Republic of Kenya

Office of the Prime Minister,
Ministry for Planning, National
Development and Vision 2030

IFAD
International Fund
for Agricultural
Development

Central Kenya Dry area Smallholder and Community Services Development Project (CKDAP)

Household Impact Survey Report

2010

Household Impact Survey Report 2010

- ***Cover photograph***

  Kiumbu Borehole: **CKDAP Team**

  Harvesting pineapples from Gathanje bulking site: **CKDAP Team**

  Maragua Ridge Maternity block: **CKDAP Team**

  Installation of smokeless stove in a kitchen for a member of Ngamwa Community in Mukurweini: **CKDAP Team**

  Kabuku Tissue Culture Banana: **CKDAP Team**

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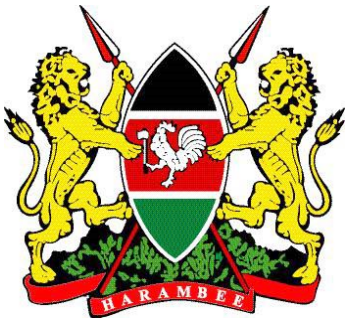

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CENTRAL KENYA DRY AREA SMALLHOLDER AND COMMUNITY SERVICES DEVELOPMENT PROJECT (CKDAP)

Household Impact Survey Report

2010

KNBS
KENYA NATIONAL BUREAU OF STATISTICS
Keeping you informed

NATIONAL CO-ORDINATING AGENCY FOR POPULATION & DEVELOPMENT
SMALL FAMILY FOR BETTER LIVING

Prepared by

Kenya National Bureau of Statistics (KNBS),

in Collaboration with

National Coordinating Agency for Population and Development (NCAPD)

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Acronyms

ADG	•	Agricultural Development Group
AWPB	•	Annual workplan and budget
BSF	•	Belgium Survival Fund
CBO	•	Community Based Organization
CBS	•	Central Bureau of Statistics
CIG	•	Common Interest Group
CKDAP	•	Central Kenya Dry Area Smallholders and Community Services Development Project
CSPro	•	Census and Survey Processing System
DDO	•	District Development Officer
DSDO	•	District Social Development Officer
DSO	•	District Statistical Officer
EA	•	Enumeration Area
FDA	•	Focal Development Area
FDA	•	Focal Development Area
FGD	•	Focussed Group Discussion
GOK	•	Government of Kenya
IFAD	•	International Fund for Agricultural Development
IGA	•	Income Generating Activity
MDG	•	Millennium Development Goal
MoS	•	Measure of Size
NDAP	•	Nyeri Dry Area Smallholders and Community Services Development Project
NGO	•	Non Governmental Organization
PAI	•	Poverty Alleviation Initiative
PHC	•	Primary Health Care
SOF	•	Soft Operating Facility
SPSS	•	Statistical Package for Social Scientist
UNV	•	United Nations Volunteers
VCT	•	Voluntary Cancelling and Testing

Foreword

This report presents detailed findings of the 2010 CKDAP-Household Impact Survey (HIS) that was conducted by Kenya National Bureau of Statistics (KNBS) in collaboration with National Coordinating Agency for Population and Development (NCAPD) from 7th to 21st December, 2010). The 2010 CKDAP-Household Impact Survey is the third of its kind to be undertaken in the ASAL areas of the five districts of Central province, notably Thika, Maragua, Nyandarua, Nyeri, and Kirinyaga. The 2003 and the 2006 surveys were conducted by ETC and the Kenya National Bureau of Statistics (KNBS) respectively, and provided initial baseline indicators and core project implementation benchmarks.

The 2010 CKDAP-Household Impact Survey was designed to assess the impact of the implementation of Central Kenya Dry Area Smallholder Community Services Development Project (CKDAP) at the end of the closing date of 31st December 2010. The survey collected data on various indicators notably demographics, housing characteristics, household expenditure, primary health care, food security, general agriculture, crop production, income generating activities and savings.

The primary objective of the 2010 CKDAP -Household Impact Survey (HIS) was to establish the extent to which the project's objectives have been met over the 9 years of implementation, as well as capture crucial lessons learnt to be incorporated in the Project Completion Report (PCR). The overall goal of the CKDAP was to reduce poverty and vulnerability to diseases of the poor rural communities in the project areas and improve the well-being of target population groups.

The 2010 CKDAP -Household Impact Survey (HIS) presents evidence of increased usage of piped water to dwellings and into yard/plot also increased investment by households in rain harvesting technologies. The use of unsafe water sources has generally decreased. During the rainy season, 94 percent of households access water within 30 minutes, while during dry seasons, approximately four-fifths of households access water over the same period. Typhoid is the most common water borne disease as reported by most of all households in the project area, followed by Amoebiasis and Diarrhoea. The survey presents evidence that there was a decline in the visits to dispensaries, while on the other hand there is evidence of increase in proximity to health centers, implying that these facilities are now located nearer.

The survey also shows that although households experiencing a hungry season increased, the proportion of households that reported a continuous hungry season declined considerably over time. One fifth of households are engaged in income generating activities such as retail shop-keeping. Horticulture farming as an income generating activity is practiced by most household members. Most household members (51.percent) kept their cash savings in the house while 30.5 percent opted for banks to save their cash. There is evidence of increase of households saving using the Mobile phone.

Dr. Edward Sambili, CBS
Permanent Secretary
Office of the Prime Minister,
Ministry of State for Planning,
National Development and Vision 2030

Acknowledgements

This is the first report of its kind of impact analysis based on the 2010 Household Impact survey. It marks the end of a rigorous and skilful analysis undertaken by the Kenya National Bureau of Statistics (KNBS) in collaboration with National Coordinating Agency for Population and Development (NCAPD). Finance for the survey was provided by International Fund for Agricultural Development through Ministry of State for Planning, National Development and Vision 2030.

My sincere gratitude is extended to A.K.M. Kilele of Kenya National Bureau of Statistics and Dr. Boniface K'oyugi of National Coordinating Agency for Population and Development (NCAPD) for their leadership and guidance to the analytical team. Their commendable effort and technical expertise was invaluable in producing this report. I also wish to congratulate the core analytical team comprising Saitoti Torome (Director, Strategy and Development) , Paul K. Samoei (team leader-Quantitative), Joshua Musyimi, Samuel Kipruto, Patrick Mwaniki, Godfrey Ndeng'e, and John Bore of KNBS, Dr. Paul Kizito (Deputy Director Technical Services),Vane Lumumba (team leader-Qualitative) and Francis Kundu of NCAPD.

The Permanent Secretary, Ministry of State for Planning, National Development and Vision 2030, Dr. Edward Sambili CBS, foremost in his capacity as the Chairman of the Project Coordinating Committee (PCC) and by extension, his counterparts from the implementing line ministries for their support during the entire implementation period. Contributions by all the desk officers from the same ministries for the required technical support is highly appreciated. Efforts by other various institutional organs of the project notably, the District Project Coordinating Committees and Units, the Divisional Plannining and Implementing Committtees and the communities' Focal Development Area Committees for valuable support that enhanced the quality of the Project interventions.

Further appreciation goes to David Ngesa, Shem Onsare and Gladys Ogega of KNBS, and Sharon Lihondo, Judith Nyanchama and Fidelis Ndungu for providing exceptional facilitation to the analytical team. I would like in a special way to congratulate and thank Joseph Mukui Diretor Rural Planning, Grace Mwangi of CKDAP and Ken Nyachiro of Ministry of State for Planning, National Development and Vision 2030, for providing technical assistance and the entire Project Management Unit (PMU) team members.

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Project Manager,
Central Kenya Dry Area,
Smallholder and Community,
Services Development Project.

Executive Summary

The current Impact Household Survey is designed to assess the extent to which the project outputs have impacted the livelihoods of the targeted communities. Specifically, the survey aimed at assessing the status of poverty levels among the target communities, reviewing the health status through comparison and contrasting the extent to which facility-based health services and community-based health services have contributed to improved health care for the target communities and whether the two approaches have been synergistic. Most importantly, the survey tried to determine whether the project has reached the most vulnerable households as well as to determine the magnitude of change in food security, nutrition and incomes of the target communities. This was done through establishing the trends in food crops, commercial crops and livestock production as a response to project interventions in the targeted communities over the specified time period. The survey further sought to establish whether capacity building among the communities had contributed to their involvement in planning, implementation and management of their development projects.

The CKDAP project was implemented in selected arid and semi-arid pockets in five larger districts of Central Province namely: Nyandarua, Nyeri, Kirinyaga, Maragua and Thika. The project has been operating in 42 Focal Development Areas (FDAs). The Household Impact Survey covered 16 FDAs during the study. These include:- Mbuyu, Muricho, Kiriogo and Ndivai in Nyandarua; Kariara, Maragima and Mutundu in Nyeri; Ndindiruku, Rukanga and Kiumbu/Kianugu in Kirinyaga; Mariaini, Maragua Ridge and Kagumoini in Maragua; and Ngelelya, Kalimoni and Ngoliba in Thika.

The survey covered a total of 130 clusters and 3,221 households selected through a two stage cluster sampling design. The first stage involved selection of clusters and the second stage selection of 25 households in each cluster within the 16 Focal Development Areas (FDAs). In this study, the household is the unit of analysis.

The study obtained very comprehensive information on household demographic and housing characteristics, household expenditures, water and sanitation, health care, HIV/AIDS, agriculture and livestock production, food security, savings and income generating opportunities, and group development.

The survey response rate was 97.1 percent constituting 3,129 households that were successfully interviewed. However, 2.3 percent of the sampled dwelling units could not be interviewed due to reasons such as refusals or absenteeism. An additional 0.6 percent of all interviews could not be conducted because either the sampled dwelling units had become vacant or the respondent was incapacitated. All the FDAs in Kirinyaga and Nyeri registered 100 percent response rate, while Nyandarua, Thika and Maragua recorded response rates of 98.1, 97.4 and 95.0 percent respectively.

Housing characteristics: Nearly two in every three dwellings have floors made from earth /sand/mud while the remaining fraction is made from cement. This was an improvement towards use of cement form 23.2 percent in 2006 to 30.5 percent. Majority of the houses have corrugated iron sheet roofs. This is because households substituted grass/thatch/makuti for corrugated iron sheets. This symbolizes 92 percent, an improvement from 89.6 percent reported during 2006. The leading wall materials are mud and wattle, and stones and cement each with over 20.0 percent while clay bricks recorded 18.8 percent.

Majority of the households in the FDAs occupy on average three habitable rooms, with over 78.0 percent ranging from one to three rooms. Ownership of pre-selected assets, as a proxy of measuring the socio-economic status of the households, indicated that most commonly owned assets are radio, telephone(mobile) and sofa sets at 79.9 percent, 73.1 percent and 60.0 percent respectively. Four in every five households have electricity connection within the FDAs.

Household expenditure: Most of the household expenditure went to food (98%), energy (91%), and clothing (83%). Other key expenditures by the households were towards mobile telephone airtime, transport, health care and school fees in order of importance, respectively. Relative to the 2006 levels, the proportion of expenditure towards health care and energy were lower during the review.

Water, Sanitation and Hygiene: Rain water (47.5%) and stream/river (15.3%) continue to be the main sources of domestic water during the rainy season. Piped water both into the plot/yard and into the dwelling unit increased in their share as the main source of water accounting for 9.7 percent and 7.4 percent respectively during the same season. During the dry season the main sources of drinking water are the streams/rivers accounting for 44 percent of the households water sources. The increase in the share of piped water into the plot or dwelling may be attributed to interventions to fund water facilities the households (23%) as well as the CKDAP (9%) project both in the dry and wet seasons.

Distances to water sources/facilities during the rainy season decreased in 2010 compared to 2006. In 2010, only 4 percent of households travelled more than a kilometer to fetch water during the rainy season compared to 15 percent in 2006. This trend was similar during the dry season where 16 percent of the households travelled for over one kilometer to fetch water in 2010 compared to 30 perent in 2006. However, this overall trend masks major spatial and temporal variations. For instance, in Mbuyu, Ndindiriku, and Ndivai, one fifth or more of the residents still travel over a kilometer to reach water facilities.

Water Borne Diseases, Sanitation and Hygiene: Typhoid is the most common water borne disease as reported by 79 percent of all households in the project area. Amoebiasis and diarrhoea follow at 54 percent and 16 percent, respectively.

Pit latrines remain the main type of sanitary facility used by households in the project area. There has been a marginal increase in the number of households using the Ventilated Pit Latrines from about 8 percent in 2006 to to 11 percent in 2010. The percentage of households who reported as having no facility or those who use the bush decreased from 2 percent in 2006 to less than 1 percent in 2010.

Primary Health Care: The survey results show that there was a decline in the number of households using dispensaries from 69 percent in 2006 to 46 percent in 2010. The decline in the visits to dispensaries could be attributed to location of the facility. The data further shows that there was an increase in proximity to health centers, implying that these facilities are now located nearer than dispensaries.

The percentage of households covering less than 5 kilometers to reach a health facility increased from 62 percent in 2006 to 74 percent in 2010 while those covering longer distances declined from 28 percent to 18 percent in the same period. Increased access may be attributed to intervention by local facilities to improve their services.

HIV/Aids awareness remains high in the project area recording 96 percent. However, this is a slight decline compared to the figures (99%) reported in 2006. There is improvement in access to VCTs with an overall decline in incidences of various diseases. Most of the respondents (96%) mentioned unprotected sex as the main method of HIV/Aids transmission, followed by use of unsterilized instruments (63%) and blood transfusion (41%).

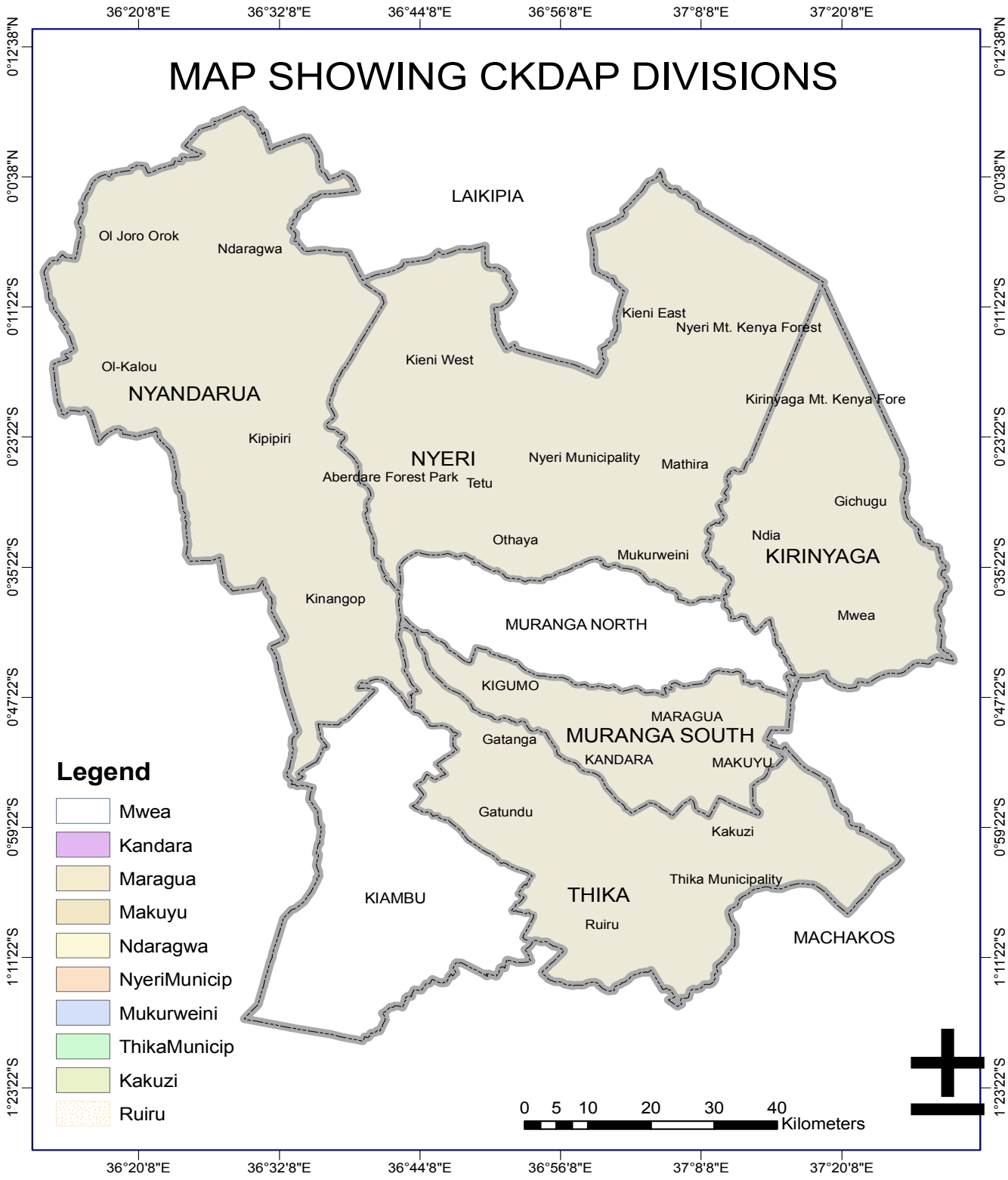
Agriculture and Livestock Production: The percentage of households experiencing a hungry season increased from 44 percent in 2006 to 46 percent in 2010. However, the percentage of households that reported a continuous hungry season declined considerably from 64 percent in 2006 to 4 percent in 2010. Government relief constituted more than two fifths of the support while almost three in every ten households received support from either relatives or friends or sold household items to meet food requirements.

79.7 percent of the households in the FDAs operate land for agriculture and livestock production. This is a 12 percentage points decline in the percentage of households operating a farmland in the five year period preceding the survey. Majority of the households (40%) own between one and three acres with only 9.1 percent owning more than five acres. This explains why the main type of tools commonly used by most households in cultivating their land are hand tools (hoe/jembe) recording a sizable 77 percent.

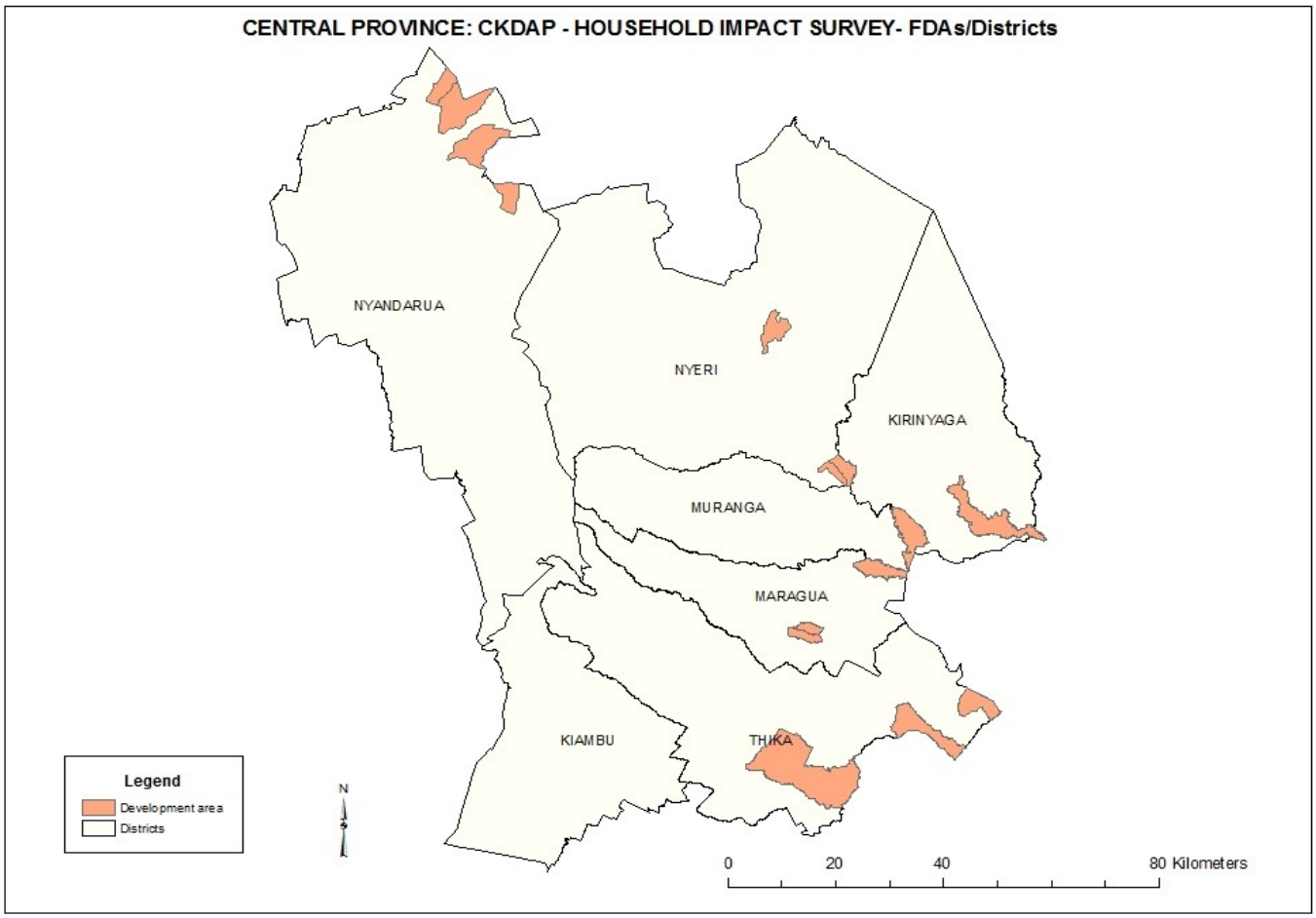
Although soil conservation is paramount in agricultural production, majority of the households (37%) use grass-strips and cut-off drains (20%) as their main soil conservation structures. Despite the fact that extension services are vital in improving agricultural production, the percentage of the households that reported having received extension services declined from 15.0 percent in 2006 to 7.5 percent in 2010.

Income Generating Activities and Savings: Nearly 20.0 percent of all the households within the FDAs are engaged in income generating activities. Among the FDAs, those who are engaged in income generating activities comprised shop keeping (4.9%), buying and selling of fruits (4.3%) and horticulture farming (4.2%). Three quarters of the households had members engaged in income generating activities. Horticulture farming as an income generating activity is practiced by most household members at 21.8 percent, followed by shop keeping, manufacturing processes, and buying and selling of fruits respectively, in order of importance. Among these activities, shop keeping, buying and selling of fruits, and horticulture were practiced by most household members on a full time basis. Most household members kept their cash savings in the house (51.8%) while 30.5 percent opted to save their cash in banks.

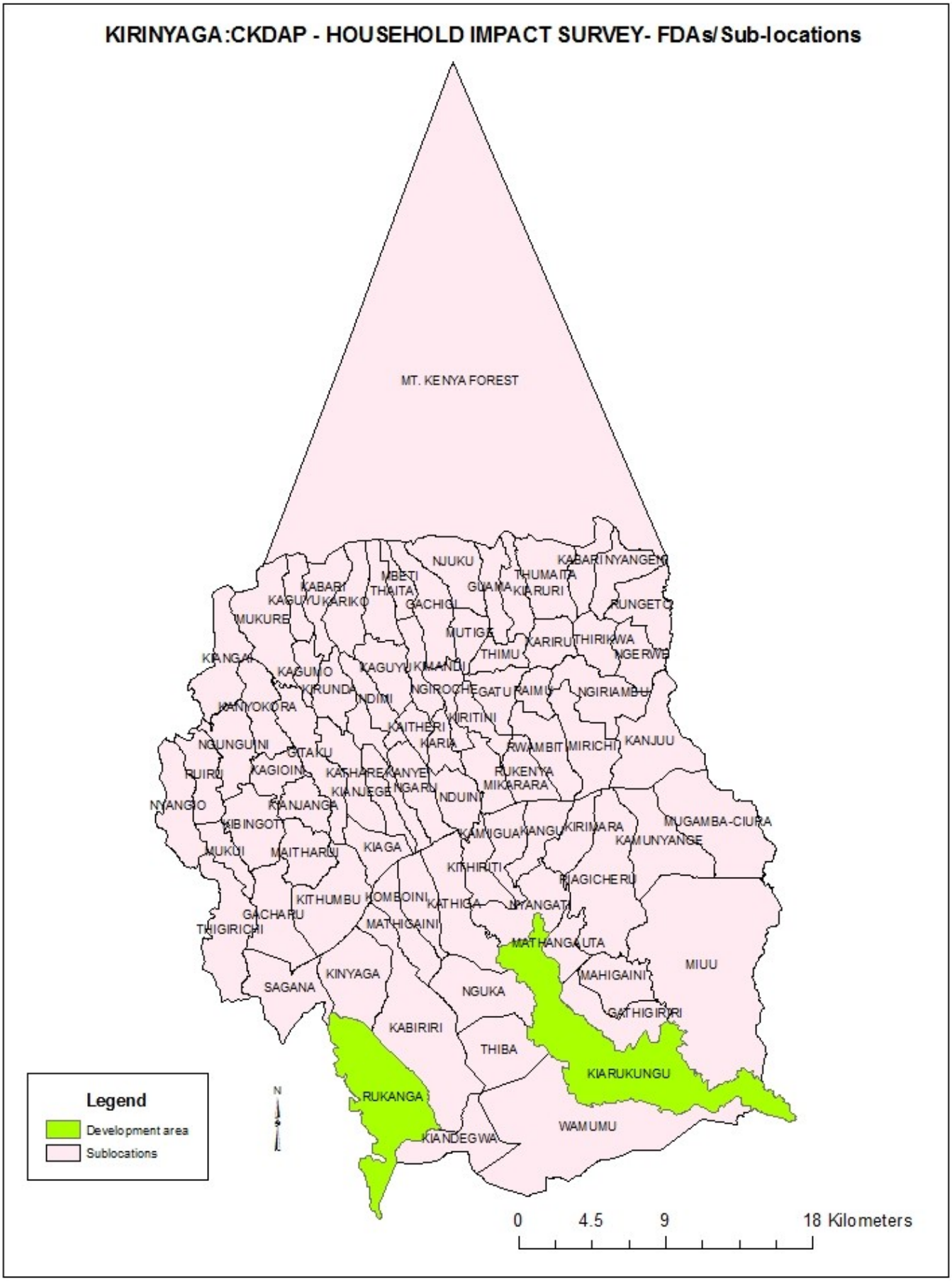
Map 1: Map Showing CKDAP Project Area (Division)



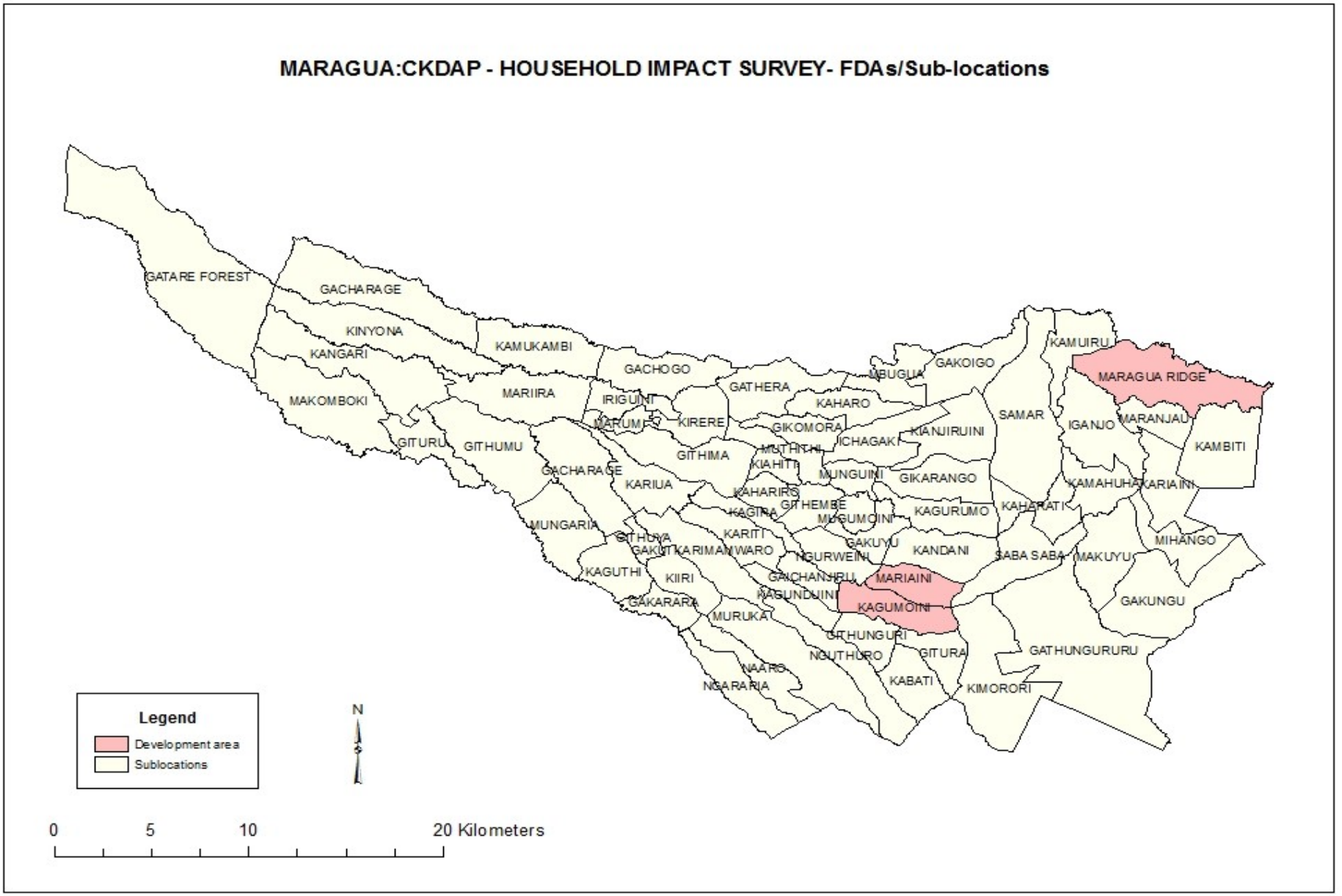
Map 2: Map showing CKDAP –Sampled FDAs/ Sublocation for Houshold impact survey



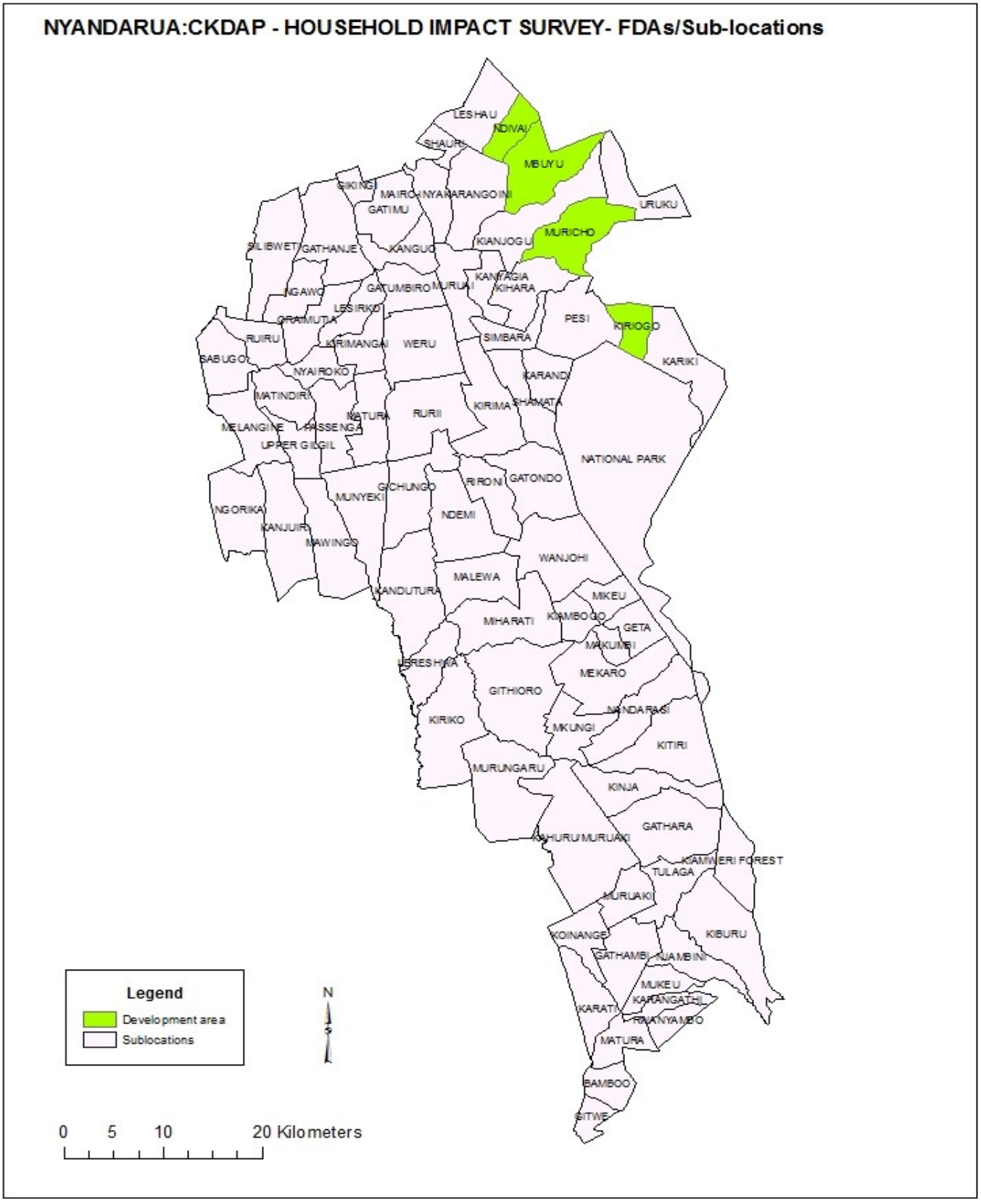
Map 3: CKDAP –Sampled FDAs/ Sublocation for Houshold impact survey in Kirinyaga District



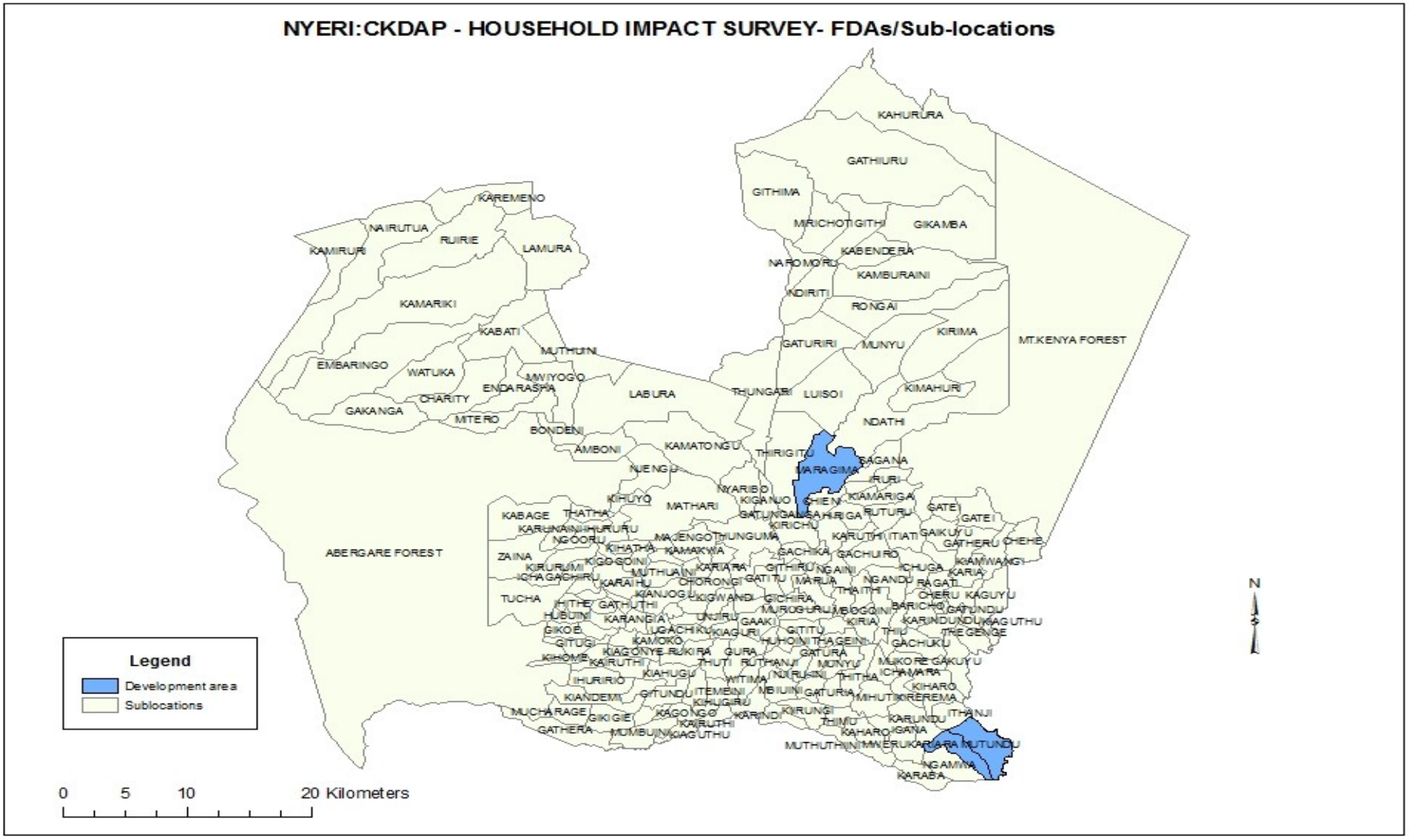
Map 4: CKDAP –Sampled FDAs/ Sublocation for Houshold impact survey in Maragua District

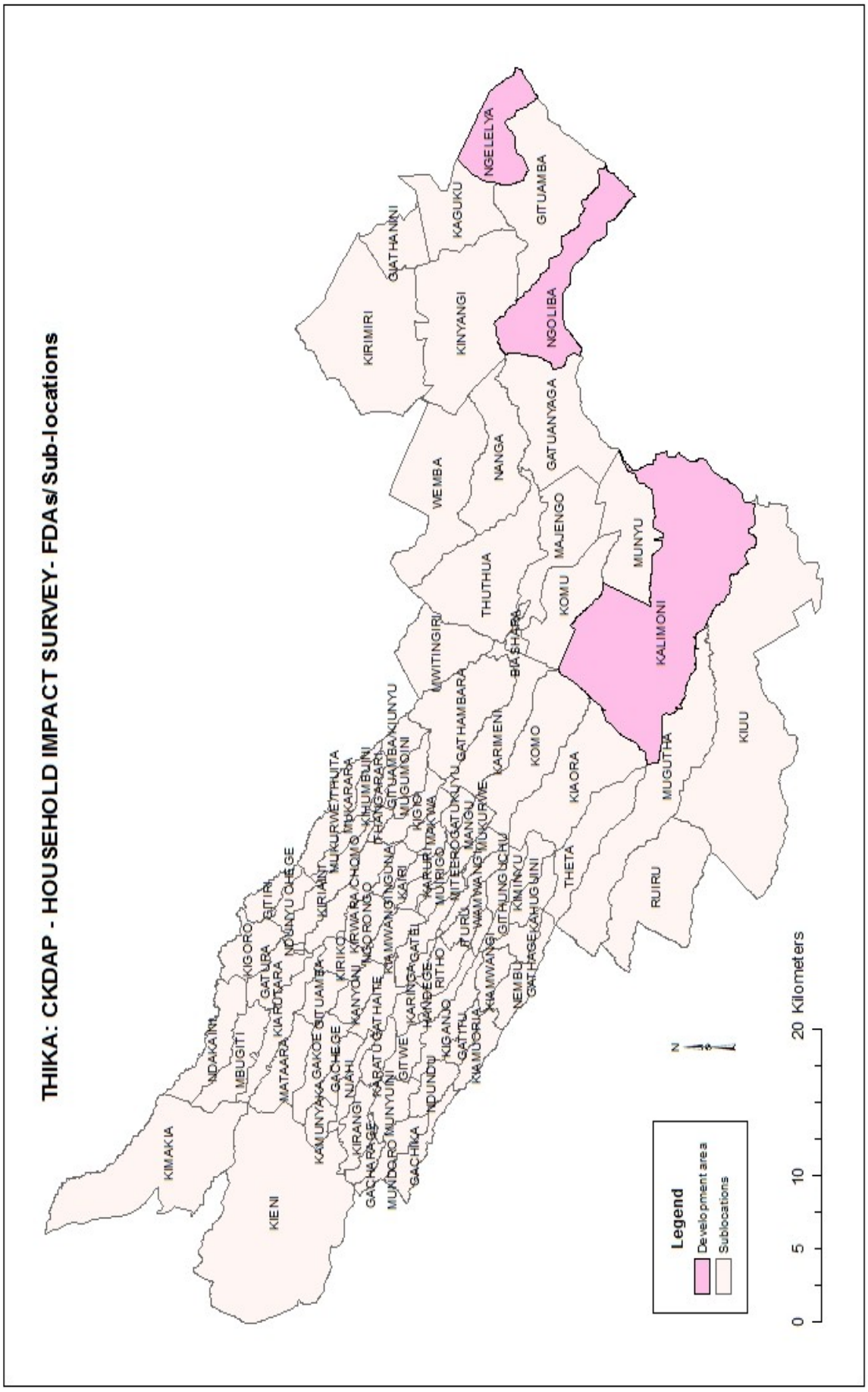


Map 5: CKDAP –Sampled FDAs/ Sublocation for Houshold impact survey in Nyandarua District



Map 6: CKDAP –Sampled FDAs/ Sublocation for Houshold impact survey in Nyeri District





Map 7: CKDAP – Sampled FDAs/ Sublocation for Household impact survey in Maragua District

Chapter One:
INTRODUCTION AND BACKGROUND

1.1 Project Background

The Central Kenya Dry Area Smallholder Community Services Development Project (CKDAP) was originated from the former Nyeri Dry Areas Project (NDAP). NDAP was financed through a Belgium Survival fund (BSF) grant, which succeeded in establishing the framework for a sustainable primary health care system, and for development of user owned and maintained domestic water supply, serving the most disadvantaged communities of the Arid and Semi Arid (ASAL) locations of Nyeri district. Despite some administrative problems, the NDAP demonstrated the value of participation of the rural poor in the planning, management and cost sharing of developments which directly affect their welfare. As a result of its formulation, a second phase of project (CKDAP) extending the health, water and agricultural activities to cover the ASAL areas of the five Central province districts of Thika, Nyandarua, Nyeri, Maragua and Kirinyaga, was recommended.

The Central Kenya Dry Area Smallholder Community Services Development Project (CKDAP) was then started on 1st July 2001, with an initial project completion date of 30th June 2008 and closing on 31st December 2008. However, the project period was reviewed and an extension approved with the new completion date set at 31st December 2010 and a closing date of 30th June 2011. The project was co-funded by the International Fund for Agricultural Development (IFAD) - USD 10.9m, Belgian Survival Fund (BSF) - USD 4.1m, Government of Kenya (GOK) - USD 2.6m and the Community - USD 0.4m, with the Ministry of State for Planning, National Development and Vision 2030 as the lead Agency. Other implementing line Ministries included Public health and Sanitation, Agriculture, Livestock Development, Water Development and Irrigation and Gender, Children and Social Development.

A baseline study was conducted in 2003 to capture information on the key indicators that would act as the project's performance benchmarks. An additional baseline survey was undertaken in 2006 by the Kenya National Bureau of Statistics (KNBS) in collaboration with the CKDAP staff. As a contractual obligation between the Government and the donor (IFAD, an impact assessment has to be conducted before the completion date to establish the extent to which the project's objectives have been met over the 9 years of implementation as well as capture crucial lessons learnt to be incorporated in the Project Completion Report (PCR).

Project Area

The Project's activities are concentrated in well-defined sub-locations/FDAs that are the Semi-Arid areas in the five larger districts of Central Province namely; Nyandarua, Nyeri, Kirinyaga, Maragua and Thika. Focal Development Areas (FDAs) which form planning areas have been defined and ranked using poverty criteria and sometimes follow the sub-locations.

1.2 Project Objectives

The overall goal of the CKDAP is to contribute to poverty reduction, vulnerability to diseases and hunger among the target communities in the project area and improve the well-being of the target group of approximately 36,000 households, in particular those that are regularly affected by diseases and malnutrition due to low resource endowment: female-headed households; landless households and those with small plots of land; families that rely on sale of irregular casual labour; orphans and unemployed youth; and families with poor access to health facilities and safe drinking water.

The main purposes of the project are:
- Improved health status
- Improved food security, nutrition and income.

This was anticipated to be realized through:
- Increased access to facility-based health services;
- Increased access to community-based health services;
- Increased access to irrigation and safe domestic water;
- Increased crop and livestock production
- Increased capacity of the community to manage their projects
- Increased capacity of the staff to implement the project activities.

1.3 Project Components

In order to address the set objectives, the project was designed with six interrelated components implemented by five ministries with the Ministry of Planning, National Development and Vision 2030 as the lead agency. Other line Ministries are Public Health & Sanitation, Medical Services, Water and Irrigation, Agriculture, Livestock Development, Fisheries Development, Gender and Children Affairs, and Finance.

1.3.1 Primary Health Care

The purpose of the Primary Health Care (PHC) sub-component is to improve the health status of the target group through one key output: improved access to good quality health services. The activities in this component focus on constructing and upgrading health facilities, improving reproductive health services, improving the referral system, support for HIV/AIDS and STI controls, development of Bamako initiatives, improving health information systems, promotion of community hygiene and sanitation and strengthening of staff and community capacities in administration of health issues.

1.3.2 Domestic Water

This component addresses two project purposes, (i) an improved health status, and (ii) improved food security, farm income and nutrition. The objective is to attain more safe water sources, managed by the community for the target population. Activities focus on rational exploitation of water sources including construction or rehabilitation of piped schemes, construction of shallow wells, protection of springs, construction of boreholes, rainwater tanks, dams and pans.

1.3.3 Water Development Technical Services

The component strengthens the existing capacities of District Water Officers (DWOs) and other relevant water authorities in all the five districts. The services include project-related surveys, environmental impact assessment and technical feasibility assessment, and design of studies.

1.3.4 Agriculture Extension Services

Agriculture extension services are designed to improve food security, farm income and nutrition. The main objective is to improve the technical capacity and quality of certain farm inputs among target group farmers. The main activities include promotion of drought tolerant crops and fodder, upgrading of small stock, application of micro-irrigation technologies, encouragement of conservation techniques by providing planting materials, strengthening of partnerships among service providers and beneficiaries, and enhancing agricultural produce utilization, processing and value adding. The component is implemented through Agricultural Development Groups (ADGs) and Common Interest Groups (CIGs) in each district, to enable them undertake new or modified on-farm enterprises with an aim of increasing household food production and food security.

*t*The group development component aims at strengthening the institutional capacity of beneficiaries to manage small projects in water, health, agriculture and off-farm income generating activities, thus contributing to the sustainability of all project outcomes. The activities under this component include organizing the target population and establishing viable and sustainable groups for implementing departments to work with. These are; water groups, health groups, agriculture groups and income generating groups.

1.4 Objectives of the Survey

The main objective of the current Impact Household Survey is to assess the extent to which the Project's outputs have impacted on the livelihoods of the targeted communities as guided by its envisioned purposes and objectives stipulated in the logical framework, and therefore, contributed towards poverty reduction in a sustainable manner, in the Project's rural areas of intervention.

The objectives of the Impact Household Survey are:

- To assess the status of poverty levels among the target communities.
- To review the health status of the target communities.
- To compare, contrast, and discuss the extent to which facility based health services and community based health services have contributed to improved health care.
- To investigate and demonstrate whether or not the two approaches have been conflicting, complementary, synergistic or otherwise.

- To determine the extent to which HIV/Aids services have contributed to reduced HIV infection rate.
- To determine whether the project has been able to reach the most vulnerable households of the target communities and precisely how and why it was able to do so.
- To determine the magnitude of change in food security, nutrition and incomes of the target communities. Identify the trends in food crops, commercial crops and livestock production as a response to project interventions in the targeted communities over a specified time period.
- To determine the change in access and identify measurable value addition, if any, arising from interventions in water for irrigation and safe water for domestic use.
- To assess the extent to which capacity building among the communities has contributed to their involvement in planning, implementation and management of their development projects by gender; and their access to extension officers.
- To assess the extent to which institutional and staff capacity building have contributed to implementation and management of the project's activities by staff at various levels.

The indicators and survey tools for the impact assessment survey were developed based on the Project Logical Framework, 2003 Baseline Reports from ETC, 2006 Baseline Reports from KNBS and the Mid-Term project status review in the following areas:

- Household Demographic and Housing Characteristics
- Expenditure,
- Water, Sanitation and Hygiene
- Primary Health Care
- HIV/Aids
- Agricultural extension services
- Food Security
- Savings and Income Generating Activities
- Group Development
- Project management and coordination.

1.5 Outline of the Report

This report is presented in eleven chapters. Chapter one gives the project background, objectives, components and survey objectives. Methodogoly of the households and group surveys are discussed in Chapter two while Chapter three presents the households profiles in terms of demographics, housing characteristics and expenditures.

Chapter four discusses results on water and sanitation, while results on primary health care including HIV/Aids and mortality are presented in Chapter five. Agriculture and livestock production results are presented in Chapter six. Income generating activities and households' savings are outlined in Chapter seven. Chapter eight presents the findings on group development while Chapter nine discusses the findings of the Focus Group Discussions and In-Depth Interviews. The views of the Project Implementation and Management Committees are presented in Chapter ten. Chapter eleven summarizes survey findings, conclusions and recommendations.


Chapter Two:
DATA AND METHODOLOGY

2.1 Data Sources

Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP) operates in well defined Focal Development Areas (FDAs) covering sub-locations or selected portions of sub-locations. The project is being implemented in selected arid and semi-arid pockets in five larger districts of Central Province namely: Nyandarua, Nyeri, Kirinyaga, Maragua and Thika. CKDAP covers a total of 42 Focal Development Areas (FDAs). The Household Impact Survey covered 16 FDAs. These FDAs are; Mbuyu, Muricho, Kiriogo and Ndivai in Nyandarua; Kariara, Maragima and Mutundu in Nyeri; Ndindiruku, Rukanga and Kiumbu/Kianugu in Kirinyaga; Mariaini, Maragua Ridge and Kagumoini in Maragua; and Ngelelya, Kalimoni and Ngoliba in Thika. The survey was carried out between 6th and 21st December 2010 and was designed to provide estimates at FDA level which could be applied to the entire project area.

This study utilized quantitative and qualitative approaches of data collection to effectively meet the survey objectives. Household survey, which utilized a quantitative approach with interviews, was done at the household level using face to face interviews. A structured questionnaire with both closed and open-ended questions were used to obtain responses from the targeted respondents in the households. On the other hand, a qualitative approach was used to collect information on community groups operating in the FDAs using questionnaires. Focus Group Discussions (FGDs) and In-depth Interviews (IDIs) were conducted with various members of the communities. The study also collected information on implementation and management of the project activities by the staff through a self administred questionnaire.

2.2 Quantitative Approach

2.2.1 Sample Design

The quantitative based study utilized a two stage cluster sampling design with the selection of clusters at the first stage while the second stage involved the selection of the households. The household is the unit of analysis. Initially, a sampling frame did not exist for selection of a representative sample. It was therefore necessary to construct one based on the available Census data. Each of the FDAs provided the necessary stratification making a total of 16 strata. Enumeration Areas (EAs) based on the 1999 Population and Housing Census formed the Primary Sampling Units (PSUs). Since this Census was carried out more than 11 years ago, changes in the composition of EAs were expected and a listing exercise was necessary. The EAs were formed to cover an average of 100 and 150 households in the rural and urban areas, respectively. However, in this survey a measure of size (MoS) of 100 households in an EA was adopted. A complete quick count of households within the EAs was first done and those with more than 1 MoS were segmented into corresponding number of segments while those with less than 1 MoS were merged with the neighbouring ones. Once the clusters were identified, a complete listing was done. All districts, FDAs and clusters were then allocated identification codes.

The domains of estimation were the 16 strata which is equivalent to the 16 FDAs. In the first stage sampling, 130 clusters were selected while in the second stage 3,221 households were sampled. One cluster in Thika district was found to be non-operational since it had become an urban area. Each EA provided 25 households except one which had 21 households. Selection of the households within a cluster in the second stage was done systematically.

2.2.2 Survey Methods

The survey was conducted through face to face interviews using questionnaires. Forty four (44) Research Assistants (RAs), six (6) data entry personnel and five (5) supervisors participated in the survey across all 16 FDAs in the five districts. An additional three (3) coordinators were responsible for monitoring and ensuring questionnaire quality.

Training

Training on the data collection instruments was held for a period of three days for Research Assistants, Supervisors and data entry personnel. All the modules of the questionnaire were discussed and role plays performed to establish whether the RAs had attained the required level of comprehension. Feedback of the role plays were discussed and incorporated into the final questionnaires.

Fieldwork

Data collection was done between 7th and 21st December, 2010 in all FDAs using face to face interview method. There were five teams overall with one team per district. A team comprised a Research Assitant, Supervisor (DSO), a data entry personnel, and a driver. Table 2.1 shows the resource distribution of per district.

Table 2.1: Distribution of resources

District	Clusters	No. of households	Research Assistance	Data entry personnel	Drivers
Kirinyaga	13	325	4	1	1
Nyandarua	26	650	9	1	2
Nyeri	18	450	6	1	2
Thika	46	1146	16	2	4
Maragua	26	650	9	1	2
Total	**130**	**3221**	**44**	**6**	**12**

In each household covered by the survey, information was collected on all areas of the project objectives. There was no provision for replacement of non-responding households. In order to minimize non-response, interviewers made up to three call backs to households where respondents were absent. All completed questionnaires were checked by the supervisors in the field for any possible verification with households, and edited in the office.

