domestic chores limits attending meeting	0	0	5	5.0	5	5.0	63	63.0	27	27.0
xtension's biasness towards male farmers	1	1.0	1	1.0	50	50.0	41	41.0	7	7.0
Do not understand information delivered	3	3.0	6	6.0	40	40.0	45	45.0	6	6.0

Results in Table 27 show that 99 percent disagree that cultural practices restrict contacts towards male officers, while only 1 percent could not decide. This explains that there are no cultural practices which restrict women farmers to have contacts with male officers. Moreover, 90 percent of the respondents disagree that domestic chores limit them from attending meetings, while 5 percent agree and 5 percent could not decide if domestic chores limit attending meetings. On extension's biasness, 50 percent could not decide if there is extension biasness, 48 percent disagree while only 2 percent agree there is biasness towards male farmers. Respondents were also asked if they do not understand the information delivered to them (through neighbours and friends, radio), 51 percent disagree that they do not understand the information, 40 percent could not decide while 9 percent agree that they do not understand the information delivered. Informal discussions with the respondents

revealed that information in the study area is delivered mainly through their own efforts and sometimes listening to radios. In the study area, like other places receiving agricultural information through extension services is almost insignificant. This explains why constraints like cultural practices, extension biasness, or domestic chores limit attending meetings. Some of the respondents could not decide if they agree or not because extension meetings were not conducted. The results show disagreement with the items measured which means in the study area there are no constraints in receiving agricultural information even though there are limited extension services.

4.4.4 Utilization of agricultural information and to initiate IGAs

Table 28: Involvement in Income Generating Activities (N=100)

Response	Frequency	Percent
Yes	30	30.0
No	70	70.0
Total	100	100.0

Table 28 shows involvement in income generating activities by the respondents. According to the results, majority of the respondents (70 percent), do not have any other income generating activities which means they solely depend on agriculture.

Thirty percent of the respondents have income generating activities. Respondents mentioned to engage in non-farm income generating activities like local brewing, retail shops, brick making, selling snacks, and selling firewood.

Table 29: Utilization of Information to Initiate IGAs (N=100)

Utilization of the information received from sources of information	Income generating activities		Total
	Yes	No	
Application of manure	4	12	16
Use of terraces	3	1	4
Knowing the planting period	3	5	8
Vegetable production	0	1	1
Land preparation	6	18	24
Planting by spacing	6	7	13
Did not utilize	8	26	34
Total	30	70	100

Reliable and accurate information accessed and utilized by rural women can lead to increased food production and income for households; prevention of diseases and increased participation by rural women in the formulation and implementation of local initiatives (Ochieng, 1999). Utilization of agricultural information by initiating income generating activities is shown in Table 29. This study also established how agricultural information is utilized to initiate income generating activities. Table 29 indicates how respondents have utilized information they have obtained.

Seventy six percent of respondents utilized through land preparation, applying manure in their farms, planting by spacing, timely planting, using terraces, and vegetable production. Furthermore, 34 percent of the respondents did not utilize the information received. This shows that even though information delivered to women through their own efforts, they have made efforts to utilize the information. On the other hand, results show that the agricultural information received did not help the respondents to initiate income generating activities. Seventy percent of the respondents do not have income generating activities compared to 30 percent with income generating activities. Non-farm income generating activities undertaken by respondents in the study area range from seasonal and irregular wage employment like retail shops, local brewing, selling snacks, brick making, traditional medicines, and selling firewood. Selling snacks happened to be undertaken by most of the

respondents. Table 30 presents benefits and obstacles acquired by respondents through practicing agricultural information.

