

# **The Potential of Community Institutions in Dissemination and Adoption of Agricultural Technologies in Emuhaya, Western Kenya**

By

Michael Misiko

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**A Thesis Submitted to the Institute of African Studies (IAS)  
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## Declaration

This thesis is my original work and has not been submitted for a degree to any other university

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5/2/2002  
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This thesis has been submitted for examination with my approval as a university supervisor

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Date

**Institute of African Studies  
UNIVERSITY OF NAIROBI**

## **Dedication**

To my late mother and father,  
I wonder, Just If, you were alive,  
what would our lives be?

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## Abstract

This thesis examines the potential of community institutions and their networks in dissemination of agricultural technologies in Emuhaya Division, Vihiga District. Objectives of the study were to (i) identify characteristics of members of community institutions; (ii) describe networks used by those institutions to disseminate agricultural technologies and (iii) determine opportunities of using those institutions to disseminate agricultural knowledge. The rationale was that findings would be useful to community-based workers and researchers, the government and international institutions that operate in Western Kenya. *Network Theory* was used as a guiding framework in this study

Non-probability and probability sampling procedures were used to select ten community institutions, eleven key informants, and seventy-eight questionnaire respondents respectively for the study. Data were gathered through in-depth interviews, group discussion, direct observation and questionnaires. *Excel* and *Statistica* packages were used for data entry and analysis respectively.

Key findings are as follows: one, eighty-eight percent of members of community institutions were resource-poor and relied on informal networks to gain agricultural knowledge; two, inadequate resources and negative attitudes among local farmers were major obstacles against effective knowledge dissemination; three, training, provision of credit, facilitation of learning trips for farmers, community drama were the main suggestions of enhancing dissemination and adoption of agricultural technologies.

Based on this study, it is recommended that participation of community institutions in dissemination of agricultural technologies should be continuous with encouragement of collective activities. There is need to build confidence in local resource persons and involve these institutions in planning dissemination activities. Participation of community institutions in dissemination process need not to necessarily mean formalisation of social networks or loss of useful local traditional techniques of information synthesis. The ultimate goal should be to build upon them, and to strengthen an inclusive and collaborative strategy.

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## Acronyms and Abbreviations

AfNet	African Network for Soil Biology and Fertility
AHI	African Highlands Initiative
BMZ	German Ministry of Economic Co-operation
CGIAR	Consultative Group in International Agricultural Research
FGDs	Focus Group Discussions
IAS	Institute of African Studies
ICRAF	International Centre for Research in Agroforestry
IDRC	International Development Research Centre (of Canada)
IIED	International Institute of Environment and Development

KARI	Kenya Agricultural Research Institute
KEFRI	Kenya Forestry Research Institute
KK15	Kakamega 15
KWAP	Kenya Woodfuel and Agroforestry Project
MoA	Ministry of Agriculture
NGOs	Non-Governmental Organisations
RARC	Regional Agroforestry Research Centre (at Maseno)
SARNet	South Asian Regional Network
ToT	Transfer of Technology (model)
TSBF	Tropical Soil Biology and Fertility Programme <sup>1</sup>
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WG	Women's Group
YG	Youths' Group

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<sup>1</sup> TSBF Programme headquarters is hosted by UNESCO at the United Nations office at Nairobi (UNON). Its address is Tropical Soil Biology and Fertility Programme, UN Complex, Gigiri, B-130, P.O. Box 30592, Nairobi, KENYA. Tel: +254 (2) 622584/659. Fax: +254 (2) 622733. Email: [tsbfinfo@tsbf.unon.org](mailto:tsbfinfo@tsbf.unon.org).

# **Chapter One**

## **BACKGROUND AND PROBLEM STATEMENT**

### **1.0 Introduction**

This chapter contains background information, the problem statement, objectives and rationale of the study.

### **1.1 Background Information**

In Africa, more than any other continent, social issues have a great bearing on economic livelihoods. For example, most African communities have a very thin line, if any, between their modes of production and social activities. Their modes of agricultural production are complex, diverse and risk prone (Chambers, 1994). Millions of African smallholders – farmers, herders and fishermen – are resource-poor and suffer from food insecurity [International Institute of Rural Reconstruction (IIRR), 1998]. Their low incomes mean they are unable to make investments and take on risks.

#### **1.1.1 The State of Agriculture**

Agricultural systems in Sub-Saharan Africa are buffeted by sudden, acute shocks caused by natural and man-made hazards – drought, flooding, erosion and conflicts. Long term trends such as changes in international markets, national policy decisions and institutional frameworks, more often than not move against resource-poor smallholders (IIRR, 1998). In the past, the Transfer of Technology (ToT) model has served industrial agriculture rather well because physical and economic conditions on research

stations have been similar to those of resource rich farms and farm families. This is largely the reverse situation in Africa. Unlike industrial agriculture, farming in Africa is very diverse. Some of the key dimensions are the composition of households, their social structure and organisation, their labour power and activities, their stages in the domestic cycle and their resources and access. These vary with any one farming system. Farm households may range from isolated and poor female-headed households with dependent children, to large extended families with strong labour power. This complexity of peasant farming presents interactions that need great effort for scientists to study, multiply or enhance (Chambers, 1983; Mead, 1954).

### 1.1.2 Resource-Poor Farmers and Agricultural Knowledge

The food-security problem in Africa is not merely an inability to produce food to keep pace with population growth. There is need to take into account the ecological, cultural, social and economic features which are the bedrock of sustainable agriculture (IIRR, 1998). It is through proper understanding of these characteristics of peasant farming that appropriate dissemination of technologies can be achieved. Resource-poor farmers need specific information to farm their land in a profitable and sustainable manner. This information should be passed in an appropriate manner. This is vital because the way technologies are disseminated affects their spread and adoption (Mulagoli, 1999). But for this to occur appropriately, there is need to consult small-scale cultivators (especially women) who find it difficult to get credit, seed and other farm inputs.

It is in the above perspective that the Ministry of Agriculture (MoA), International Centre for Research in Agroforestry (ICRAF), Kenya Agricultural Research

Institute (KARI), the Tropical Soil Biology and Fertility Programme (TSBF) and Kenya Forestry Research Institute (KEFRI) initiated collaborative research between themselves (Nyasimi, 1998). The major objective was to promote agricultural technologies that can be managed by the farmer by building on existing knowledge and resources in Western Kenya. Realising the agricultural problems of the various communities in the region, the above and other research institutions have been testing alternative agricultural technologies and approaches for over a decade now (IIRR, 1998).

### 1.1.3 TSBF and the Researcher

TSBF contributes to human welfare and the conservation of environments in the tropics through development of adoptable and sustainable soil management practices that integrate the biological, chemical, physical and socio-economic processes that regulate soil fertility and optimise the use of organic and inorganic resources available to the land users. TSBF African Network for Soil Biology and Fertility (AfNet) includes about 110 members from universities and national research institutions. It has also the South Asian Regional Network (SARNet) and collaborates with the Consultative Group in International Agricultural Research (CGIAR).

Prior to this study, the researcher had worked with TSBF initially as a student intern and later as a social science research assistant. In 1997, he was nominated for sponsorship to undertake a Masters programme at the University of Nairobi under an International Development and Research Centre (IDRC) fund. Other than the IDRC of Canada, the German Ministry of Economic Co-operation (BMZ) under the African Highlands Initiative (AHI) supported fieldwork of this study. AHI needed

specific information on community institutions in order to develop appropriate approaches including communication materials for dissemination of agricultural technologies.

## 1.2 Statement of the Problem

According to Bhushan (1998), Vihiga has a population density of 1147 people per square kilometre. This is much higher than the national average of 50 people per square kilometre. In this regard, agriculture as the main activity for earning a livelihood has experienced tremendous problems because of the high population pressure on scarce land. The on-going trends of intensive crop cultivation with little or no inputs, repetitive and exhaustive agricultural practices and soil erosion, if unabated, will worsen the already existing high levels of poverty. In spite of the above revelation, farmers need not only to be able to support life but also to produce and sell cash crops so as to buy themselves some of the many products of technology. Key challenges are therefore to develop new modes of interaction between farmers, extension agents and researchers in order to make better use of extension and research resources, to spread participatory methods and to establish farmer-first approaches everywhere.

Owing to the complexity of agricultural practices in Western Kenya, it is difficult and dangerous to make wider generalisations on the basis of a single case. Therefore, it is in the interest of all researchers, extension agents and other interested parties never to ignore local scenes (Pretty, 1995). In the baseline survey of the IDRC project that was carried out in 1997/8, important findings were documented. For example, various

sources of agricultural information were identified and how they disseminate agricultural information. Also, it was established that community groups play an important role in the spread of information.

However, there remained some gaps. First, the process through which agricultural information is disseminated and adopted was not clearly understood. Second, information on community institutions that had valuable influence over farmers was scanty. Consequently, there was need to conduct an in-depth study that focused on community institutions. Focus had to be on the social relations and networks within those institutions that could be used to enhance the dissemination of agricultural technologies. It was important to understand the capacity and the potential of community institutions. This kind of knowledge would guide project activities that aim to benefit rural cultivators.

This was the case because development planners have in the past tended to be preoccupied with the individual, assuming that the most important decisions affecting behaviour were made at that level. As a result, the effectiveness of local groups had been widely overlooked and undermined. The importance of community institutions can, however, only be ignored at the peril of local agricultural development. This study was therefore set to meet the following objectives.

### 1.3 Objectives

The broad objective of this study was to investigate the potential of community institutions and networks in dissemination of agricultural technologies to different

categories of people in the target community.

Specific objectives were to:

- i) identify characteristics that determine membership of community institutions;
- ii) describe networks used by those institutions to disseminate agricultural technologies;
- iii) determine opportunities of using those institutions to disseminate agricultural knowledge and draw recommendations for research institutions, Non-Governmental Organisations (NGOs) and individuals.

### **Research Questions**

In line with the foregoing objectives and based on the prior background information and problem statement, the following research questions were derived and answers to them sought:

- i) What are the characteristics that determine membership of community institutions?
- ii) What networks do community institutions use to disseminate agricultural technologies?
- iii) Can these community institutions be used to disseminate agricultural technologies?

### **1.4 Rationale**

This study is a contribution to the search for information on dissemination of agricultural technologies being pursued by many researchers and planners. The information is intended for use as a guide by development workers of community based organisations, community institutions, government agencies and international research institutions operating in Western Kenya.



As part of the BMZ Project, findings are likely to enrich AHI's baseline data. The findings provide specific background information useful for appropriate dissemination of agricultural research findings. This study was necessary because, in spite of the enormous attention given to technology transfer, there has not been a proportionate increase in agricultural productivity.

Findings may be used in other areas with settings similar to the study area to hasten the process of agricultural development. The study may enable those involved in extension work to pass information in a form that different categories of small-scale cultivators will easily share and adopt.

This study not only shows the importance of community institutions but also documents social compliance of members of community institutions to their institutions among the Banyore of Western Kenya. Therefore, it has added to the anthropological wealth of knowledge.

## **Chapter Two**

### **LITERATURE REVIEW AND THEORETICAL FRAMEWORK**

#### **2.0 Introduction**

This chapter focuses on review of literature related to social networks, transfer and adoption of agricultural technology. The theoretical framework is specified and its relevance to the study given. Study hypotheses are stated and operational definitions of the variables are provided.

#### **2.1 Literature Review**

An evaluation of different scholars in the field of social networks, diffusion of knowledge, dissemination of agricultural information, and adoption of agricultural technologies is done.

##### **2.1.1 Social Networks of Interaction**

Studies of community organisation have recognised the significance of networks within communities (Pretty, 1995; Nobbs, 1986). One can understand communities better when one recognises what networks are and how they work. Networks involve reciprocal obligations, reciprocal statuses, reciprocal ends and means formed between two or more actors in mutual contact. Networks are a form or pattern of interaction between individuals and groups (Davis, 1949). Seeing and talking with one another facilitates the subtle exchange of ideas, opinions, and sentiments. 'Close contact symbolises identity between persons' (Davis, 1949: 291).

'Institutions have identity of parties within them. The relationship between the members is important but not an end in itself. Members have common attributes. The institutions are social units deliberately constructed to seek specific ends' (Vander, 1965:216). It is contended that network ties anchored on the basis of individuals help in a variety of ways such as reciprocal labour exchange (Sikana, 1995). There is also a correlation between quality of life indicators and such factors as the size, density and utilisation of one's networks. In small-scale rural societies, a large part of an individual's activities and time is involved in community institutions (Maguire and Biegel, 1982). Men and women rely for support, insurance and protection on these networks. Fischer et al (1977) argue that it is from local social relations that people get to support one another. People make connections through marriage relations, neighbourhoods, work places, church membership, school-community or cultural associations (Maguire and Biegel, 1982).

The study of networks can specify how the above connections affect some characteristics of the people involved. For example, the baseline survey demonstrated that in Busia, new immigrants tended not to be affiliated to their new communities, yet they were relatively more wealthy than most of their neighbouring locals (Muruli et al, 1999). It would thus seem that the setting in Busia is one that is not especially resourcefully productive for the immigrants. These immigrants, however, maintained contacts with community institutions - friends and relatives - at their homes of origin.

Leadership in community institutions may or may not be elective (Goetschius, 1969). Where they are not elective, as in many occasions, influential people exercise subtle

roles of leadership by virtue of their ability to offer information, skills and material resources which are valued by members of the community (Mbithi, 1974). Members' assistance may take other different forms: kinship obligations, religious affiliation and friendship. Network ties can be used to mobilise support in the event of a crisis. In the rural areas of Africa, community institutions have in common the prevalence of face-to-face interpersonal relationships. 'The fact that people know one another creates opportunities for collective action and mutual assistance, and for mobilising resources on a self-sustaining basis'. (Pretty, 1995:134).

According to the Women's Bureau, Ministry of Culture and Social Services, women groups more than other groups have a long history of self-help in rural Kenya (Republic of Kenya 1995). Through these groups, women help each other in terms of various activities such as labour reciprocity, informal credit and mutual support during important social events such as marriage, births, illness and bereavement. Today, most women groups are not exclusive. In many cases the composition and functions of community groups overlap. For example, clan groups are sometimes also classified as self-help groups, women groups can be referred to as self-help groups, and may perform a range of functions such as fundraising, reciprocal labour, counselling, conflict resolution and so on (Muruli et al, 1999).

People feel more mutual rapport and a sense of obligation at community levels than at District or divisional levels, which are really political constructions. At the household or individual levels, decisions and actions oriented toward sustainable development are not likely to be long lasting unless they are co-ordinated with what other households

are doing.

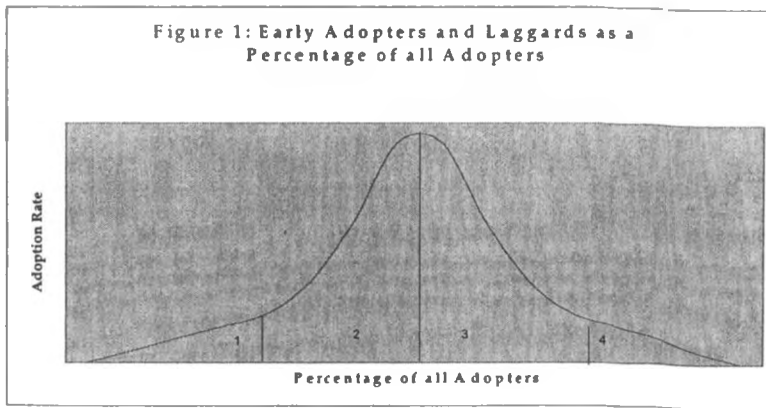
The most important aspect of this particular study was to look at the role community institutions played in order to make useful conclusions. However, studies on community institutions reveal certain weaknesses that need to be considered before any conclusions can be made. Goetschius (1969) has observed that such weaknesses include differences or rivalry between certain institutions resulting from different backgrounds, perceptions, interests, limitations or intensity of networks and so on. In summary, as Ritzer (1992) says in *network theory*, there are aspects of competition and/or collaboration in all community groups.