2.2.3 Survey Outcomes

Table 2.2 shows distribution of sample and percentage response rates for CKDAP-Household Impact Survey 2010. Overall, 3,129 household interviews were successfully completed representing 97.1 percent response rate with Non-eligible households and 97.7 percent without Non-eligible households out of the 3,221 sampled households. It was not possible to complete interviews in 2.3 percent of the sampled dwelling units owing to reasons such as refusals or absenteeism. An additional 0.6 percent of all interviews were not conducted for various reasons such as in cases where the sampled dwelling units had become vacant or incapacitated. FDAs in Kirinyaga and Nyeri registered 100 percent response rate, while Nyandarua, Thika and Maragua the response rates were 98.1, 97.4 and 95.0 percent respectively.

Table 2.2: Distribution of sample and Percentage response rate

District/ FDAs	Response			Non-response		Non- eligible households		Total Sample
	Completed interviews	% with Non- eligible households	% without Non eligible households	Refused/ not at home	Percentage Non-response	Incapacitated/ Vacant/ Unoccupied	Percentage Non- eligible households	
Ndindiriku				-	-	-	0	100
Kiumbu/Kianugu				-	-	-	0	50
Rukanga	175	100	100	-	-	-	0	175
KIRINYAGA	**325**	**100**	**100**	**-**	**-**	**-**	**0**	**325**
Muricho	173	98.9	99.4	1	0.6	1	0.6	175
Kiriogo	121	96.8	98.4	2	1.6	2	1.6	125
Mbuyu	243	97.2	97.2	7	2.8	-	0	250
Ndivai	98	98	98	2	2	-	0	100
NYANDARUA	**635**	**97.7**	**98.1**	**12**	**1.8**	**3**	**0.5**	**650**
Maragima	125	100	100	-	-	-	0	125
Kariara	150	100	100	-	-	-	0	150
Mutundu	175	100	100	-	-	-	0	175
NYERI	**450**	**100**	**100**	**-**	**-**	**-**	**0**	**450**
Ngelelya	440	97.8	98.9	5	1.1	5	1.1	450
Ngoliba	306	95.3	96.2	12	3.7	3	0.9	321
Kalimoni	359	95.7	96.8	12	3.2	4	1.1	375
THIKA	**1 105**	**96.4**	**97.4**	**29**	**2.5**	**12**	**1**	**1146**
Kagumoini	304	93.5	94.4	18	5.5	3	0.9	325
Maragua Ridge	119	95.2	95.2	6	4.8	-	0	125
Mariaini	191	95.5	96	8	4	1	0.5	200
MARAGUA	**614**	**94.5**	**95**	**32**	**4.9**	**4**	**0.6**	**650**
Total Project Sample 2010	**3 129**	**97.1**	**97.7**	**73**	**2.3**	**19**	**0.6**	**3221**

2.2.4 Survey Measures Analyzed

The CKDAP-Household Impact Survey 2010 questionnaire was very comprehensive in that it collected a wide range of information pertaining to the following socio-economic variables: housing charecteristics, household expenditures, water and sanitation, health care, agriculture, livestock production and food security, and income generating activities, among others. In this study the socio-economic variables above were cross-tabulated with FDAs and age groups.

2.2.5 Data Processing and Statistical Analysis methods

The data entry screen using CSPro (Census and Survey Processing System 4.1) program was developed based on the final questionnaires. The data entry personnel were then trained for 2 days on data capture and granted an additional 1 day to practice before commencement of actual data entry.

All completed questionnaires were delivered to the district headquarters of each FDA for editing and data entry. Questionnaires were edited by Supervisors at the office before entry. Before analysis, cleaning specifications were defined and cleaning syntax developed in CSPro and SPSS. The data was then converted into SPSS for analysis.

The study applied SPSS and Stata programmes for data analysis. This involved running descriptive statistics tables of housing charecteristics, households' expenditures, water and sanitation, health care, agriculture, livestock production and food security, and income generating activities. The findings of the FDAs were also compared with the situation during the CKDAP Baseline Survey of 2006.

2.2.6 Limitation of the survey

The purpose of the study was to evaluate the impact of the CKDAP in the five districts of Central Kenya. Difference in difference method is the most popular identified strategy applied to evaluate the impact of the intervation. This involves inputs, outputs, outcome and finally the impact. An example, inputs - spending in primary health care (finacial and physical resources), outputs, avalibiliy of medicine and number of nurses (goods and services generated) The outcomes are percentage within 5 KM of health center, number of children vaccinated (access, usage and satisfaction of users). The impact is finally prevalence of specific diseases and infant and child mortality increased or reduced.

Impact is the difference between outcomes with the program and without it. The goal of impact evaluation is to measure this difference in a way that can attribute the difference to the program, and only the program. There is need for a control/comparison group that will allow the researcher to attribute any change in the "treatment" group to the program.

Both the baseline surveys of 2003 by ETC and 2006 by KNBS lacked control/comparison group. The survey was contacted in treatment areas only, hence, a comparison of participants and an arbitrary group of non-participants was missing.

Difference in difference can not be applied to the CKDAP- Household Impact Survey data set. Further studies to introduce a control/comparison group should be conducted.

2.2.7 Weighting and imputation

The sampling weights for the data collected from the sampled households were constructed such that the responses could be properly expanded to represent the entire households in the FDAs. The design weights which are the inverse sampling rate (ISR) for the FDAs, were assigned to each of the households in a FDA. These were adjusted for two factors: Sample Stabilisation to conform to projected population estimates, and Non-responding Units. For the purpose of this analysis, the weights were applied without further adjustments.

The sample based on the developed sampling frame was not self-weighted. It was therefore necessary to weight the data to enable generalization of the sample results to the population. Weights were constructed using the selection probabilities of EAs. The selection probabilities were based on the measure of size (MoS) and the sampling interval of the clusters within the project areas. All the household survey results presented in the report are weighted. However, caution must be exercised when interpreting the results of the CKDAP-Household Impact Survey 2010, where the number of Households is less than 30.

2.3 QUALITATIVE APPROACH

This qualitative approach was also used to collect information on the impact of the project on the target population in five (5) districts of Central Kenya. Data for the evaluation was collected through Focus Group Discussions, In-depth interviews, community group interviews and self administred interviews.

2.3.1 Sample Design

A total of 28 Focus Group Discussions and 43 In-Depth Interviews were targeted in the five districts under evaluation. The number of FGDs and IDIs to be conducted in each of the FDAs was determined by the number of sampled households in an FDA. On average 1 FGD and 2 IDIs were conducted for every 100 households (MoS). The FGDs had 8 to 12 participants per session. Participants of the FGDs were drawn from the following groups of people; FDAC members, representatives of various sectors (health, water, agriculture, etc), opinion leaders, other community members and representatives of enterprise umbrella groups. The in-depth interviews targeted the following categories of people who provide services to the community members; Water Project Official, Community Health Worker, Agriculture/ Livestock Extension worker, and a member of a Health Facility Management committee or a facility based Health Worker.

For the community group interviews, a list of all the groups in the FDAs where the 2006 baseline survey for the groups was undertaken was compiled. A sample was then randomly selected from among the list of community groups and within sampled FDAs on the basis of their categories. These categories included the Community Based Organizations (CBOs), Women Groups, Self Help Groups, and Youth Groups. The groups were categorized into the five strata. Each stratum represented a category. A sample of 82 groups was allocated proportionately into the strata based on FDAs. Table 2.3 gives a breakdown of the FGDs, IDIs, and Group Interviews by districts and FDAs.

The self administered questionnaires, which were semi-structred, were used to collect data on the impact of institutional and staff capacity building. Members of the following committees and units, which represent the various levels of project management and implementation, were targeted; Project Coordinating Committee (PCC), Project Management Unit (PMU), District Project Coordinating Committee (DPCC), District Project Coordinating Unit (DPCU), District Project Implementation Team (DPIT), and Focal Development Area Committee (FDAC).

Table 2.3: Breakdown of the FGDs, IDIs, and Group Interviews

District	Division	Location	Sub Location/FDA	No. of Clusters	Sampled HHs	FGDs	In-Depth	Group
Nyandarua North	Ndaragwa	Muthingira	Mbuyu	10	250	2	3	9
	Ndaragwa	Leshau	Ndiavi	4	100	1	2	9
	Ndaragwa	Kahutha	Muricho	6	150	2	3	0
	Ndaragwa	Kahutha	Kiriogo	3	75	1	2	0
					District Total	6	10	18
Nyeri South	Mukuruweini	Rutune	Mutundu	7	175	2	3	9
	Mukuruweini	Rutune	Kariara	6	150	2	3	3
	Kieni East	Thigu	Maragina	4	100	1	2	0
					District Total	5	8	12
Kirinyaga	Mwea	Tebere	Ndindiruku	4	100	1	2	6
	Mwea	Tebere	Kiumbu/Kianugu	3	75	1	2	4
	Mwea	Muthithi	Rukanga	5	125	1	2	0
					District Total	3	6	10
Maragua	Kandara	Gaichanjiru	Maria-ini	9	225	2	3	10
	Kandara	Gaichanjiru	Kigumoini	12	300	3	3	13
	Maragua	Maragua Ridge	Maragua Ridge	4	100	1	2	0
					District Total	6	8	23
Thika	Kakuzi	Ngelelya	Ngelelya	18	450	3	4	9
	Municipality	Gatuanyaga	Ngoliba	14	350	3	4	11
	Ruiru	Juja	Kalimoni	11	275	2	3	0
					District Total	8	11	20
					Overall Total	**28**	**43**	**20**

2.3.2 Survey Methods

A total of 10 Research Assistants were recruited on 26th November 2010 through a competitive process after which, on 1st November 2010, they were trained on the data collection tools. This was followed by field work which commenced on 6th December 2010 and ended on 16th December 2010. There were a total of 5 teams each with 2 Research Assistants. Each team was assigned one district for data collection. The teams were supervised by the Central Kenya Regional Population Coordinator and a Programme Officer from the head office. Three drivers were assigned to the qualitative component of the survey.

With the help of the District Development Officers and FDA Committees in the 5 districts, appointments for the FDGs, IDIs and Community Group interviews were made and conducted. Each team of Research Assistants was provided with written guides for the FGDs and IDIs, questionnaires for the Community Group interviews, an electronic digital recorder, writing materials and means of transport.

2.3.3 Survey Outcomes

The survey achieved 100 percent response rate for the FGDs, IDIs, and the community group interviews. For the self administered questionnaires, a total of 128 questionnaires were received and processed. The breakdown of these questionnaires is shown in Table 2.4.

Table 2.4: Breakdown of anlyzed self administered questionnaires

	Entity	No. of Questionnaires
1	Project Coordinating Committee	9
2	Project Management Unit	7
3	District Project Coordinating Unit/Implementing Team	32
4	Focal Development Committee	80
Total		**128**

2.3.4 Data Processing and Analysis

Between 17th and 29th December 2010, the Research Assitants were involved in the transcription and translation of the FGDs and IDIs. The transcription entailed the creation of a text copy of the audio recordings of the FGDs and IDIs in the same language that they were initially recorded. The translation entailed creating an English copy of the transcribed text. In January 2011, two trained data entry clerks, under the supervision of a qualitative data analyst, went on to proof read the transcribed English versions of the FGDs and IDIs while creating a list of the emerging themes. The themes were then used to create codes that were in turn used to code the qualitative data. Analysis of the coded data was then undertaken and a report prepared. Data from the self administered questionnaires were subjected to the same process mentioned above.

The data entry of the group questionnaires was done between 20th and 24th December 2010. Two (2) trained data entry clerks were involved in this process. These clerks used data entry screens, developed using CSPro software, to capture the data in the questionnaires. Double data entry was used to eliminate errors that may have arisen during this stage of data capture. The data in CSPro format was then converted to SPSS format after which it was cleaned further before the data tables were created for analysis. The data analysis and report writing were done in January 2011.

Chapter Three:
HOUSEHOLD PROFILE

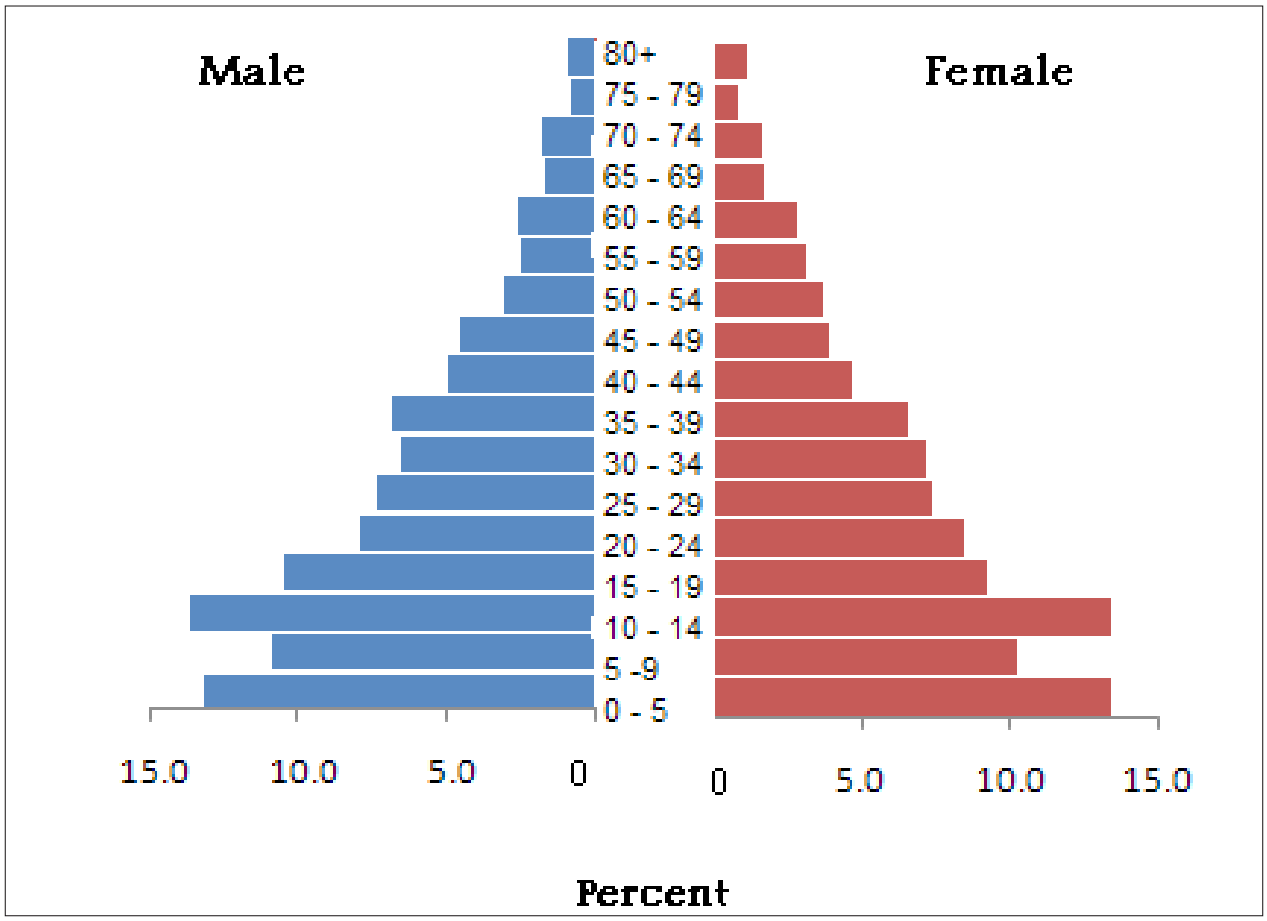
3.0 Introduction

This Chapter highlights the key survey findings on the socio-economic indicators and demographic characteristics of the households in the Focal Development Areas (FDAs) from five districts of Central Province. The main focus was on age, sex, education, housing characteristics including building materials and expenditure patterns especially in selected key areas of concern.

3.1 Demographics

3.1.1 Household Population by Age and Gender

Figure 3.1: Population pyramid in 2010



The percentage distribution of household population by five year age groups is presented in table 3.1. Nyeri District recorded the highest median age (23), followed by Thika and Kirinyaga (21 each) with Nyandarua and Maragua having the least (20 each). Kariara and Mutundu had the highest mean age (29) each while Mbuyu recorded the oldest age at 119.

3.1.2 Household Composition

Table 3.2 shows the percentage distribution of household size. Majority of the households (19%) have four members followed by those with three (16%). Over a quarter of the households in Kirinyaga have one member while this applies to only one in ten households in Maragua.

Table 3.1: Percentage distribution of household population by five year age groups

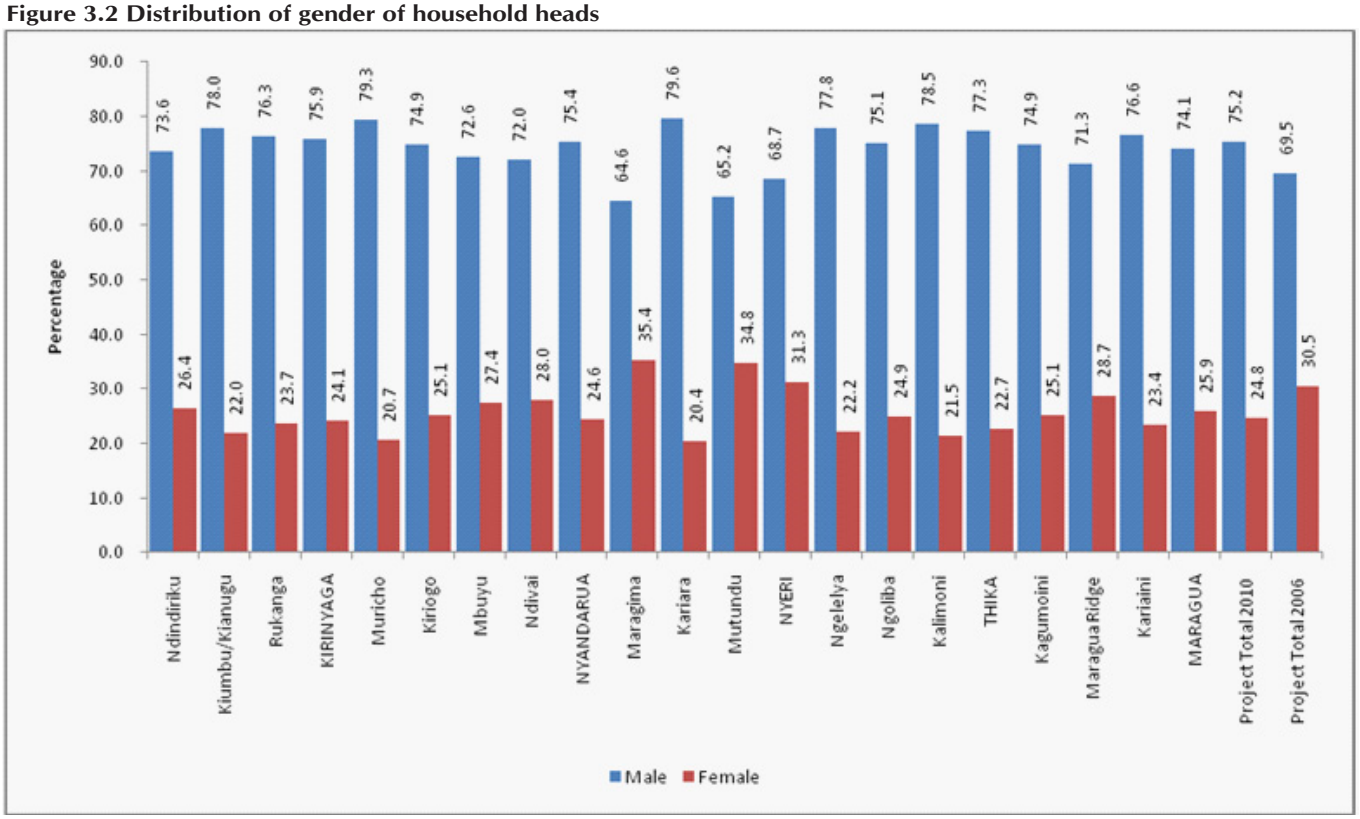
Age groups	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				
	Ndindi-riku	Kiumbu/ Kianugu	Rukanga	total	Muricho	Kiriogo	Mbuyu	Ndivai	total	Maragi-ma	Kari-ara	Mu-tundu	total	Ngele-lya	Ngoliba	Kali-moni	total	Kagu-moini	Mara-gua Ridge	Mari-aini	total	Sample
0 - 5	16.2	16.4	11.7	14.1	14.4	11.5	13.1	11.0	13.1	14.2	14.7	9.9	12.9	12.4	15.9	12.4	13.6	11.8	11.8	13.9	12.3	13.3
5 -9	13.1	13.6	11.6	12.5	12.1	10.4	10.8	6.6	10.7	10.2	6.4	8.9	8.7	10.0	10.7	9.0	9.8	12.2	13.1	11.2	12.2	10.6
10 - 14	13.4	7.9	14.4	12.6	13.8	13.4	16.5	14.2	14.7	11.9	13.7	14.8	13.4	15.2	13.9	11.4	13.1	13.3	13.7	15.9	14.1	13.5
15 - 19	7.2	5.7	8.1	7.3	7.7	10.6	11.8	13.6	10.3	9.1	8.0	10.9	9.4	12.1	9.5	10.6	10.6	10.5	8.3	11.6	10.1	9.9
20 - 24	10.4	10.7	6.5	8.6	6.0	8.3	6.9	9.3	7.1	11.2	7.8	8.0	9.2	8.8	10.4	7.1	8.6	7.9	7.5	7.1	7.6	8.2
25 - 29	8.0	12.9	7.7	9.0	7.5	7.6	5.7	5.6	6.7	4.5	6.8	5.9	5.6	6.5	7.7	9.0	8.0	5.9	6.3	6.7	6.2	7.4
30 - 34	8.1	7.9	6.9	7.5	9.2	7.4	5.0	4.6	6.9	7.4	7.5	5.3	6.7	6.0	7.7	7.2	7.1	5.2	6.6	6.2	5.9	6.9
35 - 39	6.4	7.1	9.2	7.9	6.8	6.2	5.9	5.0	6.2	5.9	5.3	6.8	6.1	5.7	6.7	7.9	7.0	6.1	6.7	5.8	6.2	6.7
40 - 44	2.4	3.6	7.1	4.9	3.9	5.1	3.9	4.1	4.1	2.7	5.2	4.8	4.1	4.2	4.0	7.0	5.4	4.6	5.4	4.7	4.9	4.9
45 - 49	2.3	3.6	3.6	3.2	4.2	4.4	4.2	5.3	4.4	5.1	5.0	5.3	5.1	3.7	5.2	3.7	4.2	4.8	5.3	3.9	4.7	4.3
50 - 54	1.7	1.4	3.9	2.7	2.4	3.4	4.0	5.5	3.5	3.5	3.6	5.1	4.1	3.6	2.7	4.1	3.5	3.2	3.2	3.8	3.4	3.4
55 - 59	2.3	2.8	1.6	2.1	4.1	3.6	2.2	3.6	3.3	2.3	3.0	3.2	2.8	3.2	2.4	3.2	2.9	2.6	2.0	2.8	2.5	2.8
60 - 64	3.3	.7	3.0	2.6	2.5	3.8	3.3	2.7	3.0	4.2	2.9	3.0	3.5	2.6	.9	3.1	2.3	3.6	2.7	3.1	3.2	2.7
65 - 69	.9	2.2	1.4	1.4	1.7	1.4	2.5	4.0	2.2	.8	3.0	2.6	2.0	2.1	.4	2.2	1.6	1.4	1.9	1.6	1.6	1.7
70 - 74	2.6	.7	1.4	1.6	1.8	1.1	2.2	1.5	1.8	3.3	3.2	2.4	3.0	2.4	.7	1.3	1.3	2.8	2.6	.4	2.1	1.8
75 - 79	.4	2.8	.6	1.1	.7	.8	1.2	1.0	.9	1.9	1.8	.9	1.5	.5	.7	.5	.6	1.7	.9	.5	1.1	0.9
80+	1.1	.0	1.1	.9	1.0	.9	.9	2.3	1.1	1.6	2.1	2.2	1.9	1.0	.4	.3	.5	2.2	2.1	.9	1.8	1.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100**
Mean Age yrs	23.4	24.2	26.1	24.9	25.4	26.3	25.7	28.7	26.1	27.2	28.9	28.7	28.2	25.7	22.8	26.7	25.2	27.4	27.0	24.1	26.4	25.8
Median Age yrs	19.8	23.0	22.0	21.0	20.3	22.0	18.0	21.0	20.0	22.0	24.0	23.0	23.0	20.0	20.0	24.0	21.0	20.0	21.8	18.0	20.0	21.0
Maxi-mum yrs	87.0	78.0	97.0	97.0	88.0	87.0	119.0	98.0	119.0	98.0	97.0	97.0	98.0	98.0	92.0	88.0	98.0	99.0	95.0	95.0	99.0	119.0
Sampled POP. 2010	529	387	813	1,729	876	370	795	319	2,361	476	335	418	1,229	1,117	1,603	2,166	4,886	803	578	496	1,876	12,080
House-holds	165	138	252	555	209	88	179	75	551	144	95	130	369	252	387	564	1,204	193	148	109	450	3,129
Sample Pop. 2006	335	260		595			1,050	436	1,486		608	667	1,275	2,115	1,437		3,552	1,355		912	2,267	9,175

Table 3.2: Percentage distribution of household population by Household size

District/ FDAs	1	2	3	4	5	6	7	8	9+	Total
Ndindiriku	23.6	17.4	13.1	21.4	13.4	7.6	3.5	.0	.0	165
Kiumbu/Kianugu	30.1	12.0	27.9	15.9	8.1	4.0	2.0	.0	.0	138
Rukanga	28.7	10.4	15.3	19.7	12.8	8.3	3.4	1.5	.0	252
KIRINYAGA	**27.5**	**12.9**	**17.8**	**19.3**	**11.8**	**7.0**	**3.1**	**.7**	**.0**	**555**
Muricho	13.8	13.4	16.7	17.6	13.8	8.9	5.9	4.6	5.4	209
Kiriogo	14.5	10.1	12.0	22.3	15.3	9.8	8.2	4.7	3.1	88
Mbuyu	12.2	10.0	14.6	16.9	15.0	13.3	9.6	5.2	3.3	179
Ndivai	14.5	13.7	13.4	17.6	10.6	11.6	5.9	8.3	4.4	75
NYANDARUA	**13.5**	**11.8**	**14.8**	**18.1**	**14.0**	**10.8**	**7.5**	**5.3**	**4.2**	**551**
Maragima	28.0	13.0	15.0	15.7	13.9	6.2	4.2	2.2	1.7	144
Kariara	12.2	15.4	22.6	24.7	13.8	8.5	1.7	.0	1.1	95
Mutundu	24.8	15.2	15.5	19.0	14.3	8.3	.5	2.3	.0	130
NYERI	**22.8**	**14.4**	**17.2**	**19.2**	**14.0**	**7.5**	**2.2**	**1.7**	**.9**	**369**
Ngelelya	7.4	12.9	14.8	18.4	16.7	14.7	6.9	4.6	3.6	252
Ngoliba	18.9	10.8	13.5	18.6	13.1	9.3	4.0	4.7	7.1	387
Kalimoni	16.1	11.7	17.3	17.7	17.7	9.4	5.8	2.3	2.1	564
THIKA	**15.2**	**11.7**	**15.5**	**18.1**	**16.0**	**10.5**	**5.5**	**3.5**	**4.0**	**1,204**
Kagumoini	10.4	9.7	17.0	20.9	19.0	13.3	4.1	3.4	2.2	193
Maragua Ridge	12.9	16.9	10.3	21.1	20.7	9.8	5.6	1.2	1.4	148
Mariaini	10.1	6.5	15.7	19.7	14.0	14.2	11.7	6.1	1.9	109
MARAGUA	**11.2**	**11.3**	**14.5**	**20.7**	**18.3**	**12.3**	**6.5**	**3.3**	**1.9**	**450**
Project Total 2010	**17.4**	**12.2**	**15.9**	**18.8**	**15.0**	**9.8**	**5.2**	**3.1**	**2.7**	**3,129**
Project Total 2006	**13**	**11.7**	**15.9**	**18.5**	**15.8**	**11.5**	**6.1**	**3.9**	**3.7**	**2,175**

Information on the gender of household heads is shown in figure 3.2. Overall, in all the survey areas, the percentage of male-headed households is greater than that for female-headed households. The highest percentage of male-headed households was observed in Kariara (80%), while Maragima recorded the highest female-headed household (35%).

Figure 3.2 Distribution of gender of household heads



The relationship between the household head and the rest of the household members in the FDAs is presented in table 3.3. In majority of the households, approximately half of the residents were the biological children of the house head.

Table 3.3: Percentage distribution of household composition in terms of relationships to the head

District/ FDAs	Head of Household	Wife/ husband/ partner	Son or daughter	Son-in-law or daughter-in-law	Grand-child	Parent	Parent-in-law	Brother or sister	Co-wife	Other relative	Adopted	None relative	Total
Ndindiriku	31.2	16.2	43.8	.0	5.2	.0	.0	2.2	.0	1.5	.0	.0	529
Kiumbu/													
Kianugu	35.7	17.8	41.5	.7	2.8	.0	.0	.7	.0	.7	.0	.0	387
Rukanga	30.9	17.2	45.3	.7	4.6	.4	.0	.0	.0	.7	.0	.1	813
KIRINYAGA	**32.1**	**17.0**	**44.0**	**.5**	**4.4**	**.2**	**.0**	**.8**	**.0**	**.9**	**.0**	**.1**	**1,729**
Muricho	24.1	16.0	52.3	.2	6.7	.1	.2	.1	.0	.3	.0	.1	876
Kiriogo	23.7	15.8	54.7	.3	4.1	.2	.0	.1	.0	.6	.0	.4	370
Mbuyu	22.5	13.6	51.5	.4	10.0	.2	.1	1.1	.1	.1	.1	.2	795
Ndivai	24.1	14.6	48.8	.0	10.1	.2	.0	.4	.2	1.3	.0	.3	319
NYANDARUA	**23.5**	**15.0**	**51.9**	**.2**	**7.9**	**.2**	**.1**	**.5**	**.0**	**.4**	**.0**	**.2**	**2,361**
Maragima	30.3	13.5	40.7	.4	10.7	.1	.1	.0	.0	2.6	.0	1.5	476
Kariara	28.4	20.4	43.6	.0	5.8	.1	.5	.0	.0	1.2	.0	.0	335
Mutundu	31.3	13.9	45.6	.2	5.5	.0	.2	.9	.0	2.0	.0	.5	418
NYERI	**30.1**	**15.5**	**43.2**	**.2**	**7.6**	**.1**	**.2**	**.3**	**.0**	**2.0**	**.0**	**.8**	**1,229**
Ngelelya	22.6	16.1	52.9	.8	6.0	.0	.0	.4	.0	.7	.1	.3	1,117
Ngoliba	23.9	14.5	53.1	.7	4.6	.2	.0	.6	.2	1.6	.5	.2	1,603
Kalimoni	25.7	16.2	45.2	.3	6.2	.3	.1	.5	.0	1.5	.2	3.8	2,166
THIKA	**24.4**	**15.6**	**49.6**	**.6**	**5.6**	**.2**	**.0**	**.5**	**.1**	**1.4**	**.2**	**1.8**	**4,886**
Kagumoini	24.1	17.1	48.5	.2	9.0	.1	.0	.1	.0	.5	.2	.1	803
Maragua Ridge	25.6	15.9	47.6	.2	8.3	.3	.0	.0	.0	2.1	.0	.0	578
Mariaini	22.1	15.2	54.6	.1	6.4	.2	.2	.3	.0	.4	.3	.3	496
MARAGUA	**24.0**	**16.2**	**49.8**	**.2**	**8.1**	**.2**	**.1**	**.1**	**.0**	**1.0**	**.1**	**.1**	**1,876**
Project Total 2010	**25.8**	**15.8**	**48.6**	**.4**	**6.5**	**.2**	**.1**	**.5**	**.0**	**1.1**	**.1**	**.9**	**12,080**
Project Total 2006	**23.4**	**14.4**	**50.6**	**0.2**	**8.4**	**0.4**	**0.1**	**0.5**	**0.2**	**0.9**	**0.1**	**0.7**	**9,175**

Compared to the 2006 baseline data, minimal changes have occurred as indicated by the 2010 evaluation findings. Generally sons/daughters contribute close to half of the population of household members, heads of households accounting for about a quarter, while spouses are about 15 percent. It's also observed that grandchildren are the most common extended family members in the household. However, their proportion declined from eight to seven percent within the study period.

3.1.3 Characteristics of Household Members

Table 3.4 presents the occupational status of the household members. A majority of the respondents are subsistence farmers (24%) followed by those who are informally employed (12%), while 34% are students. Nyeri has the highest percentage of farmers (40%) while Maragua has the highest percentage of students (38%).

Table 3.4: Percentage distribution of Occupational status of Households

Ndindiriku	Head of Household	Wife/ husband/ partner	Son or daughter	Son-in-law or daughter-in-law	Grand-child	Parent	Parent-in-law	Brother or sister	Co-wife	Other relative	Adopted	None relative
Ndindiriku	11.9	.0	.2	22.3	5.7	.0	7.6	31.8	15.6	.9	4.1	529
Kiumbu/Kianugu	22.9	.0	2.2	20.0	5.7	.0	5.7	23.6	15.7	.0	4.3	387
Rukanga	22.2	.0	3.6	13.7	4.9	2.6	5.5	35.4	10.2	.0	1.8	813
KIRINYAGA	**19.2**	**.0**	**2.2**	**17.7**	**5.4**	**1.2**	**6.2**	**31.7**	**13.1**	**.3**	**3.1**	**1,729**
Muricho	37.4	.1	.6	3.9	3.6	1.5	5.2	36.4	10.2	.3	.7	876
Kiriogo	31.9	.3	1.4	4.4	4.3	4.1	7.0	36.9	8.1	.0	1.6	370
Mbuyu	27.6	.5	3.3	5.1	5.6	1.5	5.3	37.4	13.6	.0	.2	795
Ndivai	31.2	.0	3.6	6.9	3.7	2.7	5.0	35.2	10.1	.6	.9	319
NYANDARUA	**32.4**	**.3**	**2.0**	**4.8**	**4.4**	**2.1**	**5.5**	**36.7**	**11.0**	**.2**	**.7**	**2,361**
Maragima	31.4	.3	1.9	12.7	3.9	1.4	4.9	29.7	12.9	.5	.3	476
Kariara	43.2	.7	1.3	6.2	2.0	.1	2.5	32.1	11.0	.1	.9	335
Mutundu	47.2	.6	1.2	3.9	2.2	.8	1.1	35.3	6.9	.4	.4	418
NYERI	**40.0**	**.5**	**1.5**	**7.9**	**2.8**	**.9**	**3.0**	**32.2**	**10.4**	**.4**	**.5**	**1,229**
Ngelelya	20.3	.9	2.4	12.6	6.2	.7	5.8	37.6	12.7	.0	.6	1,117
Ngoliba	8.4	.3	5.5	18.7	8.4	2.0	6.2	32.3	16.4	.2	1.6	1,603
Kalimoni	13.6	.4	6.6	16.5	8.8	2.9	4.7	31.4	13.4	.2	1.6	2,166
THIKA	**13.4**	**.5**	**5.3**	**16.3**	**8.1**	**2.1**	**5.5**	**33.1**	**14.2**	**.1**	**1.4**	**4,886**
Kagumoini	34.4	.4	2.5	7.3	4.0	.4	2.8	38.0	10.0	.0	.3	803
Maragua Ridge	37.1	.2	2.5	3.6	3.4	.5	1.8	36.2	13.5	.0	1.1	578
Mariaini	26.7	.5	2.8	8.7	3.8	.6	2.3	41.7	12.6	.2	.0	496
MARAGUA	**33.2**	**.4**	**2.6**	**6.5**	**3.8**	**.5**	**2.4**	**38.4**	**11.8**	**.1**	**.5**	**1,876**
Project Total 2010	**23.7**	**.4**	**3.4**	**11.9**	**5.7**	**1.6**	**4.8**	**34.3**	**12.7**	**.2**	**1.3**	**12,080**
Project Total 2006	**31.8**	**0.7**	**1.5**	**6.6**	**2.3**	**2.5**	**3.7**	**34**	**13.9**	**2.9**	**0.2**	**9,175**

Compared to 2006, there seems to be improvement, in that, there is a major reduction in the proportion of households dependent on subsistence agriculture and a doubling of the proportion of households engaged in business and those formally and informally employed.

The percentage distribution of marital status in the household is shown in table 3.5. Majority of the population in the FDAs are single/never married at about 59 percent, confirming a youthful population. Compared to 2006, married populations increased to 36 percent in 2010 from 32 percent in 2006, and this can partly be accounted for by the 3 percent decline in the proportions who reported being single/never married within the same reference period.

Table 3.5: Percentage distribution of Occupational status of Households

District/ FDAs	Married	Single/ Never married	Divorced	Separated	Widowed	N/A	Don't Know	Other	Total
Ndindiriku	35.8	54.5	1.9	4.6	3.2	0.0	0.0	0.0	529
Kiumbu/Kianugu	39.3	52.2	1.4	5	2.1	0.0	0.0	0.0	387
Rukanga	39	52.3	0.7	3	4.4	0.0	0.0	0.6	813
KIRINYAGA	**38.1**	**53.0**	**1.2**	**4**	**3.5**	**0.0**	**0.0**	**0.3**	**1,729**
Muricho	36.3	58.0	1.1	2	2.6	0.0	0.0	0.0	876
Kiriogo	33.4	61.7	0.6	1	3	0.0	0.1	0.1	370
Mbuyu	32.3	61.6	0.3	1.8	3.4	0.0	0.2	0.3	795
Ndivai	31.3	61.0	0.5	1.6	5.4	0.0	0.2	0.0	319
NYANDARUA	**33.8**	**60.2**	**0.7**	**1.7**	**3.3**	**0.0**	**0.1**	**0.1**	**2,3610**
Maragima	32.3	58.4	0.4	0.8	7.4	0.0	0.0	0.6	476
Kariara	43.5	51.5	0.1	1	3.9	0.0	0.0	0.0	335
Mutundu	32.6	58.0	1.1	2.3	6.1	0.0	0.0	0.0	418
NYERI	**35.5**	**56.4**	**0.5**	**1.3**	**6**	**0.0**	**0.0**	**0.2**	**1,229**
Ngelelya	34.6	60.9	0.1	1.2	3.1	0.0	0.0	0.0	1,117
Ngoliba	32	62.2	0.6	3.1	1.8	0.0	0.1	0.2	1,603
Kalimoni	38	58.2	0.0	1.3	2.5	0.0	0.0	0.0	2,166
THIKA	**35.2**	**60.1**	**0.2**	**1.9**	**2.4**	**0.0**	**0.0**	**0.1**	**4,886**
Kagumoini	38	57.8	0.2	0.3	3.7	0.0	0.0	0.0	803
Maragua Ridge	35.2	60.9	0.8	0.2	3	0.0	0.0	0.0	578
Mariaini	34	62.5	0.0	1.4	2.2	0.0	0.0	0.0	496
MARAGUA	**36**	**60.0**	**0.3**	**0.6**	**3.1**	**0.0**	**0.0**	**0.0**	**1,8767**
Project totals 2010	**35.5**	**58.7**	**0.5**	**1.9**	**3.2**	**0.0**	**0.0**	**0.1**	**120,801**
Project Total 2006	**32.4**	**61.9**	**0.4**	**1.6**	**3.7**	**0.0**	**0.0**	**0.0**	**9,175**

Table 3.6 shows the percentage distribution of education levels by household members. Approximately three in every five members has primary level of education, while one in every five has secondary/A level of education. Only five percent have no education.

Table 3.6: Percentage distribution of Education Levels by Household members

District/FDAs	Nursery, kindergarten	Primary	Post-primary, vocational	Secondary, A-level	College (middle level)	University	Child – not yet gone to school	Adult education (Gumbaru)	None	Don't Know	Total
Ndindiriku	3.6	65.1	1.5	11.7	.4	.0	10.6	.0	7.0	.0	529
Kiumbu/Kianugu	5.0	61.4	.0	12.8	2.1	.0	13.5	.7	4.3	.0	387
Rukanga	4.3	60.5	.9	18.2	1.2	1.5	7.7	.8	5.0	.0	813
KIRINYAGA	**4.3**	**62.1**	**.9**	**15.0**	**1.2**	**.7**	**9.9**	**.6**	**5.5**	**.0**	**1,729**
Muricho	2.7	63.0	.6	15.5	1.6	.3	7.0	1.6	7.7	.0	876
Kiriogo	4.1	62.1	.6	18.5	1.9	.6	6.8	.7	4.8	.0	370
Mbuyu	4.0	61.5	.6	16.3	1.9	.9	8.3	1.1	5.2	.2	795
Ndivai	3.5	53.6	.0	26.9	2.8	.8	6.0	.5	5.6	.3	318
NYANDARUA	**3.5**	**61.1**	**.5**	**17.8**	**1.9**	**.6**	**7.3**	**1.1**	**6.1**	**.1**	**2,359**
Maragima	2.7	62.4	1.3	17.5	1.5	.2	9.0	.3	5.1	.0	476
Kariara	5.9	61.4	.0	17.2	1.2	.5	7.7	.5	5.7	.0	335
Mutundu	1.9	70.6	.4	13.5	2.7	.3	6.0	.0	4.7	.0	418
NYERI	**3.3**	**64.9**	**.6**	**16.1**	**1.8**	**.3**	**7.6**	**.2**	**5.1**	**.0**	**1,229**
Ngelelya	2.4	62.9	.9	16.3	1.9	.2	9.3	.8	5.1	.2	1,117
Ngoliba	3.0	57.5	4.0	16.3	2.9	1.1	9.8	1.6	3.8	.1	1,603
Kalimoni	2.2	47.4	1.1	27.0	7.6	3.0	8.0	.8	2.4	.3	2,166
THIKA	**2.5**	**54.3**	**2.0**	**21.1**	**4.8**	**1.7**	**8.9**	**1.1**	**3.5**	**.2**	**4,886**
Kagumoini	3.6	64.4	.3	16.5	1.0	.6	8.5	.4	4.7	.1	802
Maragua Ridge	1.8	57.3	.2	22.4	3.1	.4	10.1	.0	4.0	.8	578
Mariaini	2.3	66.9	.2	14.0	1.5	.4	10.9	.2	3.6	.0	496
MARAGUA	**2.7**	**62.9**	**.2**	**17.6**	**1.8**	**.5**	**9.6**	**.2**	**4.2**	**.3**	**1,875**
Project Total 2010	**3.1**	**59.1**	**1.1**	**18.5**	**2.9**	**1.0**	**8.7**	**.8**	**4.5**	**.1**	**12,080**
Project Total 2006	**3.7**	**63.8**	**0.7**	**12.5**	**0.6**	**0.2**	**10.5**	**1**	**6.7**	**0.1**	**9,175**

With reference to 2006, the percentage with primary level of education declined from 64 percent to 59 percent. However, this maybe as a result of progression to secondary level as there was a 6 percent increase recorded in this category. Also notable was the 2 percent decline in the percentage that has not been to school.

Table 3.7 shows religious affiliation of household members. Majority of the population are Christians with almost half being Protestant (47%), while a quarter are Catholic (27%).

Table 3.7: Percentage distribution of Religious Affiliation by Household members

District/FDAs	Catholic	Protestant	Other Christian	Hindu	Traditional	No religion	Muslim	Others (specify	Total
Ndindiriku	27.2	27.1	44.8	0.0	0.0	0.9	0.0	0.0	529
Kiumbu/Kianugu	30.9	43.5	24.9	0.0	0.0	0.7	0.0	0.0	387
Rukanga	23.1	51.4	25.5	0.0	0.0	0.0	0.0	0.0	813
KIRINYAGA	**26.1**	**42.2**	**31.3**	**0.0**	**0.0**	**0.4**	**0.0**	**0.0**	**1,729**
Muricho	19.4	58.3	20.7	0.3	0.0	1.1	0.1	0.0	876
Kiriogo	28.8	50.1	19.1	0.0	0.2	1.7	0.0	0.0	370
Mbuyu	13.5	54.9	28.6	0.0	0.0	2.9	0.1	0.0	795
Ndivai	27.4	51.3	18.9	0.0	0.3	20.0	0.0	0.0	319
NYANDARUA	**20.0**	**54.9**	**22.9**	**0.1**	**0.1**	**1.9**	**0.1**	**0.0**	**2,361**
Maragima	18.6	53.4	26.4	0.0	0.0	10.0	0.0	0.5	476
Kariara	12.8	56.5	29.9	0.0	0.0	0.7	0.0	0.0	335
Mutundu	7.3	53.2	37.2	0.0	0.3	1.7	0.2	0.0	418
NYERI	**13.2**	**54.2**	**31.0**	**0.0**	**0.1**	**1.2**	**0.1**	**0.2**	**1,229**
Ngelelya	45.5	32.8	20.9	0.0	0.1	0.4	0.2	0.1	1,117
Ngoliba	28.1	48.0	17.8	0.0	0.0	1.1	3.1	1.9	1,603
Kalimoni	32.0	47.2	19.3	0.0	0.0	1.3	0.2	0.0	2,166
THIKA	**33.8**	**44.2**	**19.2**	**0.0**	**0.0**	**10.0**	**1.1**	**0.6**	**4,886**
Kagumoini	35.5	41.2	22.9	0.0	0.0	0.4	0.0	0.0	803
Maragua Ridge	30.7	59.5	9.0	0.2	0.0	0.2	0.4	0.0	578
Mariaini	19.5	39.7	38.8	0.0	0.2	1.8	0.0	0.0	496
MARAGUA	**29.8**	**46.5**	**22.8**	**0.1**	**0.1**	**0.7**	**0.1**	**0.0**	**1,876**
Project Total 2010	**27.3**	**47.4**	**23.4**	**0.0**	**0.0**	**1.1**	**0.5**	**0.3**	**12,080**
Project Total 2006	**30.6**	**53.2**	**13**	**0.0**	**2**	**0.8**	**0.0**	**0.4**	**9,175**

The Catholic and Protestant churches lost 10 percent of their membership between 2006 and 2010. The deserters seem to have joined other Christian churches as the category recorded an increase of a similar percentage (10%).

3.2 Housing Characteristics

3.2.1 Flooring Materials

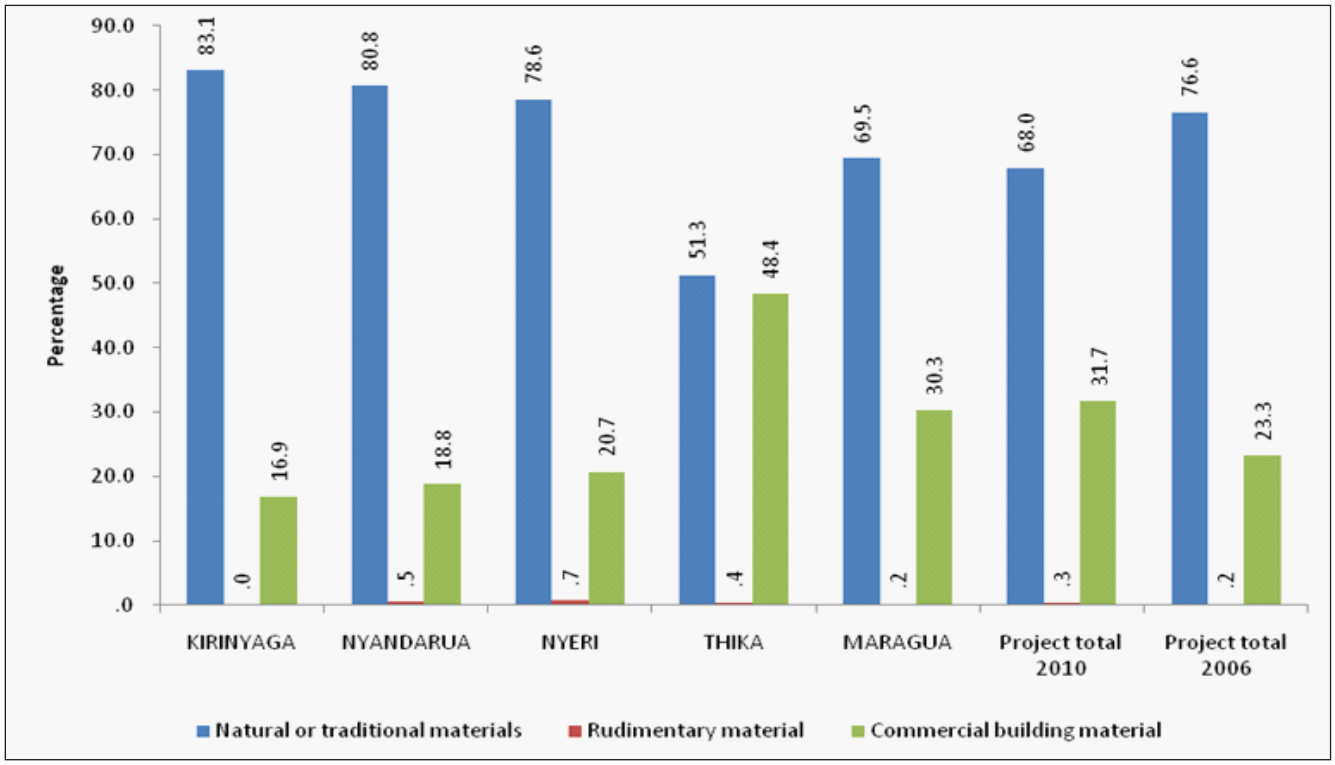
Table 3.8 presents information on percentage distribution of main building materials. Two thirds of all dwellings are made of earth/sand/mud while the remaining fraction is made of cement. Half of all the dwellings in Thika are made of earth/sand/mud while close to a third of all the dwellings in Maragua are made of cement.

Table 3.8: Percentage distribution of Main Materials Used for Floor

District/FDAs	Earth/ Sand/ Mud	Dung	Other natural/ traditional material	Course Wood Planks	Other rudimentary material	Polished Wood	Ceramic Tiles	Cement	Carpet	Total
Ndindiriku	93.2	.0	.0	.0	.0	.0	.0	6.8	.0	165
Kiumbu/Kianugu	90.0	.0	.0	.0	.0	.0	.0	10.0	.0	138
Rukanga	70.7	.6	1.4	.0	.0	.0	.0	27.3	.0	252
KIRINYAGA	**82.2**	**.3**	**.6**	**.0**	**.0**	**.0**	**.0**	**16.9**	**.0**	**555**
Muricho	79.2	.0	.0	.0	.0	.7	.2	19.9	.0	209
Kiriogo	88.2	.0	.0	.9	.0	.6	.0	10.3	.0	88
Mbuyu	77.7	1.8	.0	.7	.3	.0	.3	19.2	.0	179
Ndivai	79.5	.0	.0	.0	.0	2.2	.0	18.3	.0	75
NYANDARUA	**80.2**	**.6**	**.0**	**.4**	**.1**	**.6**	**.2**	**17.9**	**.0**	**551**
Maragima	71.6	.0	.0	1.7	.0	.6	.0	26.1	.0	144
Kariara	76.1	.0	.0	.0	.0	1.3	.6	22.0	.0	95
Mutundu	88.2	.0	.0	.0	.0	.0	.0	11.8	.0	130
NYERI	**78.6**	**.0**	**.0**	**.7**	**.0**	**.5**	**.2**	**20.0**	**.0**	**369**
Ngelelya	67.5	1.4	.0	.0	.0	.7	.0	30.5	.0	252
Ngoliba	54.3	1.2	.6	.0	.8	1.6	1.1	40.0	.3	387
Kalimoni	39.9	.2	.0	.0	.2	1.1	.4	57.6	.6	564
THIKA	**50.3**	**.7**	**.2**	**.0**	**.4**	**1.2**	**.5**	**46.3**	**.4**	**1 204**
Kagumoini	71.8	.0	.0	.0	.0	.7	.0	27.4	.1	193
Maragua Ridge	66.7	1.4	.0	.0	.6	.7	1.4	29.2	.0	148
Mariaini	67.3	.0	.0	.0	.0	.9	.0	31.4	.4	109
MARAGUA	**69.0**	**.5**	**.0**	**.0**	**.2**	**.7**	**.5**	**29.0**	**.1**	**450**
Project total 2010	**67.3**	**.5**	**.2**	**.1**	**.2**	**.7**	**.3**	**30.5**	**.2**	**3 129**
Project total 2006	**76.3**	**0.2**	**0.1**	**0.2**		**0.1**		**23.2**		**2 175**

There is a 9 percent decline in houses made of earth/sand/mud, while use of cement increased by 8 percent in the period under study.

Figure 3.3 Floor materials of the main dwelling unit



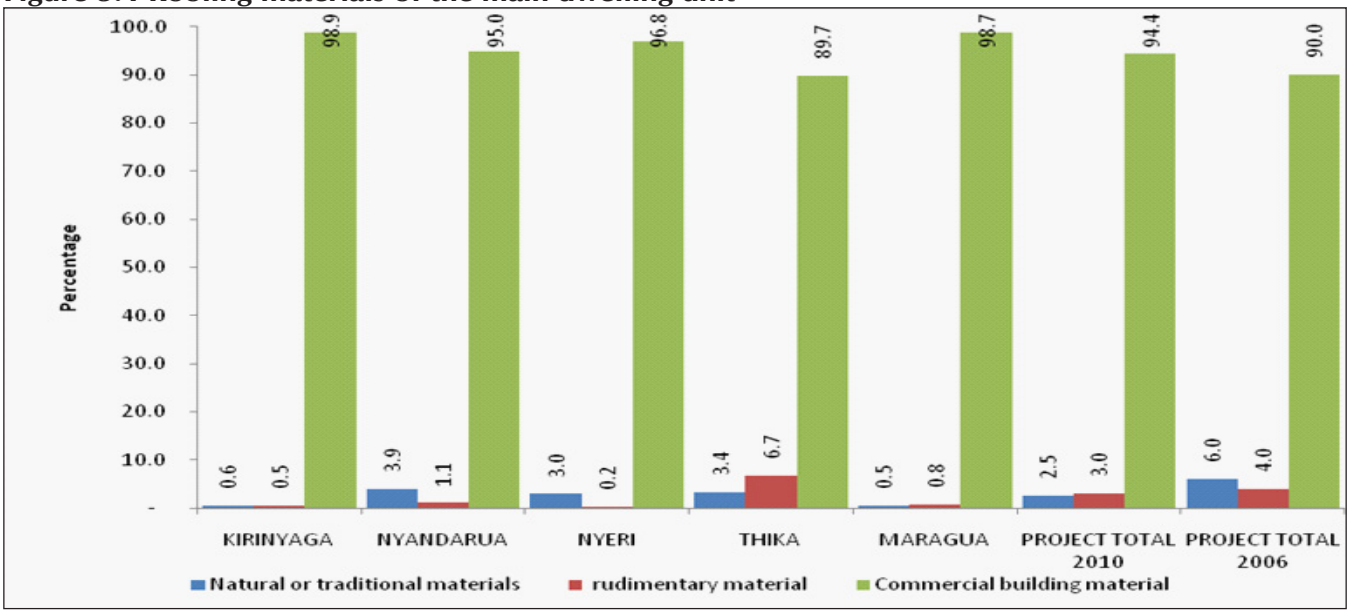
3.2.2 Roofing Materials

Table 3.9 shows the percentage distribution of the main roofing materials. Majority of the houses have corrugated iron sheet roofs (92%). This type of roofing is universal in Ndindiriku while Thika District recorded the least use (84%). Figure 3.4 summarizes the roofing material for the main dwelling unit. Ninety percent of all main dwelling units use formal commercial materials for roofing. The study period saw a 4 percent increase in use of commercial building materials. Use of natural/traditional materials declined by half within the same period.