Table 30: Benefits and Obstacles of Utilizing Agricultural Information (N=100)

Response	Reasons	Frequency	Percentage
Benefits	Increase in yields	54	54.0
	Improve my living	3	3.0
Obstacles	No capital	18	18.0
	Land is not fertile	4	4.0
	Lack of agricultural knowledge	21	21.0
Total		100	100.0

From the table, fifty seven percent of respondents benefited from practicing agricultural information through increasing yields which improved their living standards. On the other hand, 43 percent did not benefit, because of limited capital, infertile land and lack of agricultural knowledge. The researcher observed that respondents still use indigenous knowledge which limits them from expanding farm lands.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The main objective of this study was to investigate the accessibility and utilization of agricultural information for agricultural production by women farmers in Korogwe District. The rationale for this study was to determine whether factors like socio-economic, institutional, i.e. extension services and credit facilities, and behavioural factors influence the accessibility and utilization of agricultural information. This was accomplished by assessing the availability of extension services, whether extension agents meet with their clients and delivered agricultural information and if this information provided is utilized by women farmers, communication channels used by respondents and their needs on agricultural information. Research questions have guided the conclusions and recommendations so as to provide suggestions on improvement on agricultural information delivery and utilization.

5.2 Conclusions

The following conclusions can be made from the findings.

1. Women farmers in the study area have diverse needs on agricultural information, major ones are information on improved agricultural practices, procedures for loan acquisition and extension services.
2. Women farmers obtain agricultural information through their own efforts. Direct communication with the community members like relatives, neighbors and friends as well as childhood experience have assisted them to sustain agricultural activities though the production is still very low.

3. Information on agricultural innovation does not reach women farmers. Therefore lack of extension services has contributed to unavailability of agricultural information.
4. Majority of women farmers do not have off-farm income generating activities and thus solely depend on agricultural activities for their livelihoods. Limited access to agricultural information has denied women information which would assist them to initiate off-farm activities.

5.3 Recommendations

From the conclusions of this study the following recommendations are made.

1. Extension officers should aim at meeting the requirement of the women farmers so as to transform them from traditional agriculture. Also women farmers should be encouraged to acquire loans from credit institutions.
2. Extension agents should diversify the use of communication channels in order to increase the accessibility of agricultural information. Channels such as the use of radio, supply of "*Mkulima wa Kisasa*" magazines, conducting extension meetings for quick spread of agricultural information should be considered.
3. The Government ought to increase the number of extension officers and motivate them to work with the rural community. This will reduce the ratio between extension officer to farmers and facilitation of accessibility and availability of extension services. Meanwhile, private sectors involved in agricultural extension delivery should consider promotion of soil conservation practices on the highlands in the study area.
4. Extension agents should encourage women farmers to diversify their sources of income through initiating IGAs which will increase household income and support their families.

The successful implementation of the above interventions will be achieved through collaboration among various actors such as extension officers, the Government and development organizations.

REFERENCES

Achia, R. (2002). Rural Women Access to Agricultural Information in Uganda [http://www.geogle.search.com.html] site accessed on 7/4/2007.

Aina, L. (1991). Information for Successful Agriculture. [http://www.worlib.org/vol02no1/aina_v02n1.shtml] site accessed on 12/1/07.

Bailey, K. (1994). *Methods of Social Research*, 4th Ed, The Free Press, New York. 588pp.

Durutan, N. (1999). Agricultural Extension for Women: The world bank resident mission of Turkey, Ankara. [http://www.ressources.ciheam.org] site visited on 10/3/2006.

FAO, (1995). Improving the Relevance and Effectiveness of Agricultural Extension Activities [http:// www.fao.org/docrep/field/381317.htm] site visited on 31/1/2007.

FAO, (1998). Improving Information on Women's Contribution to Agricultural Productivity for Gender Sensitive Planning Project Findings and Recommendations. [http:// www.fao.org/docrep/field/381317.htm] site visited on 31/1/2007.

FAO, (2000). Research and Extension: A gender perspective. [http:// www.fao.org/docrep/field/381317.htm] site visited on 31/1/2007.

Kachemela, J. S. (1997). Experiences of the communication strategies from the NALERP in Morogoro. In: *Proceedings of the Workshop for Extension Officers in Morogoro: Extension services delivery systems: Experiences and lessons from Morogoro Region, Tanzania*; (Edited by Isinika, A.C., Kawa, I. H, Neke, S. M. and Wambura, R. M), 14-15 August 1997. SUA, Morogoro, Tanzania. 154-157 pp.

Kapange, B. (2005). Agricultural Information: Improving access to remote areas in Tanzania. [http://www.livelihoods.org] site visited on 20/3/2007.