### 2.1.2 Diffusion of Agricultural Knowledge

Most analyses of agricultural distributions concern themselves with the present alone and this may be misleading. Diffusion of agricultural knowledge has long been a matter of interest to anthropologists, geographers, botanists and sociologists (Rodgers, 1971). Today, many other disciplines ask why it is that some farmers adopt a new method before others and how the innovation spreads or why it is not adopted (*ibid.*). Works of different scholars, including Everett Rodgers, Ian Scoones, Grigg and even Margaret Mead provide useful background on diffusion of information. For instance, figure 1 below shows rate of information adoption as presented by Grigg (1995:175).

It is argued that an adoption curve over time shows a slow cumulative rate of adoption at first, when only early adopters or innovators adopt an idea. Then the rate of adoption accelerates and finally slows when only the laggards are left. First and early adopters

hear of the innovation from the radio, in farming magazines, from agriculture extension officers or from agents selling the new technology. Late adopters, in contrast, hear of the innovation only from the neighbours and adopt the innovation only after watching their neighbours' experience. Such views have been much criticised by economists who argue that adoption is determined primarily by a farmer's economic assessment of an innovation: if it will increase profit, it will be adopted. It has also been noticed that in developed countries, most farmers, and not a minority hear of an innovation directly rather than from neighbours. If this is the case, then the information lag assumed by sociologists does not exist, and the role of social networks as seen in rural areas of Less Developed Countries is minimal.



Source: Grigg, (1995:175).

Key: 1 - first adopters, 2 - early majority, 3 - late majority, 4 - laggards

Data in Figure 1 is based on the work of Grigg (1995). The emphasis is on social diffusion of knowledge.

The characteristics of an innovation may also prove important in the rate at which an innovation spreads. For example, new seed or fertiliser are divisible and can be tried in

small amounts at low cost to see if they work, unlike combine harvesters or new storage buildings that need major changes in farming routine. WB (1999) observes that the issue of adoption requires, however, an analytical framework that also takes into account non-price factors, and recognises the presence of various – sometimes contradictory – farm household objectives and the influence of community institutions (see also figure 2).

If a majority of farmers rather than a minority hear of the innovation and adopt it at the same time there will not be the slow spread from farmer to farmer outwards from a limited source area that is assumed in most models (Grigg, 1995). On the other hand profit alone will not drive farmers into adopting technologies (GebreMichael, 2000; Chambers, 1994).

### 2.1.3 Dissemination of Agricultural Technologies

Community institutions in rural areas are in a strategic position to play an influential role in the development of their communities because these institutions are among the main channels of information in those areas. For instance, co-operating with women's groups has proved to be a good way of reaching the community (IIRR, 1998). Indeed, we cannot directly reach all farmers involved or interested in the various activities.

Exploring the sharing, spreading and even transformation of agricultural technology is a research theme of vital importance to research and extension (Roling and Engel, 1989; Roling, 1992, cited in Scoones and Thompson, 1993). The creation and development of technology is, undoubtedly, crucial and so is its transfer process. In the recent past,

emphasis has begun to shift to technology dissemination more than before. Rather than only talking of technology, we should also begin to talk about the way we talk about that technology. We must know how farmers come to know and how they become confident in what they are told. It is important to find out the extent to which individuals interact in the community and, specifically, whether agricultural information/technology is or can be relayed by community institutions. It is useful to know how much community institutions can act as a conscience of the community.

The process of knowledge dissemination involves interconnected elements, drawing on existing knowledge repertoires and absorbing new information. The newly introduced information and its sources are judged acceptable and useful or contested. In some instances, farmers may already have ideas about what they are told. In this case, they may not contest the information but it may well act as a reminder or explanation of their current practice (Scoones and Thompson, 1993; Rodgers, 1971).

Many farming problems cannot be solved by science alone. Local people should be involved at formal and informal levels (Sikana, 1995). Knowledge exchange and transfer is not a mechanical process. It is a social phenomenon worth investigating. Understanding how new knowledge spreads must be situated within a comprehension of social dynamics. Information transfer involves interaction and is context-determined. In addition, interpretation or translation and representation of information are social acts. Therefore, this calls for participatory learning process in which knowledge recipients shape the process itself. Technologies or scientific methods should be incorporated into the local setting by involving local cultivators (Chambers, 1994).



Because these scientific methods alone cannot provide answers to all community priorities and constraints, a broad approach must be adopted, one that will use local resources - knowledge and capacity (Brokensha et al, 1995; Sikana, 1995).

Spread of agricultural knowledge in rural Kenya is different from urban areas where communication through the media is more efficient. When professionals visit rural areas, they are likely to meet people who are accessible and visible. For instance, these would include "people on regular salaries rather than people depending on agriculture; farmers rather than labourers, people with access to off-farm employment rather than those dependent solely on cultivation, men more than women or women more than men, those in project areas rather than those outside, users of services rather than non-users, those who go to meetings rather than those who stay at home, those who go to market (who have something to sell, or something with which to buy) rather than those who do not go because they have nothing, those who are alive, not those who are dead" (Chambers 1994:52).

Therefore strategies to improve local agricultural production should first involve a redefinition and improvement of roles and responsibilities for all types of institutions and individuals. In addition, strengthening research-extension linkages and fostering a common participatory approach is vital and, finally, the capacity of local people should be strengthened (Sikana, 1995).

It is not easy to standardise ways of interacting with rural farmers. Likewise, it may not be possible to standardise dissemination techniques that apply everywhere equally. In recent years, there has been a blossoming of participatory approaches to research,

extension and planning institutions by government and NGOs (de Sand, 2000). This great diversity, especially in dissemination of agricultural technologies is a sign of strength: it implies that each variation is to some extent dependent on contexts and problem situations specific to locations and institutions. The approaches are flexible enough to be adapted to suit each new set of conditions and actors, and so there are multiple variants. In this approach, the role and action of the researcher, or extension agent, or educator is very much a part of the interactions being studied. Through this process, poor farmers have had great access to information generated by research institutions over a longer period (TSBF, 1999; IIRR, 1998). This process has utilised existing community structures and created new appropriate ones for that purpose. The Regional Agroforestry Research Centre (RARC) at Maseno for instance has involved farmers in the technology transfer process from its initial stages. Nyasimi (1998: 36) acknowledges that 'one of the most appropriate channels for farmers to get information is through village organisations'. TSBF (1999: 7) asserts that 'active involvement of community groups is seen to be one of the most plausible intervention processes'. For instance, in Busia's Bukhalalire and Aludeka, *Tithonia* biomass transfer technology, green manure covering crops and limiting nutrient test strips were established as demonstration plots in 1998. Farmer groups organised and managed field days with high attendance of farmers. Although TSBF has collaborative relationships with these groups, its staff was only invited to attend as guests, not as leaders. This activity resulted from farmers' empowerment with knowledge and skills to conduct their own community affairs with minimal external support. This empowerment had occurred during the course of Kenya Wood-fuel and Agroforestry Project (KWAP) work with the

catchment based umbrella groups in these areas. Farmers managed the teaching stations and were only assisted where necessary by extension agents and research technicians (TSBF, 1999).

The former paragraph points to the usefulness of participatory processes. Whether in research or extension, it implies that dissemination of technologies to rural farmers is more efficient when local farmers are prominently involved (see also Brokensha *et al*, 1995).

Empowering of farmers as was done by KWAP, TSBF and RARC (Maseno) involves on-the-job/hands-on training (Kiguro, 1998). This way, it becomes easier for community members to understand the practice or technology being disseminated and to pass it on to other members by describing and explaining, especially if it involves foreign or technical concepts. One good aspect of on-the-job-teaching or experimentation is that it is easy to talk about the technology. It encourages discussion and is an important instrument for learning and demonstration on both sides involved.

Government and non-government organisations have too few staff and resources to provide extension advice to every farmer individually (IIRR, 1998:10). Traditional extension approaches have often been top-down and less effective. Working with groups of farmers allows staff to interact with larger numbers of farmers at the same time, thus using scarce resources efficiently. In addition, many activities are best performed by groups of farmers than individuals. Group members can pool their labour and other resources, divide tasks into manageable units, learn from one another and make decisions jointly (*Ibid.*). This improves dissemination of information and

adoption of technologies.

Other than village groups, RARC disseminates information to individual farmers and farmers' gathering through several channels. They include farm visits by agricultural personnel, external learning trips for local farmers, seminars, demonstrations or field days, farmer training, conferences, meetings or *barazas*, local administration and schools. Other means in use are written publications such as pamphlets, bulletins, journals and textbooks, audio-visual techniques such as broadcasting on radio and videos. Of course, training of extension and research personnel in new technologies is also undertaken.

ICRAF's attempts to encourage farmers to manage and control test plots in a way similar to their own failed despite their participatory approach (ICRAF, 1992, cited in IIRR, 1999). Therefore, there still is need for research institutions to guide some activities of farmers' groups, for example those related to satellite experiments. Involvement can be to provide seedlings and technical advice to groups to allow them to design their own trials. This can provide valuable insights into farmers' research methods, and their real priorities, and also help to maintain good relationship with the groups (*Ibid.*). It should be borne in mind that farmer involvement in technology dissemination is a necessary but not a sufficient step in assisting farmers to improve farm production through adoption of agricultural technology. No wonder then, that understanding the process of agricultural experimentation has become an important research focus amongst social scientists interested in agriculture. Social scientists would like to understand how farmers trust agricultural innovations and how they share that

knowledge with other farmers.

Fairhead (1980, cited in Rogers, 1983) argues that knowledge is often expressed in the private domain, that what goes on is perceived by farmers as 'normal' and unsurprising and that descriptions in terms of 'creativity' and 'innovation' are misleading. Farming practices such as crop rotations and cropping patterns may be expressed to outsiders especially and locals in forms of ideal type descriptions. These descriptions may not necessarily be what the farmers exactly do, unless they are empowered to do them. These can give a false impression as they may not reflect a wide variety of actual practices arising not out of a cognitised, rational 'plan' but through a series of contingent responses to uncertain ecological and social circumstances (Drinkwater, 1992). They may also involve acts of secrecy and reactions to perceived threats, including sorcery, where an individual or group presents false or misleading information in order to protect ideas or innovations from others or from powerful magical forces. However, the involvement of community groups from the onset of research helps to reduce some of these problems (Pretty, 1995). The prior two examples of TSBF and RARC and other growing examples in the literature, offer examples of where farmer experimentation and formal science have interacted productively. With improved efforts, we will begin to see a scenario where farmers initiate this process, and look for information with minimal 'outside' assistance. Meanwhile, we are yet to see the best of these farmers' groups. This is the case because these examples still represent more of supply-led rather than demand-led situation. They also do not clearly show the more important aspect of information dissemination within the community.

Knowledge can be articulated in many ways. In some instances, where explanations for practices may be incompletely articulated, or idealised in others, myths or metaphors may be the most significant mode of transmission. The process continuously occurs in all communities. 'Within these communities, technological ideas are not evenly distributed. Different individuals are recognised as specialists in particular fields and are key in the transmission and interpretation of knowledge within that community or family' (Scoones and Thompson, 1993: 16). Rural people's knowledge transmission may be hidden or muted, affected by access to and control over resources. People may express agricultural ideas they have openly, but in a disguised form: through rumour, gossip, folktales, songs, gestures or jokes. Agricultural innovations, thus, do not spread according to a simple diffusion model of technology transfer (Rogers, 1983). All in all, farmers are generally enthusiastic to share their skills with other farmers. In Kitale (Kenya) for example, community institutions or *bulala* are very active in information spread. They are being used by Environmental Action Team to promote and share new findings and conservation practices (IIRR, 1998). Using *bulala* groups is a form of farmer-to-farmer extension, as farmers learn a particular innovation and share their knowledge and skills with other farmers.

Knowledge transmission is not based on simple communication channels, conduits or linkages; it involves human agency and occurs within socially and politically constituted networks of different actors, organisations and institutions. Thus, communication occurs through the discontinuous, diffuse, value-bound interactions of different actors and networks (Scoones et al, 1995).

#### 2.1.4 Adoption of Agricultural Technologies

One of the puzzling questions any outsider may ask is, why do rural people reject or gain no interest in change that is apparently so beneficial to them? It must however be noted that 'there have been changes, which have resulted from the adoption of technologies provided to cultivators' (Chambers 1995: 66, Mead 1954).

Farming in Africa often presents many different farming systems within short distances. This results from variations in rainfall, topography and soils, social and economic issues such as land tenure, farm size, social group, access to services and markets, information and knowledge, access to credit, and risks (Ruben and Vaessen 1996; Chambers 1995; Also see figure 2). Any new variety or practice is therefore likely to fit in the conditions and needs of relatively few farm families. Returns to research are thus low because its total impact, even if successful, is small. This reduces the prestige and incentives of scientists looking for bigger breakthroughs.

Studies indicate that science alone cannot provide answers to all community priorities and constraints. A broad approach must be adopted, one that will use local resource-knowledge and capacity to bring about meaningful change (Brokensha et al, 1995; Sikana, 1995). Farmers are resourceful with valuable experience and therefore, their contribution should be encouraged (Kiguro, 1998). They are far more knowledgeable and better informed than agricultural professionals used to suppose, and farming conditions are different from those on the research station (Mulagoli, 1999). This means that there is need for scientists, extension agents and other stakeholders to work with farmers to influence decisions and methods in agriculture.

Agricultural change process is a continuous task. Project staff, government agencies, and rural communities benefit from such experience. Technical organisation skills are developed, responsibilities and procedures are defined and more complex problems can gradually be addressed on a broader scale (Savanije and Huijsman, 1994). Therefore, it is crucial to create a sense of common responsibility and to encourage concerted effort especially at community level. 'This is because implementing activities is probably best-organised at a level below the village, such as the hamlet or functional groups with common interest' (Savanije and Huijsman, 1994: 27). This is so because some agricultural activities, particularly those relating to the environment, often require joint action. They are likely to succeed only in cases where there is a feeling of shared benefit and solidarity. Even when an activity is carried out by individuals, they should feel their effort is part of a longer term, step by step community effort to achieve improved use of natural resources. This is the sort of approach that in the long run can secure ready and sustainable change. At the community level, priorities for action can be turned to specific needs of local land users, and organisations can build to fit the social and political realities of the community (Brokensha et al, 1995; Carter and Crowley, 1997; Savanije and Huijsman, 1994). Such a strategy should aim to simultaneously improve the quality of life of peasants working on small land holdings and/or marginal lands through the development of ecologically based subsistence strategies. And to raise land productivity of those peasants competing in the market through the design and promotion of low-input technologies that reduce production costs (UNDP, 1997). UNDP (1997:54) recommends optimising the 'use of locally available resources by combining the different components of farm system, that is, plants, animals, soil, water,



climate, and people, so that they complement each other and have the greatest possible synergistic effect'.