Table 3.9: Percentage distribution of main roofing materials

District/FDAs	Grass/ thatch/ makuti	Discarded recycled materials/ plastic	Other natural or traditional materials	Coarse wooden planks	Plain tin sheets	Other rudimentary material	Corrugated iron sheets (mabati)	Asbestos sheets	Concrete	Tiles	Other	Total
Ndindiriku	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	165
Kiumbu/Kianugu	0.0	0.0	0.0	20.0	0.0	0.0	980.0	0.0	0.0	0.0	0.0	138
Rukanga	.9	0.0	.5	0.0	0.0	0.0	98.6	0.0	0.0	0.0	0.0	252
KIRINYAGA	**.4**	**0.0**	**.2**	**.5**	**0.0**	**0.0**	**98.9**	**0.0**	**0.0**	**0.0**	**0.0**	**555**
Muricho	3.1	.2	0.0	0.0	1.4	0.0	95.3	0.0	0.0	0.0	0.0	209
Kiriogo	.9	0.0	0.0	0.0	0.0	0.0	99.1	0.0	0.0	0.0	0.0	88
Mbuyu	5.8	.5	0.0	.9	.5	0.0	92.3	0.0	0.0	0.0	0.0	179
Ndivai	3.4	0.0	0.0	0.0	1.1	0.0	95.5	0.0	0.0	0.0	0.0	75
NYANDARUA	**3.7**	**.2**	**0.0**	**.3**	**.8**	**0.0**	**950.0**	**0.0**	**0.0**	**0.0**	**0.0**	**551**
Maragima	1.1	.9	0.0	.5	0.0	0.0	96.9	0.0	.6	0.0	0.0	144
Kariara	3.4	2.3	0.0	0.0	0.0	0.0	93.7	0.0	.6	0.0	0.0	95
Mutundu	1.6	.4	0.0	0.0	0.0	0.0	97.5	0.0	0.0	.5	0.0	130
NYERI	**1.8**	**1.1**	**0.0**	**.2**	**0.0**	**0.0**	**96.3**	**0.0**	**.4**	**.2**	**0.0**	**369**
Ngelelya	4.2	.2	0.0	0.0	2.2	0.0	92.8	0.0	.6	.1	0.0	252
Ngoliba	6.5	.2	0.0	.3	9.8	0.0	79.8	2.5	.1	0.0	.8	387
Kalimoni	.6	0.0	0.0	.2	6.2	0.0	83.8	1.7	1.1	6.3	0.0	564
THIKA	**3.2**	**.1**	**0.0**	**.2**	**6.5**	**0.0**	**84.4**	**1.6**	**.7**	**30.0**	**.2**	**1,204**
Kagumoini	.4	.2	0.0	0.0	1.4	.4	97.6	0.0	0.0	0.0	0.0	193
Maragua Ridge	0.0	0.0	0.0	0.0	0.0	0.0	98.6	0.0	0.0	1.4	0.0	148
Mariaini	.9	0.0	0.0	0.0	0.0	0.0	98.6	0.0	0.0	.5	0.0	109
MARAGUA	**.4**	**.1**	**0.0**	**0.0**	**.6**	**.2**	**98.2**	**0.0**	**0.0**	**.6**	**0.0**	**450**
Project Total 2010	**2.2**	**.2**	**0.0**	**.2**	**2.7**	**0.0**	**92.2**	**.6**	**.3**	**1.3**	**.1**	**3,129**
Project total 2006	**5.8**	**0.2**			**4**		**89.6**	**0.3**		**0.1**		**2,175**

Figure 3.4 Roofing materials of the main dwelling unit



In 2010, there was a 2 percent increase in corrugated iron sheet use, a fact that can be accounted for by a decline of a similar proportion in the number of grass/thatch/makuti rooftops

3.2.3 Materials Used for Wall Construction

Figure 3.5 Wall materials of the main dwelling unit

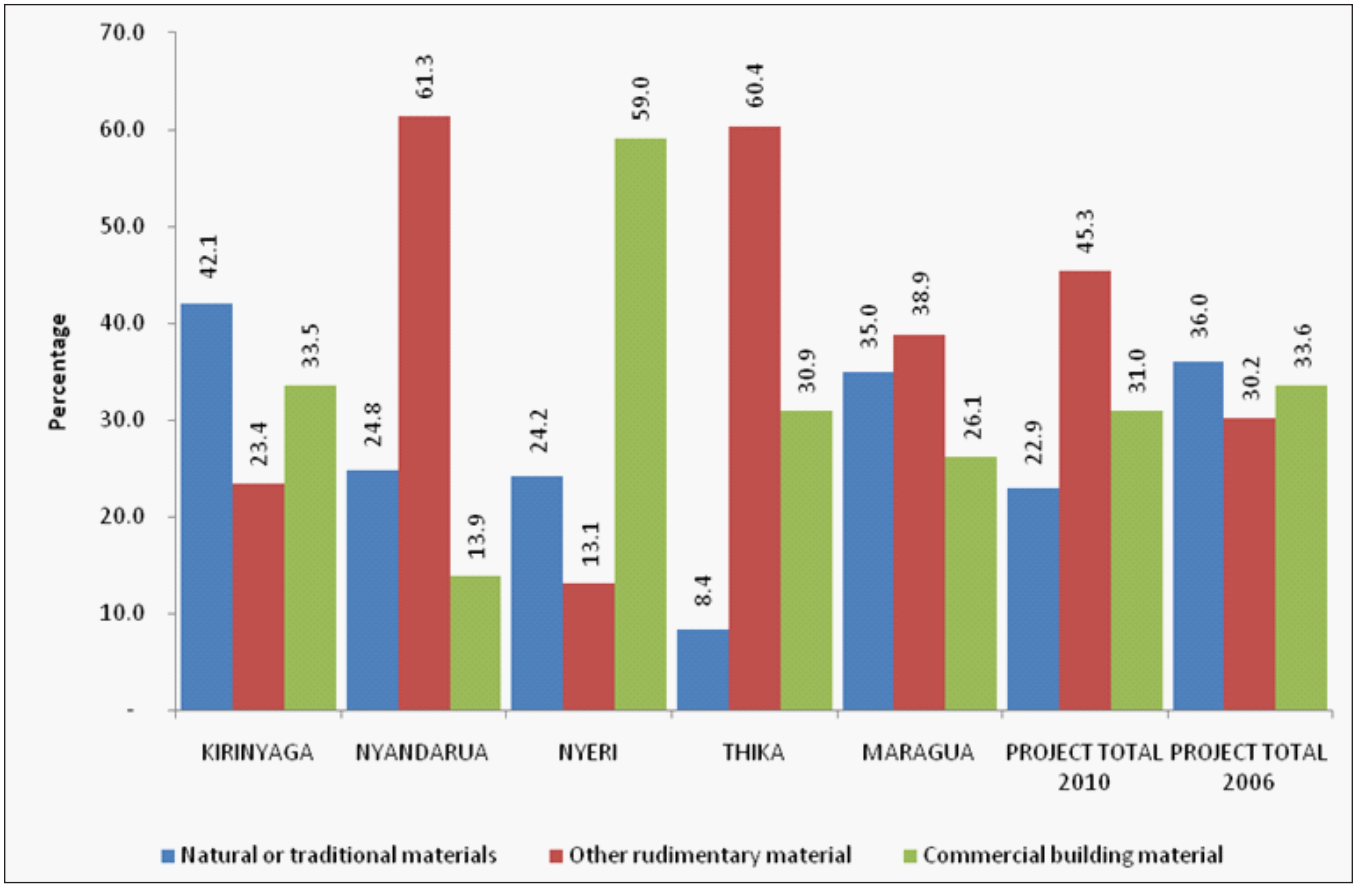


Figure 3.5 summarizes information on wall materials used in the main dwelling unit. Natural or traditional materials consist of mud and wattle, discarded recycled materials, grass/thatch /bamboo/makuti and other natural or traditional materials. Rudimentary material constitutues coarse wooden planks, tin sheets, corrugated iron sheet, stones and mud stones, and cement and other rudimentary material, while commercial building material consits of cut stone blocks, cement blocks, clay bricks, concrete finished wood, mabati (heavy gauge), other commercial building material. Across the districts, use of commercial walling materials was more common in Nyeri (59%) while an almost similar percentage used rudimentary materials in Thika and Nyandarua (61% each). Compared to 2006, there was a 15 percent increase in use of rudimentary walling materials in 2010. The greatest decline was observed in the use of natural/traditional building materials (13%).

Table 3.10 shows the percentage distribution of main walling materials by FDA. The leading wall materials are mud and wattle, and stones and cement (21% each). Two fifths of all houses in Kirinyaga have mud and wattle walls, a fifth of those in Maragua utilize clay bricks, while half of those in Nyandarua are made of coarse wooden planks.

The survey period saw a 6 percent decline in mud and wattle walling, while the greatest increase was in the use of stones and cement; from 13 percent to 21%. Overall, there is a shift towards the adoption of modern roofing, flooring and walling materials as observed from the above tables.

Table 3.10: Percentage distribution of Main Materials Used for Wall

District /FDAs	Mud and wattle	Discarded recycled materials	Grass/ thatch/ bamboo/ makuti	Other natural or traditional materials-	Coarse wooden planks	Tin sheets	Corrugated Iron Sheets	Stones and mud	Stones and cement	Other rudimentary material	Cut stone blocks	Cement blocks	Clay bricks	Concrete	Finished wood	Mabati (heavy gauge)	Other commercial building material	Other	Total
Ndindiriku	51.1	0.0	0.0	0.0	.8	0.0	0.0	0.0	20.0	1.1	0.0	0.0	43.6	.5	0.0	.8	0.0	0.0	165
Kiumbu/Kianugu	620.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	7.9	20.0	0.0	20.0	20.0	0.0	40.0	0.0	0.0	0.0	138
Rukanga	22.9	.9	.4	.9	3.9	0.0	12.7	30.0	22.9	0.0	0.0	1.5	23.6	2.7	2.1	.4	0.0	20.0	252
KIRINYAGA	**41.1**	**.4**	**.2**	**.4**	**20.0**	**0.0**	**6.3**	**1.4**	**12.9**	**.8**	**0.0**	**1.2**	**28.7**	**1.4**	**1.9**	**.4**	**0.0**	**.9**	**555**
Muricho	20.9	.2	.4	0.0	56.7	.2	5.6	0.0	4.9	0.0	10.0	1.4	0.0	0.0	8.1	.4	0.0	0.0	209
Kiriogo	5.3	0.0	0.0	0.0	75.1	0.0	4.3	0.0	.6	0.0	0.0	0.0	0.0	0.0	13.9	.8	0.0	0.0	88
Mbuyu	37.2	0.0	.2	.6	29.4	1.5	9.3	.3	5.2	0.0	.5	.4	.3	0.0	13.8	1.4	0.0	0.0	179
Ndivai	24.1	0.0	1.1	0.0	55.1	0.0	3.4	0.0	1.2	0.0	1.1	10.0	0.0	0.0	10.9	2.2	0.0	0.0	75
NYANDARUA	**24.1**	**.1**	**.4**	**.2**	**50.5**	**.6**	**6.3**	**.1**	**3.8**	**0.0**	**.7**	**.8**	**.1**	**0.0**	**11.3**	**10.0**	**0.0**	**0.0**	**551**
Maragima	40.0	.5	0.0	0.0	18.9	0.0	2.4	0.0	2.8	0.0	40.0	0.0	.5	0.0	55.4	0.0	3.5	80.0	144
Kariara	30.8	2.6	.4	.6	.8	.4	0.0	2.2	60.0	0.0	40.0	1.4	46.9	0.0	2.2	0.0	0.0	1.7	95
Mutundu	37.9	0.0	.5	0.0	0.0	0.0	0.0	0.0	3.7	0.0	3.5	.4	51.2	20.0	.4	0.0	0.0	.4	130
NYERI	**22.9**	**.8**	**.3**	**.2**	**7.6**	**.1**	**.9**	**.6**	**3.9**	**0.0**	**3.8**	**.5**	**30.3**	**.7**	**22.3**	**0.0**	**1.4**	**3.7**	**369**
Ngelelya	3.7	.1	.1	7.5	1.2	.1	1.1	7.8	15.1	.2	.8	10.0	59.2	2.1	0.0	0.0	0.0	0.0	252
Ngoliba	12.9	.3	0.0	.8	2.6	1.5	5.1	13.3	33.8	2.5	4.6	1.6	19.2	.6	.3	.4	0.0	.3	387
Kalimoni	1.8	.5	.2	.6	3.8	1.2	18.4	20.0	510.0	.5	10.4	30.0	1.2	1.3	2.2	1.2	0.0	.6	564
THIKA	**5.8**	**.4**	**.1**	**2.1**	**2.9**	**1.1**	**10.5**	**6.9**	**37.9**	**1.1**	**6.5**	**2.1**	**19.1**	**1.2**	**1.1**	**.7**	**0.0**	**.4**	**1,204**
Kagumoini	29.6	.5	.5	1.2	.7	2.6	34.1	.4	16.4	1.9	0.0	10.0	4.7	0.0	2.3	4.1	0.0	0.0	193
Maragua Ridge	44.1	0.0	0.0	0.0	.7	0.0	4.8	2.1	20.3	.6	1.4	4.2	19.5	.7	1.5	0.0	0.0	0.0	148
Mariaini	27.4	0.0	.9	0.0	0.0	.6	.5	.8	16.7	4.1	0.0	4.2	43.6	.9	.4	0.0	0.0	0.0	109
MARAGUA	**33.8**	**.2**	**.4**	**.5**	**.6**	**1.2**	**16.3**	**10.0**	**17.8**	**20.0**	**.5**	**2.8**	**190.0**	**.5**	**1.6**	**1.8**	**0.0**	**0.0**	**450**
Project Total 2010	**21.3**	**.4**	**.2**	**10.0**	**11.3**	**.7**	**8.7**	**3.1**	**20.6**	**.9**	**3.2**	**1.6**	**18.8**	**.9**	**5.6**	**.8**	**.2**	**.7**	**3,129**
Project Total 2006	**35.5**	**0.1**	**0**	**0.4**	**7.8**	**4.9**		**4.2**	**13.2**	**0.1**	**2**	**0.6**	**23.1**	**0.2**	**4.2**	**3.3**	**0.2**	**0.1**	**2,175**

3.2.4 Living Rooms

Table 3.11 shows the percentage distribution of habitable rooms by district/FDA. The mean number of habitable rooms is three while three quarters of all the households have one to three habitable rooms. Ndindiriku and Kiumbu/Kianugu have the least number of habitable rooms (2).

Table 3.11: Percentage distribution of habitable rooms

District /FDAs	1 - 3	4 - 6	7+	Total	Mean Number	Maximum Number	Sample
Ndindiriku	90.7	8.5	.8	10.0	2.3	12.0	165
Kiumbu/Kianugu	94.0	6.0	.0	10.0	2.1	6.0	138
Rukanga	77.3	22.3	.4	10.0	2.9	7.0	252
KIRINYAGA	**85.5**	**14.1**	**.4**	**10.0**	**2.5**	**12.0**	**555**
Muricho	80.6	17.3	2.1	10.0	3.2	21.0	209
Kiriogo	84.2	15.8	.0	10.0	3.0	6.0	88
Mbuyu	85.6	13.3	1.1	10.0	2.9	21.0	179
Ndivai	79.7	18.3	2.1	10.0	3.4	21.0	75
NYANDARUA	**82.7**	**15.9**	**1.4**	**10.0**	**3.1**	**21.0**	**551**
Maragima	76.9	20.8	2.3	10.0	2.9	12.0	144
Kariara	63.1	34.5	2.4	10.0	3.6	21.0	95
Mutundu	67.9	30.8	1.3	10.0	3.2	30.0	130
NYERI	**70.2**	**27.9**	**2.0**	**10.0**	**3.2**	**30.0**	**369**
Ngelelya	80.6	15.5	3.8	10.0	3.1	22.0	252
Ngoliba	80.7	17.7	1.6	10.0	2.5	21.0	387
Kalimoni	69.4	27.9	2.7	10.0	3.1	21.0	564
THIKA	**75.4**	**22.0**	**2.6**	**10.0**	**2.9**	**22.0**	**1,204**
Kagumoini	81.1	17.8	1.1	10.0	3.1	32.0	193
Maragua Ridge	82.0	15.1	2.9	10.0	2.9	7.0	148
Mariaini	86.3	11.5	2.2	10.0	3.2	52.0	109
MARAGUA	**82.7**	**15.4**	**1.9**	**10.0**	**3.1**	**52.0**	**450**
Project Total 2010	**78.9**	**19.3**	**1.8**	**10.0**	**2.9**	**52.0**	**3,129**
Project Total 2006	**77**	**21.5**	**1.1**	**100**	**3**	**9**	**2,175**

Overall across the locations, over three-quarters of the households have one-three rooms and only about one-fifth have four-six rooms. Compared to 2006, a minimal increase in the proportion of households with one-three rooms can be observed from Table 3.11.

3.2.5 Durable Household Assets

The percentage distribution of assets owned by households is presented in table 3.12. The most commonly owned items are radio (82%) and mobile or fixed telephone (75%). Additionally, almost half of the households have sofa sets while a quarter have television sets. One in every ten households in Thika has a car/truck while close to half of the households in Nyandarua have a bicycle.

Overall across the districts, the proportion of households that own a radio is four-fifths with the highest percentage observed in Maragima, Mbuyu and Kiriogo, where every 9 in 10 households own a radio, while the lowest from Ndindiriku where every 7 in ten households owns a radio. There is a significant change in the proportion of households who own a car / truck from about 1 percent to 6 percent in 2006 and 2010 respectively. There is also an increase in the proportion of households that use solar energy from 8 percent in 2006 to 15 percent in 2010.

Table 3.12: Percentage distribution of Assets owned by Households

District /FDAs	Electric-ity	Radio	Televi-sion	Refrigerator	Bicycle	Motorcycle	Car/ Track	Gas Cooker	Solar Energy	Telephone (mobile/fixed)	Computer	Sofa Sets	Wall Unit	Plastic chairs	Generator	Total
Ndindiriku	.5	70.5	25.8	.5	50.8	5.0	4.8	1.1	22.9	61.8	.0	55.8	16.4	20.2	23.0	165
Kiumbu/Kianugu	.0	76.1	12.0	.0	43.9	.0	2.0	.0	18.0	69.9	2.0	38.0	14.0	2.0	17.9	138
Rukanga	7.0	76.4	26.4	2.3	50.5	1.5	6.3	5.9	16.5	71.5	.4	49.2	21.0	17.1	11.8	252
KIRINYAGA	**3.3**	**74.6**	**22.6**	**1.2**	**49.0**	**2.1**	**4.8**	**3.0**	**18.8**	**68.2**	**.7**	**48.4**	**17.9**	**14.3**	**16.6**	**555**
Muricho	4.1	87.9	21.1	1.3	47.5	5.5	4.1	7.0	13.4	79.1	1.5	51.3	26.1	2.7	2.2	209
Kiriogo	.0	90.6	15.5	.6	46.5	1.6	1.7	4.0	22.8	85.6	1.9	64.2	26.4	.6	5.4	88
Mbuyu	1.7	89.6	27.5	1.2	50.1	3.9	1.3	3.8	16.5	73.2	1.1	54.9	24.1	10.4	1.2	179
Ndivai	.0	86.9	32.3	2.0	52.5	2.0	3.2	7.0	25.4	74.9	2.3	56.2	25.8	3.9	.0	75
NYANDARUA	**2.1**	**88.7**	**23.8**	**1.3**	**48.8**	**3.9**	**2.7**	**5.5**	**17.5**	**77.6**	**1.5**	**55.2**	**25.4**	**5.1**	**2.1**	**551**
Maragima	2.7	90.7	24.0	.5	39.0	4.7	2.8	1.6	16.9	70.0	1.7	50.5	18.3	6.6	4.1	144
Kariara	2.1	81.3	15.9	.0	27.1	2.8	1.9	2.3	13.5	64.6	.0	38.7	12.0	2.5	.6	95
Mutundu	4.3	80.5	11.9	.9	19.7	.5	1.0	.9	9.5	53.7	.5	24.0	6.9	.0	1.9	130
NYERI	**3.1**	**84.7**	**17.6**	**.5**	**29.1**	**2.7**	**1.9**	**1.5**	**13.4**	**62.9**	**.9**	**38.1**	**12.7**	**3.2**	**2.4**	**369**
Ngelelya	2.6	77.5	12.6	1.6	30.2	4.6	2.4	4.2	9.9	70.5	.5	35.6	11.3	10.0	2.1	252
Ngoliba	16.3	79.4	23.8	2.4	40.0	4.2	4.1	7.6	3.9	82.6	2.3	35.0	18.3	14.1	2.3	387
Kalimoni	21.9	88.5	46.1	12.3	46.1	6.0	19.5	27.6	20.9	85.5	4.9	58.7	38.4	23.9	8.8	564
THIKA	**16.0**	**83.3**	**31.9**	**6.9**	**40.8**	**5.1**	**11.0**	**16.3**	**13.1**	**81.4**	**3.1**	**46.2**	**26.3**	**17.8**	**5.3**	**1,204**
Kagumoini	8.4	80.6	20.7	.9	25.8	4.2	.8	2.8	9.0	70.3	1.4	55.4	30.8	8.9	1.8	193
Maragua Ridge	2.9	73.8	20.6	1.5	32.7	4.2	6.2	8.4	14.4	79.5	.0	56.7	35.2	18.1	10.8	148
Mariaini	1.6	80.4	23.5	.9	34.7	4.5	1.9	5.7	18.0	72.7	1.3	51.3	32.2	13.5	4.6	109
MARAGUA	**5.0**	**78.3**	**21.3**	**1.1**	**30.3**	**4.3**	**2.8**	**5.3**	**13.0**	**73.9**	**.9**	**54.8**	**32.6**	**13.1**	**5.4**	**450**
Project Total 2010	**8.2**	**82.1**	**25.6**	**3.3**	**40.8**	**4.0**	**6.2**	**8.7**	**14.9**	**75.1**	**1.8**	**48.5**	**23.9**	**12.5**	**6.4**	**3,129**
Project Total 2006		**81**	**12.6**	**1.8**	**37**	**0.7**	**1.6**	**2.1**	**7.6**							**2,175**

The percentage distribution of assets owned by male headed households is presented in table 3.13. Over three quarters of these households own a mobile/fixed telephone, while more than four fifths own a radio. Approximately half of them have sofa sets while an almost similar percentage has bicycles. Kalimoni has the highest percentage of households with electricity (23%), television sets (50%), refrigerator (14%), car/truck (23%), gas cooker (31%), computers (5%), wall units (41%) and plastic chairs (25%).

Table 3.13: Percentage distribution of Assets owned by Male headed Households

District /FDAs	Electric-ity	Radio	Televi-sion	Refrigerator	Bicycle	Motorcycle	Car/ Track	Gas Cooker	Solar Energy	Telephone (mobile/fixed)	Computer	Sofa Sets	Wall Unit	Plastic chairs	Generator	Total
Ndindiriku	.7	81.1	27.5	.7	62.4	6.8	5.4	.0	24.7	59.2	.0	52.4	19.3	15.3	26.3	121
Kiumbu/Kianugu	.0	87.3	15.4	.0	53.8	.0	2.6	.0	23.0	71.7	2.6	38.4	12.8	2.6	23.0	108
Rukanga	7.8	78.9	30.7	3.1	58.8	1.9	7.6	7.2	20.3	77.2	.6	50.3	24.8	18.1	13.5	192
KIRINYAGA	**3.8**	**81.7**	**25.9**	**1.6**	**58.6**	**2.8**	**5.7**	**3.3**	**22.3**	**70.6**	**.9**	**47.9**	**20.1**	**13.4**	**19.6**	**421**
Muricho	3.8	92.9	23.0	1.6	54.6	6.9	5.2	8.3	14.5	84.0	1.8	53.1	27.7	3.5	2.5	166
Kiriogo	.0	89.6	16.7	.8	49.8	2.1	2.2	4.2	24.4	89.2	.0	62.8	26.7	.8	4.1	66
Mbuyu	2.0	92.3	30.6	.9	59.9	5.4	1.4	4.9	18.5	77.6	1.0	52.1	25.2	11.5	1.6	130
Ndivai	.0	89.7	38.5	2.8	60.5	2.8	4.5	8.6	29.9	82.1	3.2	61.0	24.3	5.4	.0	54
NYANDARUA	**2.1**	**91.8**	**26.4**	**1.4**	**56.3**	**5.1**	**3.4**	**6.6**	**19.3**	**82.6**	**1.5**	**55.4**	**26.3**	**5.8**	**2.1**	**416**
Maragima	.7	94.3	29.4	.0	51.6	6.1	4.3	1.6	22.8	75.8	2.7	47.9	18.4	10.2	5.5	93
Kariara	1.6	82.6	17.0	.0	30.1	3.5	1.3	2.3	13.3	68.7	.0	41.2	10.9	2.6	.8	76
Mutundu	5.2	83.0	11.8	1.5	23.3	.8	.8	1.4	10.1	54.8	.8	21.0	4.8	.0	1.4	85
NYERI	**2.5**	**87.0**	**19.8**	**.5**	**35.7**	**3.6**	**2.2**	**1.8**	**15.7**	**66.7**	**1.3**	**36.9**	**11.6**	**4.5**	**2.7**	**253**
Ngelelya	2.0	80.8	13.2	1.7	34.7	5.2	2.7	3.8	10.8	75.3	.5	37.2	11.8	11.0	2.1	196
Ngoliba	17.0	82.6	27.2	3.2	44.8	5.1	4.3	9.0	5.2	84.0	2.8	34.3	18.3	14.3	2.6	290
Kalimoni	23.3	91.2	49.5	13.9	52.8	7.1	23.3	30.5	23.9	89.3	4.8	61.5	40.7	25.1	11.2	443
THIKA	**16.9**	**86.3**	**34.9**	**8.0**	**46.5**	**6.1**	**13.0**	**18.2**	**15.3**	**84.7**	**3.3**	**47.9**	**27.6**	**18.8**	**6.6**	**930**
Kagumoini	9.1	87.3	23.0	1.2	31.4	4.0	1.1	3.1	7.9	73.3	1.9	57.7	31.8	9.8	2.4	144
Maragua Ridge	4.1	77.1	21.1	1.0	40.0	4.0	7.8	9.8	14.3	81.0	.0	56.1	33.8	18.3	13.2	106
Mariaini	2.1	83.9	27.6	1.1	37.1	5.9	1.7	5.5	19.3	72.9	1.7	53.2	34.3	14.3	6.0	84
MARAGUA	**5.8**	**83.2**	**23.6**	**1.1**	**35.5**	**4.5**	**3.4**	**5.8**	**12.8**	**75.7**	**1.3**	**56.1**	**33.1**	**13.6**	**6.7**	**334**
Project Total 2010	**8.8**	**86.1**	**28.5**	**3.9**	**47.7**	**4.8**	**7.5**	**9.9**	**17.0**	**78.6**	**2.0**	**49.2**	**25.1**	**13.3**	**7.7**	**2,354**
Project Total 2006		**86**	**14**	**2.1**	**43.8**	**0.8**	**1.7**	**1.7**	**8**							**1,496**

Across the FDAs there is a high proportion of male heads who own a radio, the highest percentage observed in Maragima with 94 percent and the lowest Maragua Ridge with 77 percent. There is a 57 percent increase in the number of male heads who own assets from 1,496 in 2006 to 2,354 in 2010.

Table 3.14 shows the percentage distribution of assets owned by female headed households. Majority of these households (70%) own a radio followed by mobile/fixed telephones (65%). Kalimoni has the highest percentage of women who own a television set (33%), a refrigerator (6%) and use electricity (17%).

Table 3.14: Percentage distribution of Assets owned by Female headed Households

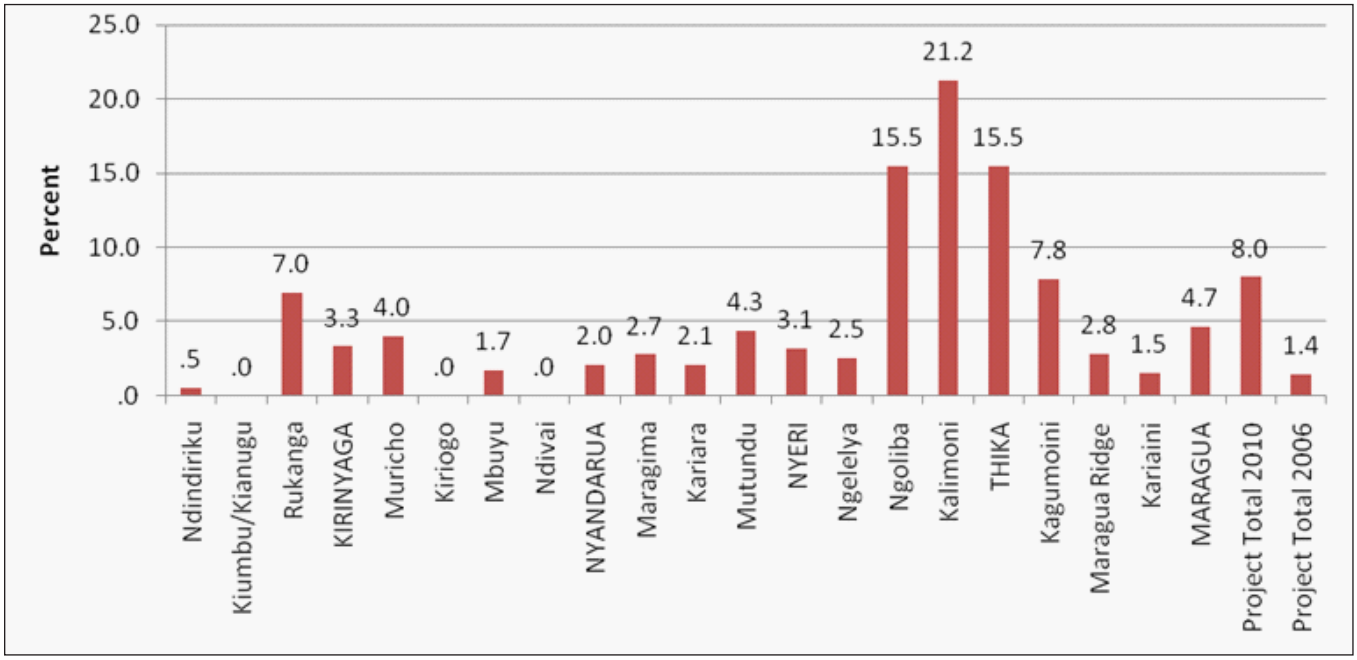
District/FDAs	Electric-ity	Radio	Televi-sion	Refrigerator	Bicycle	Motorcycle	Car/ Track	Gas Cooker	Solar Energy	Telephone (mobile/fixed)	Computer	Sofa Sets	Wall Unit	Plastic chairs	Generator	Total
Ndindiriku	.0	41.1	21.0	.0	18.5	.0	2.9	4.3	18.1	68.9	.0	65.4	8.4	33.8	13.7	44
Kiumbu/Kianugu	.0	36.3	.0	.0	9.0	.0	.0	.0	.0	63.4	.0	36.6	18.2	.0	.0	30
Rukanga	4.1	68.3	12.5	.0	23.8	.0	1.8	1.8	4.2	53.2	.0	45.8	8.7	13.6	6.0	60
KIRINYAGA	**1.8**	**52.2**	**12.4**	**.0**	**18.7**	**.0**	**1.8**	**2.2**	**7.8**	**60.6**	**.0**	**50.1**	**10.8**	**17.1**	**7.2**	**134**
Muricho	4.9	68.5	13.7	.0	20.2	.0	.0	2.2	9.1	60.1	.0	44.4	20.0	.0	1.4	43
Kiriogo	.0	93.5	12.0	.0	36.5	.0	.0	3.3	17.9	74.7	7.5	68.0	25.5	.0	9.3	22
Mbuyu	1.1	82.5	19.3	2.1	24.1	.0	1.0	1.0	11.1	61.6	1.4	62.3	21.0	7.7	.0	49
Ndivai	.0	79.9	16.5	.0	31.9	.0	.0	2.9	13.6	56.4	.0	43.8	29.6	.0	.0	21
NYANDARUA	**2.0**	**79.4**	**15.9**	**.8**	**26.1**	**.0**	**.4**	**2.1**	**12.0**	**62.4**	**1.7**	**54.7**	**22.8**	**2.8**	**1.9**	**135**
Maragima	6.4	84.2	14.0	1.5	16.0	1.9	.0	1.5	6.1	59.3	.0	55.3	18.1	.0	1.6	51
Kariara	4.0	76.0	11.5	.0	15.4	.0	4.2	2.1	14.6	48.7	.0	29.0	16.6	2.1	.0	19
Mutundu	2.7	75.8	12.1	.0	13.0	.0	1.4	.0	8.3	51.7	.0	29.6	10.9	.0	2.9	45
NYERI	**4.6**	**79.5**	**12.9**	**.7**	**14.7**	**.9**	**1.3**	**1.0**	**8.4**	**54.5**	**.0**	**40.8**	**15.0**	**.4**	**1.8**	**116**
Ngelelya	4.5	65.7	10.6	1.4	14.4	2.6	1.4	5.3	6.4	53.5	.6	30.0	9.4	6.2	2.2	56
Ngoliba	14.0	69.6	13.5	.0	25.6	1.4	3.8	3.3	.0	78.5	.7	36.9	18.2	13.7	1.4	96
Kalimoni	16.8	78.7	33.6	6.1	21.6	2.1	5.9	16.9	9.9	71.3	5.2	48.7	29.9	19.2	.0	121
THIKA	**13.3**	**72.8**	**21.8**	**3.0**	**21.5**	**1.9**	**4.2**	**9.7**	**5.7**	**70.2**	**2.7**	**40.7**	**21.6**	**14.6**	**.9**	**274**
Kagumoini	6.3	60.7	13.9	.0	9.3	4.7	.0	1.7	12.6	61.3	.0	48.6	27.9	6.4	.0	49
Maragua Ridge	.0	65.6	19.3	2.6	14.6	4.7	2.1	4.8	14.6	75.7	.0	58.3	38.7	17.5	4.8	42
Mariaini	.0	68.8	9.9	.0	26.9	.0	2.2	6.2	13.6	72.0	.0	44.9	25.3	10.7	.0	26
MARAGUA	**2.6**	**64.2**	**15.0**	**.9**	**15.1**	**3.7**	**1.3**	**3.8**	**13.5**	**68.9**	**.0**	**51.3**	**31.2**	**11.4**	**1.8**	**117**
Project Total 2010	**6.4**	**70.1**	**16.8**	**1.4**	**19.9**	**1.4**	**2.2**	**4.9**	**8.7**	**64.7**	**1.2**	**46.4**	**20.4**	**10.4**	**2.4**	**775**
Project Total 2006	**1.4**	**69.4**	**9.3**	**1.2**	**21.4**	**0.3**	**1.4**	**2.9**	**6.6**							**679**

Throughout all FDA districts there is an overall increase in the percentage of female heads who own a radio and those who own a bicycle. There is also a significant change in proportion of those female heads who own a television as observed in Table 3.14 above. The doubling of the proportion of households engaged in business and those formally and informally employed as shown in table 3.14 may have raised income for women

3.2.6 *Electricity Supply*

Figure 3.6 shows percentage distribution of households connected to electricity in 2010. Kalimoni has the highest connectivity rate in the FDAs (21%), while Thika has the highest per District (16%). Electricity is absent in Kiumbu/Kianugu, Kiriogo and Ndivai. Compared to 2006, there was a 7 percent increase in electricity connections in the study area.

Figure 3.6 Percentage distribution of Households connected to electricity in 2010



3.2.7 *Sources of Cooking Fuels*

The types of cooking fuel used in the survey areas are given in Table 3.15. Over three quarters of the households use firewood/straw followed by charcoal (slightly over 1 in 10). One in five households in Mbuyu use LPG/natural gas, one in ten use kerosene in Ngoliba while one in five households use charcoal in Thika district.

Table 3.15: Percentage distribution of Cooking Fuels, according to District and FDA

District/FDAs	Electricity	LPG /Natural gas	Biogas	Kerosene	Charcoal	Firewood/Straw	Others (specify)	Total	sample
Ndindiriku	.8	0.0	0.0	3.2	13.0	81.2	1.7	100	165
Kiumbu/Kianugu	20.0	0.0	0.0	8.1	24.0	62.0	3.9	100	138
Rukanga	.4	.4	0.0	2.1	4.4	87.9	4.9	100	252
KIRINYAGA	**.9**	**.2**	**0.0**	**3.9**	**11.8**	**79.5**	**3.7**	**100**	**555**
Muricho	1.8	1.7	0.0	0.0	8.6	88.0	0.0	100	209
Kiriogo	2.1	0.0	0.0	0.0	2.3	95.6	0.0	100	88
Mbuyu	2.7	20.0	0.0	.7	70.0	87.6	0.0	100	179
Ndivai	8.9	0.0	0.0	1.2	5.3	84.7	0.0	100	75
NYANDARUA	**3.1**	**1.3**	**0.0**	**.4**	**6.6**	**88.6**	**0.0**	**100**	**551**
Maragima	0.0	0.0	0.0	0.0	9.4	90.6	0.0	100	144
Kariara	1.9	.9	0.0	.8	1.3	94.5	.6	100	95
Mutundu	.5	.9	0.0	0.0	0.0	98.6	0.0	100	130
NYERI	**.7**	**.5**	**0.0**	**.2**	**40.0**	**94.4**	**.2**	**100**	**369**
Ngelelya	.3	.5	0.0	1.8	10.0	95.9	.6	100	252
Ngoliba	.6	1.5	0.0	10.0	26.2	61.7	0.0	100	387
Kalimoni	0.0	10.8	10.0	9.3	27.5	51.0	.4	100	564
THIKA	**.3**	**5.6**	**.5**	**7.9**	**21.5**	**63.9**	**.3**	**100**	**1,204**
Kagumoini	.2	0.0	0.0	1.4	.4	98.0	0.0	100	193
Maragua Ridge	.7	0.0	0.0	4.2	3.5	91.6	0.0	100	148
Mariaini	0.0	0.0	0.0	1.8	3.2	95.0	0.0	100	109
MARAGUA	**.3**	**0.0**	**0.0**	**2.4**	**2.1**	**95.1**	**0.0**	**100**	**450**
Project Total 2010	**.9**	**2.5**	**.2**	**4.2**	**12.3**	**79.1**	**.8**	**100**	**3,129**
Project Total 2006	**0.4**	**0.2**	**0.2**	**1.3**	**5.6**	**92.1**		**100**	**2,175**

Overtime there is a decline in proportion of households that use firewood/straw from 92 percent in 2006 to about 80 percent in 2010. Correspondingly, the proportion of households though still small in absolute numbers, doubled in use of charcoal, tripled in use of kerosene and increased tenfold in use of LPG gas.

Compared to firewood/straw, an increase in charcoal, kerosene and LPG gas users can only be explained by availability of income. Firewood can be obtained from one's farm while kerosene has to be bought. The shift towards formal and informal employment observed in Table 3.4 may account for the rise in households with fuel expenditure.

3.2.8 Source of lighting

Table 3.16 provides information on lighting sources in the study area. The predominant source of lighting is paraffin/kerosene (83%) followed by solar and electricity (8% each). Thika has the highest percentage of households (14%) using electricity for lighting per district while one in every ten households in Nyandarua uses solar for lighting.

Table 3.16: Percentage distribution of Lighting Fuels, according to District and FDA

District/FDAs	Electricity	LPG/ Natural Gas	Biogas	Paraffin (Kerosene)	Firewood/ straw	Solar	Other (specify)	Total	Sample
Ndindiriku	1.1	2.1	0.0	87.8	1.6	7.5	0.0	10.0	165
Kiumbu/Kianugu	40.0	20.0	0.0	86.0	20.0	40.0	20.0	10.0	138
Rukanga	7.4	0.0	0.0	79.5	0.0	10.8	2.3	10.0	252
KIRINYAGA	**4.7**	**1.1**	**0.0**	**83.6**	**10.0**	**8.1**	**1.5**	**10.0**	**555**
Muricho	4.1	.6	0.0	90.1	0.0	5.2	0.0	10.0	209
Kiriogo	0.0	0.0	0.0	87.2	.7	12.1	0.0	10.0	88
Mbuyu	2.9	.2	0.0	83.5	2.5	10.5	.4	10.0	179
Ndivai	0.0	10.0	0.0	78.8	1.2	18.9	0.0	10.0	75
NYANDARUA	**2.5**	**.4**	**0.0**	**85.9**	**1.1**	**9.9**	**.1**	**10.0**	**551**
Maragima	3.3	0.0	0.0	83.2	1.7	11.3	.5	10.0	144
Kariara	2.8	0.0	.8	85.6	.8	10.0	0.0	10.0	95
Mutundu	2.5	.5	0.0	89.7	.7	6.5	0.0	10.0	130
NYERI	**2.9**	**.2**	**.2**	**86.1**	**1.1**	**9.3**	**.2**	**10.0**	**369**
Ngelelya	2.7	0.0	0.0	93.6	.6	30.0	.1	10.0	252
Ngoliba	12.9	.2	0.0	82.9	0.0	3.7	.2	10.0	387
Kalimoni	20.1	.3	0.0	69.5	.9	7.7	1.6	10.0	564
THIKA	**14.1**	**.2**	**0.0**	**78.9**	**.5**	**5.4**	**.8**	**10.0**	**1,204**
Kagumoini	6.8	0.0	0.0	84.3	2.3	6.6	0.0	10.0	193
Maragua Ridge	1.5	1.4	0.0	84.1	1.5	11.6	0.0	10.0	148
Mariaini	.9	.9	0.0	87.5	0.0	9.4	1.3	10.0	109
MARAGUA	**3.6**	**.7**	**0.0**	**85.0**	**1.5**	**8.9**	**.3**	**10.0**	**450**
Project Total 2010	**7.6**	**.5**	**0.0**	**82.7**	**.9**	**7.6**	**.7**	**10.0**	**3,129**
Project Total 2006	**0.6**	**0.6**		**92.4**	**2.7**	**3.3**	**0.4**	**10.0**	**165**

Overall across the Districts and invariably over time, kerosene remains the main source of fuel for lighting with over four-fifths of households using it. In 2006 every 9 in 10 households used kerosene for lighting and this can be compared with 8 in every 10 in 2010. Correspondingly, use of solar and electricity for lighting more than doubled during the same reference period. Compared to 2006 less than 1 percent of households use firewood/straw for lighting.

3.2.9 Energy saving devices

Table 3.17 shows the percentage distribution of energy saving devices used for cooking in the households per FDA. The improved fire place is most popular (38%), followed by the Kenya ceramic jiko (35%) and finally the paraffin stove (28%). Overall, over two fifths of households in Thika utilize the Kenya ceramic jiko, while half of households in Nyandarua and Maragua utilize the improved fire place.

Table 3.17: Percentage distribution of Energy saving devices used for cooking in the households

District/FDAs	Fireless Cookers	Maendeleo liners/Jikos	Kenya Cermic Jikos	Improved fire place	Tea cosy	Parraffin Stove	Biogas	LPG	Solar	Electric Cooker	Sample
Ndindiriku	.7	5.7	45.2	3.0	.0	34.4	4.8	.5	.0	.0	
Kiumbu/Kianugu	.0	4.0	50.1	2.0	.0	36.1	.0	.0	.0	.0	
Rukanga	.0	7.2	35.8	14.8	.6	38.6	1.0	4.1	.0	1.4	
KIRINYAGA	**.2**	**6.0**	**42.1**	**8.1**	**.3**	**36.7**	**1.9**	**2.0**	**.0**	**.6**	
Muricho	.3	14.7	27.3	42.6	.0	3.5	.0	2.3	1.4	.0	
Kiriogo	.0	8.8	28.1	56.2	.0	5.1	.0	1.5	1.2	.0	
Mbuyu	.3	7.9	38.0	53.0	.9	8.4	.5	2.7	.8	.5	
Ndivai	.0	14.3	35.4	54.4	.0	8.0	.0	3.1	.8	.0	
NYANDARUA	**.2**	**11.4**	**32.0**	**49.8**	**.3**	**6.0**	**.2**	**2.4**	**1.1**	**.2**	
Maragima	.0	28.0	22.8	74.8	2.4	24.7	.0	3.9	2.4	.0	
Kariara	1.5	11.1	6.7	94.5	.4	11.5	.0	3.2	.0	.8	
Mutundu	2.6	5.7	8.1	97.9	1.0	5.7	.0	1.3	.0	.5	
NYERI	**1.3**	**15.8**	**13.5**	**88.0**	**1.4**	**14.6**	**.0**	**2.8**	**.9**	**.4**	
Ngelelya	.5	10.0	46.0	26.3	.1	25.9	.6	3.3	3.5	.0	
Ngoliba	.8	12.2	44.9	31.4	.0	39.8	1.5	5.3	.9	1.5	
Kalimoni	.4	9.1	46.9	23.7	.2	54.7	2.1	19.0	6.4	3.2	
THIKA	**.6**	**10.3**	**46.0**	**26.7**	**.1**	**43.9**	**1.6**	**11.3**	**4.0**	**2.0**	
Kagumoini	.0	8.7	17.7	50.5	.0	15.7	.0	2.6	.0	.5	
Maragua Ridge	.7	15.1	25.3	49.0	.0	16.6	.7	6.7	.6	.0	
Kariaini	.0	15.8	13.9	52.6	1.4	10.8	.0	3.5	4.2	.0	
MARAGUA	**.2**	**12.5**	**19.2**	**50.5**	**.3**	**14.8**	**.2**	**4.1**	**1.2**	**.2**	**450**
Project Total 2010	**.5**	**10.7**	**35.2**	**38.1**	**.4**	**28.3**	**1.0**	**6.1**	**2.0**	**1.0**	**3,129**
Project Total 2006	**1.2**	**31.9**	**17.8**	**37**	**2.1**	**20.8**					**596**

3.3 Household Expenditure

3.3.1 Introduction

This section presents and discusses household expenditure. Expenditure data, when compared to income data, provides a basis for assessing monetary welfare status. However, the definition of income and the extent of information required to compute it, is quite complex and therefore the survey did not capture the income module. Expenditure, on the other hand, could yield reliable estimates since most people could easily remember what was spent. The survey was interested in understanding the estimated amount (in Kshs.) that households incurred during the recall period. For each item of expenditure the reference period was the previous month, previous three months or past one year preceding the interview date, as the case may have demanded.

Respondents were asked to state whether their households incurred the various expenditures during the recall periods. Table 3.18 shows the percentage distribution of households who reported incurring key household expenditure. Food consumed most of the expenditure (98%), followed by energy (90%), and clothing (83%). In all the Districts, school fees consumed half or more of household expenditure.

Table 3.18: percentage distribution of households reporting having incurred the key household expenditure

District/FDAs	Rent	School	Food	Health	Energy	Water	Clothing	Transport	Airtime	Domestic	Other	House-holds
Ndindiriku	24.7	52.1	99.5	66.7	98.9	42.5	92.9	80.2	67.8	12.9	28.7	165
Kiumbu/Kianugu	34.2	49.9	98.0	67.8	94.0	20.0	91.9	87.9	83.9	6.0	18.0	138
Rukanga	5.5	54.3	97.7	73.8	94.3	74.9	85.2	84.7	74.2	10.9	14.3	252
KIRINYAGA	**18.4**	**52.5**	**98.3**	**70.2**	**95.6**	**51.6**	**89.2**	**84.2**	**74.7**	**10.3**	**19.5**	**555**
Muricho	7.3	66.8	98.8	68.5	85.3	37.4	85.8	62.2	74.5	8.2	.7	209
Kiriogo	2.0	70.3	99.3	61.4	87.7	33.5	90.1	72.0	84.4	9.7	2.0	88
Mbuyu	3.6	68.4	96.5	68.3	90.5	9.0	83.8	77.1	75.9	6.3	5.5	179
Ndivai	3.2	62.9	96.2	66.1	88.3	12.3	79.6	78.5	73.7	13.1	2.0	75
NYANDARUA	**4.6**	**67.4**	**97.8**	**67.0**	**87.8**	**24.0**	**85.0**	**70.9**	**76.5**	**8.5**	**2.7**	**551**
Maragima	8.7	46.5	96.1	47.2	88.7	45.9	85.5	66.1	70.3	10.1	9.5	144
Kariara	1.3	55.8	97.3	53.8	92.0	7.1	86.9	68.5	68.1	5.5	5.4	95
Mutundu	.0	51.7	96.8	47.4	90.9	8.3	84.5	59.7	58.4	9.1	5.9	130
NYERI	**3.7**	**50.7**	**96.7**	**49.0**	**90.3**	**22.6**	**85.5**	**64.4**	**65.6**	**8.6**	**7.2**	**369**
Ngelelya	7.2	58.3	98.3	46.3	95.6	25.8	78.4	58.9	67.3	5.1	.8	252
Ngoliba	22.4	60.8	97.9	54.4	85.5	42.9	87.3	78.2	78.6	9.3	2.2	387
Kalimoni	18.3	55.2	98.4	57.1	89.5	34.9	77.8	66.3	79.3	12.0	.5	564
THIKA	**17.4**	**57.7**	**98.2**	**54.0**	**89.5**	**35.6**	**81.0**	**68.7**	**76.6**	**9.7**	**1.1**	**1204**
Kagumoini	1.4	62.1	97.7	65.4	91.9	12.7	80.5	84.6	73.2	10.6	1.1	193
Maragua Ridge	2.1	66.4	100.0	65.8	91.7	18.1	75.6	72.3	71.5	8.3	.7	148
Mariaini	2.3	60.7	95.3	52.4	85.5	18.5	72.6	64.8	67.8	7.9	.5	109
MARAGUA	**1.8**	**63.2**	**97.9**	**62.4**	**90.3**	**15.9**	**77.0**	**75.8**	**71.3**	**9.2**	**.8**	**450**
Project Total 2010	**11.4**	**58.5**	**97.9**	**59.7**	**90.4**	**31.9**	**83.0**	**72.3**	**74.2**	**9.4**	**5.2**	**3129**
Project Total 2006	**6.6**	**55.3**		**69.7**	**95.7**	**25.1**	**76.6**				**9.8**	**2173**

With reference to 2006, there was an increase in expenditure on rent, school, water and clothing with the latter being the highest (6%). On the other hand, expenses on health and energy declined with the former being the highest (10%).

3.3.2 Key Household Expenditures

3.3.2.1 Rent Paid Last Month

Table 3.19 shows the percentage distribution of household expenditure on rent in the one month period preceding the survey. Information was collected only from households that reported paying rent. The average rent paid is Kshs 654 while the median is Kshs 400. Two thirds of the households pay a sum not exceeding Kshs 500. Most of the expensive houses (55%) are in Kagumoini.

Table 3.19: Percentage distribution of household Expenditure (in Kshs) on Rent paid last month

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	Average	Median	Std Deviation	Households
Ndindiriku	100.0	.0	.0	.0	.0	229	200	76	41
Kiumbu/Kianugu	94.2	5.8	.0	.0	.0	314	300	148	47
Rukanga	50.4	24.2	17.6	7.7	.0	932	544	942	14
KIRINYAGA	**90.6**	**6.0**	**2.4**	**1.0**	**.0**	**364**	**300**	**422**	**102**
Muricho	100.0	.0	.0	.0	.0	394	409	108	15
Kiriogo	70.6	29.4	.0	.0	.0	441	523	239	2
Mbuyu	43.9	22.1	25.4	8.6	.0	1,131	809	1,196	6
Ndivai	66.7	.0	33.3	.0	.0	667	436	768	2
NYANDARUA	**81.1**	**7.5**	**9.3**	**2.1**	**.0**	**602**	**500**	**668**	**26**
Maragima	93.5	6.5	.0	.0	.0	336	300	131	13
Kariara	.0	.0	50.0	50.0	.0	2,250	2,413	598	1
Mutundu	.0	.0	.0	.0	.0	.	.	.	0
NYERI	**85.3**	**5.9**	**4.4**	**4.4**	**.0**	**505**	**314**	**582**	**14**
Ngelelya	39.3	33.2	23.6	1.9	1.9	946	700	1,258	18
Ngoliba	66.9	22.3	8.7	2.1	.0	565	300	631	86
Kalimoni	42.5	34.7	17.5	3.8	1.5	908	700	938	105
THIKA	**52.3**	**29.5**	**14.4**	**2.9**	**.9**	**770**	**500**	**873**	**209**
Kagumoini	45.4	.0	.0	.0	54.6	4,134	4,689	4,246	3
Maragua Ridge	100.0	.0	.0	.0	.0	500	500	0	3
Mariaini	59.4	40.6	.0	.0	.0	556	587	312	2
MARAGUA	**70.3**	**11.7**	**.0**	**.0**	**18.0**	**1,710**	**500**	**2,745**	**8**
Project Total 2010	**66.9**	**19.9**	**9.9**	**2.3**	**.9**	**654**	**400**	**864**	**359**
Project Total 2006	**82.9**	**5.6**	**1.8**	**2.4**	**1**	**630**	**280**	**1,697**	**109**

3.3.2.1 Rent Paid Last Month

There are major variations in the monthly amount of rent paid by households in the project area. The highest mean is paid by residents of Kagumoini who pay Kshs. 3000. Overall, mean rent has over time increased from Kshs. 630 in 2006 to Kshs. 654 in 2010. The median rent also increased from Kshs. 280 to Kshs. 400 during the same reference period.