Kyomo, M L. (2000). Importance of Strong Research-Extension Linkages in Increasing Livestock Production in sub-Saharan Africa. [http://www.extension%20services.htm] site accessed on 8/3/2006.

Madonsela, W. (1998). The Impact of Trade Liberalisation in the Agricultural Sector on African Women: Links with food security and sustainable livelihoods. [http://www.womenagric.htm] site visited on 6/6/2006.

Manda, P. A. (2002). Information and agricultural development in Tanzania. *Journal of Information Development* 18(3): 181-186.

Mattee, A. Z. (1989). Accessibility of agricultural extension services to small scale farmers in Tanzania; In: *Proceedings of a National Workshop*: *Communication methods for effective agricultural technology transfer in Tanzania.* (Edited by Mattee, A.Z., Lupanga, I. J. and Mvena, Z. S. K). 28 November-1 December 1988, SUA Morogoro, Tanzania. pp 66.

Mbwana, S.S (1994). Barriers to information flow to farmers in Tanzania; In: *Proceedings of SUA Convocation: Sustainable agriculture and conservation of the environment.* (Edited by Hatibu, N., Madoffe, S., Pereka, A. E., Mafu, S. T., Machangu, R. S. and Rutatora, D. F.), 26-27 July 1994, SUA, Morogoro, Tanzania. 126-139pp.

Mdoe, N. S. Y and Macha, J. L, (2002). Women and rural poverty in Tanzania: Case of selected villages in Kilosa and Morogoro Rural Districts, Tanzania. *Journal of Population Studies and Development* 9(1&2): 18-22.

Mlambiti, E. and Isinika, A. (1999). Tanzania agricultural development towards the 21st century. *Journal of Agricultural Economics and Development.* 3:3-19.

Ochieng, R. (1999). Rural Women and Information in Uganda: Paper presented at FAO high consultation on rural women and information. [http://www.isis.ug/docs] site accessed on 15/2/2007.

Okunadc, E. O. (2006) Factors influencing adoption of improved farm practice among women farmers in Osun State. *Journal of Agricultural Economics and Extension.* 19 (1): 45-49.

Ozowa, V. N. (1997). Information Needs of Small Scale Farmers in Africa: The Nigerian Example. [http://www.worldbank.org/html/cigar /newsletter/june97/ 9nigeria.html] Site visited on 11/06/2006.

Samanta, R.K.,Jiggins, J and Olawaye, J. E. (2000). Improving Women Farmer's Access to Extension Services.

[http://www.geogle.search.com.html] site accessed on 8/5/2007.

Simbeye, M, and Nyangi, H. L. (2005). Information dissemination, multimedia network and feedback mechanism. In: *Proceedings of the Second Agricultural Extension Symposium: The experience from farmers education and publicity unity.* (Edited by Rwambali, E., Ngetti, M. and Mkangwa, C), 24-25 February, SUA, Morogoro, Tanzania. 79-80pp.

TCRA, (2005). Licensing Framework: Tanzania Communications Regulatory Authority. [http://www.tcra.go.tz.licensing/consultative%20document%20converged%20licensing%20framework.pdf] site visited on 4/2/2006.

Tumsifu, E. (2005). Access and use of information and communication technology in selected research institutes: Case of Ministry of Agriculture and Food Security. Dissertation for Award of MA Degree at UDSM, Dar es salaam, Tanzania. 104pp.

Ulrich, W. (2002). Business Information and Communication Systems. [http://www.Ulrichwiner.Com/ba302] site visited on 21/1/2006.

URT, (2005). Village and street statistics, age, and sex distribution in Tanga Region. *Population and Housing Census* 7:31-54.

Van de Ban A. W and Hawkins, H. S. (1996). *Agricultural Extension.* 2nd Ed. Blackwell Science Ltd, USA. 320pp

Wambura, C.W. (1992). Accessibility of agricultural technical information to rural women in Morogoro Rural District. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 118pp.