The development of self sufficient, diversified, economically viable agricultural systems will come from novel designs of integrated farming systems, managed with technologies that are within farmers' resources and adapted to local environment. Income is closely associated with farming, and agricultural success can be achieved if this is well taken into account. Recent studies show that many farmers will not shift to alternative systems unless there is good prospect for monetary gain brought about by either increased output or decreased production costs (Tiffens et al, 1994; Carter and Crowley, 1997; UNDP 1997). Different attitudes will depend primarily on farmers' perceptions of the short-term and near-term economic benefits of sustainable agriculture. It is important that scientists involved in the search for adaptable and sustainable agricultural technologies be concerned about who will ultimately benefit from them. This requires recognising that non-agricultural considerations must be taken into account when basic scientific questions are asked and not only when technologies are delivered to society. Also, what is produced, and how it is produced are key questions that need to be addressed if a socially equitable agriculture is to emerge.

In addition to the development and dissemination of agro-ecological technologies, the promotion of sustainable agriculture requires changes in the research agenda, among other things. This is so because activities of agricultural management cannot stand alone (UNDP, 1997; Savanije and Huijsman, 1994). Otherwise, as Berry (1993:182) puts it 'neither the state nor donor agencies will have much success in purposefully bringing

about a more intensive use of land in sub-Saharan Africa'.

Although land is individually owned and agriculture largely a household activity, there is need for mobilisation of group action. Measures to increase agricultural productivity, especially those that reduce or prevent degradation often require consensus and collective action among different categories of land users. A feeling of joint responsibility is needed to motivate and mobilise people to work together. In rural organisational structures, the local community represents the level at which cohesion and social control are still tangible. Community institutions are formed on the basis of proximity, socio-economic differentiation, cultural articulations, local power structures and so on. These intervening variables affect agricultural production and therefore make solutions to agricultural problems considerably location specific. Communities are not just homogeneous entities with a strong sense of solidarity within any given village. One often finds permanent and temporary residents, as well as recent immigrants, landowners, tenants and landless people, small and large-scale cultivators, men and women and children. Each category has its own background, perceptions and interests (Savanije and Huijsman, 1994). Therefore, as Savanije and Huijsman (1994:26) say, 'we must consider what organisations are needed, what responsibilities should be rested in them and to what extent traditional organisational structures can evolve to carry out the required functions' (Also see Sikana, 1995). It is necessary to consider the level at which local community organisations are appropriate with respect to agricultural management.

The preceding literature shows the incredible amount of potential of village groups.

They can for example, in brief, unite farmers for a common goal, provide exposure to extension agents and outside help, enable them to share resources, get tangible benefits and more importantly help even the poorest to improve their livelihoods. However, we need to exercise some care about how we deal with such groups. According to IIRR (1998) we should empower community groups and not render them dependent on outside organisations. This can be done through guidance on organisation and in management of finance to make them 'self-propelled'. Groups may fail due to internal differences or conflicts (Goetschius, 1969). Members should have similar interests and be willing to share benefits commensurate to each member's effort or commitment. And also, groups are very likely to fail if members feel they put in more than they get out. Activities should of course have a reasonably quick payback: one that members see as important (*ibid.*).

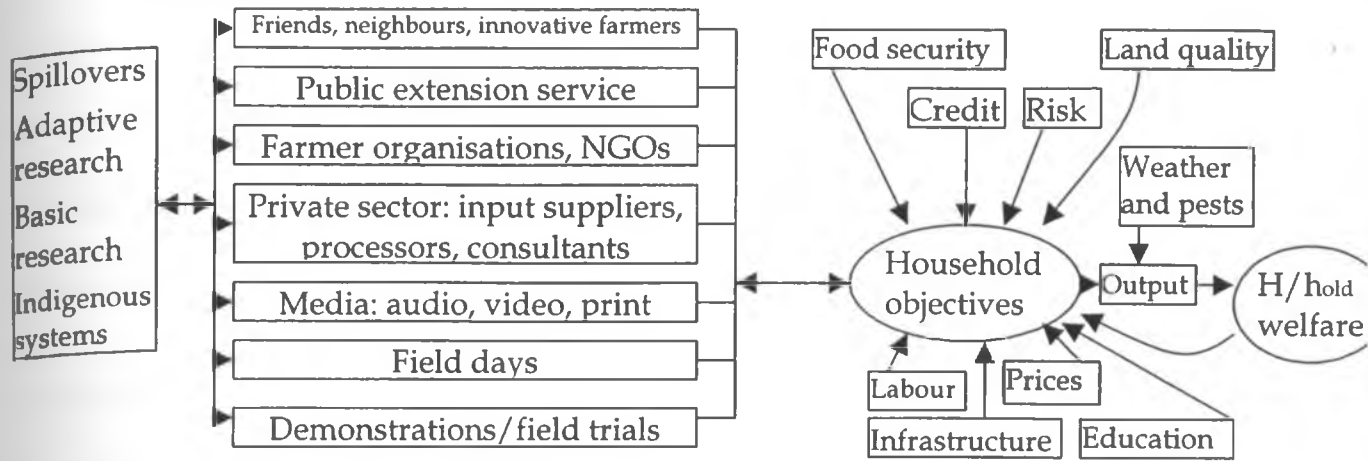
In light of such observations and of earlier findings in the IDRC Project of 1998, the conclusion is that there is an important role to be undertaken by agricultural researchers to study village institutions. In order to understand better the on-going struggle for existence such a study could be as valuable as actual intervention, as long as it is appropriate and participatory (Carter and Crowley, 1997).

### Summary

In the preceding pages, mention and discussion have been made about social networks, diffusion, dissemination and adoption of agricultural knowledge. Close observation of the above review of different works can show predictable connections. Such

associations of the different topics have been summarised in figure 2.

Figure 2: Information Generation, Dissemination and Use



Source: Adapted from World Bank, (1999)

The above figure summarises several factors. Key among them is a verdict that knowledge is neither static nor simply 'local' but is situated within a dynamic setting, which goes well beyond the household farm gate. The figure shows that creation, dissemination, and use of innovations occur in a wide environment open to direct and indirect influences.

### Conclusion to the Review

The foregoing literature has presented a complex of interactions emanating from and relating to community institutions and agriculture. Dealing with this complexity was the major challenge of this study. Each scientific study has specific limitations. The crucial issue indeed is and was the choice of what researchable aspects to pursue and how to represent them. 'Our' interests and needs governed this.

## 2.2 Theoretical Framework: Network Theory

*Network Theory* has been used to describe and explain community institutions. It explains networks and how networks work (Ritzer 1992). Ritzer demonstrates how networks within a community lead to the formation and sustenance of community institutions, and influence practices of people. He has applied this theory in the form it was used by other network analysts (Burt, 1982; and Wellman, 1983).

*Network Theory* is a recent development in sociological theory. Proponents of this theory examine regularities in how people and collectives behave rather than regularities in beliefs about how they ought to behave (Ritzer, 1992). They are concerned with ties linking community members, groups, corporations and societies. Therefore, one major distinctive aspect of *Network Theory* is that it focuses on a wide range of micro and macro structures.

*Network Theory* focuses on the objective pattern of ties linking members (individuals and collectives) of society. According to Ritzer (1992), links occur at the large-scale, social structural level as well as at microscopic levels. Basic to any of these is the idea that any 'actor' (individual or collective) may have different access to valued resources (wealth, power and information). The result is that structured systems tend to be stratified, with some components dependent on others. *Network Theory* rests on a coherent set of principles. First, ties among actors usually are regular in both content and intensity. Actors supply each other with different things, and they do so with greater or lesser intensity depending on the first principle. Second, the ties among individuals must be analysed within the context of the structure of larger networks. Third, the structuring of

social ties leads to various kinds of non-random networks. On one hand networks are transitive; if there is a tie between A and B, and B and C, there is likely to be a tie between A and C. The result is that there is more likely to be a network involving A, B and C. On the other hand there are limits to how many links can exist and how intense they can be. The result is that there are also likely to develop network clusters with distinct boundaries separating one cluster from another. Such clusters, if very distinct, can be called community institutions. Fourth, the existence of clusters leads to the fact that there can be cross-linkages between clusters as well as between individuals. Such cross-linkages between clusters (or community institutions) allow wider information sharing among other exchanges. Fifth, though ties are usually even, there occur asymmetrical ties among elements in a system. This results in scarce resources being differently distributed. Finally, the unequal distribution of scarce resources leads to both collaboration and competition. Some groups band together to acquire scarce resources collaboratively, whereas others compete and conflict over resources. For example, a community institution with an interest in tree nurseries may be unwilling to share its tools and techniques with a rival group. But it may co-operate with another group engaged in construction of water ponds in order to get water for their plants. This gives *Network Theory* a dynamic quality, with the structure of the system changing with shifting patterns of coalition and conflict.

### 2.2.2 Relevance of the Theory to the Study

*Network Theory* explains ties between different categories of people or groups for different reasons. Different categories of people belong to different community

institutions with the sole aim of improving their lives. It is on the basis of real or perceived benefits that they actively participate in group activities. In Emuhaya, individuals exchanged agricultural technologies within community institutions as a result of networks. These exchanges also included financial assistance, emotional security, labour assistance or other benefits depending on the kind of institution and nature of networks. Where such assistance was not sustained on a regular basis, members would reduce the intensity of ties within the group and seek better ones. Usually, benefits from one's institution accumulated over time, through learning, experience and imitation. This process resulted in a cultural practice extended over a long period of time and passed from one generation to another through interaction between individuals and among groups of people.

## 2.3 Hypotheses

The following are hypotheses that were formulated for the study:

- i) Age and socio-economic characteristics influence group membership.
- ii) Social networks influence dissemination of agricultural technologies.
- iii) Community institutions have potential to disseminate agricultural technologies.

### 23.1 Operational Definition of Variables and Terms

**Community Institutions:** (IV<sup>1</sup>) formal and informal groups with definite structures and role(s). Such groups are traditional leadership structures, water management

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<sup>1</sup> IV stands for independent variable.  
DV refers to dependent variable.

committees, youth groups, women groups, labour groups, farmer research and experimentation groups, church groups, mothers' groups and welfare groups.

The word *group(s)* has also been used in the thesis to mean community institution(s).

**Dissemination:** (DV) distribution, circulation and sharing of agricultural knowledge.

**Agricultural technologies:** farming and agroforestry-related knowledge such as *Tithonia diversifolia* manure, *Sesbania sesban*, new seed variety and pest management.

**Age:** number of years of respondents, measured as a continuous variable.

**Socio-economic characteristics:** were as follows:

**Formal education:** level of schooling and training: classes 1-8, forms 1-6, college (e.g. Teacher, accountant), university, and no formal schooling (none).

**Occupation:** the respondent's main livelihood activity such as farming and teaching.

**Religion:** religious beliefs or belonging to groups like Catholic, Protestant and traditionalism.

**Sex:** man or woman.

**Social networks:** referred to group meetings, agricultural demonstrations, field days, *barazas* and informal interaction and visits to friends and relatives. Friends, relatives and professionals used these tools to exchange information.



## **Chapter Three**

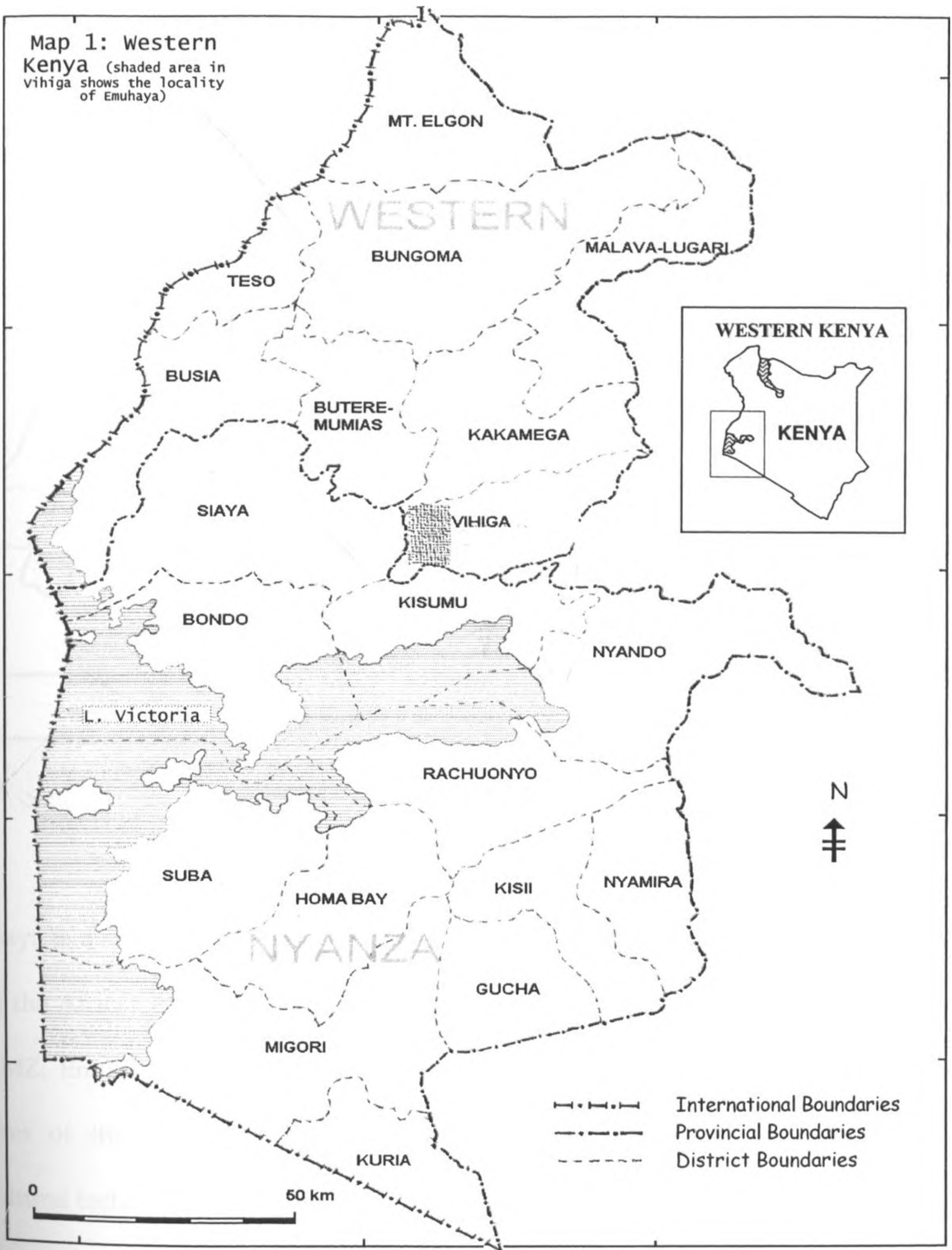
### **THE STUDY AREA AND METHODOLOGY**

#### **3.0 Introduction**

This chapter describes the research site, sampling process, research instruments, data collection and data processing and analysis. In addition, ethical considerations and links to other projects have been described.