3.3.2.2 School Fees Paid Last Year

The percentage distribution of households' expenditure on school fees and other related expenses paid by households in the one year preceding the survey is presented in Table 3.20. The average amount spent is Kshs. 15,147 while the median was Kshs. 5,000. Most of the households (31%) spent more than Kshs. 10,000 with half of the households in Ndivai being in this category. Thika had the highest amount spent on average (Kshs. 17,473) per District while Kirinyaga had the least (Kshs. 9,946).

Table 3.20: Percentage distribution of household Expenditure (in Kshs) on School fees paid last year

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	.0	10.2	25.0	42.3	11.0	11.5	6 593	3 023	13 108	86
Kiumbu/Kianugu	8.0	4.0	23.9	35.9	16.1	12.1	7 107	2 500	12 810	69
Rukanga	4.0	5.6	20.6	27.8	13.0	29.1	13 488	3 161	23 415	137
KIRINYAGA	**3.8**	**6.6**	**22.7**	**34.0**	**13.1**	**19.9**	**9 946**	**3 000**	**18860**	**291**
Muricho	2.5	9.3	21.2	16.7	20.3	30.0	16 118	5 099	32 696	140
Kiriogo	1.2	7.6	15.8	19.7	15.6	40.1	20 420	7 160	37 153	62
Mbuyu	1.7	8.7	12.7	24.0	14.4	38.4	17 092	5 285	27 518	123
Ndivai	2.5	3.0	15.8	22.7	6.4	49.6	20 022	10 177	26 053	47
NYANDARUA	**2.0**	**8.0**	**16.8**	**20.4**	**15.8**	**37.0**	**17 654**	**6 000**	**31 040**	**372**
Maragima	.0	5.3	7.7	31.2	16.5	39.2	20 514	7 000	28 890	67
Kariara	3.7	8.0	18.9	25.4	15.3	28.7	13 559	4 610	24 564	53
Mutundu	7.2	10.1	18.2	30.5	14.4	19.6	7 477	4 000	9 538	67
NYERI	**3.6**	**7.8**	**14.7**	**29.3**	**15.4**	**29.2**	**13 860**	**5 000**	**22 959**	**187**
Ngelelya	6.0	12.4	20.5	26.6	15.1	19.3	9 044	4 000	15 279	147
Ngoliba	7.6	4.5	12.5	25.2	21.0	29.1	17 995	5 643	37 967	236
Kalimoni	4.1	8.7	10.6	19.8	17.1	39.7	21 076	8 027	37 738	310
THIKA	**5.7**	**8.1**	**13.4**	**23.1**	**18.0**	**31.8**	**17 473**	**5 000**	**34 573**	**694**
Kagumoini	7.0	14.1	12.4	17.4	14.8	34.3	15 426	5 000	24 319	120
Maragua Ridge	9.3	16.7	17.9	19.2	10.5	26.3	10 563	3 204	15 466	98
Mariaini	3.4	9.9	17.7	29.1	12.8	27.2	9 596	4 000	13 513	67
MARAGUA	**6.9**	**14.0**	**15.5**	**20.8**	**12.9**	**29.9**	**12385**	**4 500**	**19 467**	**285**
Project Total 2010	**4.6**	**8.7**	**16.0**	**24.6**	**15.7**	**30.4**	**15 147**	**5 000**	**28 746**	**1829**
Project Total 2006	**18**	**20**	**20**	**13**	**5**	**25**	**10 180**	**1 600**	**27 800**	**1 229**

In 2010, the average amount spent increased to Kshs. 15,147 from Kshs. 10,180 in 2006. The greatest increase (12%) was observed for households that spent between Kshs. 2001 and 5,000.

3.3.2.3 Expenditure on Food consumption during a normal Month

The percentage distribution of household expenditure on food consumption in the one month period prior to the survey is shown in Table 3.21. The average amount spent was Kshs. 4,208 while the median was Kshs. 3,123. Half of all households spent between Kshs. 2001 and 5,000.

Table 3.21: Percentage distribution of household Expenditure (in Kshs) on Food Consumption last month

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	.5	4.8	3.7	54.1	34.1	2.8	4 642	4 500	2 220	164
Kiumbu/Kianugu	.0	.0	18.3	59.3	22.4	.0	3 901	3 000	1 848	135
Rukanga	.4	1.4	6.7	55.7	35.4	.4	4 651	4 500	2 073	246
KIRINYAGA	**.3**	**2.1**	**8.7**	**56.1**	**31.7**	**1.0**	**4 462**	**4 500**	**2 088**	**545**
Muricho	.0	1.4	16.4	56.9	24.8	.4	3 935	3 586	1 989	206
Kiriogo	.9	1.6	21.2	54.2	22.1	.0	3 700	3 000	2 132	87
Mbuyu	1.3	3.6	18.0	53.7	21.7	1.7	3 947	3 262	3 171	173
Ndivai	.0	6.7	18.4	58.2	16.7	.0	3 419	3 000	1 895	72
NYANDARUA	**.6**	**2.9**	**18.0**	**55.6**	**22.3**	**.7**	**3 832**	**3 290**	**2 442**	**539**
Maragima	4.2	20.9	22.6	37.8	12.2	2.3	3 713	2 445	4 597	138
Kariara	1.6	7.6	32.0	45.7	11.3	1.8	3 486	2 595	3 766	93
Mutundu	1.6	15.4	28.3	49.6	4.5	.5	2 826	2 500	2 147	126
NYERI	**2.6**	**15.5**	**27.1**	**44.0**	**9.3**	**1.5**	**3 341**	**2 500**	**3 685**	**356**
Ngelelya	3.5	8.2	18.9	50.5	16.3	2.6	3 863	3 000	3 409	248
Ngoliba	1.9	8.7	15.6	46.3	22.8	4.6	4 941	4 000	5 973	379
Kalimoni	.5	8.2	18.8	49.2	18.0	5.4	4 638	3 000	5 917	556
THIKA	**1.6**	**8.4**	**17.8**	**48.5**	**19.2**	**4.6**	**4 572**	**3 000**	**5 515**	**1183**
Kagumoini	4.4	4.0	15.9	61.6	13.5	.7	3 707	3 000	2 390	188
Maragua Ridge	2.1	6.4	13.5	49.6	24.1	4.2	4 490	3 500	3 292	148
Mariaini	2.5	4.7	13.7	54.4	22.0	2.8	4 155	3 283	2 823	105
MARAGUA	**3.2**	**5.0**	**14.5**	**55.9**	**19.1**	**2.4**	**4 076**	**3 000**	**2 837**	**441**
Project Total 2010	**1.5**	**6.6**	**16.8**	**51.7**	**20.8**	**2.6**	**4 208**	**3 143**	**4 058**	**3064**
Project Total 2006	**3.3**	**9.3**	**22.9**	**54.8**	**8.3**	**.4**	**2 915**	**2 619**	**2 173**	**2139**

The average amount spent on food consumption increased from Kshs. 2,915 in 2006 to 4,208 in 2010. Within the same reference period, households spending less than Kshs. 500 declined by half while the greatest increase was among those spending between Kshs. 5,001 and 10,000.

3.3.2.4 Expenditure on Healthcare during the last Three Months

Healthcare costs include expenditure on drugs and pharmaceuticals. Typical expenditures are for visits to doctors or clinics. There may be payments for treatment and for hospital admissions. Included also is the expenditure made to local herbalists. Table 3.22 shows the percentage distribution of household expenditure on healthcare expenses in the three month period prior to the survey.

On average, each household spent Kshs. 2,570 while their median was Kshs. 1,000. Over a third of the households spent a sum not exceeding Kshs. 500 while a fifth spent between Kshs. 500 and 1,000. On the higher end of the scale, one in ten households in Kagumoini spent over Kshs. 10,000.

Table 3.22: Percentage distribution of household Expenditure (in Kshs) on Healthcare Expenses last 3 months

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	33.5	21.1	13.5	20.5	9.1	2.3	2 592	1 000	4 867	110
Kiumbu/Kianugu	35.2	20.6	23.4	17.9	2.9	.0	1 609	1 000	1 686	94
Rukanga	39.0	22.5	13.0	16.1	5.7	3.6	2 058	900	3 357	186
KIRINYAGA	**36.5**	**21.6**	**15.7**	**17.8**	**6.0**	**2.4**	**2 101**	**1 000**	**3 580**	**389**
Muricho	29.5	26.2	15.0	22.4	1.5	5.4	2 710	1 000	5 412	143
Kiriogo	46.0	19.3	17.2	11.1	2.7	3.7	2 422	613	8 776	54
Mbuyu	33.1	19.6	16.2	18.8	8.7	3.6	2 834	1 000	5 453	123
Ndivai	39.2	19.6	11.7	16.0	8.7	4.9	2 720	1 000	4 888	50
NYANDARUA	**34.4**	**22.1**	**15.3**	**18.7**	**5.0**	**4.5**	**2 710**	**900**	**5 949**	**369**
Maragima	31.3	22.0	17.8	24.1	3.7	1.2	2 035	1 000	2 699	68
Kariara	45.8	18.5	5.6	17.2	9.8	3.1	2 649	600	4 714	51
Mutundu	59.6	17.6	9.4	10.7	1.6	1.1	1 376	500	3 401	62
NYERI	**45.1**	**19.5**	**11.5**	**17.6**	**4.7**	**1.7**	**1 985**	**700**	**3 617**	**181**
Ngelelya	48.7	17.4	13.1	12.2	4.2	4.4	2 288	599	5 109	118
Ngoliba	37.0	19.9	11.7	22.3	6.4	2.7	2 310	1 000	3 786	210
Kalimoni	35.4	19.3	21.6	12.3	5.0	6.2	2 879	1 000	5 847	322
THIKA	**38.3**	**19.2**	**16.9**	**15.5**	**5.3**	**4.8**	**2 588**	**1 000**	**5 131**	**651**
Kagumoini	40.2	18.2	13.9	14.5	3.3	10.0	3 545	1 000	7 523	127
Maragua Ridge	51.9	15.8	9.7	13.8	3.2	5.6	3 054	500	7 974	98
Mariaini	32.4	23.4	15.6	12.2	8.8	7.7	3 517	1 000	7 301	58
MARAGUA	**42.7**	**18.4**	**12.8**	**13.8**	**4.4**	**8.0**	**3 369**	**1 000**	**7 616**	**282**
Project Total 2010	**38.5**	**20.2**	**15.2**	**16.6**	**5.2**	**4.4**	**2 570**	**1 000**	**5 377**	**1 872**
Project Total 2006	**53.4**	**17.6**	**11.2**	**11.5**	**3.6**	**2.2**	**1 845**	**500**	**6 779**	**1 505**

The overall average expenditure has increased from Kshs. 1,845 in 2006 to Kshs. 2,570 in 2010. Kagumoini has the highest average expenditure of Kshs. 3,545, while Rukanga has the lowest of Kshs. 1,376. The median has doubled from Kshs. 500 in 2006 to Kshs. 1000 in 2010.

3.3.2.5 Expenditure on Energy during a normal Month

The energy referred to in this sub section comprises charcoal, firewood, paraffin and electricity among others. The percentage distribution of household expenditure on energy expenses in the one month preceding the survey is given in Table 3.23. The mean amount spent is Kshs. 676 while the median is Kshs. 400. Close to two thirds of the households spent Kshs. 500 or below while a tenth spent between Kshs. 1,001 and 2,000. Majority of the households that spent Kshs. 500 or below are in Mutundu.

Table 3.23: percentage distribution of household expenditure (in kshs) on energy expenses last months

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	51.3	31.8	10.7	6.2	.0	.0	732.1	500.0	709.7	163
Kiumbu/Kianugu	59.4	27.7	8.5	4.3	.0	.0	649.9	450.0	818.0	130
Rukanga	67.4	21.5	9.0	1.1	.6	.4	600.0	300.0	1288.2	237
KIRINYAGA	**60.5**	**26.2**	**9.4**	**3.5**	**.3**	**.2**	**652.9**	**400.0**	**1030.1**	**530**
Muricho	68.4	18.8	7.5	5.3	.0	.0	635.6	373.1	839.7	178
Kiriogo	77.1	14.9	6.4	1.7	.0	.0	464.5	300.0	562.9	77
Mbuyu	61.1	26.0	10.5	2.1	.3	.0	592.2	400.0	671.3	163
Ndivai	67.3	21.9	8.3	1.2	.0	1.2	629.1	350.0	1272.0	66
NYANDARUA	**67.2**	**21.0**	**8.4**	**3.1**	**.1**	**.2**	**592.8**	**350.0**	**825.3**	**484**
Maragima	64.3	29.6	5.3	.8	.0	.0	539.5	400.0	554.1	127
Kariara	76.3	15.7	5.8	1.6	.7	.0	553.2	400.0	674.8	88
Mutundu	90.4	6.7	2.9	.0	.0	.0	334.7	300.0	274.4	118
NYERI	**76.7**	**17.8**	**4.6**	**.7**	**.2**	**.0**	**470.5**	**300.0**	**521.9**	**333**
Ngelelya	72.4	17.3	6.5	2.7	.8	.2	661.6	400.0	1261.0	241
Ngoliba	49.2	31.2	15.1	4.3	.2	.0	783.3	578.6	788.0	331
Kalimoni	50.2	27.2	13.5	7.6	1.5	.0	960.8	500.0	1254.1	506
THIKA	**54.9**	**26.2**	**12.4**	**5.5**	**.9**	**.1**	**839.4**	**500.0**	**1139.0**	**1078**
Kagumoini	82.7	11.4	2.3	2.8	.4	.5	544.1	300.0	1255.9	178
Maragua Ridge	81.2	11.8	5.5	1.5	.0	.0	457.4	300.0	602.0	136
Mariaini	74.6	16.8	5.5	1.4	1.7	.0	642.3	300.0	1227.5	94
MARAGUA	**80.3**	**12.8**	**4.1**	**2.0**	**.6**	**.2**	**537.9**	**300.0**	**1074.7**	**408**
Project Total 2010	**64.3**	**22.4**	**9.1**	**3.6**	**.5**	**.1**	**675.6**	**400.0**	**1012.3**	**2834**
Project Total 2006	**79.9**	**15.5**	**3.5**	**.7**	**.2**		**385**	**250**	**537**	**2088**

There is an increase in the number of households with energy expenses from 2,088 in 2006 to 2,834 in 2010. There is a decline in the low expenditure (0-500) category from 80 percent in 2006 to 64 percent in 2010. The average expenditure has also increased from Kshs. 385 in 2006 to Kshs. 676 in 2010. Kalimoni has the highest average expenditure on energy expenses of Kshs. 960, Mutundu being the lowest with Kshs. 334.

3.3.2.6 Expenditure on Water during a Normal Month

The survey aimed at finding out how much the households were spending (if any) to buy water in a normal month. Table 3.24 highlights expenditure on this commodity. The mean amount spent is Kshs 612 while the median is Kshs 200. Over three quarters of the households spent not more than Kshs 500 followed by one in ten households who spent Kshs 501-1,000.

Table 3.24: Percentage distribution of household Expenditure (in Kshs) on Water Expenses last month

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	65.9	19.5	9.8	.0	4.9	.0	983.4	300.3	2117.0	70
Kiumbu/Kianugu	70.1	9.9	10.1	9.9	.0	.0	808.6	267.7	1207.0	28
Rukanga	97.0	2.4	.6	.0	.0	.0	205.1	200.0	145.0	188
KIRINYAGA	**86.8**	**7.3**	**3.7**	**1.0**	**1.2**	**.0**	**454.2**	**200.0**	**1165.6**	**286**
Muricho	98.0	.8	.6	.0	.6	.0	233.3	200.0	626.9	79
Kiriogo	97.5	2.5	.0	.0	.0	.0	214.2	200.0	123.4	30
Mbuyu	48.3	19.5	32.2	.0	.0	.0	795.6	577.2	629.9	16
Ndivai	83.3	8.0	8.7	.0	.0	.0	313.0	200.0	334.8	9
NYANDARUA	**90.9**	**3.9**	**4.8**	**.0**	**.4**	**.0**	**301.8**	**200.0**	**564.8**	**133**
Maragima	87.8	9.7	1.5	.0	1.0	.0	279.0	100.0	629.2	66
Kariara	67.7	11.4	.0	20.9	.0	.0	1043.0	289.4	1525.2	7
Mutundu	63.3	24.1	12.7	.0	.0	.0	530.4	443.2	499.4	11
NYERI	**83.0**	**11.7**	**2.8**	**1.7**	**.8**	**.0**	**373.2**	**200.0**	**742.0**	**83**
Ngelelya	73.8	12.0	7.2	7.0	.0	.0	700.4	300.0	978.9	64
Ngoliba	74.6	16.2	3.7	3.3	.3	1.8	709.1	300.0	1563.5	167
Kalimoni	62.5	24.1	7.1	5.3	.0	1.0	827.4	430.3	1674.9	199
THIKA	**68.9**	**19.2**	**5.8**	**4.8**	**.1**	**1.2**	**762.5**	**400.0**	**1544.0**	**431**
Kagumoini	52.4	8.7	24.6	12.7	1.6	.0	1151.3	500.0	1345.8	24
Maragua Ridge	53.7	11.5	8.1	26.6	.0	.0	1433.4	420.0	1721.7	27
Mariaini	49.8	29.6	13.8	4.3	2.5	.0	962.9	555.0	1281.0	20
MARAGUA	**52.2**	**15.7**	**15.3**	**15.6**	**1.2**	**.0**	**1204.2**	**500.0**	**1474.9**	**71**
Project Total 2010	**76.9**	**12.9**	**5.5**	**3.6**	**.6**	**.5**	**612.2**	**200.0**	**1305.6**	**1005**
Project Total 2006	**65.9**	**19.4**	**9.8**	**4**	**0.2**		**556**	**300**	**703**	**586**

There is an increase in the number of households having water expenditure from 586 in 2006 to 1005 in 2010. The average expenditure on water has increased marginally from Kshs 556 in 2006 to Kshs 612 in 2010. There seems to be an increase in the low category expenditure (0-500), where it has increased from 66 percent in 2006 to 77 percent in 2010. Maragua Ridge has highest average expenditure on water at Kshs 1433, the lowest being Rukanga at Kshs 205.

3.3.2.7 Expenditure on Clothing during last Year

Information on the percentage distribution of household expenditure on clothing in the one year preceding the survey is presented in Table 3.25. The mean expenditure is Kshs 4,082 while the median is Kshs 3,000. Majority of the households (41%) spent between Kshs 2,001 and 5,000 followed by Kshs 1002 to 2000 (22%). The highest mean per district was observed in Thika (Kshs 4,537) while Nyeri had the least (Kshs 3,185).

Table 3.25: Percentage distribution of household Expenditure (in Kshs) on Clothing Expenses last 12 months

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000 +	Average	Median	Std Deviation	Households
Ndindiriku	5.4	10.0	23.7	46.6	12.2	2.1	3 534	3 000	2 743	153
Kiumbu/Kianugu	2.1	10.7	21.8	43.6	19.7	2.1	3 833	3 000	2 990	127
Rukanga	8.9	7.2	29.4	32.2	20.6	1.7	3 685	2 800	3 414	214
KIRINYAGA	**6.1**	**9.0**	**25.7**	**39.6**	**17.8**	**1.9**	**3 676**	**3 000**	**3 107**	**495**
Muricho	3.4	10.1	23.1	45.0	15.1	3.2	4 167	3 000	4 725	179
Kiriogo	3.4	9.9	27.7	32.8	21.7	4.6	4 303	3 000	3 922	79
Mbuyu	8.8	14.9	19.8	39.2	13.3	3.9	3 912	3 000	4 595	150
Ndivai	9.3	11.4	30.0	33.9	11.6	3.8	3 563	2 028	3 608	60
NYANDARUA	**5.9**	**11.8**	**23.7**	**39.7**	**15.2**	**3.7**	**4 031**	**3 000**	**4 417**	**469**
Maragima	9.3	18.9	17.6	42.0	7.0	5.3	3 589	2 500	4 624	123
Kariara	11.6	11.6	14.7	52.6	6.8	2.7	3 323	3 000	2 646	83
Mutundu	5.4	16.6	32.8	41.6	3.5	.0	2 629	2 000	1 613	110
NYERI	**8.6**	**16.2**	**22.1**	**44.7**	**5.7**	**2.7**	**3 185**	**2 500**	**3 343**	**315**
Ngelelya	6.7	12.6	27.4	31.2	19.6	2.5	3 942	3 000	4 152	199
Ngoliba	5.4	8.6	14.5	44.8	20.9	5.8	4 720	3 548	3 969	337
Kalimoni	5.6	10.0	17.7	42.9	19.2	4.6	4 664	4 000	5 069	439
THIKA	**5.8**	**10.0**	**18.6**	**41.2**	**19.9**	**4.6**	**4 537**	**3 500**	**4 537**	**975**
Kagumoini	5.7	14.6	16.1	43.3	15.3	5.0	4 530	3 000	5 433	154
Maragua Ridge	6.4	13.6	24.9	34.7	17.5	2.9	3 958	2 510	3 690	111
Mariaini	5.7	17.1	15.4	44.0	14.5	3.4	4 204	3 000	4 300	80
MARAGUA	**5.9**	**14.9**	**18.7**	**40.7**	**15.8**	**3.9**	**4 270**	**3 000**	**4 668**	**346**
Project Total 2010	**6.2**	**11.5**	**21.3**	**41.0**	**16.4**	**3.6**	**4 082**	**3 000**	**4 185**	**2599**
Project Total 2006	**14.5**	**19.1**	**27.7**	**30.8**	**6.3**	**1.4**	**2 480**	**2 000**	**2 748**	**1 648**

There is an increase in the average expenditure of clothing, from Kshs 2480 in 2006 to Kshs 4,082 in 2010. There is a decline in the low expenditure category (0-500) from 14.5 in 2006 to 6.2 in 2010. There is also a marginal increase in the Kshs 2001-5000 category, from 30.8 perccent in 2006 to 41 percent in 2010. The number of households using their expenditure on clothing increased from 1648 in 2006 to 2599 in 2010. In the Kshs 2001-5000 category Kariara had the highest expenditure on clothing, at 52.6 percent, while Rukanga had the lowest at 32.2 percent .

Table 3.26 shows the percentage distribution of household expenditure on transport in the one month prior to the survey. The average spent is Kshs 1,451 while the median is Kshs 750. Two fifths of the households spent Kshs 500 or below while approximately one in ten spent between Kshs 2,001 and 5,000.

Table 3.26: percentage distribution of household expenditure (in kshs) on transport expenses last month

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	40.6	32.2	17.4	9.8	.0	.0	1 000	600	1 000	132
Kiumbu/Kianugu	45.5	34.1	9.0	9.0	2.3	.0	1 010	600	1 192	122
Rukanga	49.8	26.5	13.7	8.5	1.5	.0	974	596	1 099	213
KIRINYAGA	**46.1**	**30.1**	**13.6**	**9.0**	**1.3**	**.0**	**991**	**600**	**1 095**	**467**
Muricho	38.8	25.0	15.9	17.6	2.8	.0	1 532	885	1 641	130
Kiriogo	31.1	36.3	12.3	15.6	3.7	1.0	1 770	902	3 677	63
Mbuyu	34.3	25.2	19.5	14.0	6.1	.9	1 772	1 000	2 856	138
Ndivai	42.4	26.4	14.6	13.7	2.8	.0	1 440	954	1 885	59
NYANDARUA	**36.5**	**27.1**	**16.4**	**15.4**	**4.1**	**.5**	**1 642**	**1 000**	**2 545**	**390**
Maragima	39.5	26.3	15.3	13.1	3.4	2.4	1 854	600	4 260	95
Kariara	49.5	19.7	12.2	17.9	.7	.0	1 190	584	1 265	65
Mutundu	59.9	19.5	13.6	7.0	.0	.0	869	500	940	78
NYERI	**48.9**	**22.3**	**13.9**	**12.4**	**1.6**	**1.0**	**1 350**	**600**	**2 847**	**238**
Ngelelya	47.5	29.9	9.1	10.0	2.2	1.3	1 336	600	2 622	149
Ngoliba	37.9	26.7	20.2	12.8	1.6	.8	1 459	1 000	1 985	302
Kalimoni	36.8	25.9	15.4	16.3	3.6	2.1	1 846	1 000	2 743	374
THIKA	**39.1**	**26.9**	**16.0**	**13.9**	**2.6**	**1.5**	**1 612**	**1 000**	**2 475**	**825**
Kagumoini	41.6	29.6	12.8	13.7	2.0	.2	1 372	800	1 707	163
Maragua Ridge	41.0	24.5	15.8	14.6	1.0	3.1	1 867	723	3 962	107
Mariaini	40.1	28.8	18.8	9.5	1.4	1.3	1 458	800	2 535	71
MARAGUA	**41.1**	**27.8**	**15.0**	**13.1**	**1.6**	**1.4**	**1 545**	**800**	**2 766**	**340**
Project Total 2010	**41.4**	**27.3**	**15.2**	**12.9**	**2.3**	**.9**	**1 451**	**750**	**2 379**	**2 260**

Table 3.27 shows the percentage distribution of household expenditure on airtime in the one month preceding the survey. The mean spent was Kshs 805 while the median was Kshs 500. Over half of the households spent not more than Kshs 500 with 72 percent of the households in Nyeri spending this amount. On the higher end of the scale, one in ten households in Kiumbu/Kianugu spent between Kshs 2,001 and 5,000.

Table 3.27: Percentage distribution of household expenditure (in kshs) on airtime expenses last month

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	Average	Median	Std Deviation	Households
Ndindiriku	49.0	33.5	16.5	1.0	.0	683	600	584	112
Kiumbu/Kianugu	40.6	28.5	21.4	9.5	.0	942	600	855	116
Rukanga	48.4	31.1	15.0	4.4	1.1	823	600	1 014	187
KIRINYAGA	**46.4**	**31.0**	**17.2**	**4.9**	**.5**	**819**	**600**	**875**	**414**
Muricho	66.7	20.1	9.2	2.2	1.8	732	400	1 135	156
Kiriogo	59.0	23.9	12.5	3.8	.8	740	500	857	74
Mbuyu	60.3	20.0	14.7	5.0	.0	713	450	773	136
Ndivai	65.4	19.6	9.6	5.4	.0	685	400	857	55
NYANDARUA	**63.1**	**20.6**	**11.6**	**3.8**	**.8**	**721**	**400**	**943**	**421**
Maragima	70.1	22.2	3.2	2.0	2.5	744	400	1 404	101
Kariara	72.5	15.7	9.3	.9	1.5	615	400	827	65
Mutundu	73.4	22.0	3.7	.9	.0	479	400	402	76
NYERI	**71.8**	**20.4**	**5.0**	**1.4**	**1.4**	**626**	**400**	**1 031**	**242**
Ngelelya	61.2	23.1	9.7	4.7	1.3	786	500	1 046	170
Ngoliba	47.9	26.3	16.6	8.2	1.0	1 011	600	1 248	304
Kalimoni	50.4	30.6	11.0	5.6	2.4	925	500	1 074	449
THIKA	**51.6**	**27.8**	**12.6**	**6.3**	**1.7**	**928**	**500**	**1 131**	**923**
Kagumoini	66.8	17.5	12.8	2.9	.0	652	500	729	140
Maragua Ridge	77.8	9.1	7.0	4.0	2.1	676	300	1 067	105
Mariaini	61.8	27.1	6.3	4.2	.6	731	500	974	74
MARAGUA	**69.3**	**17.0**	**9.4**	**3.6**	**.8**	**678**	**400**	**908**	**320**
Project Total 2010	**57.3**	**24.8**	**12.0**	**4.7**	**1.2**	**805**	**500**	**1 021**	**2 320**

The percentage distribution of household expenditure on domestic servants in the one month prior to the survey is presented in Table 3.28. The average amount spent is Kshs 3,559 while the median was Kshs 2,500. Four in ten households spent Kshs 2001 to 5,000 compared to one in ten that spent Kshs 500 or below. Mariaini recorded the highest mean pay (Kshs 8,658) while Kiumbu/Kianugu had least (Kshs 1,473).

Table 3.28: Percentage distribution of household expenditure (in kshs) on domestic servants last month

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	20.9	0.0	6.0	43.4	25.9	3.8	4 989	4 000	7 578	21
Kiumbu/Kianugu	0.0	66.4	0.0	33.6	0.0	0.0	1 473	800	1 162	8
Rukanga	5.9	10.5	38.4	36.1	0.0	8.9	3 693	2 000	5 651	27
KIRINYAGA	**10.7**	**14.8**	**20.7**	**38.5**	**9.7**	**5.7**	**3 852**	**2 400**	**6 113**	**57**
Muricho	19.2	20.2	12.3	30.8	0.0	17.5	5 047	2 107	7 604	17
Kiriogo	0.0	24.5	21.7	45.0	8.9	0.0	2 732	2 827	1 635	8
Mbuyu	19.1	14.2	23.3	43.4	0.0	0.0	2 128	2 000	1 441	11
Ndivai	24.6	8.3	28.1	21.4	9.3	8.3	4 743	1 837	8 666	10
NYANDARUA	**16.8**	**17.0**	**19.9**	**34.4**	**3.6**	**8.2**	**3 869**	**2 000**	**6 140**	**47**
Maragima	17.3	27.2	4.7	28.8	17.3	4.7	3 694	2 615	4 423	14
Kariara	8.1	23.1	0.0	60.9	0.0	7.9	4 656	2 744	9 926	5
Mutundu	16.6	0.0	37.8	45.6	0.0	0.0	1 982	2 000	1 010	12
NYERI	**15.5**	**16.4**	**16.3**	**40.4**	**7.9**	**3.5**	**3 214**	**2 500**	**4 874**	**32**
Ngelelya	2.7	13.1	19.9	45.7	18.6	0.0	3 185	3 000	1 860	13
Ngoliba	12.5	2.7	25.0	59.3	0.0	0.4	2 767	3 000	2 787	36
Kalimoni	2.5	6.9	36.6	39.0	11.2	3.8	3 671	2 500	4 791	67
THIKA	**5.6**	**6.3**	**31.2**	**46.1**	**8.6**	**2.3**	**3 337**	**3 000**	**4 012**	**117**
Kagumoini	4.2	12.1	17.2	63.0	3.4	0.0	2 570	2 500	1 337	20
Maragua Ridge	16.3	8.8	35.9	38.9	0.0	0.0	2 041	2 000	1 135	12
Mariaini	10.8	3.5	22.6	36.6	0.0	26.5	8 658	2 419	13 109	9
MARAGUA	**9.2**	**9.3**	**23.9**	**50.3**	**1.7**	**5.6**	**3 697**	**2 500**	**6 392**	**41**
Project Total 2010	**10.0**	**11.2**	**24.7**	**42.7**	**7.0**	**4.5**	**3 559**	**2 500**	**5 252**	**292**

3.3.2.8 Other Key Household items Expenditure

Table 3.29 shows the percentage distribution of household expenditure on other expenses. The mean spent was Kshs 2,870 while the median was Kshs 1,000. Majority of the households (31%) spent Kshs 500 or below on additional expenses. The highest average was recorded in Maragua Ridge (Kshs 10,000) while the least was in Mariaini (Kshs 200).

Table 3.29: Percentage distribution of household Expenditure (in Kshs) on Other Expenses

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	22.2	25.6	15.0	21.1	7.2	8.9	3 848	1 200	6 319	47
Kiumbu/Kianugu	11.2	33.1	11.2	44.4	-	-	1 763	2 000	995	25
Rukanga	35.3	32.2	11.7	16.7	-	4.0	2 377	1 000	5 825	36
KIRINYAGA	**24.0**	**29.5**	**13.0**	**25.0**	**3.2**	**5.2**	**2 879**	**1 000**	**5 416**	**108**
Muricho	-	37.9	-	-	31.1	31.1	6 435	9 631	7 143	2
Kiriogo	-	-	59.0	41.0	-	-	2 087	2 134	525	2
Mbuyu	53.2	23.5	8.1	7.0	-	8.1	2 087	543	4 231	10
Ndivai	-	50.0	-	-	-	50.0	8 850	11 525	14 062	2
NYANDARUA	**36.0**	**24.9**	**12.5**	**9.6**	**3.3**	**13.8**	**3 227**	**1 000**	**5 163**	**15**
Maragima	41.3	5.6	29.0	5.6	18.4	-	2 567	1 150	3 353	14
Kariara	52.9	8.2	11.7	27.2	-	-	1 254	565	1 328	5
Mutundu	100.0	-	-	-	-	-	381	391	70	8
NYERI	**60.6**	**4.5**	**17.2**	**8.2**	**9.5**	**-**	**1 676**	**500**	**2 612**	**26**
Ngelelya	-	-	47.6	52.4	-	-	1 993	2 110	432	2
Ngoliba	35.5	5.7	-	47.3	5.7	5.7	4 533	3 000	10 737	9
Kalimoni	-	-	-	80.9	19.1	-	5 410	4 877	1 743	3
THIKA	**23.0**	**3.7**	**7.3**	**54.8**	**7.5**	**3.7**	**4 319**	**3 000**	**8 541**	**13**
Kagumoini	-	-	16.5	83.5	-	-	2 702	2 728	641	2
Maragua Ridge	-	-	-	-	100.0	-	10 000	10 000	-	1
Mariaini	100.0	-	-	-	-	-	200	200	.	1
MARAGUA	**13.0**	**-**	**9.7**	**49.0**	**28.3**	**-**	**4 444**	**2 965**	**4 189**	**4**
Project Total 2010	**30.6**	**22.4**	**13.1**	**23.9**	**5.1**	**4.9**	**2 870**	**1 000**	**5 333**	**167**
Project Total 2006	**30.8**	**20.5**	**16.0**	**17.0**	**11.2**	**3.9**	**2 826**	**1 000**	**4 802**	**206**

Over time across the region there seems to be no change in expenditure on other expenses.

vExpenditures incurred on transfers, investments, loan repayments and savings by the FDA households were captured and presented in the subsequent tables below.

3.3.3.1 Expenditure on Loan Repayments financial institutions during last Year

The percentage distribution of expenditure on loan repayment to banks, SACCOs and other related financial institutions in the one year preceding the survey are presented in Table 3.30. The mean amount spent on loan repayment is Kshs 48,190 while the median is Kshs 20,000. Majority of the households (60%) were repaying over Kshs 10,000 with four fifths of Kalimoni households being in this category. On the lower scale, approximately one in ten households in Maragima were repaying not more than Kshs 500.

Table 3.30: Percentage distribution of household Expenditure (in Kshs) on Loan Repayments

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	6.3	.0	6.3	19.8	7.4	60.3	29 931	23 989	28 368	17
Kiumbu/Kianugu	.0	.0	.0	14.1	57.7	28.2	20 523	10 000	26 805	19
Rukanga	.0	8.5	15.8	18.0	16.4	41.4	19 283	8 000	24 217	43
KIRINYAGA	**1.4**	**4.6**	**9.9**	**17.4**	**24.4**	**42.3**	**21 892**	**10 000**	**25 804**	**80**
Muricho	.0	.0	14.8	7.2	6.5	71.5	34 364	17 315	58 259	20
Kiriogo	.0	.0	.0	19.1	12.0	68.9	56 510	31 308	79 391	10
Mbuyu	5.2	6.9	2.7	14.5	28.6	42.1	51 391	8 434	103 163	20
Ndivai	.0	8.0	5.9	22.9	14.9	48.3	17 272	13 241	19 813	10
NYANDARUA	**1.7**	**3.7**	**6.9**	**14.2**	**16.2**	**57.3**	**40 714**	**14 400**	**75 599**	**60**
Maragima	12.9	3.9	5.1	.0	4.1	74.0	29 889	20 000	31 086	19
Kariara	.0	.0	.0	10.4	25.9	63.6	39 667	21 339	48 404	13
Mutundu	.0	.0	.0	30.5	5.0	64.5	32 298	20 000	54 729	13
NYERI	**5.5**	**1.7**	**2.2**	**11.6**	**10.7**	**68.3**	**33 407**	**20 000**	**43 118**	**46**
Ngelelya	7.3	2.1	11.0	18.2	8.4	53.1	79 384	22 328	146 020	17
Ngoliba	2.3	.3	.0	6.3	22.1	69.0	45 604	19 681	66 852	46
Kalimoni	4.2	1.4	.7	8.3	4.3	81.1	06 664	43 748	157 128	75
THIKA	**4.0**	**1.1**	**1.7**	**8.8**	**10.7**	**73.7**	**83 080**	**30 000**	**134 564**	**137**
Kagumoini	.0	3.8	19.2	13.5	1.2	62.3	25 759	20 000	26 042	30
Maragua Ridge	.0	5.7	10.7	11.4	34.2	37.9	17 907	8 734	26 154	19
Mariaini	1.7	4.0	11.6	37.2	2.6	42.9	29 916	4 712	51 003	17
MARAGUA	**.5**	**4.4**	**14.8**	**19.1**	**11.1**	**50.3**	**24 584**	**11 046**	**34 052**	**66**
Project Total 2010	**2.7**	**2.9**	**6.5**	**13.5**	**14.4**	**60.1**	**48 190**	**20 000**	**92 051**	**389**
Project Total 2006	**5.3**	**3.2**	**7.4**	**17.9**	**18.3**	**43.4**	**25 390**	**10 000**	**55 053**	**162**

The number of households that received a loan and were making loan repayments more than doubled from 162 in 2006 to 389 in 2010. Similarly the mean loan repayment had doubled from Kshs 25,390 in 2006 to Kshs 48,190 in 2010. The median had also doubled from Kshs 10,000 to 20,000 in the same reference period. The share of households that received 10,000 and above was 60.1 percent up from 43.4 percent in 2006. Thika had the highest percentage of people (74%) who received loans of 10,000 and above and Kirinyaga had the lowest with 42 percent.

3.3.3.2 Savings made to banks, SACCOs and other financial institutions during last year

Table 3.31 shows the percentage distribution of household savings made to banks, SACCOs and other financial institutions. The average amount saved was Kshs 35,301 while the median was Kshs 10,957. Half of the households saved over Kshs 10,000 with over three quarters of the households in Maragima being in this category. Households in Muricho were saving the least at Kshs 9,330.

Table 3.31: Percentage distribution of household Savings (in Kshs) made to Bank SACCO etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	.0	.0	.0	28.6	9.9	61.5	56 367	44 468	63 013	21
Kiumbu/Kianugu	9.9	.0	.0	19.8	40.1	30.2	11 003	9 153	9 400	28
Rukanga	.0	7.5	5.0	13.4	18.3	55.8	39 747	12 000	80 351	46
KIRINYAGA	**2.9**	**3.6**	**2.4**	**18.6**	**22.8**	**49.6**	**35 072**	**10 292**	**65 318**	**95**
Muricho	1.8	4.0	12.4	25.8	16.0	39.9	9 330	6 860	7 623	27
Kiriogo	.0	6.3	7.9	22.3	26.0	37.4	25 884	10 000	52 565	16
Mbuyu	2.8	6.7	8.1	9.2	18.4	54.8	32 528	15 261	42 910	25
Ndivai	.0	.0	5.5	27.2	20.3	47.0	34 645	12 855	54 040	11
NYANDARUA	**1.5**	**4.8**	**9.1**	**20.0**	**19.5**	**45.1**	**23 607**	**10 000**	**40 210**	**79**
Maragima	.0	.0	.0	4.0	16.1	79.8	53 716	19 957	87 701	24
Kariara	6.1	2.6	2.6	11.5	29.8	47.4	27 597	10 000	63 845	23
Mutundu	.0	.0	.0	6.8	13.3	80.0	20 559	15 306	13 365	20
NYERI	**2.1**	**.9**	**.9**	**7.4**	**20.0**	**68.7**	**35 093**	**15 000**	**65 992**	**67**
Ngelelya	2.5	7.0	11.2	13.9	18.7	46.6	27 870	10 000	81 801	31
Ngoliba	4.2	9.2	.0	17.5	21.2	47.9	25 007	10 000	47 034	72
Kalimoni	.8	5.4	8.8	10.1	23.9	51.0	58 439	12 000	109 105	134
THIKA	**2.1**	**6.8**	**6.4**	**12.9**	**22.4**	**49.5**	**44 278**	**10 000**	**92 139**	**237**
Kagumoini	.0	3.0	2.0	27.9	28.9	38.2	17 399	10 000	21 348	38
Maragua Ridge	5.5	6.5	.0	12.2	44.8	31.0	17 030	10 000	21 262	16
Mariaini	.0	3.6	3.2	12.3	18.9	62.0	20 997	20 000	21 661	14
MARAGUA	**1.3**	**4.0**	**1.7**	**20.9**	**30.7**	**41.3**	**18 043**	**10 000**	**21 122**	**68**
Project Total 2010	**2.0**	**4.9**	**4.9**	**15.2**	**22.8**	**50.2**	**35 301**	**10 957**	**72 948**	**546**
Project Total 2006	**4**	**8**	**13.7**	**29**	**22**	**18.2**	**11 963**	**4 786**	**27 170**	**223**

With reference to 2006, the average amount saved tripled from Kshs 11,963 to Kshs 35,301 in 2010. Overall, there was a reduction in the households saving below Kshs 5000, while those saving above Kshs 10,000 almost tripled, from 18 percent to 50 percent.

3.3.3.3 Savings/deposits made to merry go-rounds last year

Table 3.32 shows savings/deposits made to merry-go rounds in the one year preceding the survey. The average amount contributed to merry-go-rounds was Kshs 8,550 while the median was Kshs 4,000. Most of the households (29%) contributed between Kshs 2001 and 5,000 with two in five households in Maragua Ridge being in this category. On the higher end of the scale, a third of all households in Maragima contributed over Kshs 10,000.

Table 3.32: Percentage distribution of household Savings (in Kshs) made to Merry-go-Rounds etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	4.1	7.6	20.9	15.8	26.1	25.5	12 867	5 949	21 759	77
Kiumbu/Kianugu	3.3	.0	12.9	26.0	32.2	25.6	9 364	7 200	8 216	85
Rukanga	4.1	4.4	12.6	35.3	18.1	25.6	7 644	4 800	10 754	165
KIRINYAGA	**3.9**	**4.0**	**14.6**	**28.3**	**23.7**	**25.5**	**9 318**	**5 000**	**13 781**	**327**
Muricho	5.4	10.2	25.7	24.0	21.5	13.2	5 618	2 843	9 402	128
Kiriogo	3.9	11.2	17.3	29.2	20.2	18.2	6 154	3 571	7 356	50
Mbuyu	14.7	24.1	7.9	26.7	12.4	14.2	4 846	2 400	7 160	107
Ndivai	3.6	7.6	16.9	26.5	20.7	24.8	15 242	4 828	51 149	38
NYANDARUA	**8.0**	**14.7**	**17.5**	**26.0**	**18.1**	**15.7**	**6 569**	**3 000**	**19 203**	**322**
Maragima	1.1	5.7	13.2	25.4	20.0	34.6	14 039	9 600	20 403	70
Kariara	.9	11.1	23.1	28.9	17.2	18.9	5 568	3 447	6 195	46
Mutundu	.9	16.0	22.8	32.9	16.7	10.6	4 780	2 400	6 046	63
NYERI	**1.0**	**10.8**	**19.1**	**28.9**	**18.1**	**22.1**	**8 598**	**3 600**	**14 237**	**178**
Ngelelya	10.9	8.0	24.0	24.1	20.9	12.0	10 335	3 000	33 233	123
Ngoliba	4.7	.7	18.0	28.2	25.0	23.4	9 928	5 000	17 067	149
Kalimoni	12.1	5.1	11.6	30.8	14.2	26.3	8 914	4 467	13 793	200
THIKA	**9.5**	**4.4**	**16.9**	**28.2**	**19.4**	**21.7**	**9 605**	**4 736**	**21 405**	**472**
Kagumoini	3.0	4.4	18.9	32.4	22.8	18.6	9 645	3 873	28 545	104
Maragua Ridge	2.5	3.5	14.6	42.8	14.8	21.7	7 200	3 600	9 391	87
Mariaini	3.5	5.4	29.3	19.7	18.7	23.3	6 841	3 680	7 711	68
MARAGUA	**3.0**	**4.4**	**20.2**	**32.5**	**19.1**	**20.9**	**8 089**	**3 600**	**19 293**	**258**
Project Total 2010	**5.9**	**7.2**	**17.3**	**28.6**	**19.8**	**21.2**	**8 550**	**4 000**	**18 449**	**1558**
Project Total 2006	**9.6**	**11.9**	**21.4**	**34.5**	**14.1**	**8.2**	**4 034**	**2 400**	**5 469**	**1 016**

Compared to 2006, there was a reduction in contributions in all categories not exceeding Kshs 5,000 while those involving sums higher than Kshs 5,000 increased. Contributions exceeding Kshs 10,000 rose by 13 percent. The number of contributors in merry-go-rounds also increased from 1,016 in 2006 to 1,558 in 2010.

3.3.3.4 Transfer payments to relatives and friends during last year

It is fairly common for households to transfer money to relatives within or outside the country to assist in payment of school fees, medical emergencies, or for general support. This is commonly done through Postal Orders, Couriers, Western Union, cash or through other methods. Table 3.33 shows the percentage distribution of household transfers made to relatives. The average amount given was Kshs 5,681 while the median was Kshs 2,000. A quarter of the households transferred between Kshs 2,001 and 5,000 with majority of these households being in Maragua Ridge. On the higher side, a quarter of households in Kiumbu/Kianugu transferred over Kshs 10,000.

Table 3.33: Percentage distribution of household transfers (in kshs) made to relatives etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	21.1	31.6	13.8	15.6	11.3	6.5	3 128	1 000	4 002	81
Kiumbu/Kianugu	.0	19.8	20.1	35.1	.0	25.0	5 834	3 365	6 195	55
Rukanga	23.8	22.5	16.1	22.9	6.2	8.3	3 361	1 876	4 826	110
KIRINYAGA	**17.6**	**24.9**	**16.3**	**23.3**	**6.5**	**11.5**	**3 839**	**2 000**	**5 023**	**247**
Muricho	10.9	8.0	30.0	21.4	13.3	16.5	5 494	3 000	6 657	46
Kiriogo	13.2	2.2	24.5	32.8	9.6	17.8	7 513	3 333	11 143	25
Mbuyu	11.2	15.4	19.7	29.1	12.7	11.9	5 795	3 000	9 585	46
Ndivai	.0	15.8	30.8	19.3	17.7	16.3	9 001	3 311	15 625	21
NYANDARUA	**9.7**	**10.6**	**25.7**	**25.7**	**13.1**	**15.2**	**6 503**	**3 000**	**10 213**	**138**
Maragima	17.8	21.7	22.5	33.0	5.0	.0	2 354	1 774	1 932	34
Kariara	13.4	21.2	30.6	25.4	9.3	.0	2 615	2 000	2 504	26
Mutundu	21.9	12.7	28.1	27.6	5.1	4.6	2 980	2 000	3 194	27
total	**17.8**	**18.7**	**26.7**	**29.1**	**6.3**	**1.4**	**2 626**	**2 000**	**2 529**	**86**
Ngelelya	9.1	24.8	15.1	18.2	19.9	12.9	5 697	3 112	7 258	30
Ngoliba	8.7	11.3	25.2	19.0	14.1	21.8	7 643	3 812	10 161	128
Kalimoni	4.4	22.3	16.2	24.5	10.9	21.6	9 215	3 000	13 581	131
THIKA	**6.8**	**17.7**	**20.0**	**21.4**	**13.3**	**20.8**	**8 148**	**3 560**	**11 625**	**289**
Kagumoini	10.8	8.3	30.7	40.7	4.3	5.2	3 362	2 390	3 836	28
Maragua Ridge	10.1	5.0	29.5	45.3	5.0	5.1	5 343	3 000	10 719	22
Mariaini	20.8	18.7	24.2	22.9	5.1	8.4	3 572	2 000	5 154	17
MARAGUA	**13.2**	**9.9**	**28.7**	**37.5**	**4.7**	**6.0**	**4 051**	**2 000**	**7 004**	**67**
Project Total 2010	**12.2**	**18.1**	**21.3**	**24.8**	**9.8**	**13.9**	**5 681**	**2 000**	**8 999**	**828**
Project Total 2006	**22.1**	**20**	**19.2**	**20.2**	**8**	**9.3**	**3 876**	**2 000**	**5 947**	**448**

Between 2006 and 2010, the number of households making the transactions and the average amount transferred, almost doubled, from 448 to 828 and Kshs 3,876 to 5,681 respectively. Transfers not exceeding Kshs 1,000 declined while amounts exceeding this figure increased.

3.3.3.5 Money lent to relatives and friends last year

Apart from transfer payments to relatives or friends, some individuals lend money to the same group. The percentage distribution of household transfers lent to friends is shown in Table 3.34. The average amount lent was Kshs 6,237 while the median was Kshs 2,000. A quarter of the households lent out Kshs 500 or less with the bulk of such households being in Mariaini (47%). On the higher scale, a fifth of the households in Rukanga and Maragua Ridge transferred more than Kshs 10,000.

Table 3.34: Percentage distribution of Household Transfers (in Kshs) Lent to friends etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	28.2	9.3	8.4	25.0	16.3	12.9	5 384	2 668	7 561	22
Kiumbu/Kianugu	25.2	.0	37.1	25.2	12.6	.0	2 280	2 000	1 744	22
Rukanga	10.4	28.4	3.7	28.2	7.2	22.0	11 345	2 986	33 551	37
KIRINYAGA	**19.3**	**15.5**	**14.1**	**26.5**	**11.2**	**13.5**	**7 250**	**2 500**	**23 139**	**82**
Muricho	10.3	15.0	14.4	9.3	45.8	5.2	4 527	5 140	3 674	23
Kiriogo	13.5	44.9	7.7	10.5	12.8	10.5	3 382	1 000	4 595	10
Mbuyu	26.7	1.3	17.5	37.4	2.9	14.1	4 818	2 050	7 218	24
Ndivai	14.8	28.5	16.5	24.6	8.3	7.4	3 097	2 000	3 926	11
NYANDARUA	**17.4**	**16.6**	**14.9**	**22.0**	**19.5**	**9.5**	**4 235**	**2 050**	**5 306**	**68**
Maragima	25.0	21.2	8.3	45.5	.0	.0	2 109	2 000	1 713	20
Kariara	40.8	5.3	.0	33.4	12.9	7.6	3 783	2 623	4 737	8
Mutundu	25.9	40.8	24.8	8.5	.0	.0	1 275	1 000	1 073	15
NYERI	**28.2**	**25.2**	**12.6**	**30.2**	**2.4**	**1.4**	**2 124**	**1 000**	**2 487**	**43**
Ngelelya	26.9	30.0	19.7	12.9	3.5	7.0	5 480	1 000	16 773	20
Ngoliba	32.3	12.4	25.6	11.6	8.5	9.6	4 140	1 500	7 202	50
Kalimoni	26.3	29.7	12.8	15.0	8.1	8.1	6 468	1 000	18 317	71
THIKA	**28.5**	**23.5**	**18.3**	**13.5**	**7.6**	**8.5**	**5 498**	**1 000**	**14 984**	**141**
Kagumoini	26.5	24.8	15.6	30.7	2.3	.0	2 084	1 057	2 134	16
Maragua Ridge	22.0	.0	14.7	16.0	24.2	23.1	14 816	5 644	26 262	13
Mariaini	47.3	31.5	.0	8.1	.0	13.1	66 336	826	189 540	5
MARAGUA	**27.6**	**16.1**	**13.1**	**21.8**	**10.5**	**10.8**	**16 008**	**1 588**	**69 272**	**34**
Project Total 2010	**24.3**	**20.0**	**15.6**	**20.7**	**10.2**	**9.2**	**6 237**	**2 000**	**25 620**	**369**
Project Total 2006	**35.1**	**16.9**	**10.6**	**19.8**	**8.2**	**8.5**	**5 191**	**1 000**	**23 764**	**224**

The average amount lent to friends increased from Kshs 5,191 in 2006 to Kshs 6,237 in 2010. The number of households lending out money also rose from 224 to 369 in the same period. There was an 11percent decline in loans not exceeding Kshs 500 while those between Kshs 1001 and 2000 rose by 5 percent.

3.3.3.6 Investments in Business during last year

Households may be engaged in formal or informal business activities. The variable sought to capture the purchase of inputs (except for land or real estate) for those business activities. Table 3.35 shows the percentage distribution of household investment in business. The average amount invested in business was Kshs 39,030 and the median was Kshs 10,000. Majority of the households (47%) invested more than Kshs 10,000 followed by those that invested Kshs 5001 to 10,000 (21%). Over half of the households in Kirinyaga invested more than Kshs 10,000 compared to a third in Maragua.