Wesseler, G. and Brinkman, W. (2002). Bringing information gaps between farmers, policy-makers, researchers and development agents. In: *Proceedings of the Regional Conference: Agro forestry impacts on livelihoods in South Africa: Putting research into practice.* 20-24 May 2002, Aventura Warmbaths, South Africa. 13pp.

World Bank, (1992). Agricultural Extension for Women Farmers. [http://www.worldbank.org/html] site visited 25/6/2006.

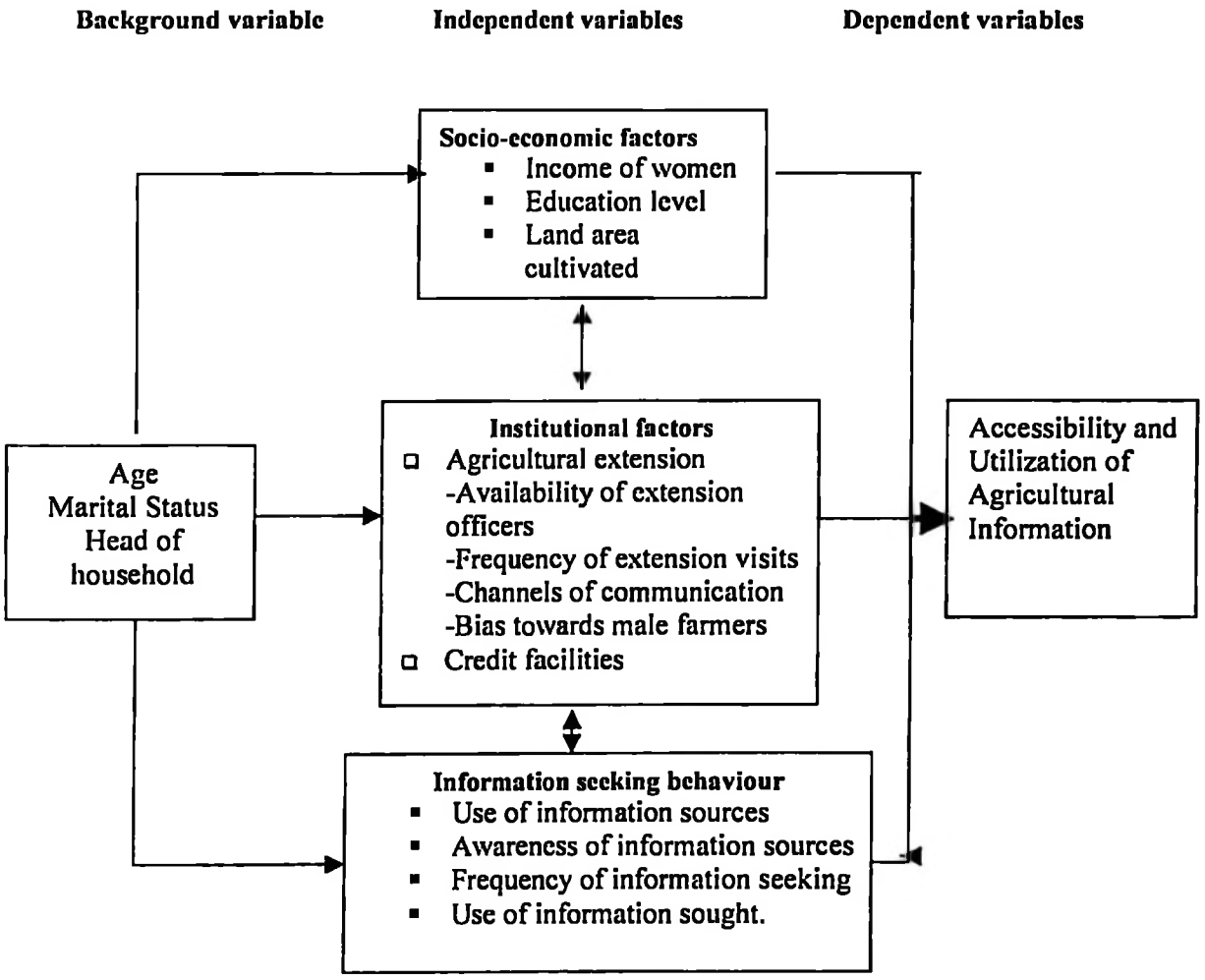
APPENDICES

Appendix 1: Food Crop Production Trend for Five Years since 2002/03-2005/06

Food crops	2002/2003		2003/2004		2004/2005		2005/2006	
	Ha	Ton	Ha	Tons	Ha	Tons	Ha	Tons
Maize	41617	52021	65111	48278	59902.	113814.0	58548	117096
Paddy	4487.2	11218	6057	5824.4	5855.1	15018.4	6476.6	17487
Cassava	5164.8	25824	0347.5	43977	8271	41355	7164	35820
Sweet potatoes	403.8	2019	125.6	251.2	1040.1	5200.5	1410	7050
Plantain	(672.2)	5040	(681)	5040	(694)	5048	703	6097
Beans	9541.8	5725	4967.2	2980.3	14224.9	14224.9	16205	16205
Cowpeas	-	-	235.0	141.0	315.0	315.0	935	935
Total	61886.7	100847	(681)	106491.9	(694)	194975.8	(703)	200,690
			72010.3				90739	

Data source: Korogwe District Agriculture and Livestock Department (2004)

Appendix 2: Conceptual Framework



Appendix 3: Questionnaire for the Women Farmers

A: BACKGROUND INFORMATION

Village name _____Ward _____

Name of respondent _____

Age of the respondent _____

Name of the Interviewer _____Date of interview _____

Questionnaire no _____

B: HOUSEHOLD CHARACTERISTICS

1. Number of household members
    a. Below 18 years _____
    b. Between 18-60 years _____
    c. Above 60 years _____

    Total number of household member's _____

    Number of children attending primary or secondary school _____

2. Is your household?

    Male headed

    Female headed

3. Marital status of the respondent
    a. Single
    b. Married
    c. Divorced
    d. Widowed
4. Education level of the respondent
    a. None
    b. Primary
    c. Secondary
    d. College

5. Occupation of the respondent
    a. Crops producer
    b. Livestock keeper
    c. Business/petty trade woman
    d. Employed

6. Household assets
    a. Land
    b. Radio
    c. Bicycle
    d. Transport facilities
    e. House