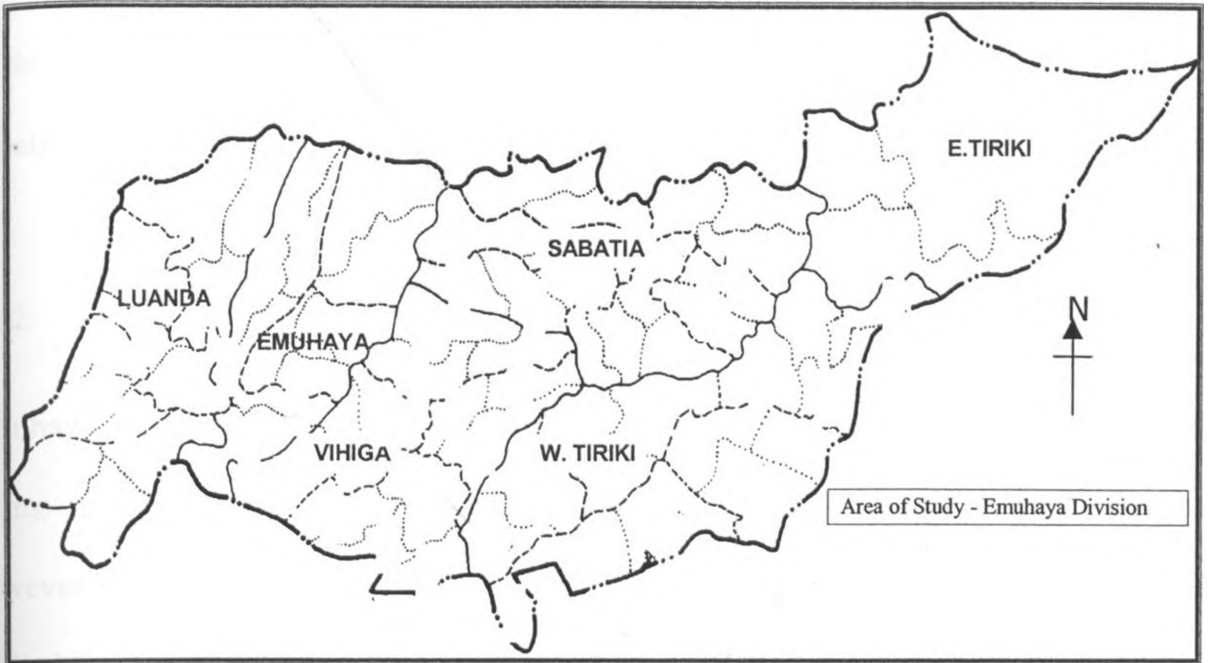
#### **3.1 The Research Area**

The study was conducted in Ebusiloli sub-location of Emuhaya Division in Vihiga District of Kenya. Vihiga District is bordered by Kisumu, Siaya, Butere Mumias and Kakamega Districts (Republic of Kenya, 1997). Map 1 shows Vihiga District and Western Kenya in which the study site is situated, whereas Map 2 shows Emuhaya and other administrative Divisions of Vihiga District.



Courtesy: ICRAF Maseno (edited)

Map 2: Vihiga District: Administrative Divisions



Courtesy: ICRAF Maseno (edited)

Emuhaya is a site of research for TSBF-UNESCO, ICRAF and KARI that are operating under the African Highlands Initiative (AHI). Fieldwork for this study was funded by the BMZ. Emuhaya is the benchmark site for the BMZ Project, which is under the auspices of the AHI. The BMZ Project focuses on integration of contemporary agricultural technologies with traditional farming methods to improve soil fertility and agricultural output. This study was a follow-up of a baseline survey which indicated the need to incorporate community institutions in transfer of agricultural technologies. Therefore, the site was purposively selected to address the gap in the on-going BMZ Project.

### 3.1.1 Position

As shown in map 2, Emuhaya Division borders Kakamega District to the north, Luanda Division to the west, Kisumu District to the south, Vihiga Division to the east and Sabatia Division to the north-east.

### 3.1.2 Land, Soils and Agriculture

Emuhaya has loamy sands that support the growing of maize, sweet potatoes, coffee, beans, finger millet, sorghum sugar cane, and horticultural crops. These soils are however quickly losing their fertility through leaching and over-cultivation due to limited land sizes per household. The division is already not self-sufficient in food and thus relies on imports from other areas outside Vihiga District. Emuhaya division does not have any extensive pastureland. Some of the Napier grass fed to tethered and zero-grazed cattle is grown along road reserves adjacent to the individual farms.

### 3.1.3 Climate and Topography

Vihiga District in which Ebusiloli lies, has an altitude range of 1300m to 1500m and slopes gently from the west to the east.

The two main rivers in the district are Esalwa (Edzava) and Yala with their several tributaries some of which cross Ebusiloli. There are two main rain seasons in Vihiga, the April-June or first rain (during which the study was done) and the September-November second rain. The period from December to February has the lowest rainfall. Emuhaya division which is on the leeward side of Maragoli hills, receives the lowest

amounts of rainfall of all the six divisions. Temperatures range from 14 °C to 31 °C (Republic of Kenya, 1997).

There are several granitic hills of up to 1950m above sea level. These rocky hills present bottlenecks to the efforts of road construction and agricultural production.

Ebusiloli has two key roads serving it - the Bukuga - Esibuye muram road and the stand Kisa - Kima road now being tarmacked. There are other small feeder roads linking interior schools and market centres.

### 3.1.4 Demography

Vihiga District has an annual population growth rate of three per cent (Republic of Kenya, 1997). Emuhaya Division has a population of about 89,952 people, constituting fourteen and a half (14.5) per cent of the population of Vihiga District. Emuhaya population density is about 1197 people per sq. Km. higher than that of 1,147 people per sq. Km for Vihiga District (Republic of Kenya, 1997). This is an extremely high population density for a rural area. This, coupled with a high population growth rate has resulted in small farm holdings and because farming is not technologically intensive, it has compromised the high agricultural potential of the area. The end result has been an increase in poverty as evidenced by erratic food shortfall, worsening food distribution in consumption and migration to urban centres.

### 3.1.5 Membership of Community Institutions

In 1995, there were 948 registered women groups with membership of 28,440, 557 savings help groups (no membership record) and 168 youth groups with registered

membership of 4,543 (Republic of Kenya, 1997). Information acquired from the divisional headquarters during the study show that there are seven registered groups in Ebusiloli, but there was no record of their membership (Courtesy: Ministry of Social Services, Emuhaya Division). Although figures on group membership are incomplete, members belonging to groups constituted more than 33 per cent of the total population of Emuhaya. Other sources indicate that most farmers belong to different types of groups. According to Muruli *et al* (1999), more than sixty three per cent of farmers actively participate in different kinds of community institutions.

### 3.1.6 Culture

Vihiga District is home to three of the seventeen Luyia sub-ethnic groups namely the *Abanyore*, *Abalogoli* and the *Abatiriki* (Osogo, 1965). The *Abanyore* who mainly occupy Emuhaya division and speak *Lunyole* have a patrilineal type of descent. They practice both monogamy and polygyny. As a patrilocal community, men are required to demarcate their portions of land for their own farming regardless of the size of the farm. Also, unlike in Kabras (Western Kenya) where locals prefer to buy land away from their ancestral home, this is largely the reverse in Emuhaya. This has contributed to the difficulties inhibiting meaningful growing of extensive crops like sugarcane, tea or even maize on commercial basis as a result of repetitive sub-divisions of land for sale.

Traditionally the *Abanyore* sub-ethnic group formed a close community, and there was much sharing of life between families and people of neighbourhoods. Today, a strong individualism is replacing this community consciousness. The predominant religion is

Christianity with the Protestant Church of God having the largest following. (Muruli et al, 1999)

### 3.2 Sampling, Types of Data and their Sources

The **unit of analysis** was a community institution or group. Information was acquired from individuals (observation unit), but the study focused on community institutions or groups. Primary and secondary data were used. Primary data were generated from questionnaire interviews, Focus Group Discussion (*FGD*), group discussion, direct observation, key informants and informal interviews. On the other hand, secondary data were obtained from the Ministry of Social Services office in Emuhaya.

#### 3.2.1 Sampling

Men, women and youth of Ebusiloli sub-location of Emuhaya Division in Vihiga District formed the population **universe**. Lists of farmers in Community institutions were acquired from RARC, Ministry of Social Services, and farmers. The lists were combined to create a sampling frame for the study.

#### Sample Size

A register or sample frame of 334 members (for ten selected community institutions) was obtained from officials of those institutions. Probability sampling procedure was carried out to draw **seventy-eight** respondents from the register for the study.

### 3.2.2 Sampling Procedure

This study was part of on-going agricultural project collaboration among a number of organisations namely: TSBF/UNESCO, KARI, KEFRI, ICRAF and the Kenyan agricultural extension service. At the initial stage of fieldwork, the researcher with the assistance of personnel from TSBF-UNESCO identified six farmers, each representing a village in the research site. The six farmers had been involved in research and were known to have good leadership qualities in their community institutions. Those farmers collaborated with a representative from each of the other collaborating organisations and together with agricultural extension personnel they provided a list of fourteen community groups that were engaged in agricultural activities in the division. In the process of building rapport with community residents, the researcher identified nineteen more community groups that were engaged in agricultural activities in the division, making a total of thirty-three groups. In addition, a list of seven similar groups was available from the divisional office of the Ministry of Social Services. In total, an inventory of forty (40) community institutions was composed. Finally, ten institutions were purposively selected from the inventory of 40 institutions. The ten institutions or groups were selected based on the criteria given below under non-probability sampling.

#### Non-probability Sampling

The project needed groups that could be used to disseminate agricultural information and influence farmers to adopt it. The researcher therefore **purposively** selected ten groups using four key attributes namely (i) those that were engaged in agricultural activities, (ii) with regular meetings, (iii) more than one year in existence and (iv)



which engaged in information dissemination in some way. The selected groups were: 3 women groups, 3 youth groups, 1 church group, 1 self-help group, a farmers research group and 6 village headmen. Selecting a representative sample of groups that were identified incorporated gender considerations.

Eleven key informants were also selected purposively. They were: people with leadership roles and responsibilities, respected in the community, people who had worked in that community and had accumulated essential knowledge and experience in local agricultural aspects, with valuable opinion on community organisations. Some had participated in the project before and had valuable opinions about the project. These people were selected with the assistance of villagers and the field staff of the project.

### **Probability Sampling**

Random sampling was carried out to draw seventy-eight respondents from 334 members of the ten selected community institutions. Six members that comprised the group of village headmen were included purposively, based on leadership capacity. Eight respondents were randomly selected from each of the other nine groups. Names of each institution's members on the sampling register were numbered. Numbers corresponding with those names were written on small equal-sized cards and folded into 'balls'. Those 'balls' were then thoroughly mixed in a mug before randomly picking eight from each lot.

The figure eight was ten per cent or  $1/10$  of the largest sampled group, which had

eighty-two members. The smallest sampled group had ten members. Eight was then adapted for every group. The figure was arrived at due to two key factors, namely:

- (a) homogeneity of the population in terms of – culture: language, social practices, and the general farming mode. Also the range of groups was not so wide in terms of the difference in activities and organisation and many of the members of those groups belonged to more than one of the institutions identified.
- (b) small sub-group – the area of study was small, covering a highly interactive population.

### 3.3 Methods of Data Collection

#### 3.3.1 Direct Observation

Direct observation was used to identify existing structures or features that were connected with farming. Information on visible features within the community, which was used to enhance the understanding of the ecological setting and information on activities that were relevant to the study, was collected. The researcher observed people's activities and events in the research site and recorded them in a field notebook.

The questionnaire was pre-tested for clarity and effectiveness before administering.

#### 3.3.2. In-depth Interviews and Group Discussion

A range of questions on networks, community institutions, agricultural information sharing and agricultural technology adoption were asked.

Two interview guides were used to collect qualitative data. The first one was a **topic**

guide used for Focus Group Discussion (FGD), the themes were on problems that affected groups in farming and information sharing, coping strategies and group members' solutions to these problems. A total of four FGD were conducted. Each FGD had nine people. The groups were as follows:

- (a) a youth group of members between the age of 20 and 35 who were engaged in horticultural activities.
- (b) a women group with participants between 29 and 50 years. This group carried out agricultural activities, cash savings, forestry and all were married.
- (c) six village headmen (*Maguru*). These leaders had an administrative committee that assisted research institutions to mobilise farmers. They were all men aged between 47 and 68.
- (d) a church group members of a denomination called the Holy Spirit. Members carried out varied activities ranging from cash contributions to planting tomatoes and other horticultural crops for sale or church use. Although this group was mixed in composition, only two men were part of the discussants because others were not available.
- (e) Other than the four FGD presented above, three others each comprising nine participants were held. These groups, each with different characteristics of gender and age, carried out *wealth ranking* exercises. Participation was voluntary, two were held in churches and one in an enclosed space behind a shop owned by someone who did not belong to any group. Participants were drawn from the following groups: (i) a women group of 19 members, members were only women, (ii) a youth group of 82 members, participants were women and men aged between

21 and 40 and (iii) a group of 39 members registered as a youth group. Participants were men and women aged between 26 and 50.

There were two recorders in each *FGD*. These were selected among group members and trained before discussion. Discussion focused on themes that were provided in the interview guide and responses were recorded under each theme.

As a facilitator in each discussion, the researcher described the process to participants and then outlined the purpose of the exercise and the sequence of steps that would be followed. Participants in each group were requested to:

- (a) use their own criteria to define and identify different categories of wealth - using objectively verifiable indicators such as type of house,
- (b) divide themselves into two groups of four and five,
- (c) provide a list of group members they selected to be sorted into different wealth groupings of their choice,
- (d) record on a card a member's name and wealth category.
- (e) re-assemble and compare their separate scores for the group members and to discuss the difference.

The wealthiest group was 1, the second 2, the third was 3 and the least wealthy was 4.

In total there were 4 groups identified by the *FGD*.

Agricultural activities of farmers are partly determined by their social and economic characteristics (IIRR, 1998). This information assisted the researcher to identify social characteristics of members of community institutions in relation to their roles and influence.

The main shortcoming was time consumed due to the debate involved over wealth issues. The anticipated problem of monopoly of discussion by some individuals did not occur due to the nature of the topic; everyone was responsive.

The second guide used was an **interview guide for key informants**. A total of eleven key informants were interviewed; six men and five women. All the informants were married. The youngest was thirty-nine years old while the oldest was sixty-one. They included a schoolteacher, full time farmers, a village headman, group leaders and church leaders. Focus of these interviews was on possibilities of inter-group sharing of information, participation of local women in training and their role in improving agricultural productivity and hindrances to dissemination, exchange and adoption of agricultural technologies among group members of different social and economic background.

### 3.3.3 Questionnaire

A structured questionnaire (appendix 1) was administered to the seventy-eight randomly sampled respondents. It was used to elicit information on characteristics of members of groups, frequency of participation of group members in their activities, ties between members of groups and their roles. Questions were close-ended. However, few were open-ended questions designed to obtain answers through probing.

## 3.4 Problems Encountered and Solutions

On many occasions, farmers deviated from the focus of the study and requested

**technical information** on matters such as agroforestry and funding. An attempt was made to link them with staff at Maseno Regional Agroforestry Research Centre (RARC) for advice or training.

Initially, it had been anticipated that a total of twelve community institutions would participate in the study. However, because of **multiple group membership** (some individuals belonged to more than one group), extreme care had to be taken to ensure that sampled farmers represented one group and that they were not sampled twice.

### 3.5 Data Processing

Data were coded and arranged according to themes such as level of education, reasons for not adopting technologies and age.

Legend of the responses as given by informants was listed. This necessitated going through all responses of all questionnaires and extracting them. Those responses that were exactly similar were not repeatedly listed. **Codes** were assigned to listed responses. These codes were either numbers or letters but without any value attached.

Names of informants and groups were also coded.

Every questionnaire had space for codes besides the space for responses. Each space for a code was filled with the relevant code - corresponding with a given answer, including such responses as 'not applicable' (N/A) and 'don't know' (D/K).

### 3.6 Data Analysis

Data analysis consisted of quantitative and qualitative techniques.

#### Quantitative Analysis

Quantitative analysis focused on descriptive statistics (means, frequencies, proportions and percentages). *MS Excel* was used for data entry and *Statistica* for analysis.