Table 3.35: Percentage distribution of Household Investments (in Kshs) in Business etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	1.3	1.8	11.9	11.4	19.8	53.8	27 427	12 000	43 710	60
Kiumbu/Kianugu	.0	.0	10.1	10.1	20.0	59.7	44 912	14 385	102 974	28
Rukanga	9.9	.0	10.7	14.5	20.6	44.3	19 813	10 000	22 536	51
KIRINYAGA	**4.2**	**.8**	**11.1**	**12.3**	**20.1**	**51.5**	**28 107**	**12 000**	**56 033**	**138**
Muricho	.0	.0	4.1	41.8	14.5	39.6	110 861	8 500	207 088	14
Kiriogo	.0	.0	7.3	45.4	.0	47.3	30 271	11 264	54 234	7
Mbuyu	13.4	8.5	2.0	14.0	31.8	30.3	21 612	8 000	31 123	16
Ndivai	.0	.0	21.7	.0	17.9	60.4	39 290	22 733	45 364	4
NYANDARUA	**5.2**	**3.3**	**5.6**	**27.5**	**19.0**	**39.4**	**55 150**	**8 000**	**128 447**	**42**
Maragima	.0	.0	.0	.0	44.9	55.1	26 520	27 901	22 392	2
Kariara	.0	.0	.0	34.1	10.5	55.3	45 527	30 314	82 078	4
Mutundu	.0	.0	.0	42.3	29.6	28.1	51 455	7 706	142 028	7
NYERI	**.0**	**.0**	**.0**	**33.5**	**25.6**	**40.8**	**45 942**	**9 836**	**108 680**	**12**
Ngelelya	.0	16.3	10.3	16.3	16.6	40.6	39 226	7 907	91 150	9
Ngoliba	.0	3.6	4.9	17.7	14.7	59.0	36 313	30 000	40 554	27
Kalimoni	1.4	.0	3.3	22.4	35.6	37.3	68 146	7 398	158 867	33
THIKA	**.6**	**3.6**	**4.9**	**19.7**	**24.8**	**46.3**	**51 723**	**7 733**	**116 656**	**69**
Kagumoini	.0	.0	15.1	31.7	37.3	15.9	11 795	5 999	17 765	9
Maragua Ridge	.0	20.6	19.7	.0	.0	59.7	29 481	28 768	28 347	10
Mariaini	.0	9.0	.0	25.9	29.4	35.7	67 058	9 428	119 522	7
MARAGUA	**.0**	**10.7**	**12.9**	**17.5**	**20.2**	**38.8**	**33 750**	**10 000**	**65 650**	**26**
Project Total 2010	**3.0**	**2.7**	**8.5**	**17.7**	**21.3**	**46.8**	**39 030**	**10 000**	**89 957**	**288**
Project Total 2006	**11.9**	**11.6**	**13.5**	**26.8**	**11**	**22.7**	**11 311**	**3 500**	**22 518**	**140**

The number of investors doubled from 140 in 2006 to 288 in 2010. Similarly, the amount invested rose almost fourfold between 2006 to 2010 from Kshs 11,311 to Kshs 39,030. The highest change was in the Kshs 10,000 and above category which rose by 24 percent.

3.3.3.7 Expenditure on purchase of land or property during last year

The desire to own property is widespread. The purpose for the purchase may be residential or commercial. Included here are purchases of land and/or buildings (dwellings, shops, godowns, factories, farm buildings). Table 3.36 presents the percentage distribution of household purchases of land. The average amount spent on such purchases was Kshs 82,771 while the median was Kshs 40,000. Majority of the households (72%) spent over Kshs 10,000 on land purchases with this being universal in Kiriogo. On the lower end, a quarter of the households in Ngoliba spent between Kshs 1001 and 2,000 on similar purchases.

Table 3.36: Percentage distribution of household purchases (in kshs) of land etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	.0	.0	15.0	8.8	23.2	53.0	24 295	11 679	22 826	15
Kiumbu/Kianugu	.0	.0	.0	28.9	14.1	57.0	33 518	40 000	28 225	19
Rukanga	8.0	.0	.0	13.0	3.7	75.4	84 788	30 394	126 024	29
KIRINYAGA	**3.7**	**.0**	**3.5**	**16.9**	**11.4**	**64.5**	**54 953**	**30 000**	**91 071**	**63**
Muricho	.0	.0	.0	27.2	21.8	51.0	52 241	15 669	60 713	21
Kiriogo	.0	.0	.0	.0	.0	100.0	103 287	95 000	105 159	5
Mbuyu	.0	.0	1.7	13.7	4.3	80.3	92 966	46 034	129 949	19
Ndivai	.0	.0	.0	.0	41.1	58.9	97 742	27 474	166 333	4
NYANDARUA	**.0**	**.0**	**.7**	**16.6**	**14.4**	**68.4**	**77 597**	**30 122**	**105 915**	**50**
Maragima	.0	15.0	.0	.0	.0	85.0	67 608	84 168	41 712	5
Kariara	.0	.0	.0	35.5	.0	64.5	83 082	54 360	143 236	3
NYERI	**.0**	**9.7**	**.0**	**12.6**	**.0**	**77.7**	**73 084**	**68 254**	**80 119**	**8**
Ngelelya	.0	.0	.0	3.9	.0	96.1	136 630	43 719	168 928	9
Ngoliba	.0	.0	25.3	5.5	12.3	56.9	132 251	40 000	181 973	19
Kalimoni	.0	.0	.0	6.4	.0	93.6	109 650	55 272	131 899	32
THIKA	**.0**	**.0**	**8.2**	**5.7**	**4.0**	**82.2**	**120 891**	**50 000**	**152 675**	**60**
Kagumoini	.0	.0	.0	4.1	23.8	72.1	57 407	48 839	47 787	7
Maragua Ridge	11.6	.0	.0	11.5	.0	76.8	47 320	30 000	66 398	9
Mariaini	.0	.0	.0	43.6	.0	56.4	151 480	118 426	222 711	4
MARAGUA	**5.2**	**.0**	**.0**	**15.8**	**8.0**	**70.9**	**72 695**	**38 485**	**113 213**	**21**
Project Total 2010	**1.7**	**.4**	**3.7**	**13.2**	**9.1**	**71.9**	**82 771**	**40 000**	**119 805**	**201**
Project Total 2006	**14**	**13.6**	**19**	**11.1**	**8.1**	**34.1**	**23 574**	**2 359**	**66 004**	**96**

The average amount spent on land purchases quadrupled from Kshs 23,574 in 2006 to Kshs 82,771 in 2010. Equally important, the number of buyers doubled from 96 in 2006 to 201 in 2010. Much of this increase is observed in the percentage of households that spent above Kshs 10,000 (from 34% to 72%).

3.3.3.8 Contributions towards Harambees and other Fundraisings during last year

The survey sought to find out the level of participation of the FDA population in fundraising to support various projects/activities. The results are presented in Table 3.37. The mean contribution per household towards fundraising was Kshs. 2,726 while the median was Kshs 1,000. Majority of the households (34%) contributed Kshs 500 or below with half of those in Ngelelya being in that category.

Table 3.37: Percentage distribution of household contributions (in kshs) to harambees etc

District/FDAs	0 to 500	501 to 1000	1001 to 2000	2001 to 5000	5001 to 10000	10000+	Average	Median	Std Deviation	Households
Ndindiriku	32.1	19.8	14.3	22.7	6.9	4.1	2 868	1 000	4 941	114
Kiumbu/Kianugu	30.5	21.8	17.3	30.4	.0	.0	1 585	1 000	1 324	63
Rukanga	30.3	24.2	26.2	13.1	3.0	3.3	3 710	1 000	17 321	157
KIRINYAGA	**30.9**	**22.2**	**20.5**	**19.7**	**3.8**	**2.9**	**3 020**	**1 000**	**12 223**	**335**
Muricho	23.2	23.6	14.0	20.6	17.0	1.7	2 983	1 200	4 880	127
Kiriogo	32.1	16.3	13.4	30.9	3.6	3.7	4 177	1 200	14 367	53
Mbuyu	31.3	19.8	13.0	27.4	4.3	4.2	2 586	1 000	4 167	98
Ndivai	43.3	13.7	19.1	10.6	7.7	5.7	4 429	1 000	12 671	41
NYANDARUA	**29.7**	**20.0**	**14.2**	**23.1**	**9.7**	**3.3**	**3 246**	**1 200**	**8 319**	**320**
Maragima	36.1	33.7	13.2	13.0	4.0	.0	1 455	862	1 973	50
Kariara	33.8	28.3	25.5	10.9	1.5	.0	1 332	1 000	1 444	40
Mutundu	60.3	28.5	9.3	2.0	.0	.0	676	500	577	48
NYERI	**43.8**	**30.3**	**15.4**	**8.5**	**1.9**	**.0**	**1 148**	**600**	**1 489**	**138**
Ngelelya	51.3	28.7	5.0	13.6	1.4	.0	1 169	500	1 600	77
Ngoliba	37.6	14.6	14.7	26.8	5.9	.4	2 317	1 000	3 843	146
Kalimoni	**27.9**	**25.2**	**22.6**	**11.2**	**8.6**	**4.6**	**4 282**	**1 000**	**14 109**	**225**
THIKA	**35.1**	**22.3**	**17.0**	**16.7**	**6.5**	**2.4**	**3 104**	**1 000**	**10 312**	**448**
Kagumoini	34.4	31.4	12.2	17.7	3.2	1.2	1 940	1 000	3 714	127
Maragua Ridge	39.2	24.0	19.0	12.5	5.2	.0	1 670	1 000	2 198	83
Mariaini	34.0	24.6	24.6	13.9	2.0	.9	2 031	1 000	6 425	41
MARAGUA	**35.9**	**27.8**	**16.5**	**15.4**	**3.7**	**.7**	**1 865**	**1 000**	**3 893**	**251**
Project Total 2010	**33.9**	**23.5**	**16.9**	**17.8**	**5.7**	**2.2**	**2 726**	**1 000**	**9 130**	**1491**
Project Total 2006	**64.3**	**18.6**	**9.8**	**5.4**	**1.5**	**0.4**	**1 028**	**500**	**3 628**	**1 126**

The average amount spent on fundraising rose from Kshs 1,126 in 2006 to Kshs 1,491 in 2010. Notably, there was a 30 percent decline in households contributing not more than Kshs 500 between the two periods; from 64 percent to 34 percent.



4

Chapter Four:

WATER, SANITATION AND HYGIENE

4.0 Introduction

Chapter 4 presents statistics on domestic water, sanitation and hygiene. During the 2010 survey, data was collected on sources of drinking water, distances to water facilities, water treatment, uses and adequacy of water, water borne diseases, human waste disposal and community organization, in relation to management of water facilities.

4.1 Main Sources of Drinking Water during Rainy and Dry Seasons

The survey collected data on sources of drinking water during both rainy and dry seasons (Tables 4.1 and 4.2). The tabulated responses indicate that rain water (48%) and stream/river (15%) are the main sources of domestic water during the rainy season. These are closely followed by water pipes in plot/yard (10%) and water piped into dwellings, accounting for 7 percent. These averages conceal major spatial variations for example, in Kirinyanga use of rain water accounts for 59 percent while in Nyandarua it accounts for 36 percent.

During the dry season streams/rivers remain the main sources of drinking water accounting for 44 percent of the households, and this is followed by pipe in plot (14.%) and piped into dwelling 10 percent.

Over time during the rainy season, the percentage of piped water into dwellings had increased from 3 percent in 2006 to 7 percent in 2010. Similarly, there is increased usage of rain water from 33 percent in 2006 to 48 percent in 2010, implying that more households had invested in rain harvesting. There is a decrease in the percentage of stream/river water usage from 22 percent in 2006 to 15 percent in 2010. The percentage of piped water into yard/plot had also increased from 0.6 percent in 2006 to 10 percent in 2010, as observed in the Table. From the tabulated findings, use of unsafe water sources has generally decreased.

Although the propoprtion of households dependent on unsafe water sources during the dry season has decreased over time, overall approximately half of the households are dependent on unsafe water sources notably river/dam/stream. Use of safe water sources notably piped into dwelling, pipe in yard/plot, public tap and borehole has increased from 7.8 percent in 2006 to 37.7 percent in 2010, indicating a significant improvement in the provision of safe water.

Table 4.1: Percentage distribution of sources of drinking water during rainy season

Districts/FDAs	Piped water into dwelling	Piped into yard / plot	Public tap	Bore hole	Protected well (Concrete top)	Unprotected well (No concrete top)	Protected spring	Unprotected spring	Dam	Pan	Rain water	Stream / River	Burrow pit (dug into river/ stream bed)	Tanker –truck/ Vendor	Reservoir/ Tank water	Other	Sample
Ndindiriku	2.3	.8	.0	.0	.0	.0	.0	.0	.0	.0	81.9	6.3	.0	.0	6.6	2.1	165
Kiumbu/Kianugu	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	71.9	24.1	.0	.0	4.0	.0	138
Rukanga	15.5	30.2	2.5	.0	.0	.0	.0	.0	.0	.0	35.8	7.3	.0	.0	8.6	.0	252
KIRINYAGA	**7.7**	**13.9**	**1.2**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**58.5**	**11.2**	**.0**	**.0**	**6.9**	**.6**	**555**
Muricho	11.6	17.7	3.5	.0	.0	.0	.7	.0	2.5	.0	22.8	29.4	.0	1.4	8.7	1.7	209
Kiriogo	13.0	22.5	.9	.0	.0	1.2	.0	.0	.8	.0	29.4	14.8	.0	1.2	15.6	.6	88
Mbuyu	1.5	.0	.3	.0	.6	1.4	.0	.0	7.9	.9	51.9	7.6	1.7	2.9	23.0	.3	179
Ndivai	1.2	.0	.0	1.1	4.4	5.5	.0	.0	6.2	.0	43.5	5.4	.0	.0	32.7	.0	75
NYANDARUA	**7.1**	**10.3**	**1.5**	**.1**	**.8**	**1.4**	**.3**	**.0**	**4.5**	**.3**	**36.2**	**16.7**	**.5**	**1.7**	**17.7**	**.8**	**551**
Maragima	16.8	46.8	3.2	.0	.0	.0	.0	.0	.0	.0	13.4	4.6	.5	.0	13.9	.7	144
Kariara	4.0	4.0	.4	.0	.0	2.4	.8	.6	.0	.0	17.8	44.8	.0	.0	23.9	1.0	95
Mutundu	.0	.4	.0	.0	.0	1.6	.0	3.0	.0	.0	11.7	67.2	.0	.0	16.2	.0	130
NYERI	**7.6**	**19.4**	**1.4**	**.0**	**.0**	**1.2**	**.2**	**1.2**	**.0**	**.0**	**13.9**	**37.0**	**.2**	**.0**	**17.3**	**.5**	**369**
Ngelelya	1.4	2.1	3.8	3.7	.0	1.2	.0	.0	.9	.1	73.3	8.5	1.2	.0	1.5	2.4	252
Ngoliba	3.2	7.9	12.8	3.0	4.0	7.2	.3	4.4	.0	.8	41.8	9.2	2.5	.2	2.5	.0	387
Kalimoni	15.0	9.2	3.0	6.6	.2	.0	.0	.1	.0	.0	55.3	5.6	.5	.0	4.2	.1	564
Thika Total	**8.4**	**7.3**	**6.3**	**4.9**	**1.4**	**2.6**	**.1**	**1.4**	**.2**	**.3**	**54.8**	**7.4**	**1.3**	**.1**	**3.1**	**.5**	**1 204**
Kagumoini	3.3	.0	.0	1.2	.9	1.0	2.7	2.2	.0	.0	56.5	22.5	.0	.0	9.8	.0	193
Maragua Ridge	9.0	7.0	3.7	.7	.0	.7	.0	.0	.0	.0	49.9	18.5	.0	.0	9.7	.7	148
Mariaini	.4	.0	.0	.0	2.6	.0	3.3	1.2	.5	.0	61.1	24.7	.0	1.1	4.6	.5	109
MARAGUA	**4.5**	**2.3**	**1.2**	**.7**	**1.0**	**.7**	**1.9**	**1.2**	**.1**	**.0**	**55.4**	**21.7**	**.0**	**.3**	**8.5**	**.4**	**450**
Project Total 2010	**7.4**	**9.7**	**3.2**	**2.0**	**.8**	**1.5**	**.4**	**.9**	**.9**	**.2**	**47.5**	**15.3**	**.6**	**.4**	**8.8**	**.6**	**3 129**
Project Total 2006	**2.5**	**0.6**	**0.7**	**1.1**	**1.3**	**6.2**	**1.6**	**8.2**	**10**	**0.1**	**33.1**	**22.4**	**0.5**	**0.6**	**9.4**	**1.4**	**2,175**

Table 4.2: Percentage distribution of sources of drinking water during dry season

District/FDAs	Piped water into dwelling	Piped into yard/plot	Public tap	Borehole	Protected well (Concrete top)	Unprotected well (No concrete top)	Protected spring	Unprotected spring	Lake	Pond	Dam	Pan	Rainwater	Stream /River	Burrow pit (dug into river/ stream ded)	Tanker –truck/ Vendor	Reservoir / Tank water	Other	Sample
Ndindiriku	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	94.9	.0	3.5	.0	.0	165
Kiumbu/Kianugu	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0	.0	.0	.0	.0	138
Rukanga	36.5	47.2	4.2	.0	.0	4.3	.0	.0	.0	.0	.0	.0	1.3	4.2	.0	.6	1.8	.0	252
Kirinyaga Total	**16.5**	**21.6**	**1.9**	**.0**	**.0**	**1.9**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.8**	**55.0**	**.0**	**1.3**	**.8**	**.0**	**555**
Muricho	11.7	15.7	4.6	.0	.0	.0	.0	.0	.0	.0	3.3	.0	3.1	52.0	.0	3.3	4.5	1.7	209
Kiriogo	14.0	24.1	2.9	.0	1.5	2.0	.0	.7	.6	.0	4.8	.0	1.4	41.9	1.2	.8	3.5	.6	88
Mbuyu	.0	.0	.0	1.5	1.4	6.5	.4	.6	.0	.6	46.5	.0	5.4	32.9	1.2	1.8	1.0	.0	179
Ndivai	.0	.0	2.2	6.3	12.6	5.8	1.8	3.2	.0	2.2	40.2	.0	2.2	11.9	3.6	1.1	6.9	.0	75
Nyandarua Total	**6.7**	**9.8**	**2.5**	**1.4**	**2.4**	**3.2**	**.4**	**.7**	**.1**	**.5**	**22.6**	**.0**	**3.4**	**38.7**	**1.1**	**2.1**	**3.5**	**.8**	**551**
Maragima	16.8	54.4	6.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	8.4	.5	.0	4.0	8.7	144
Kariara	4.0	5.3	.8	.0	.0	2.4	1.5	1.9	.0	.0	.0	.0	2.8	76.8	.0	.0	3.4	1.0	95
Mutundu	.0	.4	.0	.0	.0	1.6	.0	3.4	.0	.4	.0	.0	2.4	89.8	.0	.0	2.1	.0	130
Nyeri Total	**7.6**	**22.7**	**2.8**	**.0**	**.0**	**1.2**	**.4**	**1.7**	**.0**	**.1**	**.0**	**.0**	**1.8**	**54.7**	**.2**	**.0**	**3.2**	**3.7**	**369**
Ngelelya	3.0	7.2	9.4	25.6	.3	4.6	.0	.6	.0	.5	1.6	.1	2.4	37.1	2.1	.4	1.5	3.6	252
Ngoliba	5.2	9.4	16.2	14.4	5.3	9.6	.0	4.4	.8	.3	.0	.3	.8	29.4	2.5	.5	1.0	.0	387
Kalimoni	22.0	19.3	13.8	11.1	1.1	.4	.0	.4	.0	.0	.6	.0	1.5	25.7	.4	1.4	2.3	.1	564
Thika Total	**12.6**	**13.6**	**13.6**	**15.2**	**2.3**	**4.2**	**.0**	**1.7**	**.3**	**.2**	**.6**	**.1**	**1.5**	**29.3**	**1.4**	**.9**	**1.7**	**.8**	**1 204**
Kagumoini	.4	.4	1.7	4.4	4.5	3.2	2.4	2.2	.0	.0	.0	.0	5.0	73.7	.0	.0	2.1	.0	193
Maragua Ridge	10.5	9.9	4.4	1.5	1.4	.0	.0	.0	.0	.0	.0	.0	5.8	59.5	.0	2.9	3.4	.7	148
Mariaini	.0	.0	.0	4.6	1.4	3.4	3.3	15.9	.0	.0	.5	.0	.0	68.5	.0	1.9	.0	.5	109
Maragua Total	**3.6**	**3.4**	**2.2**	**3.5**	**2.7**	**2.2**	**1.8**	**4.8**	**.0**	**.0**	**.1**	**.0**	**4.1**	**67.7**	**.0**	**1.4**	**2.0**	**.4**	**450**
Project Total 2010	**10.4**	**14.0**	**6.7**	**6.6**	**1.7**	**3.0**	**.4**	**1.7**	**.1**	**.2**	**4.2**	**.1**	**2.1**	**44.0**	**.8**	**1.2**	**2.1**	**.9**	**3 129**
Project Total 2006	**1.5**	**0.8**	**2.7**	**2.8**	**1.9**	**7.4**	**2.5**	**-**	**8.8**	**0.3**	**-**	**13.5**	**1.7**	**47.6**	**4.6**	**1.1**	**1.6**	**1.1**	**2,175**

4.2 Funding of water facilities in dry and wet season

According to Table 4.3, households were the main funders of water facilities during the rainy season in 2010 (23%) followed by CKDAP (9%). Other financiers are NGOs (2%), landlords (4%) and the community (3%). The data also shows spatial variations; approximately five in ten households in Mbuyu and Ndivai met their water facility funding compared to one in ten in Kiumbu/Kianugu.

Table 4.3: Percentage distribution of share of funding water facility during rainy season

District/FDAs	Household	Landlord	Govern-ment	CKDAP	NGO	Group	Faith based organisation	Community	N/A	Others	Sample
Ndindiriku	19.2	3.5	0.0	0.8	2.6	3.5	0.0	0.0	68.3	2.1	165
Kiumbu/Kianugu	12.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	86.0	0.0	138
Rukanga	30.0	3.8	0.0	37.6	0.0	0.0	0.0	0.0	23.1	5.6	252
KIRINYAGA	**22.3**	**2.7**	**0.0**	**17.3**	**1.3**	**1.0**	**0.0**	**0.0**	**52.2**	**3.1**	**555**
Muricho	27.7	0.5	1.3	8.9	0.0	1.9	0.0	11.4	42.2	6.0	209
Kiriogo	36.6	0.0	0.7	14.6	11.0	3.1	0.0	4.3	27.0	2.6	88
Mbuyu	53.1	1.2	0.9	0.0	0.0	0.0	0.0	0.5	36.0	8.4	179
Ndivai	57.8	1.0	0.0	2.0	0.0	1.8	3.5	0.0	27.6	6.2	75
NYANDARUA	**41.5**	**0.7**	**0.9**	**6.0**	**1.8**	**1.5**	**0.5**	**5.2**	**35.8**	**6.3**	**551**
Maragima	14.6	5.0	1.1	19.7	20.7	11.7	0.0	5.8	19.1	2.4	144
Kariara	22.5	0.0	0.0	12.5	0.0	0.4	0.0	0.0	64.5	0.0	95
Mutundu	15.3	0.0	0.5	0.0	0.0	0.0	0.0	1.6	82.6	0.0	130
NYERI	**16.9**	**2.0**	**0.6**	**10.9**	**8.1**	**4.7**	**0.0**	**2.8**	**53.2**	**0.9**	**369**
Ngelelya	4.9	0.3	4.8	5.2	0.0	0.0	0.0	2.9	80.9	1.1	252
Ngoliba	12.6	2.0	1.1	3.8	0.3	1.6	0.0	9.1	53.4	16.1	387
Kalimoni	14.2	13.3	1.4	7.0	1.8	0.4	1.6	1.6	58.3	0.3	564
THIKA	**11.7**	**7.0**	**2.0**	**5.6**	**1.0**	**0.7**	**0.8**	**4.3**	**61.5**	**5.6**	**1 204**
Kagumoini	39.8	0.8	0.0	3.3	0.0	0.0	0.0	1.6	53.1	1.3	193
Maragua Ridge	29.0	0.0	0.0	18.3	0.0	0.0	0.0	0.0	52.0	0.7	148
Mariaini	33.7	0.0	0.0	3.3	1.5	0.0	0.0	0.5	60.1	0.9	109
MARAGUA	**34.8**	**0.4**	**0.0**	**8.2**	**0.4**	**0.0**	**0.0**	**0.8**	**54.4**	**1.0**	**450**
Project Total 2010	**22.7**	**3.6**	**1.0**	**8.7**	**1.9**	**1.3**	**0.4**	**3.0**	**53.3**	**4.1**	**3 129**

2006 data is not available

During the dry season CKDAP was the main funder of water facilities (15%) followed by households (9%), landlord and the community (6%) each. Across the districts, CKDAP funding was highest in Kirinyaga (31%) while most of the households in Thika (14%) met their own costs of water facilities.

Table 4.4: Percentage distribution of share of funding water facility during dry season

District/FDAs	Household	Landlord	Govern-ment	CKDAP	NGO	Group	Faith based organisation	Community	N/A	Others	Sample
Ndindiriku	2.9	.0	.0	.8	.0	.0	.0	.0	94.3	2.1	165
Kiumbu/Kianugu	.0	.0	.0	.0	.0	.0	.0	.0	10.0	.0	138
Rukanga	4.4	3.7	.0	67.4	.0	.0	.0	.5	8.0	16.0	252
KIRINYAGA	**2.9**	**1.7**	**.0**	**30.8**	**.0**	**.0**	**.0**	**.2**	**56.6**	**7.9**	**555**
Muricho	11.9	.3	1.3	10.7	.0	.3	.0	14.9	53.9	6.7	209
Kiriogo	5.2	.0	.0	19.7	10.2	4.7	.0	7.2	47.2	5.9	88
Mbuyu	7.3	.6	7.6	.5	.0	.3	1.0	1.7	40.4	40.5	179
Ndivai	16.1	.0	3.6	10.0	.0	.0	13.2	1.2	24.9	31.0	75
NYANDARUA	**9.9**	**.3**	**3.5**	**8.7**	**1.6**	**.9**	**2.1**	**7.5**	**44.5**	**20.9**	**551**
Maragima	5.9	5.0	1.1	22.1	29.8	12.2	.0	7.5	9.9	6.5	144
Kariara	3.4	.0	.0	16.1	.4	.4	.0	.0	79.6	.0	95
Mutundu	2.4	.0	.5	.0	.0	.0	.0	1.6	95.5	.0	130
NYERI	**4.0**	**2.0**	**.6**	**12.8**	**11.8**	**4.9**	**.0**	**3.5**	**58.0**	**2.5**	**369**
Ngelelya	11.6	1.8	10.6	11.3	.7	.4	.4	12.1	46.2	4.7	252
Ngoliba	8.2	3.2	4.7	5.9	2.7	3.0	.0	18.4	38.3	15.7	387
Kalimoni	19.8	15.1	4.7	15.7	4.1	3.3	1.8	4.6	28.4	2.5	564
THIKA	**14.4**	**8.5**	**6.0**	**11.6**	**2.9**	**2.6**	**.9**	**10.6**	**35.3**	**7.2**	**1 204**
Kagumoini	5.1	.4	.0	8.4	.0	.0	.0	2.0	81.1	3.1	193
Maragua Ridge	9.1	.0	.0	25.7	.0	.0	.0	.0	64.5	.7	148
Mariaini	4.3	.0	.0	3.3	.4	.0	.4	.9	87.5	3.2	109
MARAGUA	**6.2**	**.2**	**.0**	**12.8**	**.1**	**.0**	**.1**	**1.1**	**77.2**	**2.3**	**450**
Project Total 2010	**9.1**	**3.9**	**3.0**	**14.8**	**2.8**	**1.7**	**.7**	**6.0**	**49.4**	**8.5**	**3 129**

2006 data is not available

4.3 Distance in kilomtres to water facility

Table 4.5 presents data on the percentage distribution of distance covered to water facility during the rainy season. Majority of the households (96%) reported getting water within a distance of 1.0km or less away from their homesteads during the rainy season with this being universal in Kiumbu/Kianugu and Maragua Ridge.

Table 4.5: Percentage distribution of distance (km) to water facility during rainy season

District/FDAs	0 - 1.0 km	1.1 - 2.0 km	2.1 - 3.0 km	3.1- 4.0 km	4.1 - 5.0 km	5.1 km and above	9	Sample
Ndindiriku	99.2	.8	.0	.0	.0	.0	.0	165
Kiumbu/Kianugu	100.0	.0	.0	.0	.0	.0	.0	138
Rukanga	98.5	.6	.9	.0	.0	.0	.0	252
KIRINYAGA	**99.1**	**.5**	**.4**	**.0**	**.0**	**.0**	**.0**	**555**
Muricho	89.3	8.8	1.4	.0	.0	.0	.0	209
Kiriogo	98.5	1.5	.0	.0	.0	.0	.0	88
Mbuyu	92.0	7.0	.6	.4	.0	.0	.0	179
Ndivai	94.1	3.9	2.0	.0	.0	.0	.0	75
NYANDARUA	**92.3**	**6.4**	**1.0**	**.1**	**.0**	**.0**	**.0**	**551**
Maragima	98.7	1.3	.0	.0	.0	.0	.0	144
Kariara	90.4	9.0	.0	.0	.0	.0	.0	95
Mutundu	83.6	13.5	.9	1.9	.0	.0	.0	130
NYERI	**91.3**	**7.6**	**.3**	**.7**	**.0**	**.0**	**.0**	**369**
Ngelelya	95.2	3.3	1.0	.1	.2	.1	.0	252
Ngoliba	96.0	3.8	.0	.0	.0	.2	.0	387
Kalimoni	95.8	3.5	.1	.4	.1	.1	.0	564
THIKA	**95.8**	**3.6**	**.3**	**.2**	**.1**	**.1**	**.0**	**1 204**
Kagumoini	98.1	1.5	.0	.0	.0	.0	.4	193
Maragua Ridge	100.0	.0	.0	.0	.0	.0	.0	148
Mariaini	96.9	3.1	.0	.0	.0	.0	.0	109
MARAGUA	**98.4**	**1.4**	**.0**	**.0**	**.0**	**.0**	**.2**	**450**
Project Total 2010	**95.6**	**3.7**	**.4**	**.2**	**.0**	**.1**	**.0**	**3 129**
Project Total 2006	**84.7**	**11.2**	**2.5**	**0.9**	**0.4**	**0.2**		**2,175**

Compared to 2006, distances to water sources/facilities during rainy season have decreased. In 2006 while 85 perecnt of all households traveled 0-1Km, in 2010 this proportion was found to be about 96 perecent, implying that only 4 percent of households travel more than a kilometer to fetch water during rainy season.

The percentage distribution of distance covered to a water facility during the dry season is presented in Table 4.6. As observed for the rainy season, majority of the households (86%) have access to a water facility within 1 Kilometer of where they are located, with this being almost universal in Rukanga (99%). This is followed by those who have to travel between 1 and 2 Kilometers to get to a similar facility (10%), with a quarter of households in Ndivai being in this category.

Table 4.6: Percentage distribution of distance (km) to water facility during Dry season

District/FDAs	0 - 1.0 km	1.1 - 2.0 km	2.1 - 3.0 km	3.1- 4.0 km	4.1 - 5.0 km	5.1 km and above	Sample
Ndindiriku	71.0	23.5	5.5	.0	.0	.0	165
Kiumbu/Kianugu	98.0	2.0	.0	.0	.0	.0	138
Rukanga	99.1	.0	.9	.0	.0	.0	252
KIRINYAGA	**90.5**	**7.5**	**2.0**	**.0**	**.0**	**.0**	**555**
Muricho	84.4	9.7	5.3	.6	.0	.0	209
Kiriogo	95.1	4.9	.0	.0	.0	.0	88
Mbuyu	65.9	20.1	6.6	2.7	2.7	1.9	179
Ndivai	54.1	25.3	15.0	1.2	3.4	1.0	75
NYANDARUA	**76.0**	**14.5**	**6.2**	**1.3**	**1.4**	**.8**	**551**
Maragima	98.2	1.8	.0	.0	.0	.0	144
Kariara	88.0	12.0	.0	.0	.0	.0	95
Mutundu	78.2	17.1	2.8	1.9	.0	.0	130
NYERI	**88.5**	**9.8**	**1.0**	**.7**	**.0**	**.0**	**369**
Ngelelya	84.4	11.1	2.5	.4	1.0	.7	252
Ngoliba	89.6	9.5	.4	.0	.3	.2	387
Kalimoni	88.1	9.6	.7	.6	.7	.2	564
THIKA	**87.8**	**9.9**	**1.0**	**.4**	**.6**	**.3**	**1 204**
Kagumoini	89.5	10.0	.2	.0	.0	.0	193
Maragua Ridge	82.9	9.3	5.7	.0	.7	1.3	148
Mariaini	89.0	8.7	2.3	.0	.0	.0	109
MARAGUA	**87.2**	**9.5**	**2.5**	**.0**	**.2**	**.4**	**450**
Project Total 2010	**86.2**	**10.2**	**2.3**	**.4**	**.5**	**.3**	**3 129**
Project Total 2006	**69.4**	**21.4**	**6**	**2.2**	**0.7**	**0.3**	**2,175**

The percentage of households that have access to a water facility within 1 Kilometer of where they are located increased from 69 percent in 2006 to 86 percent in 2010. Inversely, those who had to travel between 1 and 2 Kilometers declined by 11 percent within the reference period. It was also observed that the number of households that have access to a water facility during the dry season increased from 2,175 to 3,129 within the reference period.

4.4 Time taken to get water to the household

Related to the above analysis is the time taken to get water. This is the time taken walking to fetch water and returning home. This affects time available for various productive activities undertaken by household members.

Table 4.7 shows the percentage distribution of time spent to get water from the water facility during the rainy season. Majority of the households require half an hour or less to fetch water and this is the case for all households in Maragua Ridge and Kiumbu/Kianugu. It was also observed that this percentage rose by 14 percent within the study period. Also observed is the 10 percent decline in households that spend between half an hour and one hour within the same reference period.

Table 4.7: Percentage distribution of time spent (hours) to get water from the water facility during rainy season

Dirticts/FDAs	0 - 0.5 hours	0.6 - 1.0 hours	1.1 - 1.5 hours	1.6 - 2.0 hours	2.1 - 2.5 hours	2.6 - 3.0 hours	3.1 - 3.5 hours	3.6 - 4.0 hours	4 hours and above	Sample
Ndindiriku	97.2	2.8	.0	.0	.0		.0	.0	.0	165
Kiumbu/Kianugu	100.0	.0	.0	.0	.0		.0	.0	.0	138
Rukanga	98.4	.6	.0	.9	.0		.0	.0	.0	252
KIRINYAGA	**98.5**	**1.1**	**.0**	**.4**	**.0**		**.0**	**.0**	**.0**	**555**
Muricho	86.5	7.4	5.8	.0	.0		.0	.0	.0	209
Kiriogo	93.6	6.4	.0	.0	.0		.0	.0	.0	88
Mbuyu	89.8	7.7	2.0	.5	.0		.0	.0	.0	179
Ndivai	93.8	4.2	1.0	1.0	.0		.0	.0	.0	75
NYANDARUA	**89.7**	**6.9**	**3.0**	**.3**	**.0**		**.0**	**.0**	**.0**	**551**
Maragima	98.2	1.8	.0	.0	.0		.0	.0	.0	144
Kariara	88.7	10.1	.6	.0	.0		.0	.0	.0	95
Mutundu	78.9	17.7	2.4	.0	.9		.0	.0	.0	130
NYERI	**89.0**	**9.5**	**1.0**	**.0**	**.3**		**.0**	**.0**	**.0**	**369**
Ngelelya	94.5	2.7	.3	1.7	.6		.1	.0	.1	252
Ngoliba	91.7	7.9	.0	.2	.0		.0	.0	.2	387
Kalimoni	96.8	1.9	.6	.0	.0		.0	.6	.2	564
THIKA	**94.7**	**4.0**	**.3**	**.4**	**.1**		**.0**	**.3**	**.2**	**1 204**
Kagumoini	98.1	1.2	.8	.0	.0		.0	.0	.0	193
Maragua Ridge	100.0	.0	.0	.0	.0		.0	.0	.0	148
Mariaini	97.4	2.6	.0	.0	.0		.0	.0	.0	109
MARAGUA	**98.6**	**1.1**	**.3**	**.0**	**.0**		**.0**	**.0**	**.0**	**450**
Project Total 2010	**94.4**	**4.2**	**.8**	**.3**	**.1**		**.0**	**.1**	**.1**	**3 129**
Project Total 2006	**79.5**	**14.2**	**3.7**	**1.3**	**0.7**	**0.2**	**0.4**	**0.2**		**2,175**

Time taken to travel to a water facility during the dry season has invariably not improved much in the past five years.

Approximately four fifths of households in the project area spend half an hour or less to fetch water with this being highest in Rukanga and Maragima (97% each) as indicated in Table 4.8. Across the districts, most of the households in Thika (85%) spend half an hour or less to fetch water compared to 70 percent in Nyandarua.

Table 4.8: Percentage distribution of time spent (hours) to get water from the water facility during dry season

Dirticts/FDAs	0 - 0.5 hours	0.6 - 1.0 hours	1.1 - 1.5 hours	1.6 - 2.0 hours	2.1 - 2.5 hours	2.6 - 3.0 hours	3.1 - 3.5 hours	3.6 - 4.0 hours	4 hours and above	Sample
Ndindiriku	62.6	32.4	2.9	.0	2.1	.0	.0	.0	.0	165
Kiumbu/Kianugu	84.0	16.0	.0	.0	.0	.0	.0	.0	.0	138
Rukanga	96.7	2.4	.0	.9	.0	.0	.0	.0	.0	252
KIRINYAGA	**83.4**	**14.7**	**.8**	**.4**	**.6**	**.0**	**.0**	**.0**	**.0**	**555**
Muricho	77.2	12.6	7.6	1.1	1.4	.0	.0	.0	.0	209
Kiriogo	88.4	10.9	.7	.0	.0	.0	.0	.0	.0	88
Mbuyu	57.0	25.5	7.7	3.5	2.4	2.0	2.0	.0	.0	179
Ndivai	56.0	28.4	7.6	4.8	.0	1.1	2.0	.0	.0	75
NYANDARUA	**69.5**	**18.7**	**6.6**	**2.2**	**1.3**	**.8**	**.9**	**.0**	**.0**	**551**
Maragima	97.1	2.9	.0	.0	.0	.0	.0	.0	.0	144
Kariara	77.2	22.1	.6	.0	.0	.0	.0	.0	.0	95
Mutundu	66.1	26.0	6.9	.0	.9	.0	.0	.0	.0	130
NYERI	**81.1**	**16.0**	**2.6**	**.0**	**.3**	**.0**	**.0**	**.0**	**.0**	**369**
Ngelelya	80.6	11.3	1.9	2.7	1.8	.3	.4	.1	.8	252
Ngoliba	81.4	18.1	.0	.0	.0	.3	.0	.0	.2	387
Kalimoni	89.8	7.4	1.4	.7	.0	.0	.0	.6	.2	564
THIKA	**85.1**	**11.7**	**1.1**	**.9**	**.4**	**.2**	**.1**	**.3**	**.3**	**1 204**
Kagumoini	80.2	17.0	2.8	.0	.0	.0	.0	.0	.0	193
Maragua Ridge	82.1	12.9	2.8	1.5	.7	.0	.0	.0	.0	148
Mariaini	82.8	12.8	2.5	1.8	.0	.0	.0	.0	.0	109
MARAGUA	**81.4**	**14.6**	**2.8**	**.9**	**.2**	**.0**	**.0**	**.0**	**.0**	**450**
Project Total 2010	**81.1**	**14.4**	**2.4**	**.9**	**.6**	**.2**	**.2**	**.1**	**.1**	**3 129**
Project Total 2006	**79.5**	**14.2**	**3.7**	**1.3**	**0.7**	**0.2**	**0.4**	**0.2**		**2,175**

The proportion of households who spend the least amount of time to fetch water rose slightly while those covering between half an hour and an hour did not change during the study period.

The percentage distribution of time saved to get water from the water facility during rainy and dry seasons is shown in Table 4.9. Over half of the households in the project area do not save time in both the rainy season and dry seasons (58% and 73% respectively). For those who reported saving time in the rainy season, most of the households (74%) were in Kirinyaga district while Nyeri (48%) led in the dry season category.

Table 4.9: Percentage distribution of time saved (hours) to get water from the water facility during rainy and dry seasons

Ditricts/FDAs	Save time (Rainy Season)		Save time (Dry Season)		Sample
	Yes	No	Yes	No	
Ndindiriku	82.9	17.1	12.3	87.7	165
Kiumbu/Kianugu	48.0	52.0	14.0	86.0	138
Rukanga	83.0	17.0	81.7	18.3	252
KIRINYAGA	**74.2**	**25.8**	**44.2**	**55.8**	**555**
Muricho	17.6	82.4	14.7	85.3	209
Kiriogo	33.4	66.6	33.1	66.9	88
Mbuyu	19.9	80.1	8.5	91.5	179
Ndivai	18.1	81.9	12.1	87.9	75
NYANDARUA	**20.9**	**79.1**	**15.3**	**84.7**	**551**
Maragima	79.7	20.3	84.3	15.7	144
Kariara	37.1	62.9	30.2	69.8	95
Mutundu	22.8	77.2	20.2	79.8	130
NYERI	**48.6**	**51.4**	**47.7**	**52.3**	**369**
Ngelelya	27.6	72.4	19.1	80.9	252
Ngoliba	27.5	72.5	20.6	79.4	387
Kalimoni	32.0	68.0	23.7	76.3	564
THIKA	**29.6**	**70.4**	**21.7**	**78.3**	**1 204**
Kagumoini	59.9	40.1	13.3	86.7	193
Maragua Ridge	54.7	45.3	30.1	69.9	148
Mariaini	58.4	41.6	9.5	90.5	109
MARAGUA	**57.8**	**42.2**	**17.9**	**82.1**	**450**
Project Total 2010	**42.3**	**57.7**	**27.1**	**72.9**	**3 129**

4.5 Treatment of Drinking Water

According to Table 4.10, there is an improvement in the treatment of water in both rainy and dry seasons as indicated by the decline in the proportion of households who never treat drinking water. In 2006, 64 percent and 53 percent of households in rainy and dry seasons respectively reported not treating drinking water compared to 58 percent and 47 percent respectively in 2010. Most of the households who never treat water in the rainy seasons are in Maragua district (76%), while Nyeri leads for those who never treat water in the dry season.

Table 4.10: Percentage distribution of Treatment of drinking water during rainy and dry seasons

Districts/FDAs	RAINY season			DRY season			Sample
	Always	Sometimes	Never	Always	Sometimes	Never	
Ndindiriku	13.1	8.3	78.6	26.2	43.9	29.9	165
Kiumbu/Kianugu	12.1	6.0	81.9	22.0	30.1	47.9	138
Rukanga	25.3	19.6	55.1	33.2	30.2	36.5	252
KIRINYAGA	**18.4**	**12.8**	**68.8**	**28.3**	**34.3**	**37.4**	**555**
Muricho	23.9	26.5	49.5	24.2	30.0	45.9	209
Kiriogo	26.8	28.0	45.3	31.6	33.0	35.4	88
Mbuyu	17.1	30.5	52.4	27.1	36.1	36.8	179
Ndivai	17.3	26.1	56.6	27.4	29.9	42.7	75
NYANDARUA	**21.3**	**28.0**	**50.7**	**26.8**	**32.5**	**40.8**	**551**
Maragima	13.6	27.7	58.7	13.6	27.0	59.3	144
Kariara	11.2	25.1	63.7	10.7	25.5	63.7	95
Mutundu	10.1	25.3	64.7	10.6	24.8	64.7	130
NYERI	**11.7**	**26.2**	**62.1**	**11.8**	**25.8**	**62.4**	**369**
Ngelelya	32.6	18.9	48.5	35.3	20.0	44.6	252
Ngoliba	31.0	18.7	50.3	34.1	17.5	48.4	387
Kalimoni	32.4	18.8	48.8	37.5	18.6	43.9	564
THIKA	**32.0**	**18.8**	**49.2**	**36.0**	**18.5**	**45.5**	**1 204**
Kagumoini	11.3	7.7	81.0	17.9	13.3	68.8	193
Maragua Ridge	15.4	12.7	72.0	25.2	20.5	54.3	148
Mariaini	12.6	16.4	71.1	21.9	22.5	55.6	109
MARAGUA	**12.9**	**11.5**	**75.6**	**21.3**	**17.9**	**60.8**	**450**
Project Total 2010	**22.6**	**19.2**	**58.3**	**28.0**	**24.6**	**47.4**	**3 129**
Project Total 2006	**22.5**	**13.7**	**63.8**	**27.6**	**19.1**	**53.3**	**2,175**

4.5.1 Methods Used for Treating Drinking Water

Table 4.11 presents information on the percentage distribution of water treatment methods in the project area. Boiling is the most common method of water treatment (33%) followed by chemical treatment (28%). Compared to 2006, there is a 52 percent decline in households that treat water by boiling, while those that use chemical treatment rose by 6 percent. Overall, the number of households that treat their water rose from 985 in 2006 to 3,129 in 2010. This is a positive change and may be as a result of an intervention conducted in the project area.

Table 4.11: Percentage distribution of Water treatment methods

Districts/FDAs	Boiling	Chemical treatment	Filtration	Other	Sample
Ndindiriku	23.8	56.5	.0	.0	165
Kiumbu/Kianugu	16.0	36.1	2.0	.0	138
Rukanga	28.0	40.2	1.6	.6	252
KIRINYAGA	**23.7**	**44.0**	**1.2**	**.3**	**555**
Muricho	49.7	9.5	17.1	6.0	209
Kiriogo	54.5	29.7	4.7	.8	88
Mbuyu	51.0	33.9	9.3	3.8	179
Ndivai	40.9	29.4	11.5	4.2	75
NYANDARUA	**49.7**	**23.5**	**11.7**	**4.2**	**551**
Maragima	37.6	10.6	.9	.0	144
Kariara	32.4	6.7	.4	1.1	95
Mutundu	30.9	6.0	2.2	2.2	130
NYERI	**33.9**	**8.0**	**1.3**	**1.1**	**369**
Ngelelya	36.0	31.5	2.6	.6	252
Ngoliba	20.7	31.0	1.6	.7	387
Kalimoni	43.0	30.7	1.5	.0	564
THIKA	**34.3**	**31.0**	**1.8**	**.4**	**1 204**
Kagumoini	18.9	14.3	.0	.0	193
Maragua Ridge	17.7	33.3	1.3	.0	148
Mariaini	16.9	27.7	1.1	.5	109
MARAGUA	**18.0**	**23.7**	**.7**	**.1**	**450**
Project Total 2010	**32.7**	**28.2**	**3.2**	**1.1**	**3 129**
Project Total 2006	**84.2**	**22.4**	**2.8**	**0.8**	**985**

Table 4.12 shows the percentage distribution of households using chemicals to treat water. Four fifths of households in the project area use Water Guard with this being universal in Mutundu. Chlorine is the second most used water treatment chemical at 12 percent followed by aluminium sulphate at 10 percent. Compared to 2006, chlorine use recorded the highest rise (7%) followed by Water Gurad at 5 percent. Chlorine use may have increased due to the introduction of communal water projects with a central treatment point. Water Guard is mainly used at the household level and its use can also rise in the absence of communal water projects.

Table 4.12: Percentage distribution of households using Chemicals to treatment on water

Districts/FDAs	Water Guard	Aluminium Sulphate	Chlorine	Other	Sample
Ndindiriku	64.9	15.6	9.5	9.9	93
Kiumbu/Kianugu	88.9	5.5	5.6	.0	50
Rukanga	79.3	4.4	10.5	7.4	101
KIRINYAGA	**75.8**	**8.9**	**9.1**	**6.9**	**244**
Muricho	85.8	10.6	3.6	.0	20
Kiriogo	71.6	19.0	7.5	7.1	27
Mbuyu	61.1	25.7	21.9	.0	63
Ndivai	58.4	29.6	14.7	.0	23
NYANDARUA	**66.5**	**22.7**	**15.0**	**1.5**	**133**
Maragima	45.5	32.8	21.7	.0	15
Kariara	84.6	15.4	.0	.0	6
Mutundu	100.0	7.0	7.0	7.0	8
NYERI	**68.4**	**22.2**	**13.1**	**1.9**	**29**
Ngelelya	92.7	4.0	3.5	4.1	81
Ngoliba	87.5	4.5	16.1	2.0	126
Kalimoni	89.4	2.4	10.6	1.1	179
THIKA	**89.5**	**3.4**	**10.9**	**2.1**	**387**
Kagumoini	80.6	14.5	10.5	.0	30
Maragua Ridge	75.6	12.6	23.9	.0	52
Mariaini	85.1	15.2	11.9	1.9	32
MARAGUA	**79.6**	**13.9**	**17.0**	**.6**	**114**
Project Total 2010	**80.5**	**9.6**	**11.9**	**3.1**	**907**
Project Total 2006	**76.2**	**17.1**	**5.3**	**0.0**	**95**

Note: This is multible response

4.6 Uses of Water in the Households

Respondents were asked to list all possible uses of water at household level. The predetermined possible uses were washing clothes, washing dishes, cooking, drinking, bathing, watering livestock, and micro-irrigation, among others. Table 4.13 shows the percentage distribution of uses of water in the household. Washing clothes and bathing (99% each), washing dishes, cooking and drinking (98% each), are the most common uses of water at the household level.

Table 4.13: Percentage distribution of Uses of water in the household

Diatricts/FDAs	Washing clothes	Washing dishes	Cooking	Drink-ing	Bathing	Others (Specify)	Watering livestock	Others	Micro-Irriga-tion	Irriga-tion	Others (Specify)	Sample
Ndindiriku	98.9	96.2	96.2	98.3	100.0	4.6	27.7	.8	8.2	18.5	.0	165
Kiumbu/ Kianugu	88.1	84.1	96.1	94.0	94.0	2.0	26.0	.0	12.0	15.9	.0	138
Rukanga	98.6	95.1	94.7	99.4	98.5	5.5	49.0	1.2	24.1	2.6	1.3	252
KIRINYAGA	**96.1**	**92.7**	**95.5**	**97.7**	**97.8**	**4.3**	**36.9**	**.8**	**16.3**	**10.6**	**.6**	**555**
Muricho	99.6	99.3	99.6	99.1	99.1	.6	39.0	.3	7.7	1.9	.0	209
Kiriogo	100.0	99.4	100.0	96.8	97.7	.6	60.0	2.4	13.7	.0	.6	88
Mbuyu	99.7	97.6	97.0	98.7	99.5	7.2	39.9	.9	3.5	1.6	.0	179
Ndivai	100.0	100.0	100.0	99.0	98.8	2.1	48.3	.0	1.8	2.9	.0	75
NYANDARUA	**99.7**	**98.9**	**98.9**	**98.6**	**99.0**	**3.0**	**43.9**	**.8**	**6.5**	**1.6**	**.1**	**551**
Maragima	97.6	94.7	98.3	97.6	96.9	9.9	53.8	1.1	32.5	8.0	1.7	144
Kariara	98.3	99.4	99.4	99.4	98.5	5.7	74.4	.0	9.5	.0	.4	95
Mutundu	99.5	99.5	100.0	100.0	99.0	4.8	76.7	.0	4.7	.0	.4	130
NYERI	**98.4**	**97.6**	**99.2**	**98.9**	**98.0**	**7.0**	**67.2**	**.4**	**16.7**	**3.1**	**.9**	**369**
Ngelelya	100.0	99.8	98.8	99.0	99.0	.0	32.3	.0	.5	.0	.0	252
Ngoliba	99.5	98.8	99.9	99.0	98.6	3.1	17.3	.3	2.7	.8	.0	387
Kalimoni	99.8	99.7	99.9	99.3	99.8	.7	23.1	.6	.5	.3	.0	564
THIKA	**99.7**	**99.4**	**99.7**	**99.1**	**99.2**	**1.3**	**23.2**	**.4**	**1.2**	**.4**	**.0**	**1204**
Kagumoini	100.0	97.6	95.5	89.7	95.2	1.0	69.9	.0	3.0	.6	.0	193
Maragua Ridge	100.0	95.2	100.0	91.6	98.8	3.7	70.7	2.9	11.1	4.2	1.4	148
Mariaini	**99.5**	**95.6**	**97.0**	**94.6**	**98.7**	**.5**	**66.9**	**.0**	**.8**	**1.6**	**.0**	**109**
MARAGUA	**99.9**	**96.3**	**97.4**	**91.5**	**97.2**	**1.7**	**69.4**	**.9**	**5.1**	**2.1**	**.5**	**450**
Project Total 2010	**99.0**	**97.5**	**98.4**	**97.7**	**98.5**	**2.9**	**41.1**	**.6**	**7.2**	**3.0**	**.3**	**3129**

Table 4.14 presents the percentage distribution of water used for washing clothes in the household. Majority of the households use 21-50 and 51-100 litres of water for laundry. The mean amount used is 48 litres with the highest amount being recorded in Muricho (82 litres).

Table 4.14: Percentage distribution of water used for washing clothes in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	Average	Median	Sample
Ndindiriku	8.1	44.6	24.1	20.9	1.1	36	20	165
Kiumbu/Kianugu	10.0	38.1	26.0	14.0	.0	30	20	138
Rukanga	6.4	24.0	24.8	41.4	2.0	49	40	252
KIRINYAGA	**7.8**	**33.7**	**24.9**	**28.4**	**1.2**	**41**	**40**	**555**
Muricho	2.3	11.5	35.1	46.6	3.0	82	60	209
Kiriogo	4.1	13.2	33.4	37.4	9.8	70	50	88
Mbuyu	7.2	18.7	23.7	41.3	8.4	55	56	179
Ndivai	5.0	24.7	29.8	36.6	2.3	54	40	75
NYANDARUA	**4.6**	**15.9**	**30.4**	**42.1**	**5.8**	**67**	**50**	**551**
Maragima	20.4	34.6	18.9	22.3	1.4	36	20	144
Kariara	16.1	36.1	23.2	20.6	2.3	37	20	95
Mutundu	26.4	33.9	23.0	15.7	.4	32	20	130
NYERI	**21.4**	**34.8**	**21.4**	**19.5**	**1.3**	**35**	**20**	**369**
Ngelelya	4.6	22.7	39.8	29.3	3.6	48	40	252
Ngoliba	10.6	19.8	32.1	35.9	1.1	46	40	387
Kalimoni	7.3	18.0	33.3	36.9	4.3	50	40	564
THIKA	**7.8**	**19.5**	**34.3**	**35.0**	**3.1**	**48**	**40**	**1204**
Kagumoini	9.2	29.4	40.1	20.1	1.2	37	40	193
Maragua Ridge	9.2	30.7	37.9	16.7	5.5	42	35	148
Mariaini	4.9	25.1	36.1	31.0	2.4	45	40	109
MARAGUA	**8.1**	**28.8**	**38.4**	**21.6**	**2.9**	**41**	**40**	**450**
Project Total 2010	**8.9**	**24.5**	**31.0**	**31.3**	**3.0**	**48**	**40**	**3129**
Project Total 2006	**8**	**29.8**	**31.8**	**24.4**	**3.1**	**46.4**	**40**	**2,175**

Compared to 2006, there seems to be an increase in access to water which in turn leads to more amounts being utilized for washing. Households that use between 51-100 litres recorded the highest rise at percent.