    f. Sewing machine

C: HOUSEHOLD PRODUCTION

7. What is your major source of income?
    1. Agriculture
    2. Livestock
    3. Business
    4. Employment

8. How do you utilise your land?

Utilisation	Size	Location
Crop production		
Livestock keeping		
Renting		
Both livestock and crop production		

9. How many bags/kgs/bunches do you produce, consume and sold during the last season?

Crops	Acres	Produced	Consumed	Sold	Income earned
Maize					
Beans					
Tea					
Banana					

10. If you sold excess produce, where do you market your harvest?
    - ☐ In the village
    - ☐ Outside the village

11. Who are the customers?
    - ☐ Villagers
    - ☐ Middlemen (from where?) _____

12. Do you often experience any problems in marketing your produce?

- Most of the time ( )
- Not at all the time ( )

13. If yes, what kind of problems? _____
a) _____
b) _____
c) _____
d) _____

14. How does income from crops production support your family? (Tick)

Expenditures	Income from maize	Income from beans
Paying school fees		
Daily consumption		
Health services		
Credits rotation		
Invest in livestock keeping		
Paying for labour charge		
Supporting other IGAs		

15. How many hours do you spend working per day?
    a. Domestic work
    b. Farm work

16. How much do you earn per month _____

D: DETERMINANTS OF ACCESSIBILITY AND UTILIZATION OF AGRICULTURAL INFORMATION

17. Are there any extension workers in your area?
    Yes ( )
    No ( )

18. If yes, how many times did you met with him/her last month? _____

19. When you met with extension officers, what issues did you discuss?
a) _____
b) _____
c) _____
d) _____

20. Are those meeting/contacts with extension officers enough? _____

21. Are there any extension meetings conducted in your area?
- None
- Some of the times
- Always

22. When did you have extension meeting for the last time? _____
23. What were the main themes for those meeting _____?

24. Did you participate in any of those meetings?
    a. Yes ( )
    b. No ( )

25. If no, why _____

26. How do you receive agricultural information to improve your agricultural activities? (Tick)
    a. Extension visits
    b. Listening to radios
    c. Reading farm magazines
    d. Extension meetings
    e. My own efforts