#### Qualitative analysis

Much of the data collected were qualitative. Therefore, a larger part of the data set was analysed through deduction and induction methods based on observed activities as well as discussions and explanations from respondents. The researcher looked for patterns in the information that had been acquired. Reference was made on observations.

### 3.7 Ethical Considerations

After selection of informants, consent to participate was requested by carefully explaining the objectives of the study. Respondents were assured of the confidentiality of the information they gave (names and places were coded) and every effort was made to respect the wishes of participating individuals.

## Chapter Four

### PRESENTATION AND DISCUSSION OF RESEARCH FINDINGS

#### 4.0 Introduction

The first part of this chapter consists of description of community institutions that were identified in the study. Next, findings on age and socio-economic characteristics of members of community institutions are presented and discussed. Then, data on social networks, dissemination and adoption of technologies and the possible role of community institutions are presented and discussed in line with objectives of the study.

#### 4.1 Community Institutions

Table 1 displays various community institutions that were identified in the study. Women groups formed a large part of the identified institutions followed by youth groups. Three groups were sampled from women and three from youth groups respectively. One group was taken from each of the following; self-help, church, farmers research and *Maguru*.

**Table 1: Distribution of Identified Community Institutions**

Institution	Identified	No. Sampled
Women	16 (40%)	3
Youth	8 (20%)	3
Self-Help	3 (7.5%)	1
Water Point	2 (5%)	0
Clan	3 (7.5%)	0
Church	2 (5%)	1
Farmers' Research	1 (2.5%)	1
Mothers'	3 (7.5%)	0
<i>Maguru</i>	1 (2.5%)	1
Labour	1 (2.5%)	0
<b>Totals</b>	<b>40 (100%)</b>	<b>10</b>



## Women Groups

Data from *FGD*, in-depth interviews, group discussion supplemented by the survey show that women groups typically consisted of women and men. Women were the majority although some comprised women only. Women groups undertook varied activities including cash contributions and financial assistance for members, credit schemes for members, savings funds, horticulture, tree nurseries, small businesses such as road-side selling of vegetables, kerosene, maize and labour assistance for members in critical need. They had a more diverse mix of social status than other groups, and had wide variation of age and occupations. They held more frequent meetings than other types of groups. Networking relied on friendship and membership transcended genealogy and village boundaries. When asked why group solidarity revolved around friends and not relatives, one woman who was a key informant said:

'All of us in this group were married into this community. We work together because we are good friends in need of food, utensils and money. Besides, I gain knowledge about vegetables and get news from other villages about death of a relative or birth of baby among other things. I do not like to work very closely with close relatives like my brothers-in-law or sisters-in-law.'

Such sentiments were repeated in all group discussions and in-depth interviews. This suggests that farmers joined groups to gain knowledge on agricultural technology and their social surroundings.

Table 2 presents composition of community institutions. As shown in the Table, friendship was the most important basis on which farmers networked, especially within women and youth groups. Close friends were useful to one another; they highly

interacted, had intimate relations, and exchanged items frequently.

**Table 2: Composition of Community Institutions**

Type of Institutions	Composition				Totals
	Close Friends	General Friends	Close Relatives	Clan Members	
Women Groups	31 (64%)	8 (17%)	3 (6%)	6 (13%)	48 (100%)
Youth Groups	21 (43%)	10 (20%)	2 (4%)	16 (33%)	49 (100%)
Farmers R G and Self-help Groups combined	11 (28%)	10 (26%)	2 (5%)	16 (41%)	39 (100%)
Averages	21 (45%)	9 (21%)	2 (5%)	13 (29%)	45 (100%)

Other than the survey data presented in Table 2, all in-depth interviews and FGD showed friendship was more important in making successful groups. They felt it was pointless to form or join groups on the basis of their lineage. Asked whether he did value clan groups, a village headman observed that:

'I am a member of my clan because I was born there. I cannot change it, and if I come across great difficulties my people cannot abandon me. Every clan here has an organisation that assists members in distress. Members are known and do not need to register. When there is a funeral, all clan members are obliged to participate. We do not remind people that they need to bury their own.'

This suggests that people worked well with their clan members in desperate situations like funerals. For this reason mainly, many people did not envisage living without relatives. An informant in his sixties observed:

'Relatives do not like to see my children prosper. They talk ill of them. They steal their property. However, we cannot ignore relatives. We will be like dead people. We must maintain our relations, but skilfully.'

## Youth Groups

Youth groups like women groups were formed mainly on friendship basis. Most of the younger members had attained secondary education but had not had formal training and employment. They were comprised of men and women, or boys and girls and had no age limit. They engaged in varied activities such as cash contributions, credit schemes, horticulture and labour assistance. Some participated in raising tree seedlings for sale. However, unlike members of women groups, members in youth groups valued formal employment very much. During one of the group discussions, one group leader summarised his group's greatest ambition as:

*'To transform this group into a company or rich club so that we may not need to work for other companies or look for employment elsewhere. We hope that your project (the BMZ Project), the government and other institutions and people can give us assistance so that we can utilise our education progressively.'*

This recount shows that the youth do not control many resources and are concerned about being formally employed. Their biggest goal for forming groups was to gain financial benefits. To them, more than other groups, success would be realised when technologies provided to them would generate income more than off-farm activities that were more attractive during the study period.

## Self-Help Groups

These were groups that mobilised their physical and intellectual resources to improve their situation. Their main activity focused on cash contribution. Cash was raised through contributions, and then awarded to each member at a time on rotational basis.

Self-help groups were not therefore very distinctive, many other groups contributed and shared cash, and so, could as well be legitimately regarded as Self-help groups. An extract from a constitution of a self-help group said:

'This organisation will assist members to tackle their financial needs through contributions, assisting them to sell timber ... and so on.'

Most youth groups started at this level. Self-help groups followed a flexible format of operation such that members' different needs could be accommodated.

### Clan Groups

These can be described as 'crisis groups'. They were comprised of lineage members and were formed for the main purpose of consoling bereaved families through psychological, financial and material support. Meetings were held where and whenever there was that kind of need. They did not therefore have laid down agricultural or economic plans and activities.

### *Maguru*

*Maguru* are the Village headmen. They had a committee that was responsible for co-ordination of village administrative matters such as alerting villagers about vaccination campaigns. During an in-depth interview, one of them said:

'We are old and cannot pass information quickly without our committee. For instance, when KARI wanted to start this project, our committee was responsible for spreading the message across all the villages in Ebusiloli. Personally, I incorporate a whistle to alert people to my meetings.'

Use of the whistle is an extension of an old practice in which a horn was used. *Maguru* were respected locally and assisted the provincial administration by solving local

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Use of the whistle is an extension of an old practice in which a horn was used. *Maguru* were respected locally and assisted the provincial administration by solving local

conflicts. Unlike most other groups, *Maguru* did not engage in collective agricultural activities.

### **Farmers Research Group**

They were mixed in gender, age, economic and social backgrounds. Researchers working in the area initiated this group to assist them carry out research on soil fertility and new varieties of crop seed. Unlike other groups, they scheduled their meetings to suit the activity calendar of researchers and did not have any other collective agenda.

### **Water Point Groups**

These were organisations of people living around given water points or sources. Their purpose was to develop water sources. Membership was mixed (women and men) although women attended meetings more regularly than men. Asked why men did not like to attend committee meetings, a woman who spoke before others in one of the group discussions agreed that:

'Our husbands contribute money toward water points and attend some meetings. However, unlike them we fetch water from those points everyday. If they grow bushy or dry up we are the first to notice and so we act.'

This feeling was observed to be true. During the fieldwork, only women and children could be seen fetching water, and during group discussions this was said to be a feminine duty.

### **Mothers' Groups**

They consisted of married women with children. These were Rotating-Fund

Associations (commonly referred to as *merry-go-round*). Their main activity was to contribute cash and goods for members' household and children's needs. They held frequent get-togethers, and were highly preferred by poor mothers for moral support. During discussion, a woman aged sixty years recalled when her group assisted her at a time of need, she said:

'When my house burned down in 1979, my colleagues contributed ... and money. Those iron sheets (pointing to the roof of her house) were bought from that money... They like me because I have done my part well.'

FGD, group discussion and in-depth interviews showed that most mothers' groups started at the level of savings associations and 'trouble funds'. Poor mothers were usually only able to make a small profit from the sale of crops especially vegetables. Due to such reasons, in addition to working jointly in the fields, the establishment of savings and loans schemes in the group was of central importance to help their children. Usually, the women contributed in fixed amounts monthly and the total amount was then paid out to each member at a time. Unlike youth and women groups, they did not have 'smart' financial and agricultural events and programmes

### **Church Groups**

They mainly comprised members of one church denomination, commonly women. Their main activities included moral and emotional support, information sharing and counselling. Discussions always started with prayer and during an in-depth interview a middle-aged woman suggested that:

'Our group offers the best assistance. We pray together and we witness an improvement in our wellbeing....'

Nanda (1994) and Ember and Ember (1988) suggest that religion plays an important role in re-assuring people in times of difficulty.

### **Labour Group**

This group consisted mainly of women and their main activity was to sell labour. Most of their labour activities were agricultural. As the chairperson of this group pointed out during a group discussion:

'We dig, weed, slash, harvest, transport and do any other activity for anyone who hires us. We have worked for people in Kitale and elsewhere, all the employers did was to organise for our transport and pay us. Our terms are not fixed. The money we get is put in the basket (saved) and members are entitled to shares according to the numbers of days each of them participates.'

Most local farms are very small (Republic of Kenya, 1997). Therefore, most farmers do not require a lot of labour. However, few local people have bought farms in Kitale and transport members of this group to work for them especially during harvest time because labour in Kitale is comparatively expensive.

### **Summary**

All in all, women groups had the most varied activities. Age of membership, occupation and wealth status were most varied compared to other groups. They were the most active in terms of social and income generating projects. The majority of members of youth groups had secondary education. Youth groups had no age limit and experienced the most frequent membership turnover. *Maguru* engaged mainly in administrative



activities.

### Exchanges between Members of Community Institutions

Farmers listed numerous rewards of belonging to community institutions. Table 3 gives five selected responses about benefits that farmers derived from community institutions. Only those responses mentioned more than twenty times have been listed and as a result, percentages could not be calculated.

**Table 3: Selected Responses on Exchanges  
between Members of Community Institutions**

Selected Exchanges	Frequency of Responses
Credit	56
Labour	48
Knowledge	29
Food	29
Assistance - in distress	27

Credit in Table 3 included non-monetary items like seed, tools and so on. *FGD* and group discussion findings show that various institutions had credit schemes that allowed members to borrow money and pay back with an interest of between 5 and 20 percent per month. Labour assistance included weeding, cultivating and harvesting crops or construction of houses among other things.

Table 4 presents various reasons that respondents said motivated them to form community institutions. The most important factor was to improve livelihoods. Farmers joined or formed these institutions because they needed material and social benefits.

This is illustrated in the following description of a 30 year-old woman during an FGD:

'I joined Mwozo Women Group because it is very progressive and helpful. Last year, I borrowed five hundred shillings from the group to buy maize seed. I have met many helpful researchers and visitors from different organisations from Nairobi and abroad because of Mwozo.'

**Table 4: Percent Distribution of Reasons for Formation of Community Institutions**

Responses	Frequency	Percent
Improve livelihood	49	34
Cash - credit, assistance, savings	36	25
Agricultural development	35	24
Advice and information	15	10
Administrative issues, <i>Maguru</i>	6	4
Links to donor and agricultural organisations	3	2
Employment, to earn some money	1	1
Totals	145	100

However, there was contradiction in the responses between improved livelihood (34%) and employment to earn some money (1%). Farmers argued that community institutions do not provide employment, but knowledge and credit to improve one's living standard.

Other than what motivated members, it was necessary to find out individual contribution by farmers to these institutions. Members of community institutions did not see contribution only in terms of cash, information was also highly valued. In one FGD, a fifty year-old discussant said:

'Three years ago, I advised my group to engage in making of table clothes and maize business. Obviously, my contribution is better than money because this year, those two have been the most important income generating activities in my group. I now suggest that this group should start growing the black bean (the improved KK15 bean variety). It is very profitable. This season, it looks very promising, and if I get a good harvest I may donate to my group.'

Data from the survey show that other important contributions to the community institutions included labour, management of the group and donations in terms of seed, food and stationery.

Exchanges between friends within institutions were done largely on the basis of reciprocity. One key informant (a woman) observed that:

'Some of the members in my group expect to receive all the time. They say they are poor every year even when they have been taught how to grow vegetables profitably. I do not help some of them because they are not honest with me. They want to be given gifts, yet they cannot help you to weed.'

The bottom-line was that a member made a contribution with some degree of reciprocity. This meant that if one anticipated a less commensurate return from a group then one chose to work with another group or none at all. This inference is well illustrated in *Network Theory* (Ritzer, 1992) as reviewed in chapter two.

The concept of reciprocity was first put forward by Bronislaw Malinowski in 1920 while studying a distributive mode called 'Kula' among the Trobriand Islanders. Reciprocity consists of giving and taking and ranges from pure gift giving to equal exchanges and to cheating. It takes three forms, generalised, balanced and negative

reciprocity (Ember and Ember, 1988). This study found that networking among members of groups in the study community was based on balanced reciprocity, items were given with immediate or planned or expected returns.

Co-operation that characterises such groups renders the work of members of community institutions light. Studies elsewhere show similar observation. That is, by working together it becomes possible to keep an easily accelerated work pace, while learning from each other, according each other mutual respect as well as becoming more generous towards one another. As Kanogo and Maxon (1992), (in Nangendo, 1994:353) say, members of these groups:

'Pooled labour resources and shared the proceeds of that labour, and this produced a spirit of sharing and unity. People joined these groups even if they did not immediately need the services provided'.

The foregoing data from the questionnaire, *FGD* and group discussion show that farmers regard community institutions as valuable vehicles for sharing information and resources.

#### 4.2 Characteristics of Members of Community Institutions

It was hypothesised that age and socio-economic characteristics (e.g. education) influence group membership. Age and level of education were identified through questionnaire interviews. Data on socio-economic status were obtained through wealth ranking exercises and *FGD*.

Table 5 provides data on composition of selected community institutions by age. The Table reveals that *Maguru* were the oldest respondents followed by *Jirani* members.

Conversely, Escrava YG had a low age average of about 25 years. The *Maguru* were elected to lead because of their experience and age. The average age of 44 for all members of groups suggest that community institutions in the study were predominantly composed of middle-aged and old men and women. When asked why he had joined a youth group, a forty-eight year old informant stated that:

'Young members have important agricultural knowledge and are more willing to share it than old ones. They are punctual in meetings and I work with them without any problem contrary to what some people say.'

This revelation suggests that age was important and not an overriding hurdle to farmers interested in joining community institutions of their choice.

**Table 5: Distribution of Community Institutions by Average of Age**

Name of Institution	Average of Ages	No. of Members
Escrava YG	25.7	8
Muongano YG	41	8
Ebusiloli FR	43	8
Mukhombe WG	41	8
Emanyonyi WG	43	8
<i>Maguru</i>	60	6
Mwoso WG	39	8
Jirani M WG	54	8
Tsinyongula SHG	50	8
Ebusiloli YG	40.6	8
All Groups	44	78

Key: YG - youth group, WG - women group, FR - farmers' research group and SHG - self-help group

Data in Table 6 reveal all group members comprising Escrava YG had attained

secondary education. The group was composed of young people. On the other hand, members of Jirani group that comprised older mothers did not have any member who attained secondary school level. Of the *Maguru*, only one member reached primary education level.