Table 4.15 shows the percentage distribution of water used for cooking in the household. Two thirds of the households use an amount not exceeding 10 litres and this is the case in over half of all the districts except Maragua. Compared to 2006, there is a 6 percent decline in the number of households using 10 or less litres of water for cooking, while those that reported using between 11 and 20 litres rose slightly in the same period.

Table 4.15: Percentage distribution of water used for Cooking in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	67.6	27.2	1.4	.0	.0	3.8	12	10	165
Kiumbu/Kianugu	58.0	22.0	4.0	.0	.0	15.9	13	10	138
Rukanga	42.9	43.7	8.5	.0	.0	4.9	17	20	252
KIRINYAGA	**54.0**	**33.4**	**5.3**	**.0**	**.0**	**7.3**	**14**	**10**	**555**
Muricho	53.9	30.2	12.2	1.0	1.0	1.7	17	10	209
Kiriogo	48.5	39.3	9.5	.0	.0	2.7	16	13	88
Mbuyu	49.9	33.6	12.5	.6	.8	2.7	17	10	179
Ndivai	55.6	37.6	4.1	1.1	.0	1.6	15	10	75
NYANDARUA	**52.0**	**33.8**	**10.7**	**.7**	**.6**	**2.2**	**16**	**10**	**551**
Maragima	56.4	31.2	7.1	.0	.0	5.3	14	10	144
Kariara	55.8	37.3	5.8	.4	.0	.6	14	10	95
Mutundu	65.2	28.9	5.3	.0	.0	.5	12	10	130
NYERI	**59.3**	**32.0**	**6.2**	**.1**	**.0**	**2.4**	**13**	**10**	**369**
Ngelelya	59.5	38.9	1.2	.1	.1	.2	13	10	252
Ngoliba	57.8	36.2	4.2	.6	.0	1.2	14	10	387
Kalimoni	53.5	43.7	1.0	1.5	.0	.3	14	10	564
THIKA	**56.1**	**40.3**	**2.0**	**.9**	**.0**	**.6**	**14**	**10**	**1204**
Kagumoini	49.3	45.3	2.7	.2	.0	2.4	14	10	193
Maragua Ridge	46.3	44.1	4.1	.7	.0	4.8	15	15	148
Mariaini	38.1	51.7	5.8	.0	.0	4.4	16	15	109
MARAGUA	**45.6**	**46.5**	**3.9**	**.3**	**.0**	**3.7**	**15**	**15**	**450**
Project Total 2010	**53.9**	**37.8**	**4.9**	**.5**	**.1**	**2.7**	**15**	**10**	**3129**
Project Total 2006	**60.1**	**36.5**	**2.3**	**0.3**	**0.1**		**13.2**	**10**	**2,175**

The percentage distribution of water used for washing dishes in the household is shown in Table 4.16. The average amount of water used for washing dishes is 12 litres with the highest figure recorded in Mariaini (16 litres). Overall, two thirds of households in the project area use 10 litres or less. Overall, the average amount of water used for dish washing has dropped by 3 litres; from 15 litres in 2006 to 12 litres in 2010. It is also observed that the median had not changed.

Table 4.16: Percentage distribution of water used for washing dishes in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	69.9	25.8	.5	.0	.0	3.8	11	10	165
Kiumbu/Kianugu	66.1	23.9	4.0	2.0	.0	3.9	12	10	138
Rukanga	64.4	29.2	1.1	.0	.0	5.3	12	10	252
KIRINYAGA	**66.4**	**26.9**	**1.7**	**.5**	**.0**	**4.5**	**12**	**10**	**555**
Muricho	67.1	28.5	1.6	.0	1.4	1.4	14	10	209
Kiriogo	60.9	33.4	3.7	.0	.0	2.1	13	10	88
Mbuyu	60.1	30.6	5.5	.5	.0	3.2	13	10	179
Ndivai	71.4	24.8	2.2	.0	.0	1.6	12	10	75
NYANDARUA	**64.4**	**29.5**	**3.3**	**.2**	**.5**	**2.1**	**13**	**10**	**551**
Maragima	63.5	26.2	6.1	1.7	.7	1.7	14	10	144
Kariara	52.3	45.4	1.7	.0	.0	.6	13	10	95
Mutundu	67.9	31.0	.4	.7	.0	.0	11	10	130
NYERI	**62.2**	**32.8**	**2.9**	**.9**	**.3**	**.8**	**12**	**10**	**369**
Ngelelya	77.9	19.2	1.7	.0	.0	1.2	10	10	252
Ngoliba	74.0	20.2	4.8	.8	.0	.1	12	10	387
Kalimoni	73.8	22.1	3.4	.6	.0	.1	11	10	564
THIKA	**74.7**	**20.9**	**3.5**	**.5**	**.0**	**.3**	**11**	**10**	**1204**
Kagumoini	57.8	34.7	3.0	.0	.0	4.5	13	10	193
Maragua Ridge	55.7	38.6	5.7	.0	.0	.0	14	10	148
Mariaini	43.8	46.7	6.7	.6	.0	2.2	16	15	109
MARAGUA	**53.7**	**38.9**	**4.8**	**.1**	**.0**	**2.4**	**14**	**10**	**450**
Project Total 2010	**66.9**	**27.5**	**3.3**	**.5**	**.1**	**1.8**	**12**	**10**	**3129**
Project Total 2006	**56.7**	**38.5**	**3.2**	**0.5**	**0.3**		**14.5**	**10**	**2,175**

Table 4.17 shows the percentage distribution of water used for drinking in the household. Majority of the households (9 in 10) drink an amount not exceeding 10 litres. Compared to 2006, this proportion has grown slightly; from 87 percent to 90 percent. In the same reference period, the average amount of water used for drinking dropped by 1 litre; from 7 litres in 2006 to 6 litres in 2010.

Table 4.17: Percentage distribution of water used for Drinking in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	97.1	1.1	.0	.0	.0	1.7	4	3	165
Kiumbu/Kianugu	92.0	2.0	.0	.0	.0	6.0	4	4	138
Rukanga	97.7	1.7	.0	.0	.0	.6	4	3	252
KIRINYAGA	**96.1**	**1.6**	**.0**	**.0**	**.0**	**2.3**	**4**	**3**	**555**
Muricho	88.5	9.6	.0	.0	.0	2.0	6	5	209
Kiriogo	88.5	5.2	1.7	.0	.0	4.6	6	5	88
Mbuyu	84.8	10.7	2.9	.0	.0	1.6	7	5	179
Ndivai	95.1	2.3	.0	.0	.0	2.6	5	5	75
NYANDARUA	**88.2**	**8.3**	**1.2**	**.0**	**.0**	**2.3**	**6**	**5**	**551**
Maragima	88.8	8.3	.0	.5	.0	2.4	6	5	144
Kariara	85.7	12.8	.4	.0	.4	.6	7	5	95
Mutundu	92.4	7.2	.4	.0	.0	.0	6	5	130
NYERI	**89.3**	**9.1**	**.2**	**.2**	**.1**	**1.1**	**6**	**5**	**369**
Ngelelya	90.0	8.9	.2	.0	.0	1.0	7	5	252
Ngoliba	82.9	12.5	3.6	.0	.0	1.0	8	5	387
Kalimoni	89.1	8.5	1.7	.0	.0	.7	7	5	564
THIKA	**87.3**	**9.8**	**2.0**	**.0**	**.0**	**.9**	**8**	**5**	**1204**
Kagumoini	87.0	2.1	.6	.0	.0	10.3	4	4	193
Maragua Ridge	88.7	2.9	.0	.0	.0	8.4	5	5	148
Mariaini	92.3	1.5	.8	.0	.0	5.4	5	5	109
MARAGUA	**88.8**	**2.2**	**.5**	**.0**	**.0**	**8.5**	**4**	**5**	**450**
Project Total 2010	**89.5**	**6.9**	**1.1**	**.0**	**.0**	**2.5**	**6**	**5**	**3129**
Project Total 2006	**86.8**	**11.3**	**0.8**	**0.3**	**0.1**		**7.3**	**5**	**2,175**

The percentage distribution of water used for bathing in the household is shown in Table 4.18. On average households use 28 litres of water for bathing with the highest figure being recorded in Rukanga (34 litres). The average amount of water used for bathing rose from 26 litres in 2006 to 28 litres in 2010. This may be as a result of increased access to water facilities.

Table 4.18: Percentage distribution of water used for Bathing in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	27.0	40.4	29.4	2.7	.5	.0	23	20	165
Kiumbu/Kianugu	30.1	45.9	15.9	2.0	.0	6.0	21	20	138
Rukanga	15.8	34.9	31.7	15.4	.6	1.5	34	20	252
KIRINYAGA	**22.7**	**39.3**	**27.1**	**8.3**	**.4**	**2.2**	**28**	**20**	**555**
Muricho	18.9	44.5	21.7	13.0	1.0	.9	33	20	209
Kiriogo	21.3	38.7	25.1	8.8	1.2	5.0	28	20	88
Mbuyu	23.6	40.7	22.4	12.5	.0	.8	29	20	179
Ndivai	27.1	39.2	29.8	1.0	.0	2.8	23	20	75
NYANDARUA	**21.9**	**41.6**	**23.6**	**10.5**	**.6**	**1.8**	**29**	**20**	**551**
Maragima	26.1	29.3	23.2	18.3	.0	3.1	29	20	144
Kariara	9.9	45.0	32.5	11.1	.0	1.5	28	20	95
Mutundu	25.0	41.5	23.7	8.7	.0	1.0	25	20	130
NYERI	**21.6**	**37.6**	**25.8**	**13.1**	**.0**	**2.0**	**27**	**20**	**369**
Ngelelya	18.2	39.8	31.4	9.3	.3	.9	29	20	252
Ngoliba	29.0	37.5	24.2	7.8	.0	1.4	24	20	387
Kalimoni	16.9	43.0	28.8	10.8	.4	.2	29	20	564

Table 4.18: Percentage distribution of water used for Bathing in the household *(continued)*

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
THIKA	**21.1**	**40.6**	**27.9**	**9.5**	**.2**	**.7**	**28**	**20**	**1204**
Kagumoini	21.1	32.6	35.7	6.4	.0	4.3	27	20	193
Maragua Ridge	26.0	40.8	25.6	5.7	.7	1.2	25	20	148
Mariaini	17.6	31.2	38.7	11.2	.0	1.3	30	25	109
MARAGUA	21.8	35.0	33.1	7.3	.2	2.5	27	20	450
Project total 2010	**21.7**	**39.4**	**27.5**	**9.6**	**.3**	**1.6**	**28**	**20**	**3129**
Project total 2006	18.9	43.8	26.7	6	0.3		25.6	20	2,175
Kariara	85.7	12.8	.4	.0	.4	.6	7	5	95
Mutundu	92.4	7.2	.4	.0	.0	.0	6	5	130
NYERI	**89.3**	**9.1**	**.2**	**.2**	**.1**	**1.1**	**6**	**5**	**369**
Ngelelya	90.0	8.9	.2	.0	.0	1.0	7	5	252
Ngoliba	82.9	12.5	3.6	.0	.0	1.0	8	5	387
Kalimoni	89.1	8.5	1.7	.0	.0	.7	7	5	564
THIKA	**87.3**	**9.8**	**2.0**	**.0**	**.0**	**.9**	**8**	**5**	**1204**
Kagumoini	87.0	2.1	.6	.0	.0	10.3	4	4	193
Maragua Ridge	88.7	2.9	.0	.0	.0	8.4	5	5	148
Mariaini	92.3	1.5	.8	.0	.0	5.4	5	5	109
MARAGUA	**88.8**	**2.2**	**.5**	**.0**	**.0**	**8.5**	**4**	**5**	**450**
Project Total 2010	**89.5**	**6.9**	**1.1**	**.0**	**.0**	**2.5**	**6**	**5**	**3129**
Project Total 2006	**86.8**	**11.3**	**0.8**	**0.3**	**0.1**		**7.3**	**5**	**2,175**

The percentage distribution of water used for other domestic uses in the household is shown in Table 4.19. The average amount used for other domestic uses is 19 litres while the median is10 litres.

Table 4.19: Percentage distribution of water used for Other domestic uses in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	sample
Ndindiriku	2.6	2.1	.0	.0	.0	95.4	11	11	165
Kiumbu/Kianugu	2.0	.0	.0	.0	.0	98.0	10	10	138
Rukanga	1.6	3.3	.6	.0	.0	94.5	17	20	252
KIRINYAGA	**2.0**	**2.1**	**.3**	**.0**	**.0**	**95.7**	**14**	**20**	**555**
Muricho	.0	.3	.0	1.8	.0	97.9	55	60	209
Kiriogo	.6	.0	.0	.0	.0	99.4	2	2	88
Mbuyu	4.5	1.2	1.2	.0	.5	92.6	28	10	179
Ndivai	.0	2.1	.0	.0	.0	97.9	20	20	75
NYANDARUA	**1.5**	**.8**	**.4**	**.7**	**.1**	**96.4**	**32**	**20**	**551**
Maragima	6.4	3.5	.0	.0	.0	90.1	12	10	144
Kariara	5.7	.0	.0	.0	.0	94.3	10	10	95
Mutundu	1.4	2.4	1.0	.0	.4	94.7	50	20	130
NYERI	**4.5**	**2.2**	**.4**	**.0**	**.1**	**92.8**	**21**	**10**	**369**
Ngelelya	.0	.0	.0	.0	.0	100.0	.	.	252
Ngoliba	2.6	.5	.0	.0	.0	96.9	8	5	387
Kalimoni	.0	.1	.4	.0	.0	99.5	35	40	564
THIKA	**.8**	**.2**	**.2**	**.0**	**.0**	**98.8**	**13**	**6**	**1204**
Kagumoini	1.0	.0	.0	.0	.0	99.0	3	2	193
Maragua Ridge	3.7	.0	.0	.0	.0	96.3	4	2	148
Mariaini	.0	.0	.5	.0	.0	99.5	30	30	109
MARAGUA	**1.6**	**.0**	**.1**	**.0**	**.0**	**98.3**	**5**	**2**	**450**
Project total 2010	**1.7**	**.9**	**.2**	**.1**	**.0**	**97.0**	**19**	**10**	**3129**

Table 4.20 shows the percentage distribution of water used for watering livestock. The average amount of water used for this purpose is 187 litres with the highest figure being observed in Maragua Ridge (1776 litres). The median stands at 30 litres. Compared to 2006, the average amount used for watering livestock has quadrupled (from 44 litres to 187 litres).

Table 4.20: Percentage distribution of water used for watering livestock

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	14.0	4.3	4.3	2.6	.5	74.4	22	10	165
Kiumbu/Kianugu	12.0	4.0	3.9	4.0	2.0	74.0	72	20	138
Rukanga	6.7	10.9	10.9	12.8	6.9	51.7	61	40	252
KIRINYAGA	**10.2**	**7.2**	**7.2**	**7.6**	**3.8**	**64.0**	**55**	**30**	**555**
Muricho	7.9	8.7	6.8	15.7	.0	61.0	39	40	209
Kiriogo	4.8	12.7	18.1	17.6	4.7	42.0	57	40	88
Mbuyu	5.8	11.9	14.1	7.5	.6	60.1	35	30	179
Ndivai	5.8	12.2	9.6	18.9	1.8	51.7	56	40	75
NYANDARUA	**6.4**	**10.8**	**11.4**	**13.8**	**1.2**	**56.4**	**44**	**40**	**551**
Maragima	4.7	11.7	17.8	15.7	3.9	46.2	87	40	144
Kariara	6.7	11.1	41.0	14.9	.6	25.6	41	40	95
Mutundu	10.8	25.5	32.5	7.5	.5	23.3	31	25	130
NYERI	**7.4**	**16.4**	**29.0**	**12.6**	**1.9**	**32.8**	**52**	**40**	**369**
Ngelelya	4.1	7.1	15.1	4.3	1.8	67.7	44	40	252
Ngoliba	3.5	6.8	4.6	2.2	.2	82.7	31	20	387
Kalimoni	.7	8.5	7.2	4.4	2.4	76.9	55	31	564
THIKA	**2.3**	**7.6**	**8.0**	**3.7**	**1.6**	**76.8**	**46**	**30**	**1204**
Kagumoini	17.5	17.1	23.8	10.4	1.1	30.1	31	25	193
Maragua Ridge	11.4	16.7	21.7	14.6	6.3	29.3	1776	40	148
Mariaini	23.2	14.3	16.7	11.5	1.1	33.1	30	20	109
MARAGUA	**16.9**	**16.3**	**21.4**	**12.0**	**2.8**	**30.6**	**614**	**30**	**450**
Project total 2010	**7.1**	**10.4**	**12.9**	**8.4**	**2.1**	**59.1**	**187**	**30**	**3129**
Project total 2006	**13.8**	**10.8**	**12.9**	**9.4**	**2.1**		**43.5**	**20**	**2,175**

The percentage distribution of water used for other livestock uses is shown in Table 4.21. The average amount used for this purpose is 284 litres and the median is 20 litres. Further discussion of these figures is hindered by the high non response rate.

Table 4.21: Percentage distribution of water used for Other Livestock uses

Diatricts/FDAs	0 - 10	11 - 20	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	.0	.8	.0	.0	99.2	20	20	165
Kiumbu/Kianugu	.0	.0	.0	.0	100.0	.	.	138
Rukanga	.0	.0	.0	1.2	98.8	1536	1362	252
KIRINYAGA	**.0**	**.2**	**.0**	**.6**	**99.2**	**1091**	**240**	**555**
Muricho	.3	.0	.0	.0	99.7	2	2	209
Kiriogo	2.4	.0	.0	.0	97.6	6	6	88
Mbuyu	.5	.0	.4	.0	99.1	29	38	179
Ndivai	.0	.0	.0	.0	100.0	.	.	75
NYANDARUA	**.6**	**.0**	**.1**	**.0**	**99.2**	**14**	**3**	**551**
Maragima	.0	.0	.5	.6	98.9	255	294	144
Kariara	.0	.0	.0	.0	100.0	.	.	95
Mutundu	.0	.0	.0	.0	100.0	.	.	130
NYERI	**.0**	**.0**	**.2**	**.2**	**99.6**	**255**	**294**	**369**
Ngelelya	.0	.0	.0	.0	100.0	.	.	252
Ngoliba	.3	.0	.0	.0	99.7	2	2	387
Kalimoni	.0	.6	.0	.0	99.4	20	20	564

Table 4.21: Percentage distribution of water used for Other Livestock uses *(continued)*

Diatricts/FDAs	0 - 10	11 - 20	51 - 100	100 +	NS	Average	Median	Sample
THIKA	**.1**	**.3**	**.0**	**.0**	**99.6**	**15**	**20**	**1204**
Kagumoini	.0	.0	.0	.0	100.0	.	.	193
Maragua Ridge	1.5	1.4	.0	.0	97.1	11	11	148
Mariaini	.0	.0	.0	.0	100.0	.	.	109
MARAGUA	.5	.5	.0	.0	99.1	11	11	450
Project total 2010	**.2**	**.2**	**.0**	**.1**	**99.4**	**284**	**20**	**3129**

Table 4.22: Percentage distribution of water used for Micro-Irrigation in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100 +	NS	Average	Median	Sample
Ndindiriku	1.4	1.0	.7	1.6	.5	94.9	417	35	165
Kiumbu/Kianugu	.0	8.0	.0	2.0	2.0	88.0	195	20	138
Rukanga	1.6	3.4	6.0	3.6	7.7	77.6	304	57	252
KIRINYAGA	**1.2**	**3.8**	**2.9**	**2.6**	**4.1**	**85.3**	**294**	**40**	**555**
Muricho	.3	.6	.2	4.3	2.6	91.9	305	100	209
Kiriogo	.0	.9	3.2	4.9	4.1	86.9	130	100	88
Mbuyu	.0	1.5	.5	.9	.6	96.5	60	45	179
Ndivai	1.1	.0	1.0	.0	.8	97.1	73	44	75
NYANDARUA	**.3**	**.9**	**.9**	**2.7**	**2.0**	**93.3**	**195**	**100**	**551**
Maragima	.0	.0	1.7	6.7	24.0	67.5	1063	500	144
Kariara	.0	.0	1.5	3.5	4.6	90.5	525	120	95
Mutundu	.4	.0	.9	.9	2.4	95.3	913	169	130
NYERI	**.1**	**.0**	**1.4**	**3.9**	**11.4**	**83.3**	**969**	**401**	**369**
Ngelelya	.0	.0	.0	.0	.5	99.5	1000	1000	252
Ngoliba	.9	.3	.3	1.0	1.1	96.4	80	64	387
Kalimoni	.0	.0	.1	.4	.1	99.5	273	80	564
THIKA	**.3**	**.1**	**.1**	**.5**	**.5**	**98.5**	**171**	**80**	**1204**
Kagumoini	.2	.2	1.1	1.2	.4	97.0	77	70	193
Maragua Ridge	1.5	.7	1.4	1.3	6.1	88.9	6370	300	148
Mariaini	.0	.0	.0	.8	.0	99.2	100	100	109
MARAGUA	**.6**	**.3**	**.9**	**1.1**	**2.2**	**94.9**	**4542**	**100**	**450**
Project total 2010	**.5**	**.9**	**1.0**	**1.7**	**2.9**	**92.9**	**899**	**100**	**3129**
Project Total 2006	**0.1**	**0.1**	**0.1**	**0.1**	**0.8**		**532.9**	**500**	**2,175**

Table 4.23 shows the percentage distribution of water used for irrigation in the household. The mean amount of water used for this purpose has tripled from 533 in 2006 to 1,791 in 2010. Similarly the median has doubled from 500 litres to 1000 litres in the same reference period. Further discussion of these figures is hindered by the high non-response rate.

Table 4.23: Percentage distribution of water used for Irrigation in the household

Diatricts/FDAs	0 - 10	11 - 20	21 - 50	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	.0	.8	.0	.0	10.6	88.7	2806	2000	165
Kiumbu/Kianugu	.0	.0	.0	2.0	14.0	84.1	1765	1108	138
Rukanga	.0	.0	.0	.0	2.1	97.9	1864	1786	252
KIRINYAGA	**.0**	**.2**	**.0**	**.5**	**7.6**	**91.7**	**2199**	**1500**	**555**
Muricho	.0	.0	.0	.0	1.9	98.1	2733	2000	209
Kiriogo	.0	.0	.0	.0	.0	100.0	.	.	88
Mbuyu	.0	.0	.8	.4	.4	98.4	84	57	179
Ndivai	.8	.0	1.0	.0	1.1	97.1	1594	1219	75
NYANDARUA	**.1**	**.0**	**.4**	**.1**	**1.0**	**98.4**	**1622**	**1641**	**551**
Maragima	.0	.0	.0	.0	8.0	92.0	716	1000	144
Kariara	.0	.0	.0	.0	.0	100.0	.	.	95
Mutundu	.7	.0	.0	.0	.0	99.3	2	2	130
NYERI	**.3**	**.0**	**.0**	**.0**	**3.1**	**96.6**	**662**	**933**	**369**
Ngelelya	.0	.0	.0	.0	.0	100.0	.	.	252
Ngoliba	.0	.0	.8	.0	.0	99.2	30	30	387
Kalimoni	.0	.0	.0	.0	.3	99.7	1000	1000	564
THIKA	**.0**	**.0**	**.2**	**.0**	**.1**	**99.6**	**359**	**30**	**1204**
Kagumoini	.4	.0	.0	.0	.6	98.9	119	139	193
Maragua Ridge	.7	.0	.0	.7	2.8	95.8	3339	200	148
Mariaini	.0	.8	.0	.0	.9	98.4	130	172	109
MARAGUA	**.4**	**.2**	**.0**	**.2**	**1.4**	**97.7**	**2112**	**200**	**450**
Project total 2010	**.1**	**.1**	**.2**	**.1**	**2.1**	**97.4**	**1791**	**1000**	**3129**
Project Total 2006	**0.1**	**0.1**	**0.1**	**0.1**	**0.8**	**98.8**	**532.9**	**500**	**2,175**

The percentage distribution of water used for other uses in the household is presented in Table 4.24. The average amount used for this purpose is 161 litres while the median is 78 litres. Further discussion of these figures is hindered by the high non-response rate.

Table 4.24: Percentage distribution of water used for other uses in the household

Districts/FDAs	0 - 10	11 - 20	51 - 100	100+	NS	Average	Median	Sample
Ndindiriku	.0	.0	.0	.0	100.0	.	.	165
Kiumbu/Kianugu	.0	.0	.0	.0	100.0	.	.	138
Rukanga	.6	.0	.0	.6	98.7	105	105	252
KIRINYAGA	**.3**	**.0**	**.0**	**.3**	**99.4**	**105**	**105**	**555**
Muricho	.0	.0	.0	.0	100.0	.	.	209
Kiriogo	.0	.0	.0	.6	99.4	200	200	88
Mbuyu	.0	.0	.0	.0	100.0	.	.	179
Ndivai	.0	.0	.0	.0	100.0	.	.	75
NYANDARUA	**.0**	**.0**	**.0**	**.1**	**99.9**	**200**	**200**	**551**
Maragima	.0	.0	1.7	.0	98.3	80	80	144
Kariara	.0	.0	.0	.4	99.6	2000	2000	95
Mutundu	.0	.4	.0	.0	99.6	20	20	130
NYERI	**.0**	**.1**	**.7**	**.1**	**99.1**	**304**	**80**	**369**
Ngelelya	.0	.0	.0	.0	100.0	.	.	252
Ngoliba	.0	.0	.0	.0	100.0	.	.	387
Kalimoni	.0	.0	.0	.0	100.0	.	.	564

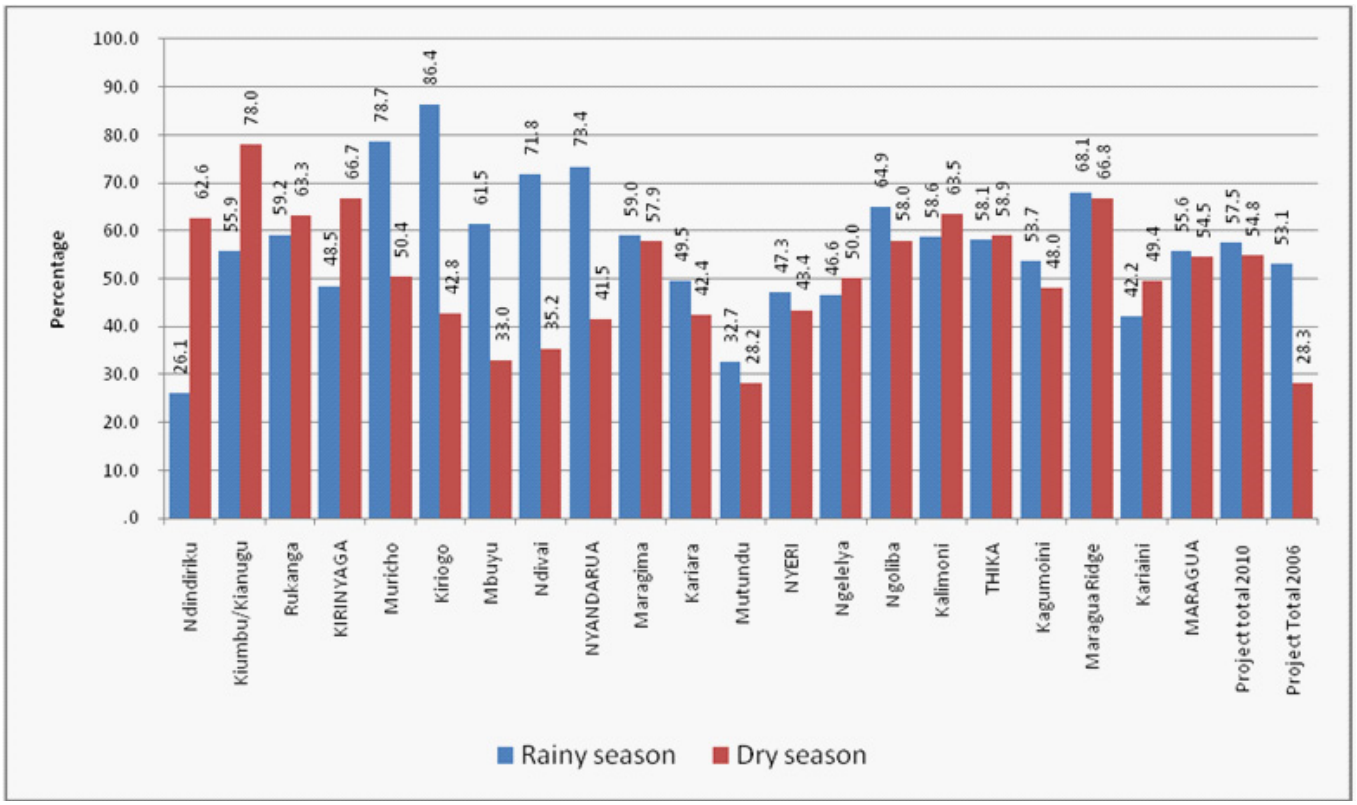
Table 4.24: Percentage distribution of water used for other uses in the household *(continued)*

Districts/FDAs	0 - 10	11 - 20	51 - 100	100 +	NS	Average	Median	Sample
THIKA	.0	.0	.0	.0	100.0	.	.	1204
Kagumoini	.0	.0	.0	.0	100.0	.	.	193
Maragua Ridge	1.4	.0	.0	.0	98.6	1	1	148
Mariaini	.0	.0	.0	.0	100.0	.	.	109
MARAGUA	**.5**	**.0**	**.0**	**.0**	**99.5**	**1**	**1**	**450**
Project total 2010	**.1**	**.0**	**.1**	**.1**	**99.7**	**161**	**78**	**3129**

4.7 Adequacy of Water during Rainy and Dry Seasons

Respondents were asked whether water was enough during rainy and dry seasons based on the above uses. Figue 4.1 shows the adequacy of water during the rainy and dry season in 2010. Across the districts, Nyandarua had the highest proportion of households reporting water adequacy in the rainy season (73%). On the other hand, Kirinyaga had the highest proportion of households reporting water adequacy during the dry season (67%).

Figure 4.1 Adequacy of water during Rainy and Dry season 2010



There was a marked improvement in the proportion of households reporting water adequacy during both seasons. However, the greatest improvement is observed for the dry season; from 28 percent in 2006 to 55 percent in 2010. This positive change is an indicaton of acquisition of new skills for water harvesting, storage and distribution. Water shortage during the dry season was most acute in Ndindiriku, while Mutundu was the most affected during the dry season.

4.8 Common Water Borne Diseases

The percentage distribution of common water borne diseases is shown in Table 4.25. Typhoid was cited as the most common water borne disease by two thirds of households in the project area, with nine in ten households in Kiriogo and Muricho being in this category. Ameobiasis is the second most common water borne disease (33%) followed by diarrhoea (30%).

Table 4.25: Percentage distribution of Common water born diseases

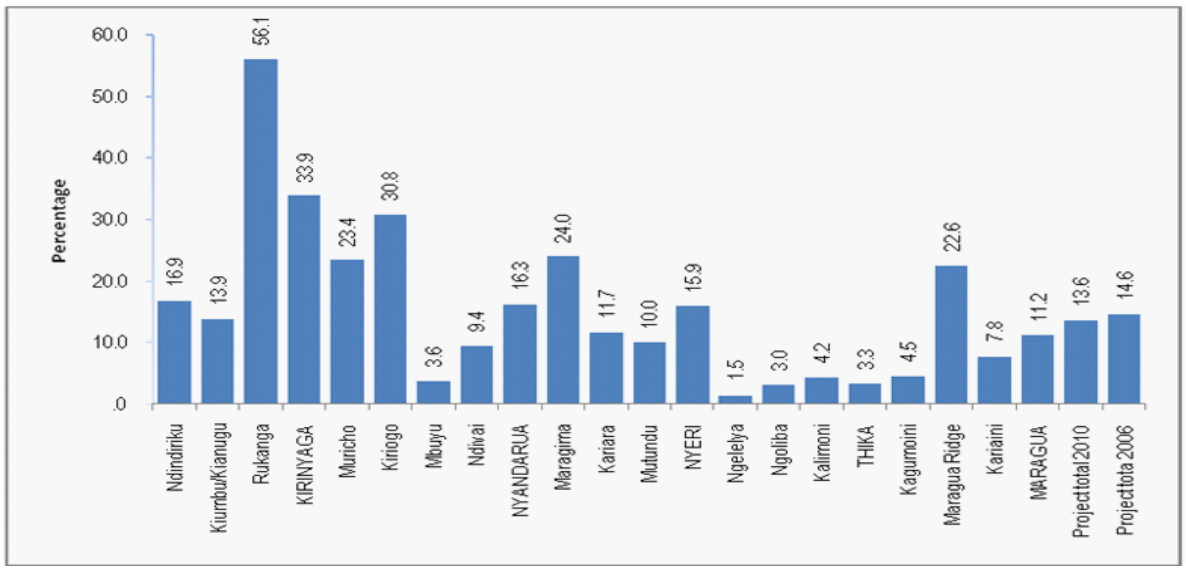
Districts/FDAs	Diarrhoea	Typhoid	Bilharzia	Bacillery/ Dysentry/	100+	NS	Average	Median	Sample
Ndindiriku	26.9	62.2	51.4	4.8	60.8	37.6	8.2	.0	165
Kiumbu/Kianugu	22.0	60.0	27.9	7.9	54.1	33.9	4.0	4.0	138
Rukanga	22.4	57.5	16.3	2.8	57.9	16.3	.8	6.0	252
KIRINYAGA	**23.7**	**59.5**	**29.6**	**4.7**	**57.8**	**27.0**	**3.8**	**3.7**	**555**
Muricho	30.7	91.0	10.8	20.6	38.5	31.6	2.6	8.0	209
Kiriogo	47.1	91.2	5.2	16.9	46.7	26.6	.6	11.8	88
Mbuyu	34.7	84.4	6.6	11.0	33.9	19.8	2.9	11.3	179
Ndivai	39.9	87.7	12.9	13.4	27.8	26.0	6.0	8.3	75
NYANDARUA	**35.9**	**88.4**	**8.8**	**15.9**	**36.8**	**26.2**	**2.9**	**9.7**	**551**
Maragima	23.7	34.6	2.6	3.5	29.2	11.5	3.0	4.4	144
Kariara	22.8	41.7	.4	.6	28.7	11.6	2.5	6.8	95
Mutundu	15.8	59.6	2.7	.8	39.5	13.0	1.0	5.9	130
NYERI	**20.7**	**45.2**	**2.1**	**1.8**	**32.7**	**12.1**	**2.2**	**5.6**	**369**
Ngelelya	40.7	58.0	9.7	.9	13.0	20.0	6.8	.3	252
Ngoliba	35.5	60.9	9.9	1.6	17.7	24.6	4.4	2.6	387
Kalimoni	36.2	65.5	10.3	2.3	17.5	23.4	8.9	.0	564
THIKA	**36.9**	**62.5**	**10.0**	**1.8**	**16.6**	**23.1**	**7.0**	**.9**	**1 204**
Kagumoini	14.7	61.8	3.4	2.1	31.4	14.8	.0	2.1	193
Maragua Ridge	29.3	88.3	18.0	.0	39.3	13.8	.7	.7	148
Mariaini	15.1	59.2	10.3	8.3	60.4	12.3	2.2	16.0	109
MARAGUA	**19.6**	**69.9**	**9.9**	**2.9**	**41.1**	**13.9**	**.8**	**5.0**	**450**
Project total 2010	**30.0**	**65.6**	**12.3**	**4.9**	**32.9**	**21.7**	**4.2**	**4.1**	**3 129**
Project Total 2006	**15.8**	**79.3**	**9.2**	**2.3**	**53.9**	**5.2**	**7.2**	**7.9**	**2,175**

During the study period incidences of diarrhoea rose from 16 percent to 30 percent, while the greatest decline was observed for amoebiasis cases, from 54 percent to 33 percent. The number of households reporting incidences of water borne diseases rose from 2,175 in 2006 to 3,129 in 2010.

4.9 Membership to Water User Groups

Operations and maintenance of water facilities is best done through water user groups (WUGs). The evaluation sought to establish the presence of such groups and memberships of households to the groups. Figure 4.2 shows the distribution of households in WUGs. Across the districts, membership in WUGs is highest in Kirinyaga (34%) and lowest in Thika at 3 percent. Overtime the proportion of households in WUGs has not changed significantly (from 15% in 2006 to 14% in 2010).

Figure 4.2 Percentage distributions of households with members in water user groups



4.10 Sanitation and Hygiene

4.10.1 Toilet Facilities

The survey sought to find out the availability of sanitary facilities and disposal of human waste in the project area. A series of questions were asked regarding types and location of toilet facilities, how often they are cleaned, whether children under 5 years use these facilities and what happens to the stool of young children (0-5 years) when they do not use them. The responses to these questions are tabulated below.

Three main types of toilet facilities are used by households in the project area, notably pit latrines without slabs (open pits) (44%), pit latrines with slabs (41%) and ventilated improved pit latrines (11%). Pit latrines without a slab/open pits are more common in Nyandarua District (98%) while pit latrines with slabs are mostly found in Nyeri (66%).

Over time the VIP users have marginally increased from about 8 percent to 11 percent, while open Pitlatrine users have decreased from 50 percent to 44 percent during the 2006 and 2010 reference period[2]. The percentage of households that reported having no facility or using bush has decreased from about 2 percent in 2006 to less than 1 percent.

Table 4.26: Percentage distribution of Types of Toilet facilities

Districts/FDAs	Flush / pour flush	Flush to piped sewer system	Flush to septic tank	Flush to pit (latrine)	Ven-tilated Improved Pit latrine	Pit latrine with slab	Pit latrine without slab/open pit	Com-posting toilet	Hanging toilet/ hanging latrine	No facilities or bush or field	Other (specify)	Sample
Ndindiriku	3.0	2.1	.0	.0	23.4	26.3	45.3	.0	.0	.0	.0	165
Kiumbu/Kianugu	.0	.0	.0	.0	16.0	20.1	63.9	.0	.0	.0	.0	138
Rukanga	1.7	.0	.5	.0	25.8	25.0	46.4	.0	.0	.5	.0	252
KIRINYAGA	**1.7**	**.6**	**.2**	**.0**	**22.6**	**24.2**	**50.4**	**.0**	**.0**	**.2**	**.0**	**555**
Muricho	2.8	.0	.0	.0	2.7	5.0	89.5	.0	.0	.0	.0	209
Kiriogo	1.5	.0	.0	.0	.0	4.4	94.1	.0	.0	.0	.0	88
Mbuyu	1.2	.0	.0	.3	2.2	7.9	87.4	.0	.0	1.0	.0	179
Ndivai	2.0	.0	.0	.0	1.2	12.0	83.5	.0	.0	1.2	.0	75
NYANDARUA	**2.0**	**.0**	**.0**	**.1**	**1.9**	**6.8**	**88.7**	**.0**	**.0**	**.5**	**.0**	**551**
Maragima	.0	.0	.0	.0	5.2	67.6	26.5	.0	.0	.7	.0	144
Kariara	.6	.0	.0	.0	3.0	73.4	23.0	.0	.0	.0	.0	95
Mutundu	.0	.0	.5	.0	6.0	59.5	32.6	.0	.0	.5	.9	130
NYERI	**.2**	**.0**	**.2**	**.0**	**4.9**	**66.2**	**27.8**	**.0**	**.0**	**.5**	**.3**	**369**
Ngelelya	.7	.0	.5	.0	10.5	40.7	44.8	.3	1.1	1.4	.0	252
Ngoliba	.4	.4	1.4	2.5	12.9	50.2	29.2	.8	.0	1.5	.8	387
Kalimoni	2.0	1.7	2.7	.8	11.3	55.8	24.0	.1	.0	1.4	.2	564
THIKA	**1.2**	**.9**	**1.8**	**1.2**	**11.7**	**50.8**	**30.0**	**.4**	**.2**	**1.4**	**.4**	**1 204**
Kagumoini	1.8	.0	.0	.5	5.2	59.9	32.6	.0	.0	.0	.0	193
Maragua Ridge	1.4	.0	1.4	.0	13.6	57.6	26.0	.0	.0	.0	.0	148
Mariaini	.3	.0	.0	.0	5.7	53.4	40.3	.0	.4	.0	.0	109
MARAGUA	**1.3**	**.0**	**.5**	**.2**	**8.1**	**57.6**	**32.3**	**.0**	**.1**	**.0**	**.0**	**450**
Project total 2010	**1.3**	**.5**	**.8**	**.5**	**10.6**	**41.1**	**44.0**	**.1**	**.1**	**.7**	**.2**	**3 129**
Project total 2006	**1.5**	**0.2**			**7.8**	**38.1**	**50.4**			**1.9**		**2,175**

[2] Open Pit latrine refers to a toilet without a cement slab

Table 4.27 shows the percentage distribution of location of a toilet facility. Approximately four fifths of the houseolds have a toilet facility in their dwelling/yard/compound. It is also observed that majority of the households in Kiumbu/ Kianugu (62%) do not have a toilet facility within their dwelling/yard/compound.

Table 4.27: Percentage distribution of Location of toilet facility

Districts/FDAs	Yes, in dwelling/yard/compound	No, outside dwelling/yard/compound	Sample
Ndindiriku	48.9	51.1	165
Kiumbu/Kianugu	38.0	62.0	138
Rukanga	44.7	55.3	252
KIRINYAGA	**44.3**	**55.7**	**555**
Muricho	92.1	7.9	209
Kiriogo	89.1	10.9	88
Mbuyu	88.4	11.6	179
Ndivai	84.9	15.1	75
NYANDARUA	**89.4**	**10.6**	**551**
Maragima	79.8	20.2	144
Kariara	t81.4	18.6	95
Mutundu	82.2	17.8	130
NYERI	**81.0**	**19.0**	**369**
Ngelelya	82.9	17.1	252
Ngoliba	85.8	14.2	387
Kalimoni	80.9	19.1	564
THIKA	**82.9**	**17.1**	**1 204**
Kagumoini	98.3	1.7	193
Maragua Ridge	10.0	.0	148
Mariaini	10.0	.0	109
MARAGUA	**99.3**	**.7**	**450**
Project total 2010	**79.3**	**20.7**	**3 129**
Project Total 2006	**70.5**	**28.0**	**2,175**

The proportion of households with a toilet facility within their dwelling/yard/compound rose by 8 percent in the study period. This can be explained by the 7 percent decline in households without a toilet in their dwelling/yard/ compound.

The percentage distribution of the frequency of facility cleaning is shown in Table 4.28. majority of the households in the project area (33%) reported cleaning their toilet facilities once a day, followed by those who cleaned their facilities more than once a week (32%). It is observed that approximately a fifth of households in Ngelelya do not clean their toilets.

Table 4.28: Percentage distribution of Frequency facility cleaning

Districts/FDAs	Once a day	More than once a day	Once a week	More than once a week	Never cleaned	Other	Sample
Ndindiriku	27.3	2.9	21.5	42.7	5.1	.5	165
Kiumbu/Kianugu	33.9	4.1	10.0	40.1	7.9	4.1	138
Rukanga	34.8	1.7	18.9	40.6	2.5	1.6	252
KIRINYAGA	**32.3**	**2.6**	**17.5**	**41.1**	**4.6**	**1.9**	**555**
Muricho	16.7	6.9	24.5	49.4	2.2	.3	209
Kiriogo	31.8	16.6	19.1	32.5	.0	.0	88
Mbuyu	31.2	11.0	18.2	32.6	4.9	2.1	179
Ndivai	28.3	9.8	15.0	39.2	5.6	2.1	75
NYANDARUA	**25.4**	**10.2**	**20.3**	**39.8**	**3.2**	**1.1**	**551**
Maragima	32.1	.5	31.1	24.1	11.5	.7	144
Kariara	29.2	2.1	29.0	33.6	4.6	1.5	95
Mutundu	26.7	1.5	29.4	35.9	4.7	1.9	130
NYERI	**29.4**	**1.3**	**29.9**	**30.7**	**7.3**	**1.3**	**369**
Ngelelya	20.9	2.6	20.1	34.1	22.2	.1	252
Ngoliba	36.1	4.3	17.8	22.9	18.3	.6	387
Kalimoni	46.2	5.3	13.5	16.7	17.9	.4	564

Table 4.28: Percentage distribution of Frequency facility cleaning *(continued)*

Districts/FDAs	Once a day	More than once a day	Once a week	More than once a week	Never cleaned	Other	Sample
THIKA	**37.6**	**4.4**	**16.3**	**22.3**	**18.9**	**.4**	**1 204**
Kagumoini	27.1	4.4	21.6	36.9	9.8	.2	193
Maragua Ridge	34.2	6.3	22.9	33.0	2.1	1.5	148
Mariaini	31.1	1.3	11.8	46.9	8.9	.0	109
MARAGUA	**30.4**	**4.3**	**19.6**	**38.1**	**7.0**	**.6**	**450**
Project total 2010	**32.5**	**4.7**	**19.3**	**32.0**	**10.5**	**.9**	**3 129**
Project total 2006	**25.3**	**3.5**	**25.2**	**31.3**	**8.9**	**4.5**	**2,175**

The reference period saw an 8 percent increase in households that clean their toilet facilities once a day, and a 6 percent decline in those who cleaned their facilities once a week. The move towards cleaning toilet facilities on a daily basis is positive and will reduce incidences of germs spread by flies.

The percentage distribution of hand washing equipment located in a toilet facility is presented in Table 4.29. Close to half of households in the project area lack hand washing equipment in their toilet facilities. Most of the households (35%), however, use basins as hand washing equipment. Hand washing after visiting the toilet has not been adopted successfully in the project area. A lot of advocacy is required to sensitize the communities on the importance of hand washing.

Table 4.29: Percentage distribution of Hand washing equipment located in toilet facility

Districts/FDAs	Tap	Leaky	Basin	None	Other	Total
Ndindiriku	1.6	6.8	24.9	67.1	2.0	165
Kiumbu/Kianugu	.0	6.0	26.0	66.0	2.0	138
Rukanga	20.0	5.9	13.9	58.3	2.0	252
KIRINYAGA	**9.5**	**6.2**	**20.2**	**62.8**	**2.0**	**555**
Muricho	9.1	4.6	27.6	60.3	.4	209
Kiriogo	4.9	11.8	23.3	59.0	1.9	88
Mbuyu	4.0	12.4	27.8	57.1	.5	179
Ndivai	2.0	19.8	23.4	55.6	.0	75
NYANDARUA	**5.8**	**10.3**	**26.4**	**58.4**	**.6**	**551**
Maragima	37.0	1.7	34.3	38.0	.6	144
Kariara	13.4	3.0	33.1	51.1	.4	95
Mutundu	2.4	4.3	31.8	64.3	.0	130
NYERI	**18.7**	**3.0**	**33.1**	**50.7**	**.3**	**369**
Ngelelya	3.7	13.5	39.2	43.5	.0	252
Ngoliba	8.9	8.4	43.3	40.0	1.8	387
Kalimoni	24.4	2.5	39.2	35.7	.0	564
THIKA	**15.1**	**6.7**	**40.5**	**38.7**	**.6**	**1 204**
Kagumoini	1.9	.7	49.3	49.0	.4	193
Maragua Ridge	4.8	2.0	50.1	45.0	2.0	148
Mariaini	.5	2.8	56.6	40.1	.0	109
MARAGUA	**2.5**	**1.6**	**51.3**	**45.5**	**.8**	**450**
Project Total 2010	**11.1**	**6.1**	**35.1**	**48.9**	**.8**	**3 129**

Table 4.30 shows the present percentage distribution of sanitary facilities in the households compared to before. Approximately a third of the households had acquired a hanging line and mosqioto nets. It can also be observed that slightly over a half of the households did not acquire any new sanitary facilities.

Table 4.30: Percentage distribution of Sanitation facilities the household have compared to before

Districts/FDAs	Dish rack	Hanging line	Mosquito nets	Compost pit	None	Other	Total
Ndindiriku	6.8	52.1	53.8	21.4	37.5	.0	165
Kiumbu/Kianugu	12.1	60.0	66.1	28.1	27.9	2.0	138
Rukanga	7.3	69.0	72.0	30.2	22.6	.4	252
KIRINYAGA	**8.3**	**61.7**	**65.2**	**27.1**	**28.4**	**.7**	**555**
Muricho	16.5	40.1	17.8	17.3	56.7	.0	209
Kiriogo	16.5	26.7	9.7	11.2	69.8	.0	88
Mbuyu	9.9	35.1	14.1	13.0	57.8	1.8	179
Ndivai	21.0	35.6	19.4	16.6	53.3	1.2	75
NYANDARUA	**15.0**	**35.7**	**15.5**	**14.8**	**58.7**	**.7**	**551**
Maragima	1.6	.0	1.1	1.1	95.5	1.3	144
Kariara	1.9	.0	.6	.6	98.1	.0	95
Mutundu	1.0	.0	.0	.0	98.4	.5	130
NYERI	**1.5**	**.0**	**.6**	**.6**	**97.2**	**.7**	**369**
Ngelelya	9.5	33.6	41.6	14.3	48.9	1.9	252
Ngoliba	5.9	27.4	34.0	12.5	59.3	1.6	387
Kalimoni	9.8	37.0	43.9	15.9	49.8	.8	564
THIKA	**8.5**	**33.2**	**40.3**	**14.5**	**52.6**	**1.3**	**1 204**
Kagumoini	1.1	20.4	26.9	1.6	56.6	1.9	193
Maragua Ridge	1.4	20.3	43.9	8.2	38.4	4.8	148
Mariaini	.9	21.0	28.2	7.4	58.4	.0	109
MARAGUA	**1.1**	**20.5**	**32.8**	**5.2**	**51.0**	**2.4**	**450**
Project Total 2010	**7.7**	**33.0**	**34.6**	**13.8**	**54.4**	**1.2**	**3 129**

4.10.2 Use of sanitary facilities by children under five years

The percentage distribution of use of sanitary facilities by children under five years is shown in Table 4.31. Though three fifths of the households had no child under age five, most of those who had (18%) reported that their children used a sanitary facility. Compared to 2006, the proportion of children under five who use a sanitary facility rose by 7 percent while those who did not declined by 15 percent.

Table 4.31: Percentage distribution of Use of sanitation facility by children under five years

Districts/FDAs	Yes	No	Some children use, while others don't	N/A, (HH has no children under 5 yrs)	Sample
Ndindiriku	12.9	18.5	6.7	61.9	165
Kiumbu/Kianugu	16.0	27.9	0.0	56.1	138
Rukanga	8.1	17.1	4.8	70.0	252
KIRINYAGA	**11.5**	**20.2**	**4.2**	**64.1**	**555**
Muricho	25.1	16.1	0.0	58.8	209
Kiriogo	20.4	12.4	0.6	66.6	88
Mbuyu	18.5	17.6	5.1	58.8	179
Ndivai	12.3	12.3	1.2	74.2	75
NYANDARUA	**20.5**	**15.5**	**1.9**	**62.1**	**551**
Maragima	16.0	16.8	3.8	63.5	144
Kariara	12.2	21.8	0.0	66.0	95
Mutundu	5.3	15.7	0.0	79.0	130
NYERI	**11.2**	**17.7**	**1.5**	**69.6**	**369**
Ngelelya	20.5	15.1	3.8	60.6	252
Ngoliba	21.9	18.3	5.6	54.1	387
Kalimoni	15.6	19.8	4.6	60.0	564
THIKA	**18.7**	**18.3**	**4.8**	**58.2**	**1 204**
Kagumoini	9.9	21.2	1.5	67.4	193
Maragua Ridge	12.6	19.8	0.7	66.9	148
Mariaini	15.3	21.1	3.3	60.3	109
MARAGUA	**12.1**	**20.7**	**1.7**	**65.5**	**450**
Project Total 2010	**15.9**	**18.4**	**3.3**	**62.3**	**3 129**
Project Total 2006	**9.3**	**33.1**	**3.5**	**53.5**	**2,175**

Majority of households (92%) dispose off stool of children under 5 into toilet or latrine (Table 4.32). This is highest in Maragua District and lowest in Nyeri District (98% and 10% respectively). Nyandarua District had the highest proportion (15%) of households that dispose off the stool by burying it in the yard.

The study period recorded a decline in the proportion of households that dispose off stool of children under five by throwing it outside the yard (from 7% in 2006 to 1% in 2010). This is a positive change that reduces incidences of diarrhoea and cholera outbreaks.

Table 4.32: Percentage distribution of disposal of the stools of children under 5 years when they do not use toilet facilities

Districts/FDAs	Thrown into toilet or latrine	Thrown outside the yard	Buried in the yard	Not disposed off/left on the ground	Children go to bushes	Other	Sample
Ndindiriku	98.1	0.0	1.9	0.0	0.0	0.0	42
Kiumbu/Kianugu	78.6	0.0	14.3	0.0	7.1	0.0	39
Rukanga	90.8	2.0	11.5	0.0	0.0	0.0	54
KIRINYAGA	**89.5**	**0.8**	**9.3**	**0.0**	**2.0**	**0.0**	**134**
Muricho	90.8	3.4	13.7	0.0	0.0	0.0	36
Kiriogo	90.8	4.3	4.9	0.0	0.0	0.0	12
Mbuyu	87.2	3.3	18.1	0.0	0.0	0.0	41
Ndivai	88.4	5.1	19.4	10.3	0.0	0.0	12
NYANDARUA	**89.1**	**3.6**	**15.1**	**1.2**	**0.0**	**0.0**	**101**
Maragima	10.0	0.0	2.3	0.0	2.3	0.0	30
Kariara	10.0	0.0	7.5	0.0	0.0	0.0	21
Mutundu	10.0	4.6	8.4	0.0	0.0	0.0	20
NYERI	**10.0**	**1.3**	**5.6**	**0.0**	**1.0**	**0.0**	**71**
Ngelelya	93.6	2.5	1.2	0.0	2.8	0.0	48
Ngoliba	88.1	0.5	6.0	2.6	9.4	0.0	90
Kalimoni	91.3	0.0	7.9	0.0	5.9	0.0	131
THIKA	**90.6**	**0.6**	**6.1**	**0.9**	**6.5**	**0.0**	**268**
Kagumoini	98.0	2.9	0.0	0.0	0.0	0.8	45
Maragua Ridge	10.0	0.0	3.0	0.0	0.0	0.0	30
Mariaini	92.9	3.8	5.0	0.0	0.0	0.0	29
MARAGUA	**97.2**	**2.3**	**2.3**	**0.0**	**0.0**	**0.4**	**105**
Project Toatl 2010	**92.2**	**1.4**	**7.4**	**0.5**	**3.1**	**0.1**	**679**
Project Total 2006	**88.2**	**7.4**	**6.9**	**1.9**	**2.8**	**1.1**	**713**

5

Chapter Five:
PRIMARY HEATH CARE

5.0 Introduction

The results and analysis presented in this Chapter are limited to few PHC indicators; i.e distances to health facilities, level of HIV/Aids knowledge, involvement of targeted population in organised health groups and common diseases.