27. How do you utilize the agricultural information you received from any of the above source?
a)_____
b)_____

28. If you practiced those agricultural information delivered to you, did you see any benefits from practicing?
    Yes ( )
    No ( )

29. If yes, how did you benefit? _____
If no, what obstacles did you uncounted? _____

30. Are you satisfied with the information you have been received?
    Yes ( )
    No ( )

31. Do you have any other income generating activities?
    Yes ( )
    No ( )

32. What type of income generating activities do you have? _____

33. Does your culture restrict you from?

Restriction	Yes	No
Attending meetings and share ideas		
Owning a land		
Talk to male extension officers		
Any other restrictions		

34. Which channel is more reliable for delivering agricultural information to you?
    a. Extension visits
    b. Radios
    c. Extension meetings
    d. Neighbours and friends
    e. Magazines
    f. Field demonstrations

35. How frequently do you listen to radio programmes?
    a. Regularly
    b. Occasionally
    c. Not at all

36. Which radio station(s) do you like and why? _____

37. Which Radio programmes do you prefer to listen most of the time and why?
a) _____
b) _____

38. What type of information do you need for adoption of agricultural innovation?
a)_____
b)_____
c)_____
d)_____

39. What constraints do you face in receiving agricultural information?

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Cultural practices restricts contacts with male extension officers					
Domestic chores/activities limit you attending the meetings					
Extension agents are bias towards male farmers					
You do not understand the information delivered					

Appendix 1V: Interview Guide for the Key Informants

A Socio-economic profile

1. What is your name?
2. What is your position/status in the village?
3. What is the name of this village?
4. What is the distance from the village to Korogwe town?
5. What is the population of this village?
   i. Male _____
   ii. Female _____
6. How many households are there in the village?
   i. Male Headed Households _____
   ii. Female Headed Households _____
7. Mention the social services available in the village (tick)
   i. Hospital
   ii. Primary Scholl
   iii. Secondary Scholl
   iv. Other (mention)
8. What are the sources of income of the villagers? Rank them according to priorities

a)_____
b)_____
c)_____
d)_____

B Availability and Impacts of Extension Services

9. What are the agricultural related problems related in your area(s)?
10. Do you have extension officer(s) in your village?
    Yes ( )
    No ( )
11. If yes, how many extension officers do you have? _____
12. What types of activities are performed by extension officers in your village?
    i. Crop related
    ii. Livestock
13. What are the impacts of the extension officers in improving agricultural activities?
14. What are the challenges facing extension officers in your area(s)?
15. Are the male extension officers allowed to advice women farmers in your area?

C Availability of Rural Financial Institutions

16. Are there any financial institutions in your village?

If yes, of what types (example SACCOS, women groups e.t.c)
If no, why?

Appendix V: Discussion guide for the focus group discussions

1.0 Accessibility and utilisation of Agricultural information

i. What is agricultural information?
ii. What do you know about accessibility of agricultural information?
iii. What makes someone accessible to information?
iv. Is there any village that is more accessible to agricultural information than others in this ward/district?
v. Are there any difference between those who utilize agricultural information and those who do not utilize? If yes, please mention them
vi. Do you think being accessible to agricultural information will help to improve agricultural activities? If yes, how?

2.0 Availability and efficient of Extension services

i. Do you know any extension officer in your area(s)?
ii. What are the functions of extension officers?
iii. How do they help/assist you in your agricultural activities?
iv. What do you think are extension services?
v. How do extension officers assist you in accessing information?
vi. Are extension officers' biases in delivery information in your community? If yes, how?

3.0 Information seeking behaviour

i. Do you need agricultural information?
ii. What types of information do you need in order to improve your agricultural activities?
iii. Why do you need agricultural information?
iv. How do you seek this information?
v. When was the last time you seek these information and how?
vi. When was the last time you read or listen;
- farm magazines,
- Listening to radio programmes on agricultural activities?