**Table 6: Distribution of Levels of Education by Group**

Group	Some Primary	Some Secondary	Some Trained	None	Totals
Escrava YG	0 (0%)	7 (8.9%)	1 (1.25%)	0 (0%)	8 (10.25%)
Muongano YG	5 (6.4%)	3 (3.8%)	0 (0%)	0 (0%)	8 (10.25%)
Ebusiloli FR	3 (3.8%)	5 (6.3%)	0 (0%)	0 (0%)	8 (10.25%)
Mukhombe WG	7 (9%)	1 (1.2%)	0 (0%)	0 (0%)	8 (10.25%)
Emanyonyi WG	3 (3.8%)	4 (5%)	1 (1.25%)	0 (0%)	8 (10.25%)
<i>Maguru</i>	5 (6.4%)	1 (1.2%)	0 (0%)	0 (0%)	6 (7.75%)
Mwoso WG	3 (3.8%)	2 (2.5%)	2 (2.5%)	1 (1.5%)	8 (10.25%)
Jirani M WG	7 (9%)	0 (0%)	0 (0%)	1 (1.5%)	8 (10.25%)
Tsinyongula SHG	5 (6.4%)	3 (3.8%)	0 (0%)	0 (0%)	8 (10.25%)
Ebusiloli YG	5 (6.4)	3 (3.8)	0 (0%)	0 (0%)	8 (10.25%)
<b>Totals</b>	<b>43 (55%)</b>	<b>29 (37%)</b>	<b>4 (5%)</b>	<b>2 (3%)</b>	<b>78 (100%)</b>

These results suggest that groups were not formed on the basis of education. Another observation from these data is that future interventions need to take into account low levels of education attainment among the farmers. Further group discussion with participants about education suggested that education is important in disseminating agricultural knowledge.

These results suggest that communication about agricultural technology through print media can be effective if it focuses on use of *Swahili* or the local *Luyia* dialect, *Lunyole*. During group discussion and *FGD*, it was however observed that print media was not common. The few available articles (like those on *Tithonia*) had been given to farmers who had learned about them already. The following revelation as given by an

informant during an in-depth interview suggests the same:

'I have seen farmers who participate in your work (referring to the BMZ project) with articles on *amaua amalulu* (she touched a *Tithonia* shrub). Have you brought me any? I understand you (researchers) give books and other things to farmers who participate in your work. We never get to read them. You should be giving them to farmers in community groups. If they belong to the group, members can share them and discuss their details. They can then keep them as group records.'

This suggests that print media can be circulated through community institutions to reach many readers. These sentiments by informants are in agreement with Drinkwater (1992) who stated that researchers and extension agents can improve the process of information dissemination by channelling technical information through groups. He argues that a collective memory quickens the adaptive research process.

It has been observed that school education improves farming skills and adaptability of farmers (Hopcraft, 1976). Apart from the economic limitations of farmers, their capacity to learn and manage farming practices that are quite different from their traditional approaches determines very much their capacity to adapt (Puentes and Swift, 1999). Access to information, knowledge and education levels are commonly considered to influence decisions regarding factor allocation and adoption of innovations. The relationship is twofold: better educated farmers face higher opportunity costs of labour and are therefore inclined to adopt more capital intensive innovations, while they also have more learning abilities to introduce judgements within their farming systems.

During the process of rapport development it became clear that socio-economic status

played a major role in influencing group membership. After lengthy discussion with key informants in the community, it was necessary to conduct a wealth ranking exercise that would provide information on indicators of socio-economic status. Table 7 on the next page displays information from the wealth ranking exercises that was gathered in the study. That information was used to determine relevance of social status on composition of community institutions.



**Table 7: Categories of Wealth Ranking by their Indicators**

Indicator	Categories			
	Wealthiest	Wealthier	Wealthy	Poor
Housing	Permanent house with electricity and telephone, 10 rooms	Permanent house commonly 7 rooms	semi-permanent house (struggled to built it to avoid rain)	grass thatched or semi-permanent house, 2 rooms
Food	Surplus food (several meals a day)	3/4 meals a day	2 meals a day	one or no meal at all in a day
Children's education	Educated children with formal jobs	Educated children, few with formal employment	educate children through hardship - children reach class 8	children rarely go to school due to lack of school fees
Car	Working car(s)	Few have a car	No car	No car
Land	Bought several parcels of land	one/two parcel(s) (1/2 acres each) of bought land	mainly inherited land	less than one acre of inherited land
Cattle	have grade cows	Indigenous cows/some have grade ones	many have no livestock	no livestock, not even poultry
Workers/labour	have servants	no servants	few sell labour	Sell labour
Cash crops	have cash crops - tea	Most have tea plots	Most do not have tea	No cash crop
Farm inputs	use manure and fertiliser - full rates, including top dressing	use manure, most use fertiliser	do not use fertiliser, have limited manure	do not cultivate their farms/ farms are leased out farms/ not well taken care of
Income	Have several income sources	most are formally employed	Some have low paid jobs	Have no formal jobs
Fence	have well maintained barbed fence & live fence	live fence mainly with barbed wire reinforcement	Traditional fences, e.g. euphorbia or poorly maintained wire fence	have unfenced compounds
Training	Most have college training	are trained or have secondary education	Few have formal training	Have low education/training; some do not have it at all. Also, lame people, and some men who do not marry or whose wives abandon them fall in this category

Table 7 shows four wealth categories that were identified and the various indicators of each category as given by respondents. Names of the categories are only relative; were used to compare statuses in the study area. Wealth indicators shown in Table 7 were the most common in all discussions. Similar exercises conducted by ICRAF, IIED and TSBF-UNESCO in Vihiga suggest that farmers do not rank themselves on the basis of few

indicators. However, some indicators are usually considered more important than others (IIRR, 1998).

Table 8 shows ranking in four wealth categories. Results in Table 8 reveal that a large proportion of farmers were perceived as poor. As one discussant in the mixed group put it:

'All of us are not very lucky in this group. Initially, we had few well-to-do members. However, none of us can recall when last any of them attended our meetings. They are not with us in this struggle. I guess next time one of us grows rich and quits we will not be informed as in the past.'

**Table 8: Wealth Categories by Selected Institutions**

Group	Wealthiest	Wealthier	Wealthy	Poor	Totals
Youth Group	0	2 (2%)	41 (50%)	39 (48%)	82 (100%)
Women Group	4 (21%)	9 (47%)	6 (32%)	0	19(100%)
Mixed Group	0	1 (2%)	12 (31%)	26 (67%)	39(100%)
Totals with Percentages	4 (3%)	12 (9%)	59 (42%)	65 (46%)	140 (100%)

According to a 40-year-old key informant, the relatively well off do not stick to group activities because:

'They do not spend most of their time on or around their farms. You see, my neighbour works in Kisumu, he has a *posho* mill and a tea farm, and his wife is busy supervising the workers. He sits among people with great ideas of development and who harvest money and not words!'

The two informants cited above show that institution members did not view themselves as well to do. This suggests that community institutions were made of the resource-poor.

*Network Theory* suggests that as an institution member's fortunes rise, the return on each of their contributions to the group would decline, causing them to lose interest in continued membership.

During initial stages of formation of community institutions, group action was likely to be minimal. However, over a long period farmers began to take joint action in a more organised way in order to meet needs that many of them recognised but could not meet by acting individually. It was however clear in all *FGD* and group discussion that farmers influenced close friends to join groups mainly by informing them about benefits the groups offered.

Mosher (1966: 154) has made similar observation:

'Most farmers are so busy with the problems of their own farms, however, that unless someone encourages them to join together in group action for old or new purposes, and helps them make the necessary arrangements, they do not act together as much as would be to their advantage.'

This means that even when people shared problems it would take the initiative of one of them (a catalyst person or project) to convince others to form a community institution.

The most important strength any institution had was its unity of purpose. It was clear in all group discussions that it mattered most if members were dedicated to their course, and were not merely getting along as a middle-aged key informant said:

'I abandoned one of the two groups I belonged to because, although we contributed a lot of money, members were not willing to go to the farm or market to carry out activities specified in our constitution. We would rather have less money and stick to our agreements.'

Commitment encouraged members to give their contributions on a timely basis, attend meetings regularly and punctually and be willing to contribute ideas and labour among other things.

## **Summary**

The overriding factor in the formation of most community institutions in the study area was consensus based on friendship: shared interests and mutual interdependence. Age and socio-economic characteristics (resource capacities, formal occupation etc) had varying influences on choice of friends and therefore entry in a given institution.

### **4.3 Social Networks, Dissemination and Adoption of Technologies**

Hypothesis two stated that 'Social Networks Influence Dissemination of Agricultural Technologies.' The main assumption of this hypothesis was that social networks in community institutions assist to disseminate agricultural knowledge.

The questionnaire elicited information on the type of activities and any material and non-material exchanges that occurred within community institutions. It sought to explain if and how these exchanges contributed to their agricultural practices. Data on constraints to the process of dissemination of agricultural technologies and opportunities to enhance it were gathered in *FGD* and in-depth interviews.

#### **4.3.1 Dissemination of Agricultural Knowledge**

There were diverse responses about activities of information dissemination. Table 9 exhibits five channels of dissemination of knowledge that were prominently mentioned

(each cited more than twenty times).

**Table 9: Selected Activities of Information  
Dissemination by Responses**

<b>Responses</b>	<b>Frequency</b>
Informal exchanges	78
Demonstrations	43
Field days	37
Farm visits	36
Training workshops	22

Data in Table 9 were gathered through questionnaire interviews. As shown, the main channels of information dissemination utilised by research bodies were demonstrations, trials, farm visits, training workshops and field days. It is however clear that informal exchange of information between farmers was high.

In addition to data in Table 9 the questionnaire contained information on radio and TV as possible options of dissemination. Majority (85.8%) of respondents said they listened to radio everyday. Only eight (10.2%) said they did not listen to radio at all. TV was watched by few and only occasionally.

A major conclusion is that radio can be a very important channel of dissemination of agricultural knowledge. Other studies in Vihiga district show that farmers listen to agricultural radio programmes (Muruli *et al*, 1999). Findings here confirm that unlike TV, radio is an accessible medium and can be exploited to reach most local cultivators.

#### 4.3.1.2 Sharing of Agricultural Knowledge

Informal channels included visits between friends/relatives, meetings in social places and so on. Within this community, however, it was not so easy to find people who visited others specifically to acquire agricultural technologies. As one farmer said:

'If I keep visiting my neighbours' farms to observe or learn new agricultural ideas they will conclude that I am a thief or a sorcerer. Some will start to ridicule me, while others will say I am spying on their progress.'

Drinkwater (1992:14) has made a similar observation; 'within local communities, it is rare to find a tradition of visiting the fields of others'.

Usually visiting of fields was limited to family members or close relatives. Otherwise, respondents who said they had visited the fields of others had done so during a field day or demonstration organised by research institutions and the Ministry of Agriculture.

Knowledge has a social context and was thus not passed anyhow to anyone in any forum. During an interaction with a farmer after one of the field days the researcher attended, the farmer expressed his views as follows:

'I cannot introduce a technical subject like use of fertiliser on the market or while taking *busaa* (a local beer) with my friends. They are supposed to be here listening. Furthermore they are not children to be taught on the proper practice anywhere.... However, you people (researchers) should keep up. I have observed an increase in the number of attendance by farmers. Also, your activities have encouraged more discussion on agriculture and trees (agroforestry).'

What happened between some farmers participating in research trials and researchers

was not necessarily shared with other farmers because some non-participating farmers judged it as private or part of experimentation that was not their business. During an in-depth interview, one adaptive research farmer said that when scientists went to his farm, they sometimes used English, and because his neighbours by that time had a preconceived idea that they had been left out, they took little interest in the process. One key informant, a primary school teacher supposed that people did not share information because they were poor.

'They regard information as part of their little personal effects and would rather not give it away anyhow. People like to engage in secretive competitions. They will keep valuable information and only share common knowledge in an attempt to out-do other villagers.'

Poor or not, for the locals research is a highly social and political activity. The work researchers conducted was judged fine or worthless by the community depending on whom they engaged and whom they did not. During in-depth interviews and FGD, it was established that everyone in the village had a reputation. Therefore, one's involvement presented some conflict between the needs and wants of others. Also, researchers had some standing that determined enthusiasm or lack of it in their activities. This is why social scientists must penetrate farmer actions, and why we cannot expect farmers to provide simple transparent accounts of their activities all the time (assuming they trust us sufficiently to want to be honest in the first place). We must work to reduce the time gap between research and recommendations, and action on the ground. This will improve farmers' faith in the whole research and dissemination process. For example, a group of farmers summarised a group discussion

with this advice to the researcher:

'When you go back to Nairobi, we will forget you so soon. But if we see good results of your work we will know that you represented our interests well. Do it faster than your friends who have researched among us have done.'

Knowledge sharing between groups or individuals can be poor at times due to other reasons. For instance one of the youths' groups that were studied had a fishpond. The group had done all else that was required save that they did not have a fishing net. There lived a former schoolteacher within a neighbouring village who practised fish farming. He used an improvised wire cage to trap fish. Some of the members of that group knew about this farmer's innovation, but had not borrowed his idea. Instead, the group's leader said they prefer:

'...a more technical approach particularly fish nets so that we can harvest fish quickly. Also, given that our pond is the largest in the district, we must acquire a better tool regardless of our available means. We get visitors from all over the district and Nairobi. We cannot show them *jua kali* things. We have asked many institutions, including the govt. to assist us.'

Anthropologists do recognise that farmers have varying, and sometimes site unique criteria of assessing innovations and innovators. The above attitude shows that these farmers have low regard for the local innovation. As observed by GebreMichael (2000), farmers do not only assess innovations according to the profit they bring to them as researchers and development agents do.

It was also established that like knowledge exchanges the sharing of new seed varieties or tools was not purely reciprocal. For example, in FGD and in-depth interviews



we learned that a few of the farmers who had been given the 'black' bean variety by KARI declined to exchange it with any different variety. This was so because the 'black' variety was seen as better in terms of quantity of yield. Although such people were few, in one *FGD*, farmers from the research group thought such behaviour was justified. One of them remarked that:

'We have used our own time, labour and land. When KARI researchers came around with this (bean) idea everyone was alerted by *Maguru*. However, some people thought KARI wanted to snatch them their land. Now they know that they were wrong, it is their duty to look for the doctor' (those with the black bean).'

The process of information sharing was at times muted. One could not easily point out how one got information about a certain idea. For instance, discussants in group discussions and *FGD* discussants were asked to describe how they got the 'black' bean variety, or if they had told any other person in their group or outside about the bean variety. They all confided that people passed this information to others selectively and in varying amounts, whether in their group or outside the group.

Notwithstanding, this selective scheme of information spread is porous. Farmers live closely together and share more in life than they do not. Information always passed from individual to individual and from group to group. Many of the ideas that farmers used had been handed down to few people from the government or research institutions and had diffused to the rest. But all the key informants did not think it was good enough to leave this natural process to occur un-accelerated. On one occasion as the researcher participated in a tree planting session, a middle-aged woman from a

women group said:

'Our group copied this tree nursery project from another group. But there is need for a plan. No other group has visited us here to learn what we do. Furthermore, no group will just part with their ideas. There has to be some initiative especially from you researchers.'

All the key informants preferred use of community institutions because information could spread faster. Some farmers simply lacked awareness due to low horizontal information linkages at group level. It was also revealed in *FGD* that those who had donated the 'black bean' seed to friends and neighbours for planting had discovered that their recipients had not known the variety previously. They argued that if the 'black' bean variety had been given to groups it would have spread faster because many people would have heard the idea at once. [See explanation about figure 1 on the spread of information (Grigg, 1995:175)].