5.1 Health Facilities Commonly Visited at Times of Illness

Table 5.1 shows that majority of the respondents visit dispensaries (47%), followed by health centres (40%) while only 4 percent visit private hospitals/clinics. The highest percentage (97%) of those who visit dispensaries is in Kariara FDA while Kiumbu/Kianugu FDA recorded the least at 12 percent. Conversely, Kiumbu/Kianugu recorded the highest percentage of those visiting health centres (84%) while Kariara and Mutundu recorded the least at 1 percent. Private clinics/hospitals are mostly used in Maragima while none of the residents utilize these facilities in Kiriogo and Maragua Ridge. A quarter of the respondents of Kalimoni utilized government hospitals, while none of the FDAs in Kirinyaga District recorded use of these facilities.

Table 5.1: Percentage distribution of Health facilities from which Household members seek medical care

Districts/FDAs	Dispensaries	Health Centres	Private Hospitals/Clinics	Government Hospitals	Other	Not Specified	Total
Ndindiriku	27.3	63.2	9.0	.0	.5	.0	165
Kiumbu/Kianugu	11.8	84.2	3.9	.0	.0	.0	138
Rukanga	68.7	28.7	2.5	.0	.0	.0	252
KIRINYAGA	**42.2**	**52.8**	**4.8**	**.0**	**.1**	**.0**	**555**
Muricho	21.7	65.3	.3	3.7	8.6	.4	209
Kiriogo	72.8	6.9	.0	1.7	18.6	.0	88
Mbuyu	81.9	4.3	3.5	6.9	3.4	.0	179
Ndivai	87.9	1.8	1.2	2.4	6.7	.0	75
NYANDARUA	**58.5**	**27.5**	**1.4**	**4.2**	**8.2**	**.2**	**551**
Maragima	23.2	50.3	21.7	4.8	.0	.0	144
Kariara	97.3	.6	1.5	.0	.0	.6	95
Mutundu	96.9	.7	1.4	.5	.5	.0	130
NYERI	**68.3**	**20.0**	**9.3**	**2.0**	**.2**	**.2**	**369**
Ngelelya	60.1	39.2	.1	.6	.0	.0	252
Ngoliba	28.1	54.9	4.7	12.3	.0	.0	387
Kalimoni	23.4	41.5	8.2	26.9	.1	.0	564
THIKA	**32.6**	**45.3**	**5.4**	**16.7**	**.1**	**.0**	**1 204**
Kagumoini	67.5	30.5	1.4	.6	.0	.0	193
Maragua Ridge	28.6	71.4	.0	.0	.0	.0	148
Mariaini	87.7	10.9	1.4	.0	.0	.0	109
MARAGUA	**59.6**	**39.2**	**.9**	**.3**	**.0**	**.0**	**450**
Project Total 2010	**47.0**	**39.6**	**4.4**	**7.5**	**1.5**	**.0**	**3 129**
Project Total 2006	**68.9**	**27.4**	**1.8**	**1.5**	**0.4**		**2,175**

A look at the interval between 2006 and 2010 reveals a decrease in users of dispensaries; from 69 percent to 47 percent, while in all the other categories, there was an increase. A decline in visits to dispensaries could be attributed to location of the said facility. According to Table 5.6, there was an increase in proximity to health facilities, implying that these are located nearer than the dispensaries.

5.2 Distances covered by households to health facilities

Distances covered to health facilities by households' members are presented in Table 5.2. The distances were categorised as between less than 5km, between 5-10km, and more than 10km. The results show that three quarters of all households

walk less than 5km, followed by those who cover between 5-10km (18%), while only 5 percent cover more than 10km. Muricho and Kiumbu/Kianugu had the most households that cover the longest and least distances respectively.

Table 5.2: Percentage distribution of Distance covered by household members to reach health facilities

Districts/FDAs	Less than 5 km	Between 5 - 10 km	More than 10 km	Not Specified	Total
Ndindiriku	87.4	11.9	.7	.0	165
Kiumbu/Kianugu	98.0	2.0	.0	.0	138
Rukanga	86.9	11.0	2.1	.0	252
KIRINYAGA	**89.8**	**9.0**	**1.2**	**.0**	**555**
Muricho	53.8	29.2	16.6	.4	209
Kiriogo	89.7	9.4	.9	.0	88
Mbuyu	45.6	47.6	6.8	.0	179
Ndivai	89.0	9.8	1.2	.0	75
NYANDARUA	**61.6**	**29.4**	**8.8**	**.2**	**551**
Maragima	58.2	38.4	3.4	.0	144
Kariara	84.2	14.7	.4	.6	95
Mutundu	79.1	19.2	1.7	.0	130
NYERI	**72.3**	**25.5**	**2.0**	**.2**	**369**
Ngelelya	80.7	18.2	1.1	.0	252
Ngoliba	68.4	21.3	10.3	.0	387
Kalimoni	73.8	19.0	7.2	.0	564
THIKA	**73.5**	**19.6**	**6.9**	**.0**	**1 204**
Kagumoini	88.8	10.1	1.0	.0	193
Maragua Ridge	97.9	.7	1.4	.0	148
Mariaini	89.5	9.4	1.1	.0	109
MARAGUA	**92.0**	**6.9**	**1.2**	**.0**	**450**
Project Total 2010	**76.8**	**18.3**	**4.8**	**.0**	**3 129**
Project Total 2006	**62.2**	**28**	**9**	**0.8**	**2,175**

In the period under review, there was an increase in the percentage covering the least distance (from 62% to 77%) while those covering longer distances reduced (from 28% to 18% for those walking between 5 and 10 kilometers and 9% to 5% for those walking more than 10 kilometers). Increased access may be as a result of an intervention that saw local facilities improve their services and capabilities to handle various patients. This in turn lead to shorter distances covered.

Table 5.3 presents results on distribution of births in the household in the five years preceding the survey. A majority of the households (64%) reported no births in the period under study. Of those that reported a birth, most were in Kirinyaga district (38%) with Kiumbu/Kianugu leading the FDAs at 46 percent.

Table 5.3: Percentage distribution of Number of births in the household in the last five years

Districts/FDAs	Yes	No	Not Specified	Total
Ndindiriku	42.0	58.0	.0	165
Kiumbu/Kianugu	46.0	54.0	.0	138
Rukanga	30.0	70.0	.0	252
KIRINYAGA	**37.5**	**62.5**	**.0**	**555**
Muricho	43.1	55.1	1.8	209
Kiriogo	33.7	64.8	1.6	88
Mbuyu	37.7	62.3	.0	179
Ndivai	28.5	68.6	3.0	75
NYANDARUA	**37.8**	**60.8**	**1.3**	**551**
Maragima	32.0	67.3	.7	144
Kariara	35.1	64.3	.6	95
Mutundu	23.6	76.4	.0	130
NYERI	**29.8**	**69.7**	**.4**	**369**
Ngelelya	33.9	65.4	.7	252
Ngoliba	39.3	59.9	.8	387
Kalimoni	32.6	66.7	.6	564
THIKA	**35.1**	**64.2**	**.7**	**1 204**
Kagumoini	36.0	64.0	.0	193
Maragua Ridge	34.6	65.4	.0	148
Mariaini	42.2	57.8	.0	109
MARAGUA	**37.0**	**63.0**	**.0**	**450**
Project Total 2010	**35.7**	**63.8**	**.6**	**3 129**

The percentage distribution of place of delivery of last birth is shown in Table 5.4. 69 percent of the deliveries occurred in a health facility compared to 31 percent home deliveries. Maragima recorded the highest percentage of health facility deliveries (84%) while Ndivai recorded the least at 47 percent. On the other hand, half of the households in Ndindiriku, Ndivai and Mbuyu reported a home delivery in the survey period.

Table 5.4: Percentage distribution of Place delivery of the last birth

Districts/FDAs	Proportion of HHs with Births	Total Sample	At Home	Health Facility	Other	Number of HHs
Ndindiriku	42.0	165	50.7	49.3	.0	69
Kiumbu/Kianugu	46.0	138	30.3	65.4	4.3	64
Rukanga	30.0	252	16.9	83.1	.0	75
KIRINYAGA	**37.5**	**555**	**32.2**	**66.5**	**1.3**	**208**
Muricho	43.1	209	37.6	61.8	.7	90
Kiriogo	33.7	88	46.2	53.8	.0	30
Mbuyu	37.7	179	51.7	48.3	.0	68
Ndivai	28.5	75	50.2	47.0	2.8	21
NYANDARUA	**37.8**	**551**	**44.7**	**54.8**	**.6**	**209**
Maragima	32.0	144	14.4	83.8	1.8	46
Kariara	35.1	95	18.7	79.5	1.8	33
Mutundu	23.6	130	23.3	76.7	.0	31
NYERI	**29.8**	**369**	**18.2**	**80.5**	**1.3**	**110**
Ngelelya	33.9	252	39.8	58.4	1.8	86
Ngoliba	39.3	387	29.0	71.0	.0	152
Kalimoni	32.6	564	19.2	80.8	.0	184
THIKA	**35.1**	**1204**	**26.9**	**72.7**	**.4**	**422**
Kagumoini	36.0	193	23.3	75.2	1.5	69
Maragua Ridge	34.6	148	22.1	77.9	.0	51
Mariaini	42.2	109	41.1	58.9	.0	46
MARAGUA	**37.0**	**450**	**27.9**	**71.5**	**.6**	**167**
Project Total 2010	**35.7**	**3129**	**30.5**	**68.8**	**.7**	**1 116**

Table 5.5 shows the percentage distribution of the person who assisted in delivery of the last birth to survey. Majority of the births (72%) were attended by a health worker followed by traditional birth attendant (14%), while only 3 percent delivered without assistance. Maragima recorded the highest percentage of health worker assisted deliveries (89%) while Ndindiriku had the highest TBA assisted deliveries (34%).

Table 5.5: Percentage distribution of who assisted in delivery of the last birth

Districts/FDAs	Proportion of HHs with Births	Total Sample	Traditional birth attendant	Health worker	Relative	Self	Other	Number of HHs
Ndindiriku	42.0	165	34.3	53.5	6.1	5.0	1.2	69
Kiumbu/Kianugu	46.0	138	13.0	65.4	8.6	4.3	8.7	64
Rukanga	30.0	252	8.1	83.7	6.2	.0	1.9	75
KIRINYAGA	**37.5**	**555**	**18.3**	**68.1**	**6.9**	**3.0**	**3.7**	**208**
Muricho	43.1	209	10.4	70.5	15.1	4.0	.0	90
Kiriogo	33.7	88	18.5	60.0	14.7	6.8	.0	30
Mbuyu	37.7	179	21.8	51.1	21.4	4.5	1.2	68
Ndivai	28.5	75	7.3	49.8	37.3	2.8	2.8	21
NYANDARUA	**37.8**	**551**	**14.9**	**60.6**	**19.4**	**4.4**	**.7**	**209**
Maragima	32.0	144	3.9	89.2	1.5	1.8	3.6	46
Kariara	35.1	95	5.4	85.0	5.5	1.8	2.3	33
Mutundu	23.6	130	3.4	73.6	21.2	1.8	.0	31
NYERI	**29.8**	**369**	**4.2**	**83.6**	**8.2**	**1.8**	**2.2**	**110**
Ngelelya	33.9	252	23.1	61.2	9.7	4.7	1.4	86
Ngoliba	39.3	387	19.1	73.3	5.1	.5	2.0	152
Kalimoni	32.6	564	11.1	85.9	2.8	.2	.0	184
THIKA	**35.1**	**1204**	**16.4**	**76.4**	**5.0**	**1.2**	**1.0**	**422**
Kagumoini	36.0	193	9.6	80.1	6.6	2.6	1.1	69
Maragua Ridge	34.6	148	9.9	79.7	2.1	4.0	4.3	51
Mariaini	42.2	109	11.7	54.1	27.0	3.8	3.4	46
MARAGUA	**37.0**	**450**	**10.3**	**72.8**	**10.9**	**3.3**	**2.7**	**167**
Project Total 2010	**35.7**	**3129**	**14.4**	**72.0**	**9.2**	**2.5**	**1.8**	**1 116**

5.3 Household members belonging to health groups

As shown in Table 5.6, a large percentage of the households (94%) have no family members belonging to any health groups. Community health workers (CHWs) have the highest membership at 3 percent with Ndivai having the highest percentage at 9 percent. TBA membership is highest in Ngelelya (5%); Village Health Committees at Ndivai (4%) while there are more people living with HIV/Aids in Ngoliba and Maragima (3% each).

Table 5.6: Percentage distribution of Households Membership to Groups

Districts/FDAs	Community Health Workers	Traditional Birth attendants	Village Health Committee	Health Facilities Management committees	People living with HIV/ AIDS	Other	None	Total
Ndindiriku	1.3	.0	.0	.0	.5	.0	98.3	165
Kiumbu/Kianugu	3.9	.0	.0	.0	.0	2.0	94.1	138
Rukanga	3.6	.0	1.5	.0	.4	.5	93.9	252
KIRINYAGA	**3.0**	**.0**	**.7**	**.0**	**.3**	**.7**	**95.2**	**555**
Muricho	1.4	.3	1.1	.0	.3	9.1	89.2	209
Kiriogo	6.3	.0	1.9	.0	.0	.7	91.8	88
Mbuyu	4.6	.4	2.2	.6	.0	.8	93.7	179
Ndivai	8.5	2.4	4.4	3.4	.0	5.9	86.2	75
NYANDARUA	**4.2**	**.6**	**2.0**	**.7**	**.1**	**4.6**	**90.7**	**551**
Maragima	.0	.0	1.1	.5	2.8	.0	96.6	144
Kariara	3.9	.0	.0	.0	.0	1.1	95.4	95
Mutundu	.4	.0	.5	.4	.0	.0	98.7	130

Table 5.6: Percentage distribution of Households Membership to Groups *(continued)*

Districts/FDAs	Community Health Workers	Traditional Birth attendants	Village Health Committee	Health Facilities Management committees	People living with HIV/ AIDS	Other	None	Total
NYERI	1.1	.0	.6	.3	1.1	.3	97.0	369
Ngelelya	3.5	4.8	.4	.3	.1	.0	93.6	252
Ngoliba	6.6	2.0	.3	.0	3.0	.8	89.0	387
Kalimoni	1.5	.2	2.1	.3	1.3	.1	95.3	564
THIKA	**3.6**	**1.7**	**1.2**	**.2**	**1.6**	**.3**	**92.9**	**1 204**
Kagumoini	1.2	.0	.2	.0	1.5	.8	97.4	193
Maragua Ridge	3.6	.0	3.4	.0	.0	.0	93.7	148
Mariaini	.8	.6	.6	.5	1.0	.9	96.3	109
MARAGUA	**1.9**	**.1**	**1.4**	**.1**	**.9**	**.6**	**95.9**	**450**
Project Total 2010	**3.0**	**.8**	**1.2**	**.3**	**.9**	**1.2**	**93.8**	**3 129**
Project total 2006	**3.1**	**1**	**1.3**	**0.5**		**0.3**	**95.4**	**2175**

Compared to 2006, there is a slight decline in health group membership across all categories. This can be attributed to member dropouts, lack of resources and group management skills. On the other hand, it can also be attributed to a lack of understanding of the benefits of health groups.

5.4 HIV/Aids Awareness, Prevention and Care of Patients

5.4.1 Knowledge of HIV/Aids by sex and age groups

Table 5.7 shows the percentage who have heard of HIV/Aids. Majority of the respondents have heard of HIV/Aids with this being universal Kirinyaga Districts and particularly in Ndindiriku and Kiumbu/Kianugu FDAs.

Table 5.7: Percentage distribution of Ever heard of AIDS

Districts/FDAs	Yes	No	Not Specified	Total
Ndindiriku	100.0	.0	.0	165
Kiumbu/Kianugu	100.0	.0	.0	138
Rukanga	99.4	.6	.0	252
KIRINYAGA	**99.7**	**.3**	**.0**	**555**
Muricho	99.6	.0	.4	209
Kiriogo	98.7	1.3	.0	88
Mbuyu	98.8	1.2	.0	179
Ndivai	96.9	1.9	1.2	75
NYANDARUA	**98.8**	**.9**	**.3**	**551**
Maragima	98.3	1.7	.0	144
Kariara	98.7	.6	.6	95
Mutundu	98.2	1.8	.0	130
NYERI	**98.4**	**1.5**	**.2**	**369**
Ngelelya	97.5	2.5	.0	252
Ngoliba	99.7	.3	.0	387
Kalimoni	99.3	.7	.0	564
THIKA	**99.0**	**1.0**	**.0**	**1 204**
Kagumoini	99.4	.6	.0	193
Maragua Ridge	99.4	.6	.0	148
Mariaini	100.0	.0	.0	109
MARAGUA	**99.5**	**.5**	**.0**	**450**
Project total 2010	**99.1**	**.8**	**.1**	**3 129**
Project total 2006	**98.7**	**1.3**		**2175**

Figure 5.1a shows the knowledge of HIV/Aids amongst the age groups. Knowledge is universal amongst the 15-19, 35-39 and 65-69 age groups. Respondents aged 80 and above recorded the least level of knowledge at 91.8 percent.

Figure 5.1a Knowledge of HIV/AIDS amongst the age groups

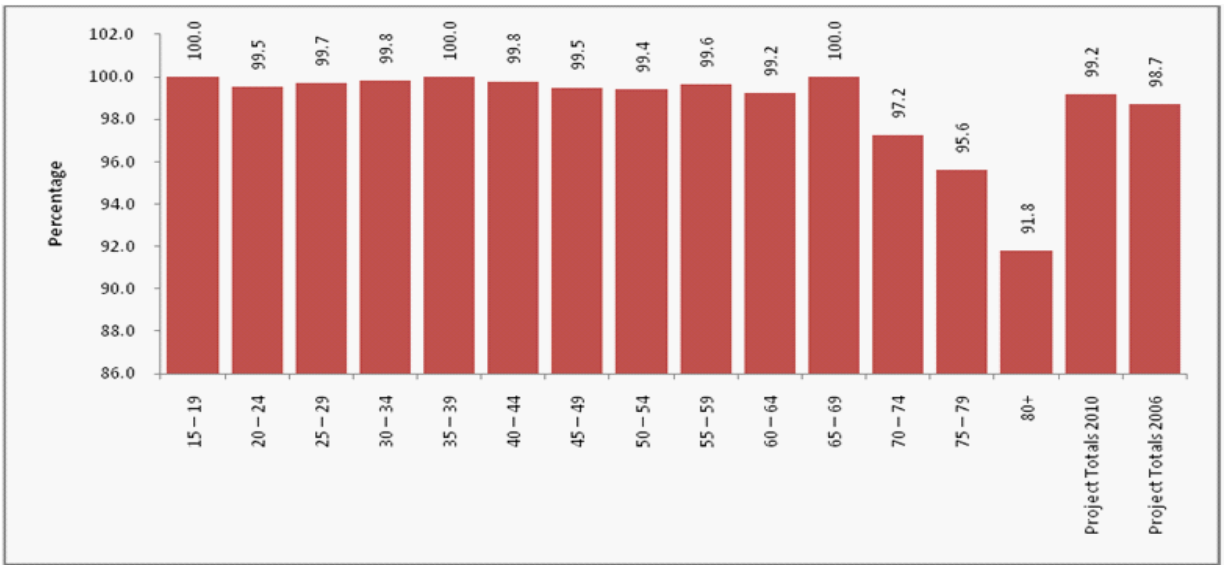
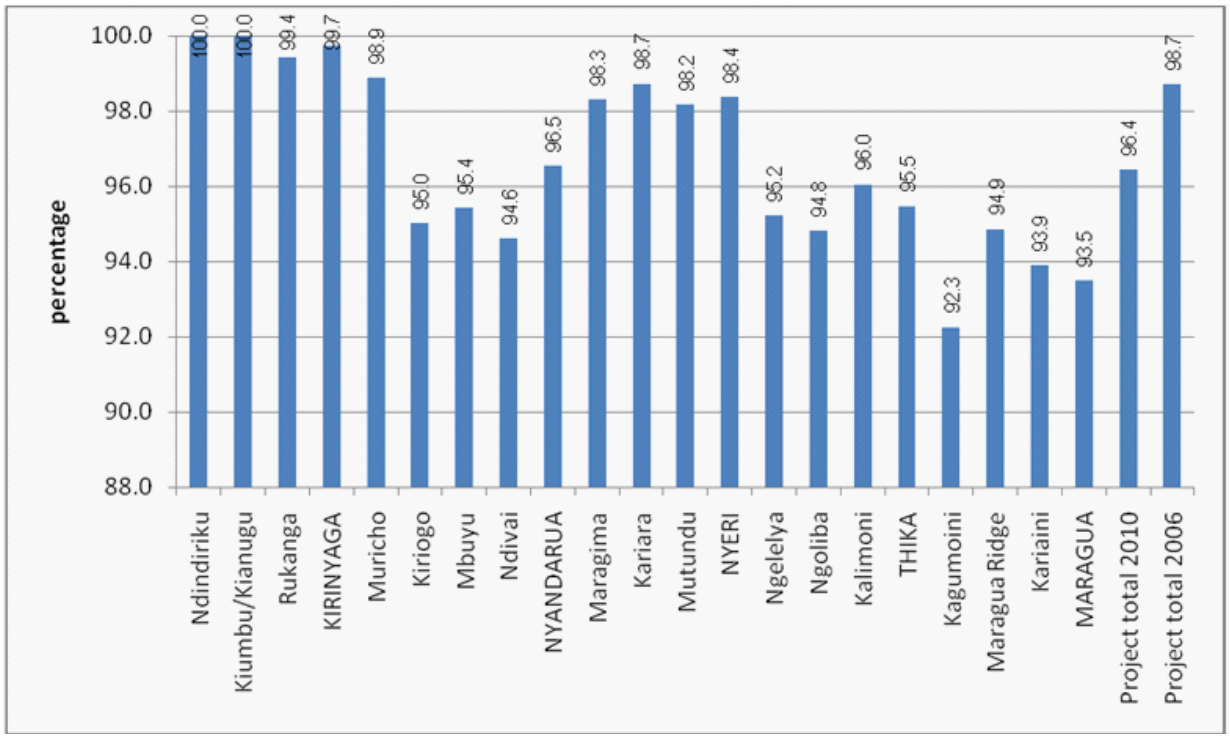


Figure 5.1b shows knowledge of HIV/Aids according to FDAs. This was universal in Ndindiriku and Kiumbu/Kianugu FDAs while Kagumoini recorded the least at 92 percent.

Figure 5.1b Knowledge of HIV/Aids according to the FDAs



In the five year period prior to the survey (2006-2010), there is a slight decrease in the percentage that reported knowing about HIV/Aids in the FDAs (from 99% to 96%). This negative change is not comprehensible since information in succeeding tables indicates an improvement in access to VCTs, knowledge of where to get tested and overall decline in incidences of various diseases. Therefore, there should have been an increase in the numbers reporting knowledge of HIV/Aids in the FDAs.

5.4.2 Knowledge of HIV/Aids Transmission Methods

Tables 5.8a and 5.8b show the percentage distribution of knowledge of HIV/Aids transmission methods by FDAs and sex and age respectively. In the FDAs, most of the respondents (96%) cited unprotected sex, followed by use of unsterilized instruments (63%), blood transfusion (41%), mother-to-child during birth (19%) and breastfeeding (17%). Overall, Thika District had the highest percentage (98%) of those who mentioned unprotected sex.

Table 5.8a: Percentage distribution of Knowledge of AIDS Transmission methods by FDAs

Districts/FDAs	Proportion ever heard of AIDS	Total Sampe	Unprotected sex	Blood Transfusion	Breastfeeding	Mother to child during birth	Using un-sterilzed instru-ments	Other	None	Number of HHs
Ndindiriku	100.0	165	92.9	16.3	6.0	5.6	61.4	11.3	6.6	165
Kiumbu/Kianugu	100.0	138	98.0	39.9	8.0	4.0	67.8	8.0	2.0	138
Rukanga	99.4	252	95.4	29.8	2.5	4.5	60.1	10.4	1.3	250
KIRINYAGA	**99.7**	**555**	**95.3**	**28.3**	**4.9**	**4.7**	**62.4**	**10.0**	**3.1**	**553**
Muricho	99.6	209	94.0	43.2	18.7	17.6	63.8	5.6	3.0	208
Kiriogo	98.7	88	93.4	42.7	17.3	14.8	76.2	4.4	3.8	87
Mbuyu	98.8	179	92.7	41.8	14.6	19.6	64.1	1.9	3.9	177
Ndivai	96.9	75	88.1	45.9	18.2	23.9	58.6	2.5	7.5	73
NYANDARUA	**98.8**	**551**	**92.7**	**43.0**	**17.1**	**18.6**	**65.2**	**3.8**	**4.0**	**545**
Maragima	98.3	144	96.7	40.1	18.9	18.9	59.3	1.8	2.3	141
Kariara	98.7	95	93.5	27.8	14.4	19.7	46.0	3.0	5.0	94
Mutundu	98.2	130	96.1	18.9	10.1	17.3	43.1	4.7	.5	128
NYERI	**98.4**	**369**	**95.7**	**29.4**	**14.7**	**18.6**	**50.2**	**3.1**	**2.4**	**363**
Ngelelya	97.5	252	95.5	41.1	17.6	19.3	57.2	.5	1.5	246
Ngoliba	99.7	387	97.4	52.9	27.7	24.7	70.1	.9	2.1	385
Kalimoni	99.3	564	98.5	57.4	26.1	29.9	69.2	2.4	1.1	560
THIKA	**99.0**	**1 204**	**97.5**	**52.6**	**24.9**	**26.0**	**67.0**	**1.5**	**1.5**	**1 192**
Kagumoini	99.4	193	93.5	28.2	14.6	15.9	60.1	6.3	5.2	192
Maragua Ridge	99.4	148	95.0	39.7	14.1	12.9	61.9	3.6	3.5	147
Mariaini	100.0	109	95.0	27.5	11.9	16.0	61.0	2.2	3.7	109
MARAGUA	**99.5**	**450**	**94.4**	**31.8**	**13.8**	**14.9**	**60.9**	**4.4**	**4.3**	**448**
Project Total 2010	**99.1**	**3 129**	**95.6**	**40.9**	**17.1**	**18.5**	**63.0**	**4.0**	**2.7**	**3 101**
Project Total 2006			**95.8**	**38.9**	**10.6**	**13**	**54.3**	**8.2**		**2,090**

Compared to 2006, the percentages that mentioned unprotected sex did not change significantly, while those that identified other methods recorded an increase. Unprotected sex may be widely known since campaigns on condom use, which cite the former as a means of infection, have been common in the mass media. The other modes require an intervention and the increase in their level of awareness may be explained by access to information, education and communication (IEC0 materials and other interventions targeting residents of these Districts in the period under study.

Male respondents had a higher level of knowledge of the given transmission methods compared to their female counterparts (Table 5.8b). However, these differences are negligible for breastfeeding and mother to child during birth modes of transmission. Knowledge of unprotected sex as a mode of transmission was universal for the 15-19 age group and was least known by respondents aged 80 and above (84%).

Table 5.8b: Percentage distribution of Knowledge of AIDS Transmission methods by Sex and Age

Sex/ Age group	Proportion ever heard of AIDS	Total Sampe	Unprotected sex	Blood Transfu-sion	Breastfeeding	Mother to child dur-ing birth	Using unsterilzed instruments	Other	None	Number of HHs
Male	99.4	2 354	97.0	42.0	17.4	18.5	65.2	4.1	1.7	2 339
Female	98.3	775	91.4	37.4	16.3	18.4	56.3	3.9	6.0	762
15 – 19	100.0	20	100.0	52.4	27.0	12.1	56.4	.0	.0	20
20 – 24	99.5	142	96.8	32.4	14.4	12.9	67.8	4.5	2.4	141
25 – 29	99.7	263	98.2	33.1	25.5	21.0	64.0	2.2	.9	262
30 – 34	99.8	379	96.6	43.2	21.9	20.2	64.7	6.2	2.3	378

Table 5.8b: Percentage distribution of Knowledge of AIDS Transmission methods by Sex and Age *(continued)*

Sex/ Age group	Proportion ever heard of AIDS	Total Sampe	Unprotected sex	Blood Transfu-sion	Breastfeeding	Mother to child dur-ing birth	Using unsterilzed instruments	Other	None	Number of HHs
35 – 39	100.0	425	97.7	40.6	21.1	22.1	67.4	5.2	1.0	425
40 – 44	99.5	334	98.1	47.8	18.7	21.2	66.6	3.3	1.4	332
45 – 49	99.5	334	97.4	53.5	18.5	24.5	64.3	6.0	.7	332
50 – 54	99.4	260	97.2	49.1	15.2	24.0	70.7	3.7	1.4	258
55 – 59	99.6	225	94.7	41.6	13.6	16.2	62.4	4.3	3.4	224
60 – 64	98.8	225	94.2	42.1	13.7	13.6	59.8	2.4	3.0	223
65 – 69	99.6	151	89.0	39.7	12.6	12.7	55.1	1.2	7.1	150
70 – 74	97.2	182	89.5	28.3	9.3	9.8	56.0	4.9	5.4	177
75 – 79	95.6	92	92.1	21.0	5.2	5.6	56.1	.0	7.9	88
80+	91.8	98	84.0	10.6	3.3	4.8	29.4	2.1	15.4	90
Project Total 2010	**99.1**	**3 129**	**95.6**	**40.9**	**17.1**	**18.5**	**63.0**	**4.0**	**2.7**	**3 101**
Project Total 2006			**95.8**	**38.9**	**10.6**	**13**	**54.3**	**8.2**		**2,090**

Figure 5.2a shows knowledge of HIV/AIDS prevention by gender and age group. Knowledge was highest for the 25-29 age groups (98%) and least for the 75-79 age group (80%), while men were more knowledgeable than their female counterparts (97% and 95% respectively).

Figure 5.2a Knowledge of HIV/AIDS prevention by gender and age groups

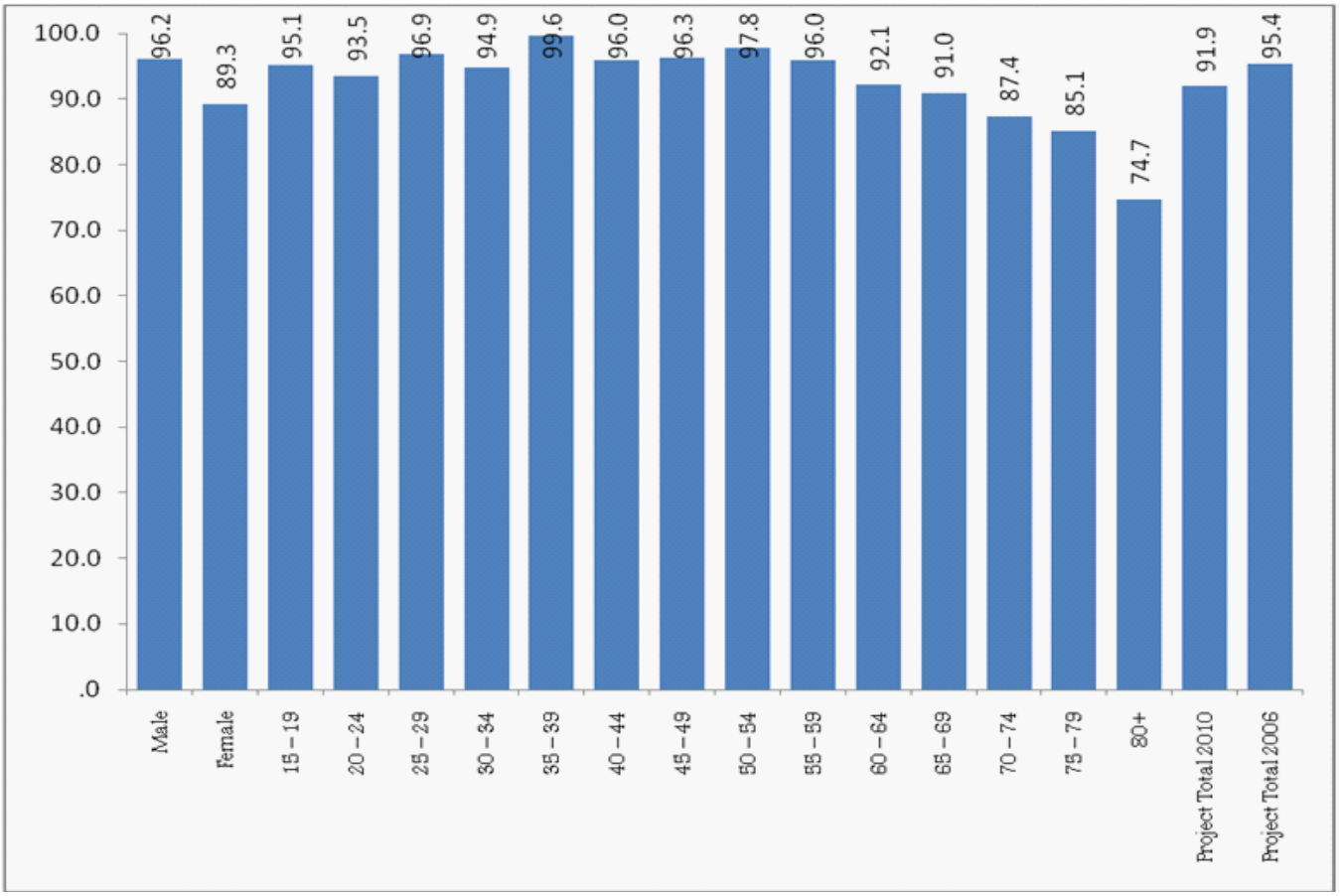
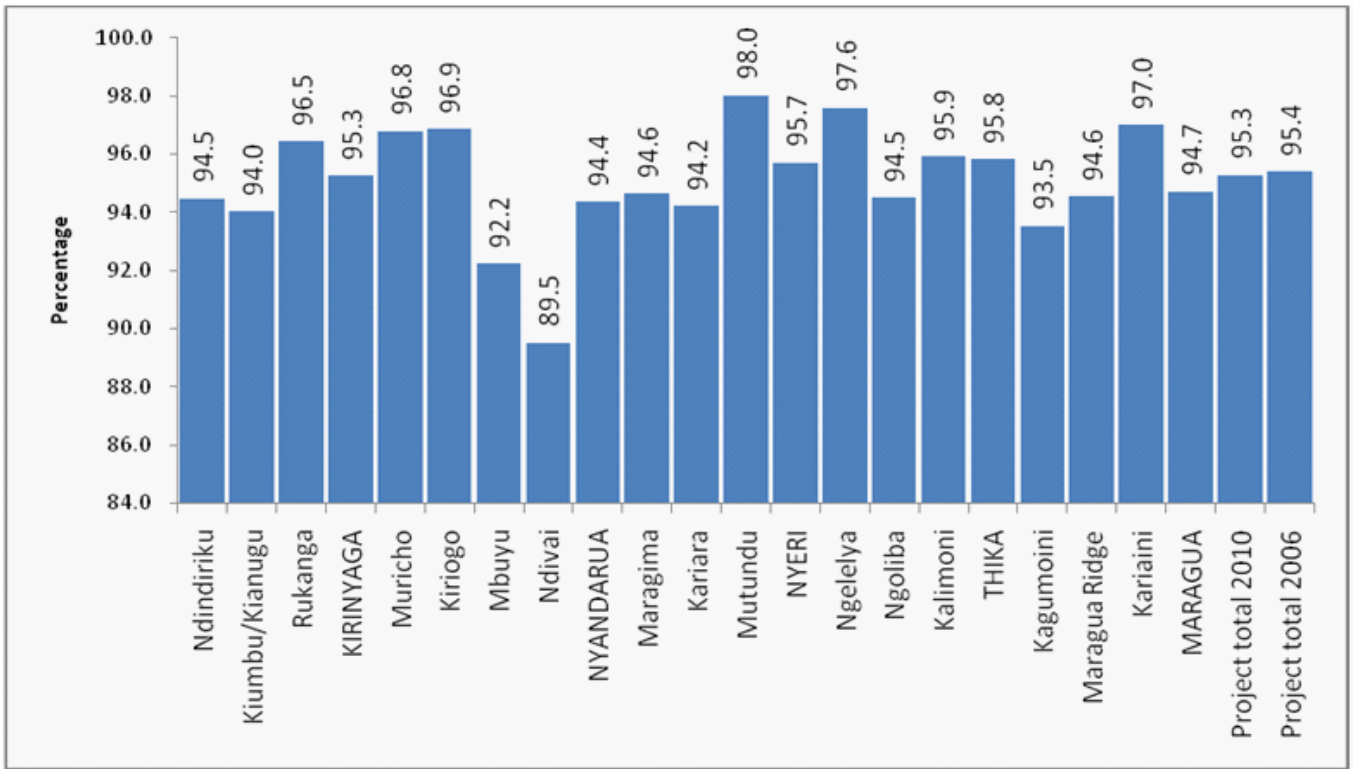


Figure 5.2b shows the level of knowledge of HIV/Aids prevention according to FDAs. Mutundu FDA has the highest percentage (98%) while Nduvai has the least (90%).

Figure 5.2b Knowledge of HIV/Aids prevention according to the FDAs



NOTE: The results do not reflect the views of the total population, it is based on the principal respondents who were mainly head of Households

From 2006 to 2010, there was no changes in the level of knowledge of HIV/Aids prevention according to FDAs. The level of awareness on prevention may have been higher than that of transmission. Prevention maybe an easier concept to grasp through practices like condom use and abstinence, but it should be recalled that some communities in Kenya believe infection can occur through witchcraft and fate. Therefore there may have been room for acquisition of more knowledge on transmission as opposed to prevention.

5.4.3 Knowledge of HIV/Aids Prevention Methods

Table 5.9a presents information on knowledge of HIV/Aids transmission methods by FDAs. The three widely known modes of prevention are: condom use (75%); abstinence (70%) and limiting sex to one partner (44%). The least cited methods were avoiding sex with prostitutes and limiting the number of sex partners (14%). Knowledge of condom use and abstinence was highest in Thika district (79% and 83% respectively).

Table 5.9a: Percentage distribution of Knowledge of HIV/Aids Transmission methods by FDAs

Districts/FDAs	Proportion ever heard of AIDSand knowledge on avoiding AIDS	Total Sample	Abstain from Sex	Use Condoms	Limit Sex to one partner	Limit number of sex partners	Avoid sex with prostitutes	Avoid blood transfusion	Do not use unsterilized instruments	None	Other	Number of HHs
Ndindiriku	94.5	165	50.2	67.2	45.4	.0	1.0	1.9	33.8	5.0	6.7	156
Kiumbu/Kianugu	94.0	138	55.3	78.7	25.6	6.3	4.3	10.5	27.9	6.0	.0	130
Rukanga	95.9	252	52.3	70.6	53.6	3.6	1.6	6.5	35.4	5.3	5.5	241
KIRINYAGA	**95.0**	**555**	**52.4**	**71.6**	**44.3**	**3.2**	**2.1**	**6.1**	**33.0**	**5.4**	**4.5**	**527**
Muricho	96.4	209	78.6	77.0	37.2	23.3	24.9	37.7	43.2	3.3	3.3	201
Kiriogo	95.6	88	75.1	72.1	46.7	16.8	20.7	29.6	48.5	5.6	3.0	84
Mbuyu	91.1	179	68.1	64.0	48.5	18.0	17.3	30.8	45.9	11.6	2.8	163
Ndivai	86.7	75	69.8	74.2	46.4	21.0	16.7	34.9	33.2	13.3	2.1	65
NYANDARUA	**93.2**	**551**	**73.6**	**71.7**	**43.5**	**20.2**	**20.8**	**33.9**	**43.6**	**7.7**	**2.9**	**514**
Maragima	93.0	144	63.8	67.4	46.4	12.2	21.7	27.2	46.9	8.0	1.2	134
Kariara	93.0	95	52.4	57.1	62.2	7.3	6.7	13.9	33.8	9.1	1.2	89
Mutundu	96.2	130	50.2	63.1	58.9	5.1	2.7	10.2	31.4	5.2	2.8	125
NYERI	**94.2**	**369**	**56.0**	**63.2**	**54.9**	**8.4**	**11.1**	**17.7**	**38.1**	**7.3**	**1.8**	**347**
Ngelelya	95.1	252	80.1	70.7	34.4	16.9	14.8	21.8	43.6	6.0	1.0	240
Ngoliba	94.2	387	72.5	82.8	33.4	20.6	22.0	23.6	41.7	6.4	2.8	364
Kalimoni	95.2	564	82.8	89.1	37.1	27.0	20.1	28.0	51.2	5.7	2.9	537
THIKA	**94.9**	**1 204**	**78.9**	**83.2**	**35.3**	**22.8**	**19.6**	**25.3**	**46.6**	**6.0**	**2.5**	**1 142**
Kagumoini	93.0	193	72.9	72.8	63.2	2.8	3.9	7.8	42.7	6.9	3.0	179
Maragua Ridge	94.0	148	73.8	68.7	41.6	5.4	12.0	21.7	38.9	4.7	2.3	139
Mariaini	97.0	109	65.6	60.8	76.7	2.4	1.8	10.7	46.3	3.9	2.7	106
MARAGUA	**94.3**	**450**	**71.4**	**68.5**	**59.5**	**3.6**	**6.0**	**13.1**	**42.3**	**5.4**	**2.7**	**425**
Project Total 2010	**94.4**	**3 129**	**69.5**	**74.7**	**44.1**	**14.4**	**13.7**	**20.7**	**42.0**	**6.3**	**2.9**	**2 955**
Project Total 2006			**52.4**	**47.8**	**71.2**	**10.8**	**19.5**	**19.2**	**35.8**		**3.9**	**2,042**

In 2006, the most cited method of prevention was limiting sex to one partner (71%), while in 2010 the majority cited condom use (75%). However, abstinence was the second most cited method for both years. The popularity of condom use as opposed to sex with one partner could be as a result of knowledge of the fact that sex with one partner on its own, does not eliminate exposure to infection.

Table 5.9b presents information on knowledge of HIV/Aids transmission methods by sex and age. Overall, male respondents had a higher level of knowledge compared to their female counterparts. Knowledge of condom use was highest (88%) amongst those in the 30-34 age group, while abstinence was most cited among the 75-79 age group (82%).

Table 5.9b: Percentage distribution of Knowledge of HIV/Aids Transmission methods by FDAs

Sex/ Age group	Proportion ever heard of AIDSand knowledge on avoiding AIDS	Total Sample	Abstain from Sex	Use Condoms	Limit Sex to one partner	Limit number of sex partners	Avoid sex with prostitutes	Avoid blood transfusion	Do not use unsterilized instruments	None	Other	Number of HHs
Male	96.2	2 354	69.7	76.8	45.4	14.7	13.7	21.1	43.1	4.3	2.8	2 264
Female	89.2	775	68.9	67.8	40.0	13.4	13.8	19.6	38.7	12.2	3.2	691
15 – 19	93.9	20	68.8	59.3	21.9	21.7	12.6	40.2	50.8	6.1	17.5	18
20 – 24	93.6	142	52.7	82.8	43.3	11.8	4.5	12.4	34.5	6.9	1.6	133
25 – 29	96.6	263	59.2	76.0	44.1	9.7	9.9	14.4	43.0	3.9	4.2	254
30 – 34	94.9	379	68.8	88.2	39.3	14.0	12.2	21.4	40.8	5.0	3.9	359
35 – 39	99.6	425	71.4	83.1	50.7	16.6	18.6	24.7	47.6	.4	2.4	424
40 – 44	95.7	334	71.0	77.1	47.0	18.0	11.7	20.9	46.6	4.3	3.6	319
45 – 49	96.3	334	74.3	79.0	47.9	16.4	15.2	26.6	41.7	4.0	3.9	321

Table 5.9b: Percentage distribution of Knowledge of HIV/Aids Transmission methods by FDAs *(continued)*

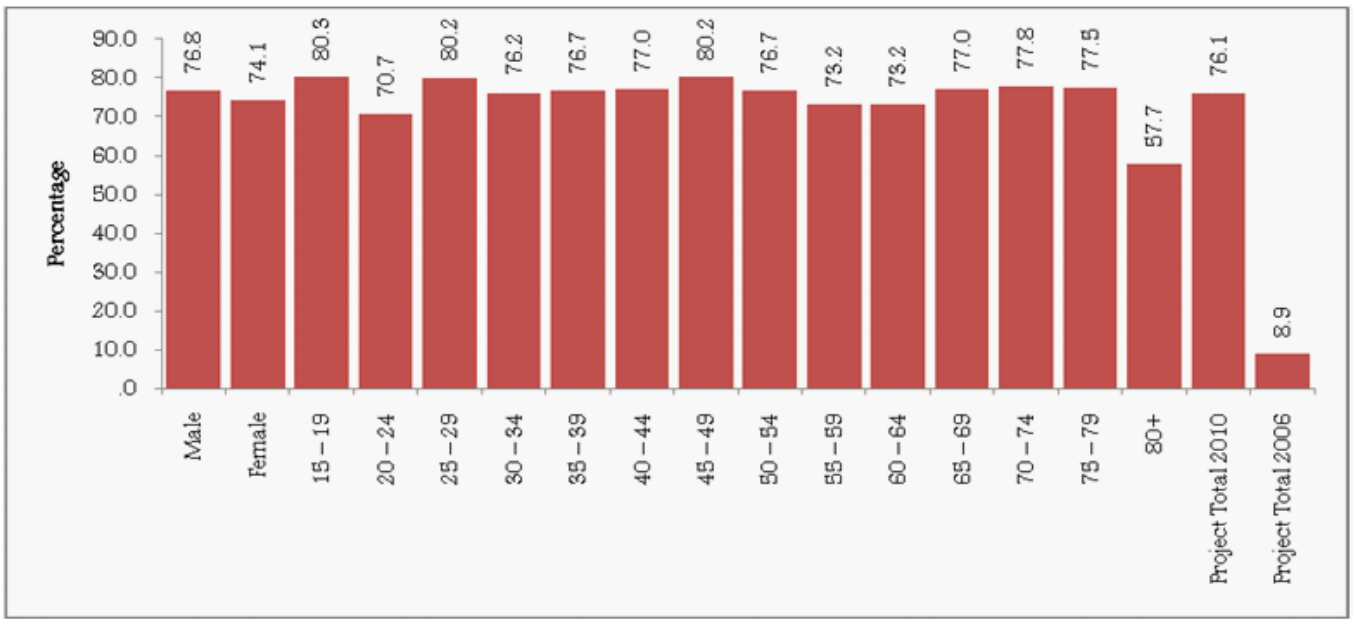
Sex/ Age group	Proportion ever heard of AIDSand knowledge on avoiding AIDS	Total Sample	Abstain from Sex	Use Condoms	Limit Sex to one partner	Limit number of sex partners	Avoid sex with prostitutes	Avoid blood transfusion	Do not use unsterilized instruments	None	Other	Number of HHs
50 – 54	97.8	260	72.4	75.6	42.8	14.6	18.7	24.3	49.2	4.3	3.4	254
55 – 59	96.0	225	77.3	71.2	34.2	12.3	13.8	20.7	47.3	5.5	2.0	216
60 – 64	92.1	225	70.7	64.7	47.2	15.5	9.7	22.7	41.3	9.4	1.2	208
65 – 69	91.0	151	68.7	67.2	44.3	22.5	19.3	23.2	29.0	9.7	.8	137
70 – 74	87.4	182	69.6	50.7	45.8	7.9	14.3	13.9	35.6	14.3	2.3	159
75 – 79	85.1	92	82.0	48.5	34.0	11.8	12.1	9.7	39.7	15.3	.0	79
80+	74.7	98	51.5	43.9	39.4	3.1	9.2	3.6	19.7	27.9	.0	73
Project Total 2010	**94.4**	**3 129**	**69.5**	**74.7**	**44.1**	**14.4**	**13.7**	**20.7**	**42.0**	**6.3**	**2.9**	**2 955**
Project Total 2006			**52.4**	**47.8**	**71.2**	**10.8**	**19.5**	**19.2**	**35.8**		**3.9**	**2,042**

In the period of interest (2006-2010), the percentages citing limiting sex to one partner and avoiding sex with prostitutes decreased from 71 percent to 44 percent and from 20 percent to 14 percent respectively, while knowledge of the other methods recorded an increase. Overall, the number of people who reported knowing methods of HIV transmission rose by 913 in the reference period. It is observed that condom use and abstinence recorded the most increases. As explained above, the presence of interventions can account for access to new knowledge for all age groups.

5.4.4 Knowledge of a person who had died of HIV/Aids

Information of knowledge of a person who died of HIV/Aids by age group is presented in Figure 5.3a. This is highest among the 15-19 and 45-49 age groups and lowest among those aged 80 and above. Compared to 2006, there was a huge increase in the percentage who knew of a person who had died as a result of HIV/Aids.

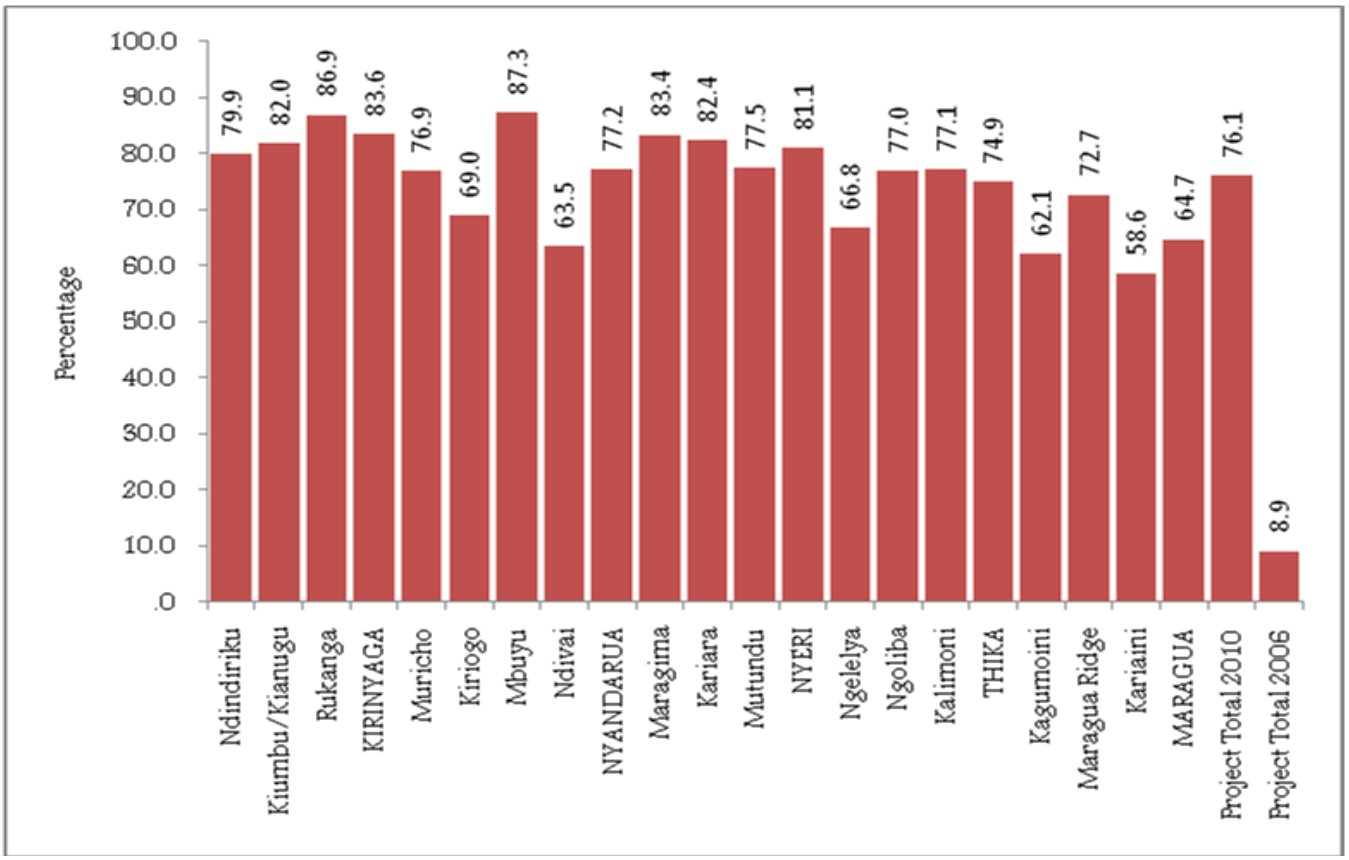
Figure 5.3a Knowledge of person who died of HIV/Aids by age group



Compared to 2006, there was a huge increase in the percentage who knew someone who had died of HIV/Aids. This could be as a result of reduced stigma associated with the disease and/or families may have become willing to reveal what their kin succumbed to, perhaps in the hope that others will take precaution. This is a positive change as it raises the level of awareness on HIV/Aids.

Figure 5.3a presents information on knowledge of a person who died of HIV/Aids by FDA. Mbuyu recorded the highest level at 87 percent while Ndivai recorded the least at 64 percent.