As a result, all key informants, all discussants in *FGD* and group discussions concluded that there was need for researchers to encourage inter-group visits to enhance exchange of information and experiences and to strengthen the culture of information sharing. In all sessions of focus discussions, farmers concluded that there was a huge amount of knowledge with a few farmers that needed to circulate faster than had been happening. They also suggested that one way to improve on the poor exchange of ideas between groups was to select candidates for training from different groups so that information could be passed to different groups in the process. IIRR (1998) also argue that training is a key component of any research process. It is un-contestable for anyone who wants to build the capacity of community groups

Data from *FGD*, group discussion and observation give important information regarding training of farmers. For instance, the study community is patriarchal. Men own farms. These farms are however, small and therefore men spent most of their time out. Women were left to look after children and farm-plots. They made most decisions save for sale of land or growing of tea that was not important to the majority of families anyway. What came out of the farm was so little and usually belonged to the women/family. Asked about who he thought should be trained, one of the *Maguru* said:

'You should try to involve all people in training. However, I have observed that whenever I visit homes to settle cases, there are no men to work with. ... Men want immediate things and thus many abandon their homes. Few men spent most of their daytime on their farms. But women spent many hours within their homesteads. *Omukhasi niye etsimoni tsio mungo* (A woman is the eye of a homestead). And if you train her, her family will benefit a lot.'

Although women had extensive land usufruct rights, any decision that will improve the productivity of farms will certainly draw men's involvement. It is useful to train all types of farmers since they live and work together (IIRR, 1998). However, it has to be borne in mind that not all people are trainable.

Participants in *FGD* and group discussion suggested that when the BMZ Project comes to a conclusion, there should be follow-ups. Alternatively, there should be (a link-person) established who might motivate the groups until such a time when they will be on proper agricultural course. One of the participants suggested the following opportunity:

'You should appoint one of us from this group so that we can effectively communicate with your organisation in future. One of us should know your office so that we can get information when we need it. If you want reliable people you must look at what all of us are doing on our farms. Those who are using your ideas can be selected as examples to show the way. Also, all participating farmers should be awarded certificates. Certificates will remind us about your work and encourage us to talk about it openly.'

This does not purport that then, we should do away with extension work. Drinkwater (1992), argues that the benefits of in-depth collaborative work with local groups will only be spread more widely if extension assists. He also argues that this may require reorientation of the extension, which may be onerous and may require a great deal of preparedness. But, Mosher, (1966) says that institutionalising new thinking within the research branch as a whole is very necessary as much as it is for researchers to open up more.

## Summary

Information from research institutions reaches many farmers through informal networks. However, that information does not *duly* reach all categories of farmers. Therefore, it may be useful to integrate formal research and dissemination of knowledge into 'usual' activities of community institutions where possible.

### 4.3.2 Adoption of Agricultural Knowledge

This subdivision gives data from the study on adoption of agricultural technologies. It also includes general trends in adoption of innovations contained in other works.

Survey results show that seventy (89.7%) respondents had not utilised many

agricultural technologies they had learned because of economic hardships. For example, the researcher expected that the 'black' bean variety would be adopted rapidly. But farmers had to purchase it. At Ksh.300-400 per two-kilogram tin, it was expensive for many. One farmer informed the researcher that her friend gave her two kilos to plant but she cooked it, she did not have money to buy food.

Economic ability does not sufficiently explain lack of attention to technologies. Other factors including availability of labour, appropriate/enough materials, time and small land sizes were presented during group discussion as further explanations. Poor households spent most of their time working for other people and deprived themselves of their own labour. Many sold their crop remains (especially maize) to farmers with cows and ended up without crop residues that could be used to make compost. Most of the farmers did not have enough farms to get substantial crop remains. Even if they had, this meant they had more fodder for sale.

Many people preferred to engage in small businesses or other errands than to spend much time farming. Many farmers said they had turned to agriculture after some frustration elsewhere. For instance, one discussant in an *FGD* said:

'I have lived in Nairobi for five years. When I realised I was not going to find a job, I decided to come back to my farm.'

In general, key informants said that young and educated people were particularly less willing to toil in soil as compared to married women with children. They also suggested that low levels of training in highly profitable agricultural activities like fish farming was contributing to low adoption of agricultural ideas even when farmers liked the

ideas.

By and large, the current state of affairs in the country and on most farms in the study area does not permit practice of many agricultural activities as viable options. Researchers need to develop technologies that will eventually be used by resource-poor farmers. The cost of initiating any practice may not necessarily be the hindrance. Other important issues include the way that technology is given out: adequate description and explanation of the pros and cons enable farmers to make decisions on whether a practice is sustainable on their part (WB, 1999; Mulagoli, 1999; Drinkwater, 1992; and Republic of Kenya, 1998). According to Puentes and Swift (1999:52), 'at present, there is little evidence that the conditions that restrict adoption of new technologies by peasant farmers will appreciably improve in the near future. Priorities should be on those areas that offer the best chances for practical application within current constraints.'

#### **4.4 Possible Role of Community Institutions in Dissemination of Agricultural Technologies**

It was hypothesised that 'Community Institutions have Potential to Disseminate Agricultural Technologies'. In the process of their activities, members were likely to share information among themselves and others within the community. This part therefore discusses incorporation of community institutions in the process of dissemination of agricultural knowledge.

##### **4.4.1 Involvement of Community Institutions by Agricultural Organisations**

To address this matter, an attempt was made to identify research institutions that were

working in the study area and to find out if they had involved community groups. This offered lessons for construction of recommendations. The questionnaire elicited information on names and types of institutions that were working in the study area. Descriptive data on the nature of the institutions' work were gathered during FGD.

Table 10 shows four selected agricultural institutions that were mentioned more than twenty times in the study survey.

**Table 10: Agricultural Organisations  
Working in the Study Area**

Organisation	Responses
Ministry of Agriculture	55
KARI	55
TSBF/UNESCO	38
ICRAF	23

Table 10 displays four widely mentioned research institutions working in the study area. KARI was widely mentioned due to its long-term research on beans and maize in the study area. Maize and beans form the staple/key foodstuffs for the locals. The *KK15* (Kakamega 15) bean variety known as the 'black' bean by local farmers (because of its colour) and a new maize variety called *Hybrid 513* were preferred because of their high yield compared to the other available varieties. This made KARI widely known.

The Ministry of Agriculture (MoA) has a long history of involvement in agriculture in the study area. Many respondents did not know TSBF/UNESCO by name because it has been researching in the area for a brief period.

Generally, many respondents only knew names of staff and/or the activities of organisations working in their area. Many farmers referred to them as 'Abantu ba akrikacha' (the agriculture people). To identify their organisations, inferences had to be made from their activities and registration of their vehicles that were better known.

So far, the established relationships between research institutions and farmer committees had been one-sided, mainly occurring at the researchers' initiative. Interaction with farmers revolved around planning meetings and research trials. Farmers did not undertake offshoot activities like planning their own experiments or demonstrations.

The most important activity carried out by these institutions was dissemination of information, referred to 93 times. Out of these responses, nineteen were attributed to agricultural and agroforestry trials. Thirteen responses associated the institutions with agricultural inputs and 6 responses were connected with training.

Fifty (64.1%) respondents said agricultural organisations involved both groups and individual farmers in these dissemination activities. Twenty-eight (35.8%) respondents said only individuals were involved. This does not however reflect any contradiction because many farmers did not know that KARI had mobilised farmers to create the Farmers Research Group that was co-ordinating research activities of farmers. It was also established that only three of the groups identified had been directly involved in research. As a result, un-informed farmers believed that those who took part in research activities were merely acting collectively. The following explanation by one key



informant (a village headman), reflects this:

'Those involved in the yesterdays training (referring to a workshop that had been carried out), were selected by you people (researchers). They did not belong to a known group. (In reality they were members of the Farmers' Research Group and a women group). How do you expect many people to attend? Next time you have such a function inform all *Maguru* and known groups such as ours. Also, we have a problem of theft in this village. If farmers' groups involve us most of the time, it can be easy to assist them to punish those who steal their trees and other property.'

During *FGD*, farmers said theft of crops was one of the most serious problems they faced.

There is need to strengthen participatory research and extension. Knowledge production and dissemination processes should not rely exclusively on farmers in the project. As suggested in *FGD*, a sample of representatives identified by farmers from different community institutions can better cover the wide range of knowledge preferences and associated knowledge generation processes among groups of farmers. Future engagements should involve real participation of farmers as groups in definition of needs and assessment of intervention approaches. This may facilitate an improvement in farmers' attitudes. Research activities should at worst be normal conscious farmer-researcher efforts, and at best farmer-owned continuous efforts. The former is sound because it is a knowledge creation process; the latter is fundamental because it is user-oriented. This way, researchers and extension agents will have succeeded in demonstrating the essence between on-station research and top-down knowledge spread on one hand and on the other, on-farm participatory research. Researchers and extension workers must consider the multiple goals and needs of

farmers as well as differences in the availability of and access to resources in the search for new or improved technologies and crop species and their possible adoption.

#### 4.4.2 Farmers' Suggestions about Participation of Community Institutions in Dissemination Activities

It is worthwhile to give the opinion of farmers about institutional participation in the process of dissemination and adoption of agricultural technologies. Suggested views of farmers have played a primary role in making recommendations in the next chapter.

Data from the survey and *FGD* show the following findings. Fifty-four (69.2%) respondents said farmers should appropriately adopt information disseminated so as to encourage research institutions.

In *FGD* farmers agreed that they should contribute to this process by: (i) expanding their community institutions agricultural activities. (ii) Sustaining projects started by research organisations. (iii) Initiating new projects. (iv) Strengthening the organisation of activities of community institutions. (v) Taking the lead such that research organisations only come in to assist where necessary. And when the organisations come in to help, (vi) farmers should offer the necessary co-operation. Co-operation could for example be done by (a) attending dissemination meetings, workshops, demonstrations, (b) volunteering information in researches, (c) mobilising themselves and being punctual in meetings, (d) protecting project crops (on trial plots) against theft and (e) being organised.

Eighteen (23%) respondents felt it was appropriate for farmers to give researchers something in return when they are given valuable knowledge. Some of the things mentioned were: offering farms for experimental plots, contributing through labour, gifts such as chicken or part of their harvest or simply giving them a word of gratitude. Nine (11.5%) respondents felt farmers had a duty to actively spread agricultural information provided to other farmers. This was reflected in the following statement that was made by a key informant after being informed about the uses of agroforestry trees that she had not known:

'... [A]ny help you give must be appreciated through special effort, I have to share with my friends this knowledge you have brought. I will not pay you in any other way but to use it and spread it so that when other researchers come to my farm, they may feel encouraged. I have seen some people plant these trees (*gravillea*), but I had no idea that they can be valuable to my soil.'

This means that farmers believe that information is not for free and there is need for reciprocation.

Farmers' suggestions that they ought to give researchers gifts as appreciation should be understood in line with the local culture. As the researcher observed, this culture requires hosts to treat their 'visitors' well regardless of their own economic well being. Nonetheless, in the event that locals want to please outsiders, they may end up providing inaccurate information or saying 'we do not know'. According to Moris (1991), these partly result from lack of confidence in local resource persons and indigenous knowledge in the face of extension and technical workers with Western scientific view of agriculture. This problem was instituted by the colonial agricultural

system and for long nurtured top-down dissemination of knowledge. Researchers and extension agents should listen to farmers even when they say 'we do not know a thing'. Farmer participation in designing and running of trials or projects is vital (de Sand, 2000; Scoones and Thompson, 1993; Chambers, 1994; and Drinkwater, 1992)

The above mentioned suggestions were easily articulable. However, during rapport development the researcher noticed that there was constant bickering, gossip, infighting and backbiting among members and officials of community institutions. Many people cited these as reasons for not joining these institutions. Advocates of training should, therefore, appreciate that training should be holistic. Also, training alone may not resolve problems of dissemination and adoption, a holistic empowerment is needed.

Community institutions studied did not have concrete plans to disseminate or adopt new ideas. Few had started using some of the technologies that had been availed by researchers like *Tithonia* (especially for growing kale and the *KK15* beans variety). Enthusiasm in such activities had resulted from group profit that had so far sustained both group and individual efforts. During a group discussion, one participant said:

'Our (farmers' research) group is so happy about the new seed varieties. Members will not abandon the group soon because they are benefiting from the group.'

Groups were besieged by a number of problems that members were all too aware and willing to tell, perhaps because my presence inadvertently meant that I was going to look for funding for their groups. Farmers suggested various solutions to their problems.

Table 11 contains six most frequently mentioned proposals. The Table indicates that dissemination of Knowledge was the most widely recommended activity, partly because farmers understood the goals of this study. An example of knowledge that farmers said should be disseminated was on effective means to eradicate *Striga* weed. *Striga spp* was seen to be an important constraint in maize production. Because of capital shortage, loans and cash donations were suggested as a means to start income generating projects (also a prime function of the groups).

**Table 11: Suggestions for Improving Activities of Community Institutions**

Type of Institution	Suggestions					
	Training	Inputs	Loan	Donation	Visits	Dissemination
Women groups	15	11	18	21	4	19
Youths groups	13	3	10	13	2	20
Farmers group, <i>Maguru</i> and Self-help group combined	10	5	5	10	9	16
Totals of All Groups	38	19	33	44	15	55

Issues that inhibited improvement of agriculture went far beyond managerial and technical skills. During the study, we visited farms and observed that resource-poor farmers did have very useful skills and ideas. The serious shortcoming resulted from lack of space and support to explore and refine their skills. Visits to other farmers outside their area can be a useful way to help farmers build their capacities.

Asian Coalition for Housing Rights (2000:1) states that 'as a development tool, exchange visits provide people with first hand learning. In exchange, people are not being trained to do [certain] things. They decide themselves what to pick up and what to discard by visiting others in the same boat.' This is meant to be on-site and vital learning, direct

from a relevant source, unfiltered. And nobody is telling whom what and when to learn. This can be useful in assisting resource-poor farmers to make informed decisions, judging from people like them but who are making a difference (*Ibid.*).

By and large, participants in *FGD* and key informants agreed that it was ineffectual to give people cash or loans before they were trained in the relevant activity. As exhibited in Table 11, training was therefore perceived to be essential. Further, informants added that farmers had to show interest and determination. In agreement with this, an elderly farmer in an *FGD* led others to declare the following:

'You cannot give someone a car to do business before that person learns to drive. These farmers need to grow gradually. They must first learn to use what they have (*ingokho yabula shaeyachira neiyachira omunwa*). First we need training on how to farm, start businesses, how to make bricks. Then you can assist us with money or other tools to initiate those activities where necessary. But some of you (researchers and extension workers) should change your habits. We have hands and energy. You should stop hiring strangers to work on our farms. We need money, and we are ready to work for you.'

Another important suggestion that came up in *FGD* was that research should be expanded to cover suitable crop species like cassava to broaden the range of options available to farmers. This is both a short-term and long-term strategy that may be important in enhancing the traditional strategy of diversification to face socio-economic, ecological and biophysical uncertainties. As Scoones *et al* (1995) observe, there is increasing evidence that handouts and short-term assistance do not contribute to a sustained increase in agricultural production. Farmers soon abandon the practice in question when the 'gifts' cease.

## Chapter Five

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter presents a summary of the study results, specific conclusions on each objective and consequent recommendations.

#### 5.1 Summary

Forty community institutions were identified. These institutions belonged to ten different categories, namely: women groups, youth groups, self-help groups, water point committees, clan associations, church groups, mothers' groups, a farmers' research group, one labour group and six *Maguru*. These institutions engaged in different types of activities. Knowledge exchange, mentioned by 44 respondents (56%) was one of the most important activities.

It can be concluded that these institutions assist farmers to meet different needs and can assist in dissemination of agricultural technologies.

**Objective one** of this study was to 'identify characteristics that determine membership of those community institutions'.

The key factor in the formation of community institutions was friendship. Age and socio-economic characteristics were the main underlying factors in friendship ties in institutions. The study showed that 88.5 per cent of community institutions were comprised of recourse poor farmers. A key implication is that suitable approaches of

dissemination of low input agricultural technologies have to be embraced. This is important because as WB (1999) acknowledges, knowledge dissemination and adoption are closely linked. Also, Scoones and Thompson (1993) have observed that effective dissemination of technologies affect their adoption.

Most resource poor farmers (especially women) spent long hours on and around their farm-plots. As a result, they have more time to actively get involved in community institutions. Involvement of these institutions in agricultural activities in the past has proven to be beneficial to members and their communities.

The preceding summary shows that community institutions are predominantly made on the basis of friendship. They are mainly comprised of poor farmers.

**Objective two** was to 'describe networks used by community institutions to disseminate agricultural technologies'.

Formal channels of information spread included demonstrations, field days, training and visits. Informal knowledge exchange (social interaction, informal meetings, etc) was found to be the most utilised.

Informal modes of dissemination functioned more efficiently without much dependence on outside support. They can be explored, embraced and/or strengthened through the use of community institutions. These institutions offer an avenue to tap informal networks for improved dissemination of technologies and provide useful insights into farmers' research and their real priorities.

The foregoing discussion in chapter four further shows that technologies will have to be



carefully channelled through less traditional knowledge dissemination means like community drama and under-utilised means such as print media.

The extension agents are not to be satisfied by meeting few farmers with the view that they will diffuse ideas to others in their institutions. The more farmers an extension system contacts the better (Grigg, 1995).

It can be said that building the capacities of local institutions can be very useful in both formal and informal development and dissemination of agricultural technologies suitable to local farmers.

**Objective tree** set to 'determine opportunities of using those institutions to disseminate agricultural knowledge and draw recommendations for research institutions, Non-Governmental Organisations (NGOs) and individuals.

Findings show that farmers regard information from research organisations as beneficial. They were willing to participate collectively (as institutions) in disseminating information. The mentioned desire for income, loans or cash assistance shows that community institutions need more than information. Training was suggested as a way to facilitate farmers' generation and utilisation of knowledge, to generate income and adapt to difficult circumstances facing them.

From the foregoing summary, it can be seen that community institutions play a useful role in the process of knowledge dissemination. It is also worthwhile for research to cover other areas of farmers' concern such as micro-farm enterprises.

## 5.2 Recommendations

The recommendations below have been drawn to reflect on each objective's findings. They may be useful to researchers and research institutions, community-based institutions, policy planners and farmers.

- ❑ There is need to build confidence in local resource persons. Community institutions were mainly made of poor farmers; they need to be encouraged to ape their relatively knowledgeable neighbours who are within or outside these institutions. This can be achieved through such events as community drama.
- ❑ Different community institutions should be encouraged to share ideas on all activities they are involved in as an effective dissemination process. Also, provision of credit can enable active institutions to engage in agricultural activities profitably.
- ❑ Participation of community institutions in dissemination of technologies should be continuous with encouragement of collective activities. This process should not necessarily mean formalisation of social networks and knowledge sharing processes, or loss of useful local traditional techniques of information synthesis. The ultimate goal must be to build upon them, and to strengthen an inclusive and collaborative strategy.

## 5.3 Conclusion

The issue of partnership between researchers and farmers is widely preferred.

Community institutions occupy an important position in the affairs of local farmers.

These institutions can assist researchers and other agricultural workers to confront local farming problems by for example, testing technological solutions on collective plots

using farmers' own approaches and then disseminating the results.

Active institutions can be appropriately complemented by the efforts of agricultural workers as facilitators by working closely with clear expectations in order to strengthen the process of knowledge dissemination and adoption.

Fundamental, especially at the beginning of any engagement is to train farmers in community groups in specific areas so that any co-operation extended to them by research bodies and individuals is of value. But by no means is training alone sufficient, other efforts to build their capacities are needed.

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# Appendices

## INSTRUMENTS

### General Questionnaire

QUESTIONNAIRE NO

DATE ---- JUNE 2000

NAME OF RESPONDENT-----

SEX: Male  Female

PROVINCE: WESTERN.

DISTRICT: VIHIGA.

DIVISION: EMUHAYA.

LOCATION: North-East Bunyore SUB-LOCATION: Ebusiloli

VILLAGE-----

COMMUNITY GROUP(S): -----  
-----  
-----

### Objective 2

2.01. In what year were you born? (When were you born?)

2.02. What is your marital status?

2.03. What type of marriage union do you live in?

2.04. Do you have children?

2.05. How many children do you have alive?

2.06. Have you ever attended school?

2.07. What is your highest level of education?

### Code

Year-----

Doesn't know year

Married

Never married before

Widow

Widower

Divorcee

Separated

Monogamous

Polygynous

Other-----

Yes  No

Number of children

Girls  Boys

Yes  No

Primary

Secondary

Higher



2.08. What is the highest class (standard/form) and year you completed at that level?

Standard   
Form   
year

2.09. Can you read and understand a letter or newspaper?

Easily   
With difficulty   
Not at all

2.10. What is your occupation/what is your main work?

-----

2.11. Do you work/engage in agriculture?

Yes  No

2.12. Do you do this work for a member of your family, community institution, someone else or are you self-employed?

Family member   
For my group   
For someone else   
Self-employed

2.13. Do you work, mainly, on your land or family land or do you lease land or work on someone else's land?

Own land   
Family' land   
Leased land   
Someone else's land

2.14. What is your religion?

Catholic   
Protestant   
Muslim   
Traditionalist   
Other-----  
No religion   
Atheist

2.15. How long have you continuously lived in the village?

Months  Years

2.16. Do you usually listen to radio at least once in a day/week?

Day  Week

2.17. Do you usually watch television at least once a week?

Yes  No

**Objective 3**

**Code**

3.01. How many people in your group are;

Members of your nuclear family? -----  
Members of your clan?-----  
Close personal friends?----  
Others?-----

3.02. Why do you think most people in your group joined it?

-----  
-----  
-----

3.03. Did you join the group with the same reason(s)?

Yes  No

- 3.04. If no above, then which reason(s) -----  
-----
- 3.05. Did anyone influence your decision to join the group? Yes  No
- 3.06. If yes above whom do you think influenced your decision most? Nuclear Family Member---  
Close Friend-----  
Clan Member-----
- 3.07. What activities does your group (collectively) engage in?  
-----  
-----  
-----
- 3.08. What has been your best contribution to your group in  
The last six months?  
-----  
-----
- 3.09. Who initiates your group's activities? (Group organization) Officials  All  
Members   
Others-----
- 3.10. How often does your group meet Week   
Month   
Year
- 3.11. Do you attend group meetings? Regularly   
Occasionally
- 3.12. In the last six months, have you discussed any  
agriculturally related information in your group? Yes  No
- 3.13. What information was it?  
-----  
-----
- 3.14. What was the source-channel of that information to you group? Radio   
Television   
Newspaper   
Magazine   
Billboards   
Live drama   
Other -----
- 3.15. Was the information related to: Fallow systems   
Crop rotation   
Agroforestry   
Terracing   
Zero grazing   
*Tithonia* fertilizer   
Strip cropping   
Improved seed varieties   
Fertilizer

- 3.04. If no above, then which reason(s) -----  
-----
- 3.05. Did anyone influence your decision to join the group? Yes  No
- 3.06. If yes above whom do you think influenced your decision most? Nuclear Family Member---  
Close Friend-----  
Clan Member-----
- 3.07. What activities does your group (collectively) engage in? -----  
-----  
-----
- 3.08. What has been your best contribution to your group in  
The last six months? -----  
-----
- 3.09. Who initiates your group's activities? (Group organization) Officials  All  
Members   
Others-----
- 3.10. How often does your group meet Week   
Month   
Year
- 3.11. Do you attend group meetings? Regularly   
Occasionally
- 3.12. In the last six months, have you discussed any  
agriculturally related information in your group? Yes  No
- 3.13. What information was it? -----  
-----
- 3.14. What was the source-channel of that information to you group? Radio   
Television   
Newspaper   
Magazine   
Billboards   
Live drama   
Other -----
- 3.15. Was the information related to: Fallow systems   
Crop rotation   
Agroforestry   
Terracing   
Zero grazing   
*Tithonia* fertilizer   
Strip cropping   
Improved seed varieties   
Fertilizer

Pesticides   
Other (Specify)-----

3.16. Have your group members attended meetings for any of the following?

Informal meetings   
Field days   
Demonstrations   
*Baraza*   
Funerals   
Water points

3.17. Of what benefit is your group to its members?

Labour   
Credit   
Implements   
Food   
Seeds   
Other -----

3.18. Does your group assist you to use the information you receive (d)?

Yes  No

3.19. If yes above, what assistance does it give you?

-----  
-----

3.20. In which way(s) does your group work with other groups in this community? Give example(s)

-----  
-----

#### Objective 4

#### Code

4.01. Are there people from agricultural research institutions who work in this community? If yes, what institutions do they represent?

No  Yes   
KARI   
MoA Extension   
KEFRI   
TSBF   
Don't Know   
Other-----

4.02. Do these people from agricultural institutions work with groups or individuals on agricultural issues?

Individuals   
Groups   
N/A   
which work-----  
-----

4.03. What do you think your group can do to improve the work of agricultural institutions?

-----  
-----

4.04. What do you think agricultural institutions can do to improve the performance of your group to enhance the spread of agricultural technology?

-----  
-----  
-----

Maguru Questionnaire

QUESTIONNAIRE NO:

DATE ---- JUNE 2000

NAME OF *LIGURU*-----

PROVINCE: WESTERN. DISTRICT: VIHIGA. DIVISION: EMUHAYA.

LOCATION: North-East Bunyore SUB-LOCATION: Ebusiloli VILLAGE-----

COMMUNITY GROUP: *Maguru Committee*  
Other -----

**Objective 2**

**Code**

2.01. In what year were you born? (When were you born?)

Year-----  
Doesn't know year

2.02. What is your marital status?

Married   
Never married before   
Widow   
Widower   
Divorcee   
Separated

2.03. What type of marriage union do you live in?

Monogamous   
Polygynous   
Other-----

2.04. Do you have children?

Yes  No

2.05. How many children do you have alive?

Number of children   
Girls  Boys

2.06. Have you ever attended school?

Yes  No

2.07. What is your highest level of education?

Primary   
Secondary   
Higher

2.08. What is the highest class (standard/form) and year you completed at that level?

Standard   
Form   
year

2.09. Can you read and understand a letter or newspaper?

Easily   
With difficulty   
Not at all

2.10. What is your main occupation? -----

2.11. Do you work/engage in agriculture? Yes  No

2.12. Do you do this work for a member of your family, community institution, someone else or are you self-employed?  
Family member   
For my group   
For someone else   
Self-employed

2.13. Do you work, mainly, on your land or family land or do you lease land or work on someone else's land?  
Own land   
Family' land   
Leased land   
Someone else's land

2.14. What is your religion?  
Catholic   
Protestant   
Muslim   
Traditionalist   
Other-----  
No religion   
Atheist

2.15. How long have you continuously lived in the village? Months  Years

2.16. Do you usually listen to radio at least once in a day/week? Day  Week

2.17. Do you usually watch television at least once a week? Yes  No

**Objective 3**

**Code**

3.01. If you belong in a community group, how many people are;  
Members of your nuclear family? -----  
Members of your clan?-----  
Close personal friends?----  
Others?-----

3.02. Why did you form your *Maguru* committee?  
-----  
-----  
-----

3.03. Why do you think members of your community group joined it? Yes  No

3.04. Did you join the group with the same reasons? -----

3.05. Did anyone influence your decision to join the group? Yes  No

3.06. If yes above whom do you think influenced your decision most?  
Nuclear Family Member---  
Close Friend-----  
Clan Member-----

3.07. What activities does your group (collectively) engage in?  
-----  
-----

3.08. What has been your best contribution to your group in

The last six months?

-----  
-----  
  
-----  
-----

3.09. Who initiates your group's activities? (Group organization)

Officials  All  
Members   
Others-----

3.10. How often does your committee meet

Week   
Month   
Year

3.11. Do you attend your community group's meetings?

Regularly   
Occasionally

3.12. In the last six months, have you discussed any agriculturally related information in your group?

Yes  No

3.13. What information was it?

-----  
-----

3.14. What was the source-channel of that information to you group?

Radio   
Television   
Newspaper   
Magazine   
Billboards   
Live drama   
Other -----

3.15. Was the information related to:

Fallow systems   
Crop rotation   
Agroforestry   
Terracing   
Zero grazing   
*Tithonia* fertilizer   
Strip cropping   
Improved seed varieties   
Fertilizer   
Pesticides   
Other (Specify)-----

3.16. Have your community group members attended meetings for any of the following?

Informal meetings   
Field days   
Demonstrations   
*Baraza*   
Funerals   
Water points

3.17. Of what benefit is your community group to its members?

- Labour
- Credit
- Implements
- Food
- Seeds
- Other -----

3.18. Does your group assist you to use the information you receive (d)? Yes  No

3.19. If yes above, what assistance does it give you? -----  
-----

3.20. In which way(s) does your group work with other groups  
in this community? Give example(s) -----  
-----

**Objective 4**

**Code**

4.01. Are there people from agricultural research institutions who work  
in this community? If yes, what institutions do they represent? No  Yes   
KARI   
MoA Extension   
KEFRI   
TSBF   
Don't Know   
Other-----

4.02. Do these people from agricultural institutions work with groups  
or individuals on agricultural issues? Individuals   
Groups   
N/A   
which work-----  
-----

4.03. What do you think you group can do to improve the  
work of agricultural institutions? -----  
-----

4.04. What do you think agricultural institutions can do to improve  
the performance of your group to enhance the spread of  
agricultural technology? -----  
-----  
-----

**Interview Guides**

**FGD Topics**

- ✧ Current problems that affect groups/institutions in farming and information sharing
- ✧ Coping strategies that group members use to solve current problems
- ✧ Group members' suggestions for further solutions to their problems



❖ Discuss one outstanding plan for future sharing of information with one or more groups (reciprocity)

**□ Topics of individual's interview guide**

- ❖ Does inter-group sharing of information occur/how possible is it?
- ❖ Many women than men belong in strong groups, can/is training women important in improving agricultural productivity?
- ❖ What hinders group members from exchanging agricultural information/copying agricultural practices from one another?
- ❖ Why do neighbouring people with similar social and economic characteristics have differences in information adoption and even search?

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**Field Schedule  
(Phases and Methods)**

Method/activity	Phase/week								Purpose of activity	
	1	2	3	4	5	6	7	8		
Entry into the field, Informal interviews	√									Basic acquaintance
Formal interviews – officers (divisional level)	√									To identify community institutions and make an inventory
Observation	√	√	√	√	√	√	√			Document relevant observable phenomena
Participatory study		√	√	√	√	√	√			Qualitative data collection
Supervisor's visit				√	√					Supervision (academic)
Interviews – questionnaire, guides		√	√	√						Quantitative data collection
Focus Group Discussions					√	√	√			Key Informants, Wealth ranking
Sharing results- low level meetings with farmers, presentation of results							√	√		Sharing results – about key trends that had emerged from the study
Follow up							√			For necessary clarifications
Report/thesis								√		Official writing starts