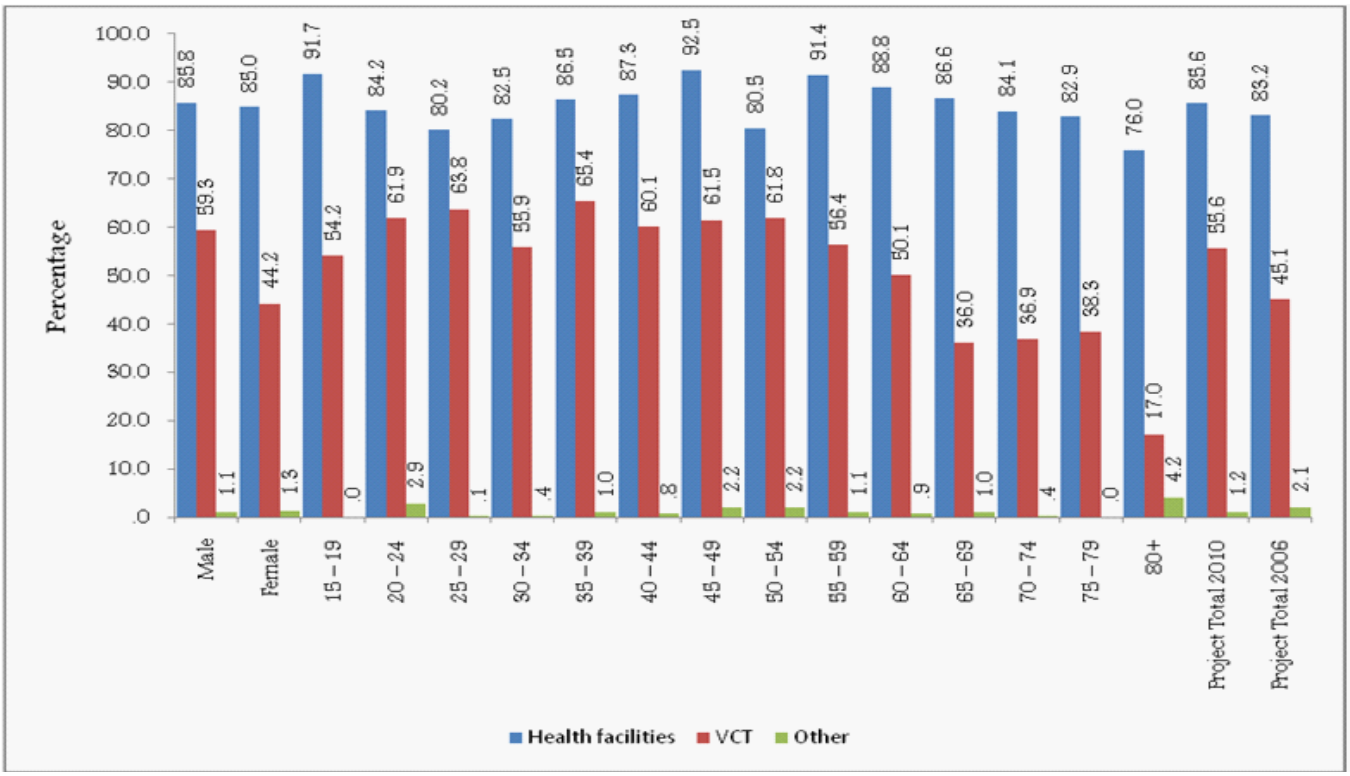
Figure 5.3b Percentage distribution of knowledge of person who died of HIV/Aids



5.4.5 Knowledge of where one could determine HIV status

Figure 5.4a presents information on respondents' knowledge by age group, on where to determine their HIV status. Across all age groups, health facilities are the most popular followed by VCTs. The percentage that cited health centres is slightly higher for men (86%) compared to women (85%). Across age groups, knowledge of health facilities is highest among those aged 45-49 (93%), while for VCTs, it's highest among those aged 35-39 (65%).

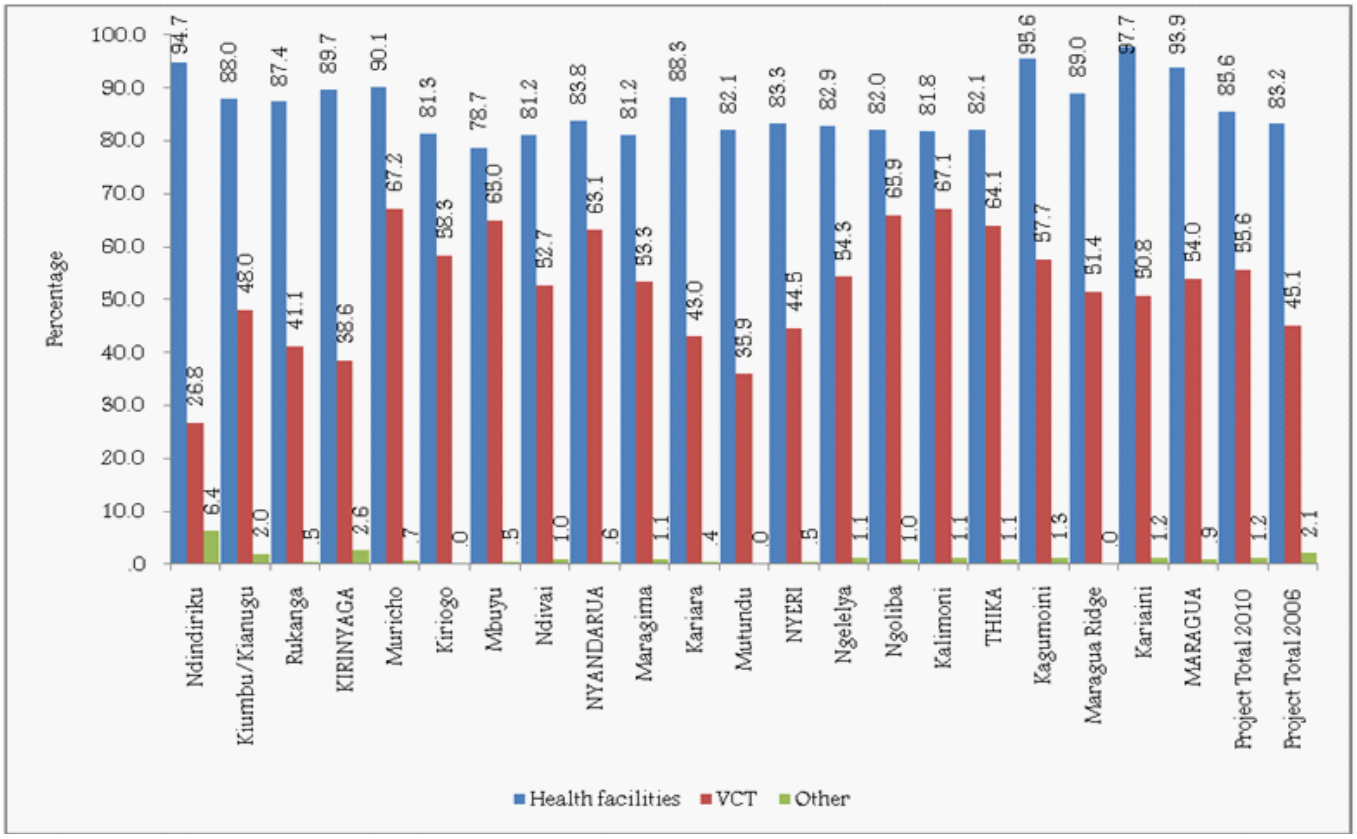
Figure 5.4a Knowledge of where one could determine his/her HIV Status



The interval between 2006 and 2010 saw an increase in the percentages who knew of VCTs as testing centres; from 45% to 56%. Knowledge of testing at health facilities did not change much (83% to 86%). An improvement in services offered at local health facilities may have led to introduction of VCTs, hence the positive change. And just like knowledge on prevention and transmission methods, this can also be accounted for by the presence of interventions geared towards raising awareness.

Figure 5.4b shows respondents' knowledge of where one could determine their HIV status by FDA. Health facilities are most popular in Mariaini (98%) while VCTs are most popular in Muricho and Kalimoni (67% each).

Figure 5.4b Knowledge of where one could determine his/her HIV Status

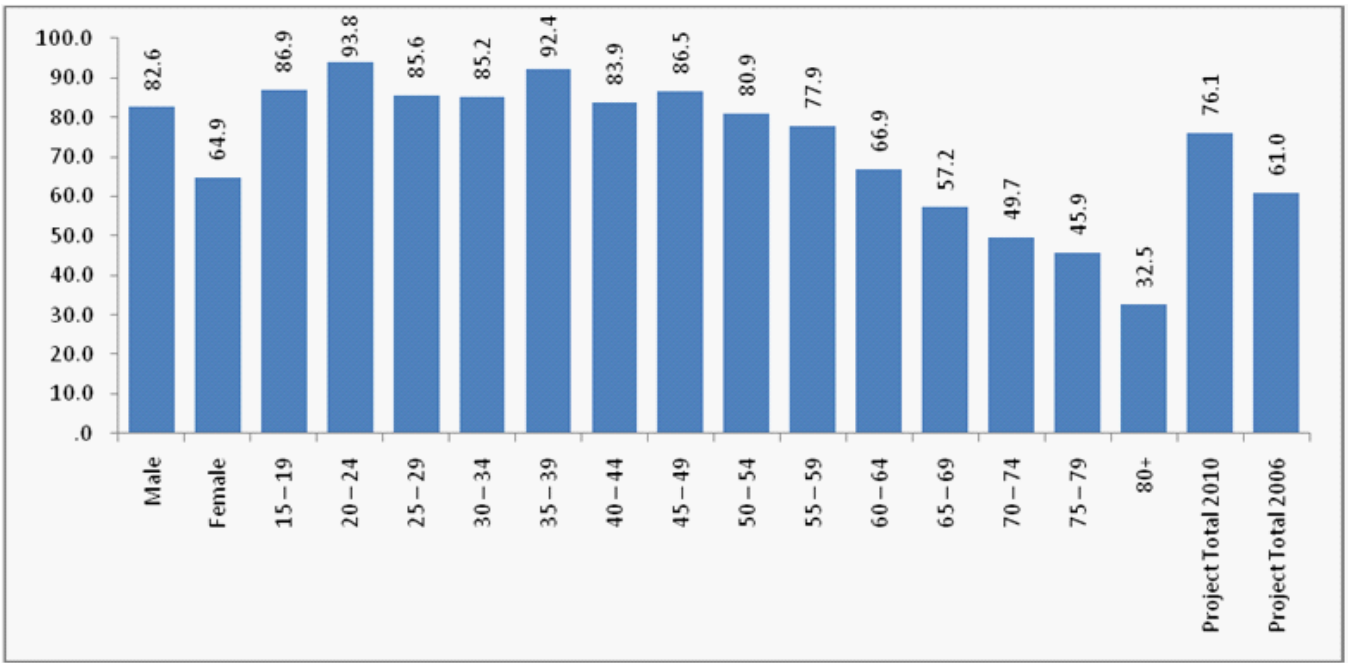


5.4.6 Knowledge of a VCT

Figures 5.5a and 5.5b present data on knowledge of a VCT amongst gender and age group and also by FDA. The percentage of men who know about VCTs is higher (83%) than that of women (66%). Respondents aged 20-24 recorded the highest percentage of knowledge of a VCT (94%) while those aged 80 and above had the least (35%).

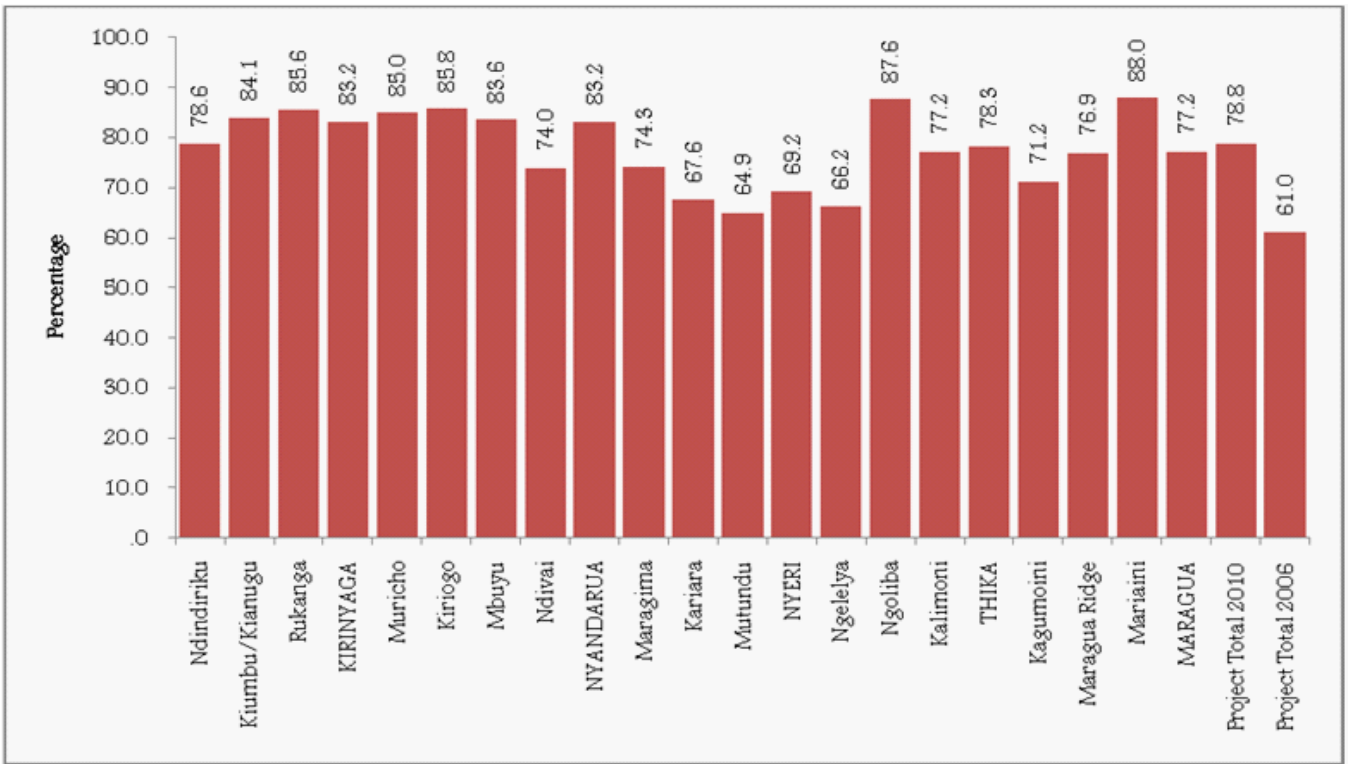
Knowledge of a VCT was highest in Ngoliba and Mariaini (88% each), while Mutundu had the least (65%) (Figure 5.5b).

Figure 5.5a Knowledge of a VCT amongst gender and age groups



In 2006 three in every five people knew about VCTs while these increased to around four in every five people in 2010. This has been accounted for above, where introduction of VCTs may have been part of service improvement or capacity development at the local health centres.

Figure 5.5b Knowledge of a VCT in the FDAs



5.4.7 Location of VCTs

A large number of VCTs (87%) are located in health centres within the sub location followed by those located within shopping centres (21%). This is illustrated in Table 5.10.

Table 5.10: Percentage distribution of Location of VCTs centre

Districts/FDAs	Proportion ever heard of AIDS and knowledge of VCT	Total Sample	In Health Centres within Sublocation	At shpping centres	Outside sublocation	Other places	None	Do not know	Number of HHs
Ndindiriku	78.6	165	96.5	20.6	27.8	10.6	.0	.6	130
Kiumbu/Kianugu	84.1	138	100.0	7.0	4.7	.0	.0	2.4	116
Rukanga	85.1	252	93.7	12.8	48.4	4.9	.0	1.7	214
KIRINYAGA	**82.9**	**555**	**96.1**	**13.6**	**31.5**	**5.3**	**.0**	**1.6**	**460**
Muricho	84.6	209	97.3	32.1	50.6	4.0	.3	.8	177
Kiriogo	84.7	88	93.3	19.5	39.5	7.1	2.4	.0	75
Mbuyu	82.6	179	90.7	30.1	32.3	9.3	1.6	1.5	148
Ndivai	71.7	75	95.5	10.7	47.4	2.5	.0	2.5	54
NYANDARUA	**82.2**	**551**	**94.3**	**26.8**	**42.4**	**6.0**	**1.0**	**1.1**	**453**
Maragima	73.0	144	67.2	17.8	42.9	11.3	3.3	.0	105
Kariara	66.7	95	71.8	18.0	51.5	1.0	2.2	.0	64
Mutundu	63.7	130	75.5	1.4	33.5	1.9	3.5	5.4	83
NYERI	**68.1**	**369**	**71.1**	**12.5**	**42.0**	**5.6**	**3.1**	**1.8**	**251**
Ngelelya	64.5	252	87.7	21.5	21.7	7.5	2.7	.0	163
Ngoliba	87.3	387	87.4	24.3	20.9	11.6	3.9	.4	338
Kalimoni	76.6	564	87.1	19.4	25.8	9.8	3.6	.5	433
THIKA	**77.5**	**1,204**	**87.3**	**21.5**	**23.3**	**10.1**	**3.6**	**.3**	**933**
Kagumoini	70.8	193	78.6	30.2	23.1	.9	1.0	4.0	137
Maragua Ridge	76.4	148	78.6	9.4	12.1	.0	6.1	4.8	113
Mariaini	88.0	109	66.6	37.3	28.9	1.0	3.0	4.7	96
MARAGUA	**76.8**	**450**	**75.3**	**25.3**	**21.1**	**.6**	**3.2**	**4.5**	**346**
Project Total 2010	**78.1**	**3,129**	**86.9**	**20.6**	**30.0**	**6.6**	**2.3**	**1.4**	**2,444**
Project Total 2006			**35.9**	**3**	**67.2**	**7.3**		**5.6**	**1,270**

Between 2006 and 2010, there has been an increase in the number of VCTs located within the sub location (from 36% to 87%) and at shopping centres (from 3% to 21%). As explained above, the intervention had a positive change; the provision of VCT services at local health centres.

According to Table 5.11, two thirds of the respondents walk less than 5 Kilometers to access a VCT while only 7 percent travel more than 10 Kilometers. Three quarters of Kirinyaga District residents walk less than 5 Kilometers to a VCT centre compared to one in every two residents of Nyeri District.

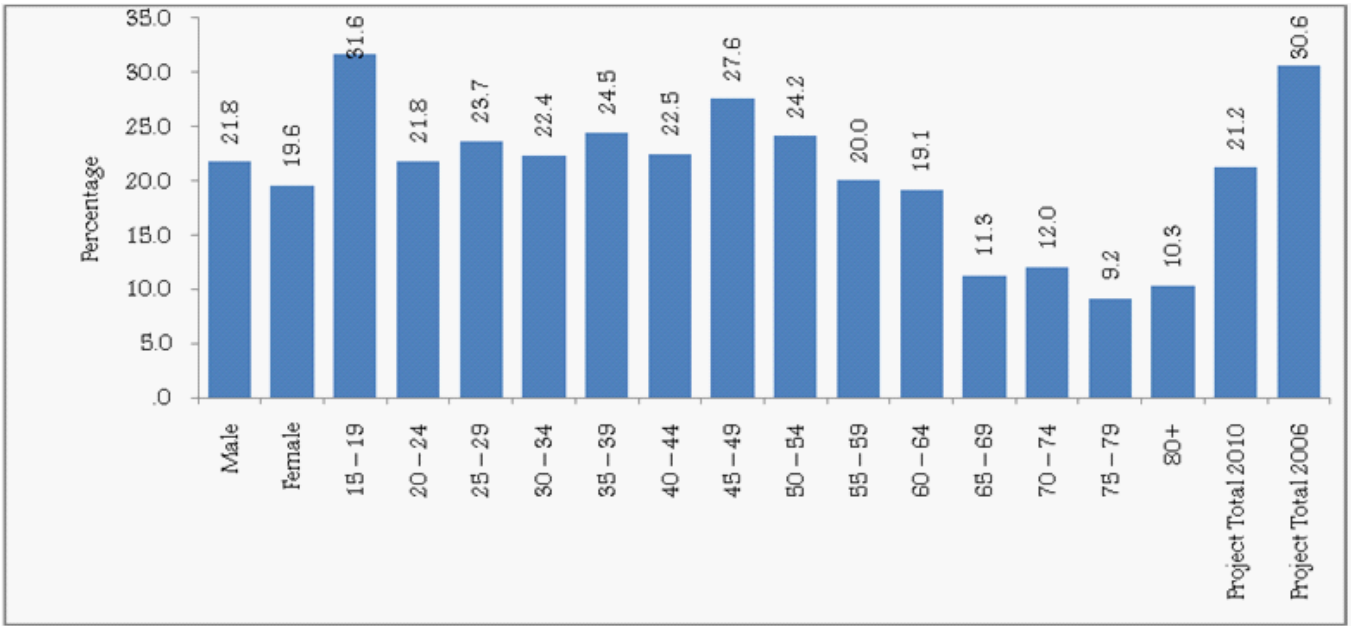
Table 5.11: Percentage distribution of Distance to VCT centres

Districts/FDAs	Proportion ever heard of AIDS and knowledge of VCT	Total Sample	Less than 5 km	Between 5 - 10 km	More than 10 km	Do not know	Not Specified	Number of HHs
Ndindiriku	78.6	165	82.2	13.4	4.3	.0	.0	130
Kiumbu/Kianugu	84.1	138	100.0	.0	.0	.0	.0	116
Rukanga	85.1	252	63.9	33.3	2.1	.7	.0	214
KIRINYAGA	**82.9**	**555**	**78.2**	**19.3**	**2.2**	**.3**	**.0**	**460**
Muricho	84.6	209	56.0	30.0	13.7	.3	.0	177
Kiriogo	84.7	88	77.4	12.3	8.7	.8	.8	75
Mbuyu	82.6	179	40.6	48.7	10.0	.7	.0	148
Ndivai	71.7	75	62.5	29.6	7.8	.0	.0	54
NYANDARUA	**82.2**	**551**	**55.3**	**33.1**	**11.0**	**.5**	**.1**	**453**
Maragima	73.0	144	50.3	43.4	2.2	4.1	.0	105
Kariara	66.7	95	57.3	28.2	10.4	4.1	.0	64
Mutundu	63.7	130	58.7	28.0	7.4	6.0	.0	83
NYERI	**68.1**	**369**	**54.8**	**34.5**	**6.0**	**4.7**	**.0**	**251**
Ngelelya	64.5	252	80.0	17.9	1.8	.1	.2	163
Ngoliba	87.3	387	65.2	21.3	12.5	1.0	.0	338
Kalimoni	76.6	564	74.5	19.1	5.9	.5	.0	433
THIKA	**77.5**	**1,204**	**72.1**	**19.7**	**7.6**	**.6**	**.0**	**933**
Kagumoini	70.8	193	71.6	17.0	7.3	4.1	.0	137
Maragua Ridge	76.4	148	79.6	14.7	1.9	3.8	.0	113
Mariaini	88.0	109	79.7	10.5	7.1	2.6	.0	96
MARAGUA	**76.8**	**450**	**76.5**	**14.4**	**5.5**	**3.6**	**.0**	**346**
Project Total 2010	**78.1**	**3,129**	**69.0**	**22.9**	**6.7**	**1.4**	**.0**	**2,444**
Project Total 2006			**27.5**	**26.9**	**39.7**	**5.9**		**1,303**

5.5 Home Based Care

The analysis of home based care (HBC) is done in relation to HIV/Aids patients. Figure 5.6a presents information on knowledge of Home Based Care (HBC) by age group. A fifth of both male and female respondents reported having heard of HBC. Overall, respondents aged 15-19 reported the highest percentage of having heard of HBC (32%), while those aged 75-79 reported the least (9%).

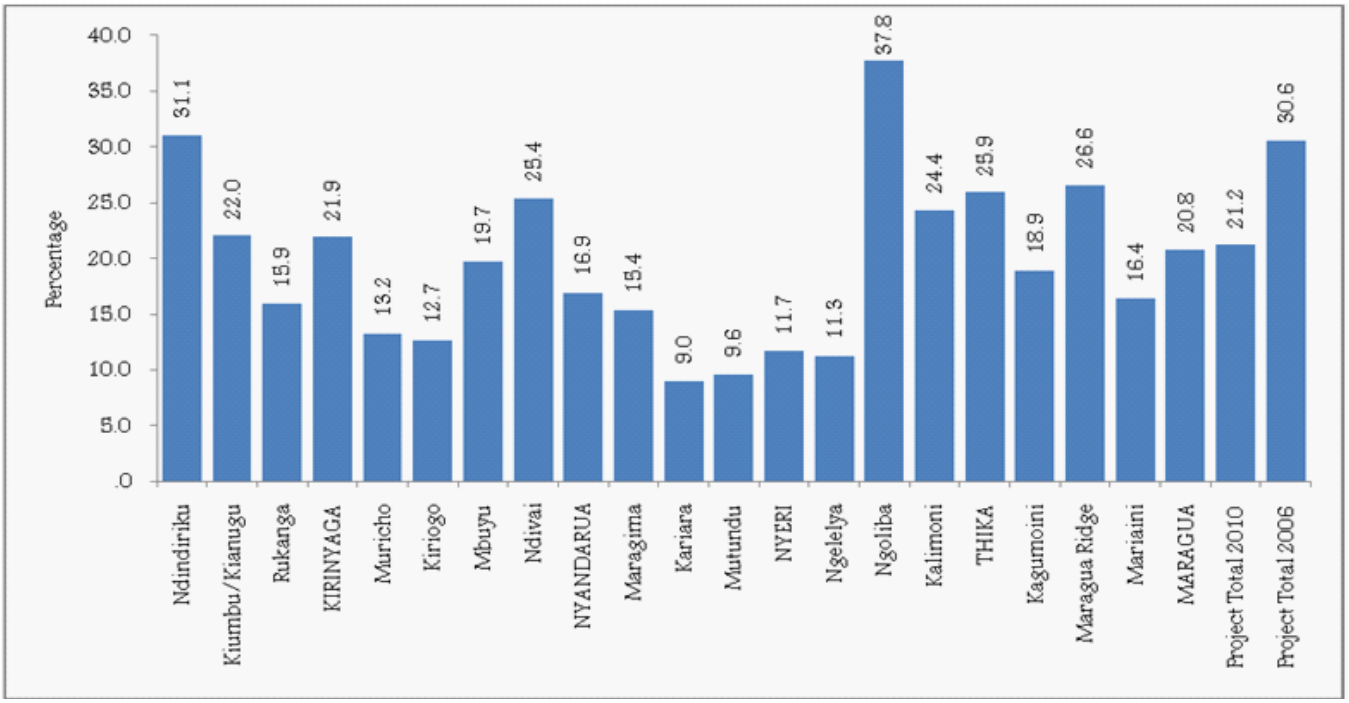
Figure 5.6a Percentage distribution of Home based care by FDAs



There was a decrease in overall knowledge of HBC in the five year period preceding the survey (from 31% to 21%). The decrease maybe attributed to a decline in the number of people ailing from the disease in the districts under study. If some patients succumbed to the condition between 2006 and 2010, then the number of people living close to or who know someone receiving HBC would have reduced.

Figure 5.6b shows information on knowledge of Home Based Care (HBC) by FDA. The highest percentage of those who knew about HBC hailed from Ngoliba (38%) while Kariara recorded the least (9%).

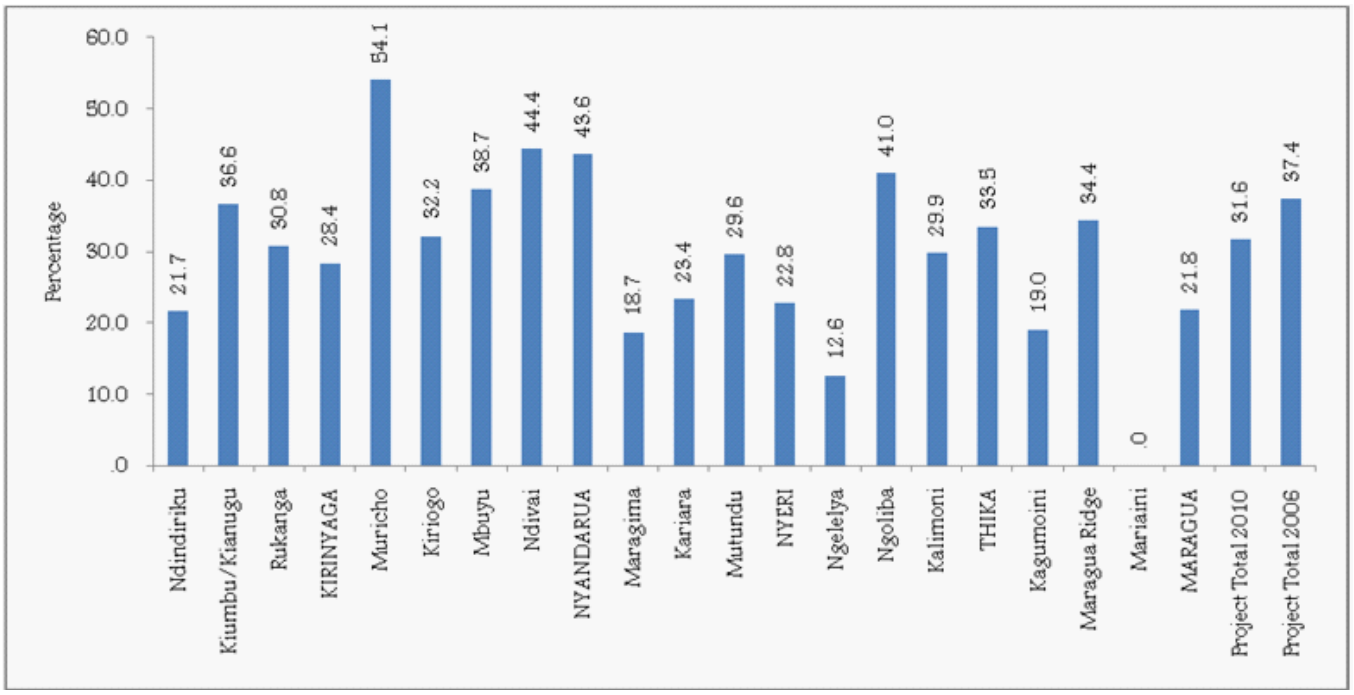
Figure 5.6b Knowledge of Home Based Care in the FDAs



5.6 Households with members in the Home Based Care teams

Out of those with knowledge of HBC, Muricho had the highest percentage of households with a member in the HBC teams (54%), while none of the households in Mariaini had a member in the HBC teams (Figure 5.7). The two FDAs also represented the districts with the highest and lowestt percentages; Nyandarua (44%) and Maragua (22%) respectively.

Figure 5.7 Knowledge of households in the village with members in the Home Based Care teams



In 2006, 37 percent of households had a member in HBC teams compared to 32 percent in 2010. Death or migration of those living with HIV/Aids can account for such changes.

5.7 Prevalence of Common Diseases

The information was sought in relation to household members as listed in households' demographic tables. They were asked if any of their members had suffered from common diseases during the last two months preceding the survey. The common diseases listed were Measles, T.B, Malaria, Meningitis, Chicken pox, Typhoid, Amoebiasis, Trachoma, Common cold, Pneumonia, Scabies, Ring worms, Diabetes, Asthma and Headache. This information is presented by FDA and age brackets.

Table 5.12 summarizes the information by sex and age group. Of the three diseases which occurred more in the two month period preceding the survey: Common cold (40%), headaches (22%) and Malaria (19%), female respondents reported higher incidences than their male counterparts. Respondents aged 80 and above reported higher incidences of Common cold (54%) while Malaria was most common among those aged 20-24 (33%).

Compared to 2006, there was a decrease in Trachoma and Pneumonia cases while incidences of other diseases had increased slightly. An improvement in health seeking behavior may lead to more diagnosis of the listed diseases. Therefore, it is possible that the number of people who sought medical assistance increased during the survey period due to an intervention.

Table 5.13 gives the prevalence of these diseases per FDA. Kiumbu/Kianugu recorded the highest percentage of Common cold (52%), Ndindiriku had the highest percentage of malaria (42%), while headaches were more prevalent in Ngoliba (36%).

Table 5.12: Percentage distribution of Diseases suffered by household members in the last two months by sex and age

Sex/ Age	Measles	TB	Malaria	Meningitis	Chicken pox	Typhoid	Amoebiasis	Tra-choma	Common cold	Pneumonia	Scabies	Ring Worms	Diabetes	Asthma	Head-ache	None of the diseases	Total
Male	2.1	.9	19.6	.5	2.0	7.6	9.5	1.4	38.4	3.3	.6	.7	1.4	1.1	27.3	45.3	2,352
Female	2.6	1.2	26.2	.0	1.3	12.4	14.2	1.2	48.4	5.2	.7	1.6	3.0	2.3	39.4	31.1	762
15 - 19	.0	.0	21.6	.0	.0	6.3	15.0	.0	52.7	.0	.0	.0	.0	.0	36.6	43.5	17
20 - 24	7.0	.0	32.7	.0	6.1	11.4	19.5	.7	48.3	11.8	.0	4.0	.0	.0	33.1	36.9	138
25 - 29	1.5	.3	14.4	.0	2.7	8.5	11.6	.4	43.6	1.7	.0	.4	.4	.1	29.6	38.6	260
30 - 34	3.4	1.9	24.3	.2	3.1	7.9	10.9	3.7	45.9	3.6	1.3	1.2	.0	1.0	32.9	41.2	376
35 - 39	.6	.0	18.1	.0	1.3	8.2	7.7	1.5	32.5	3.0	1.2	.9	.0	1.4	25.6	50.7	426
40 - 44	3.3	.1	20.8	1.1	1.9	9.5	10.3	.7	39.2	3.5	.3	.6	.5	.0	27.1	47.2	335
45 - 49	1.7	1.2	23.1	.0	.4	7.4	6.7	.4	40.3	3.1	.3	1.2	1.0	1.3	28.2	44.6	329
50 - 54	1.0	1.0	17.0	1.1	1.1	10.2	9.0	.1	34.1	1.9	1.1	1.4	2.2	3.3	30.5	42.3	260
55 - 59	1.7	.5	24.3	1.4	.5	14.0	13.3	.5	41.7	2.2	.4	1.1	3.2	1.1	35.7	36.5	227
60 - 64	3.2	3.1	20.2	.0	2.7	8.6	14.9	.0	39.7	4.9	1.8	.4	4.0	1.2	31.3	39.4	225
65 - 69	.0	.0	19.2	.0	.5	10.7	9.9	2.3	38.8	1.0	.0	.5	3.6	1.7	27.4	48.0	148
70 - 74	3.4	.8	23.8	.5	1.9	8.0	12.9	1.8	44.7	9.3	.0	.0	4.7	2.1	33.2	33.2	182
75 - 79	.0	4.8	29.0	.0	.0	2.0	6.4	1.2	46.8	4.9	.0	.0	7.3	.0	32.5	35.5	90
80+	5.1	.6	19.5	.0	2.5	5.0	11.0	6.4	53.9	4.4	.4	1.1	8.1	8.5	35.1	23.5	96
Project Total 2010	**2.1**	**.6**	**19.1**	**.6**	**1.8**	**5.8**	**7.4**	**1.4**	**40.1**	**3.2**	**.6**	**3.7**	**.8**	**.9**	**22.8**	**43.2**	**11,989**
Project Total 2006	**0.6**	**0.4**	**17.1**	**0.1**	**0.4**	**4.3**	**7.5**	**1.6**	**33.9**	**5.4**	**10.0**					**52.7**	**9,175.0**

Table 5.13: Percentage distribution of Diseases suffered by household members in the last two months by FDAs

District/FDAs	Measles	TB	Ma-laria	Meningitis	Chicken box	Typhoid	Amoebia-sis	Tra-choma	Common cold	Pneumonia	Scabies	Ring Worms	Diabetes	Asthma	Head-ache	None of the diseases	Total
Ndindiriku	10.6	3.2	42.0	1.1	10.8	13.3	27.0	2.7	47.7	10.3	1.6	7.5	.0	2.1	16.2	33.4	528
Kiumbu/Kianugu	10.6	2.9	41.3	11.4	12.8	11.4	24.2	7.1	52.1	10.0	5.7	9.2	4.9	4.9	13.5	30.7	387
Rukanga	3.8	.7	24.7	.0	3.0	5.5	17.3	.2	31.0	2.8	.9	4.4	.7	1.0	12.9	46.2	812
KIRINYAGA	**7.4**	**2.0**	**33.7**	**2.9**	**7.6**	**9.2**	**21.8**	**2.5**	**40.8**	**6.7**	**2.2**	**6.4**	**1.4**	**2.2**	**14.0**	**38.8**	**1,726**
Muricho	1.6	.8	7.8	.0	.7	7.9	6.2	2.0	38.8	3.6	.2	1.5	.9	.1	12.4	43.2	870
Kiriogo	.6	.2	12.5	.5	.8	8.5	11.4	1.4	39.7	2.1	.4	3.6	1.1	.7	15.1	43.4	371
Mbuyu	2.7	.4	16.2	.9	2.6	8.6	9.3	1.6	47.3	5.5	.6	3.5	.3	.8	20.9	37.1	794
Ndivai	.9	.2	7.4	.2	.4	5.3	5.4	2.3	35.0	2.2	2.4	4.0	.3	.8	13.6	50.5	318
NYANDARUA	**1.7**	**.5**	**11.3**	**.4**	**1.3**	**7.8**	**8.0**	**1.8**	**41.3**	**3.8**	**.7**	**2.8**	**.7**	**.5**	**15.9**	**42.2**	**2,353**
Maragima	.5	.0	11.2	.2	1.2	1.6	5.1	1.6	36.0	2.0	1.1	1.9	.8	.0	12.8	48.5	457
Kariara	.1	.0	5.6	.0	1.6	.8	1.0	.8	16.9	.5	.2	.3	.6	.3	7.4	70.9	332
Mutundu	.6	.3	9.6	.0	.8	3.2	1.9	.0	17.4	1.0	.2	.3	.3	.2	10.0	65.3	413
NYERI	**.4**	**.1**	**9.1**	**.1**	**1.2**	**1.9**	**2.9**	**.8**	**24.3**	**1.3**	**.5**	**.9**	**.6**	**.1**	**10.3**	**60.5**	**1,201**
Ngelelya	1.0	.6	22.9	.1	.4	4.4	2.6	.8	40.3	2.4	.3	3.2	.5	.6	29.6	46.5	1,111
Ngoliba	1.5	1.0	25.0	.2	1.2	4.7	2.3	1.5	44.4	3.5	.2	3.7	.6	1.6	36.1	37.2	1,593
Kalimoni	1.4	.2	20.0	.2	.6	7.0	2.9	1.3	42.9	2.2	.1	4.1	.8	.6	32.6	41.5	2,137
THIKA	**1.3**	**.6**	**22.3**	**.2**	**.8**	**5.6**	**2.6**	**1.2**	**42.8**	**2.7**	**.2**	**3.7**	**.7**	**.9**	**33.1**	**41.2**	**4,841**
Kagumoini	.2	.3	12.1	.2	.0	1.5	5.8	.7	43.6	1.7	.2	2.8	.5	.2	23.1	42.0	790
Maragua Ridge	1.1	.0	13.8	.0	.2	2.8	8.0	1.0	40.1	1.6	.6	5.5	1.1	.6	22.1	40.4	577
Mariaini	.4	.1	15.5	.2	.3	4.8	14.3	.5	39.4	1.5	.5	3.4	.7	.5	15.7	44.6	495
MARAGUA	**.5**	**.2**	**13.5**	**.1**	**.1**	**2.8**	**8.7**	**.7**	**41.4**	**1.6**	**.4**	**3.8**	**.7**	**.4**	**20.8**	**42.2**	**1,863**
Project Total 2010	**2.1**	**.6**	**19.1**	**.6**	**1.8**	**5.8**	**7.4**	**1.4**	**40.1**	**3.2**	**.6**	**3.7**	**.8**	**.9**	**22.8**	**43.2**	**11,989**
Project Total 2006	**0.6**	**0.4**	**17.1**	**0.1**	**0.4**	**4.3**	**7.5**	**1.6**	**33.9**	**5.4**	**1**					**52.7**	**9,175**

Overall, Thika District had the highest percentage of Common cold (43%) while Malaria was more prevalent in Kirinyaga (34%). Compared to 2006, there was an increase in incidences of the given diseases except Trachoma, Pneumonia, Amoebiasis and Scabies. The greatest increase is observed for Common colds; from 34 percent to 40 percent.

5.8 Deaths amongst the Households Members

Table 5.14 shows the percentage distribution of household deaths in the 24 month period preceding the survey. Majority of the households (95%) did not report any death in the period under study. Of those who reported one death, 6 percent were from Nyandarua while Thika had the least at 4 percent.

Table 5.14: Percentage distribution of number of household deaths in the last 24 months

District/FDAs	None died	1	2	Total
Ndindiriku	95.3	4.7	.0	165
Kiumbu/Kianugu	92.0	8.0	.0	138
Rukanga	96.3	3.7	.0	252
KIRINYAGA	**95.0**	**5.0**	**.0**	**555**
Muricho	95.3	3.7	1.0	209
Kiriogo	96.2	3.8	.0	88
Mbuyu	90.1	9.3	.6	179
Ndivai	92.6	6.3	1.1	75
NYANDARUA	**93.4**	**5.9**	**.7**	**551**
Maragima	97.8	2.2	.0	144
Kariara	97.0	3.0	.0	95
Mutundu	93.5	5.8	.7	130
NYERI	**96.1**	**3.7**	**.3**	**369**
Ngelelya	96.4	3.6	.0	252
Ngoliba	95.8	3.7	.5	387
Kalimoni	95.7	3.6	.6	564
THIKA	**95.9**	**3.7**	**.4**	**1,204**
Kagumoini	95.5	4.3	.2	193
Maragua Ridge	97.3	2.7	.0	148
Mariaini	94.6	5.4	.0	109
MARAGUA	**95.9**	**4.0**	**.1**	**450**
Project Total 2010	**95.3**	**4.4**	**.3**	**3,129**
Project Total 2006	**91.2**	**8**	**0.8**	**2,175**

There was a decline in mortality in 2010 compared to 2006. Death is a rare event unlike birth and with improvement in health services and health seeking behavior, more and more people have survived in the regions under study.

Three out of every five deaths reported occurred in a health facility while only a quarter occurred at home (Table 5.14). Maragua recorded the highest proportion of deaths occurring in a health facility (79%) while Nyeri had the highest percentage of deaths occurring at home (47%).

Table 5.15: Percentage distribution of Places of death according to the FDAs

District/FDAs	Home	Health Facility	Other	NS	Total
Ndindiriku	85.9	14.1	.0	.0	8
Kiumbu/Kianugu	24.7	75.3	.0	.0	11
Rukanga	36.4	36.4	27.2	.0	9
KIRINYAGA	**45.4**	**45.7**	**9.0**	**.0**	**28**
Muricho	4.9	52.5	42.6	.0	12
Kiriogo	34.4	43.0	22.5	.0	3
Mbuyu	35.0	52.9	8.4	3.8	19
Ndivai	50.7	49.3	.0	.0	6
NYANDARUA	**28.5**	**51.4**	**18.3**	**1.8**	**41**
Maragima	.0	76.2	23.8	.0	3
Kariara	42.6	36.1	21.3	.0	3
Mutundu	64.7	35.3	.0	.0	9

Table 5.15: Percentage distribution of Places of death according to the FDAs *(continued)*

District/FDAs	Home	Health Facility	Other	NS	Total
NYERI	**47.2**	**43.9**	**8.8**	**.0**	**15**
Ngelelya	31.4	68.6	.0	.0	9
Ngoliba	13.8	57.0	29.2	.0	18
Kalimoni	7.0	85.7	7.3	.0	28
THIKA	**13.3**	**73.4**	**13.3**	**.0**	**55**
Kagumoini	15.7	84.3	.0	.0	9
Maragua Ridge	26.6	50.9	22.5	.0	4
Mariaini	.0	91.5	8.5	.0	6
MARAGUA	**13.1**	**79.4**	**7.4**	**.0**	**19**
Project Total 2010	**26.2**	**60.6**	**12.7**	**.5**	**158**
Project Total 2006	**47.3**	**43.7**	**9.1**		**218**

There was a reduction in deaths occurring at home (from 47% to 26%) while those occurring at a health facility increased in the study period (from 44% to 61%). With improvement in services available at local hospitals, it is expected that there would be a decline of people who struggle with their ailments until death while at home. This is a positive change as treatable conditions are addressed while at the same time incidence and prevalence of diseases in a region can be monitored through hospital records.

The percentage distribution of causes of death by place of death is shown in Table 5.16. All deaths caused by Tetanus, Childbirth/pregnancy, Asthma, Meningitis, High blood pressure and Stroke, occurred in a health facility. On the other hand, all suicides occurred at home.

Table 5.16: Percentage distribution of Causes of Death by Places of Death

District/FDAs	Home	Health Facility	Other	NS	Total
Malaria	22.0	78.0	.0	.0	8
Pneumonia	17.2	70.8	12.0	.0	9
AIDS	36.1	58.9	.0	5.1	14
Tetanus	**.0**	**100.0**	**.0**	**.0**	**2**
Tuberculosis	59.0	41.0	.0	.0	8
Childbirth/Pregnancy	.0	100.0	.0	.0	1
Sudden Death	22.3	67.5	10.3	.0	6
Asthma	.0	100.0	.0	.0	4
Cancer	**34.6**	**40.8**	**24.6**	**.0**	**8**
Urinary Obstruction	32.0	68.0	.0	.0	2
Suicide	100.0	.0	.0	.0	4
Accident	.0	77.2	22.8	.0	21
Diabetes	**11.1**	**88.9**	**.0**	**.0**	**10**
Meningitis	.0	100.0	.0	.0	3
Typhoid	33.7	66.3	.0	.0	1
High Blood Pressure	.0	100.0	.0	.0	3
Heart Attack	**46.5**	**53.5**	**.0**	**.0**	**1**
Stroke	.0	100.0	.0	.0	2
Old Age	87.0	13.0	.0	.0	9
Unknown	49.7	45.9	4.5	.0	11
Other (Specify)	**13.5**	**51.7**	**34.8**	**.0**	**32**
Project Total 2010	**26.2**	**60.6**	**12.7**	**.5**	**158**
Project Total 2006	**47.3**	**43.7**	**9.1**		

When the deaths are analysed by sex, men succumbed more to Malaria, Pneumonia, TB, Sudden deaths, Asthma, Cancer, Urinary obstruction, Suicide and High blood pressure, while women succumbed more to HIV/Aids, Tetanus, accidents, Diabetes, Meningitis, Heart attack and old age (Table 5.17). An analysis of death by age group shows that Pneumonia was the number one killer among those aged 0-5; Malaria killed half of those aged 55-59; and accidents were more common among those aged 25-29. Overall, accidents and HIV/Aids killed more people (one in every ten people).

Compared to 2006, there was a reduction in the causes of death in all categories except suicides and accidents. This positive change can be attributed to increased uptake of modern medical methods; seeking medical treatment, sleeping under treated mosquito nets and clearing bushes, among others.

When analysed from the FDAs perspective (Table 5.18 below), half of all deaths in Maragua Ridge are due to HIV/Aids, one in every five deaths in Ngelelya are due to Malaria, while two in every five deaths in Kariara were due to sudden deaths. Overall, Thika had the highest percentage of accident-related deaths (one in every four) while Maragua had the highest incidence of HIV/Aids related deaths (one in every six).

Table 5.17: Percentage distribution of Causes of death according to sex and age

Sex of the deceased/ Age group	Malaria	Pneumonia	AIDS	Tetanus	Tuberculosis	Childbirth/ Pregnancy	Sudden Death	Asthma	Cancer	Urinary Obstruction	Suicide	Accident	Diabetes	Meningitis	Typhoid	High Blood Pressure	Heart Attack	Stroke	Old Age	Unknown	Other (Specify)	Total Sample
Male	5.3	6.9	7.0	.0	5.7	.0	4.2	2.7	5.6	1.9	3.1	11.9	5.8	.9	.6	2.3	.0	1.2	3.2	8.1	17.5	115
Female	4.4	1.9	14.5	4.4	2.5	.0	2.6	1.3	4.2	.0	.0	16.8	7.3	3.8	.7	.0	2.8	1.2	13.1	4.8	13.7	43
0 - 5	6.6	40.3	.0	.0	.0	.0	.0	.0	.0	3.2	.0	.0	2.5	.0	.0	.0	.0	.0	.0	11.0	18.2	16
5-9	.0	7.5	27.6	.0	.0	.0	41.7	23.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	7
10 -14	.0	.0	.0	.0	.0	.0	.0	36.1	.0	.0	.0	.0	.0	41.9	.0	.0	.0	.0	.0	.0	22.0	3
15 - 19	27.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	72.6	.0	.0	.0	.0	.0	3
20 - 24	.0	.0	17.0	.0	15.2	.0	.0	.0	.0	.0	51.0	7.2	.0	.0	.0	.0	.0	.0	.0	9.5	.0	5
25 - 29	.0	2.8	5.6	.0	.0	.0	.0	.0	4.4	.0	2.2	57.4	.0	.0	.0	.0	.0	.0	.0	5.5	22.1	13
30 - 34	.0	.0	.0	.0	23.8	.0	5.3	.0	8.6	.0	.0	26.2	.0	.0	.0	.0	.0	.0	.0	.0	36.1	14
35 - 39	1.9	.0	41.1	.0	4.4	.0	.0	.0	.0	.0	.0	.0	.0	9.3	.0	.0	4.7	.0	.0	5.6	33.1	14
40 - 44	2.1	.0	28.9	.0	.0	.0	.0	.0	.0	.0	.0	36.2	29.0	3.7	.0	.0	.0	.0	.0	.0	.0	10
45 - 49	6.4	.0	6.2	.0	1.9	.0	.0	.0	20.2	.0	4.1	29.3	.0	.0	5.3	.0	.0	.0	.0	6.1	20.6	12
50 - 54	.0	.0	.0	28.4	7.6	.0	19.9	8.2	10.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	25.7	7
55 - 59	52.8	.0	15.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.2	.0	.0	22.3	7
60 - 64	.0	24.0	.0	.0	.0	.0	.0	.0	12.1	.0	.0	8.9	.0	.0	.0	.0	.0	.0	.0	12.3	42.7	4
65 - 69	.0	.0	.0	.0	.0	.0	.0	.0	24.3	.0	.0	.0	43.2	.0	.0	.0	.0	.0	.0	32.6	.0	3
70 - 74	.0	3.8	7.7	.0	.0	.0	.0	.0	6.3	.0	.0	15.2	32.8	.0	.0	.0	.0	11.7	.0	.0	22.5	7
75 - 79	.0	.0	.0	.0	.0	.0	.0	.0	75.7	24.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2
80+	4.0	.0	.0	.0	6.4	3.1	3.4	2.2	1.7	4.1	.0	1.9	9.8	.0	1.0	1.8	1.7	1.7	29.0	17.0	2.4	32
Project Total 2010	**5.1**	**5.6**	**9.0**	**1.2**	**4.8**	**.6**	**3.7**	**2.3**	**5.2**	**1.4**	**2.2**	**13.2**	**6.2**	**1.7**	**.6**	**1.7**	**.7**	**1.2**	**5.9**	**7.2**	**16.5**	**158**
Project Total 2006	**9.9**	**6**	**11**	**0.4**	**6.5**	**1.5**	**10**	**3.1**	**7.8**		**1.6**	**3.7**									**36.3**	**224**

Table 5.18: Percentage distribution of Causes of death according to FDAs

District/FDAs	Malaria	Pneumonia	AIDS	Tetanus	Tuber-culosis	Child-birth/ Preg-nancy	Sudden Death	Asthma	Cancer	Urinary Obstruc-tion	Suicide	Acci-dent	Diabetes	Menin-gitis	Typhoid	High Blood Pressure	Heart Attack	Stroke	Old Age	Un-known	Other (Spec-ify)	Total Sample
Ndindiriku	14.1	.0	.0	.0	44.6	.0	.0	.0	.0	.0	.0	.0	14.1	.0	.0	.0	.0	.0	27.1	.0	.0	8
Kiumbu/Kianugu	.0	.0	25.3	.0	.0	.0	24.7	.0	.0	.0	24.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	11
Rukanga	.0	.0	11.5	.0	.0	.0	.0	.0	.0	.0	.0	11.5	24.9	.0	.0	.0	.0	.0	24.9	.0	27.2	9
KIRINYAGA	**3.9**	**.0**	**13.8**	**.0**	**12.3**	**.0**	**9.7**	**.0**	**.0**	**.0**	**9.7**	**3.8**	**12.1**	**.0**	**.0**	**.0**	**.0**	**.0**	**15.6**	**.0**	**9.0**	**28**
Muricho	.0	.0	.0	.0	4.9	.0	.0	.0	.0	.0	.0	17.6	.0	.0	.0	.0	.0	.0	9.9	.0	42.6	12
Kiriogo	.0	.0	16.1	.0	.0	.0	.0	21.5	18.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	21.5	22.5	3
Mbuyu	.0	5.7	3.8	9.9	.0	.0	3.7	2.8	5.7	6.6	.0	2.8	4.4	.0	1.7	.0	.0	2.8	.0	9.9	40.0	19
Ndivai	.0	.0	27.1	.0	12.8	.0	.0	14.3	.0	9.4	.0	.0	.0	.0	.0	.0	.0	12.8	.0	23.7	.0	6
NYANDARUA	**.0**	**2.6**	**7.4**	**4.6**	**3.5**	**.0**	**1.7**	**5.3**	**4.2**	**4.5**	**.0**	**6.5**	**2.1**	**.0**	**.8**	**.0**	**.0**	**3.3**	**2.9**	**10.1**	**33.0**	**41**
Maragima	.0	.0	.0	.0	.0	31.0	.0	.0	21.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	47.6	3
Kariara	.0	.0	21.3	.0	.0	.0	42.6	.0	.0	.0	.0	21.5	14.5	.0	.0	.0	.0	.0	.0	.0	.0	3
Mutundu	.0	10.3	12.7	.0	.0	.0	5.2	.0	13.0	.0	.0	10.0	.0	.0	.0	.0	5.8	.0	.0	10.0	33.0	9
NYERI	**.0**	**6.3**	**11.7**	**.0**	**.0**	**6.4**	**11.0**	**.0**	**12.3**	**.0**	**.0**	**10.0**	**2.7**	**.0**	**.0**	**.0**	**3.6**	**.0**	**.0**	**6.1**	**29.9**	**15**
Ngelelya	22.3	7.0	.0	.0	9.5	.0	8.5	.0	12.9	.0	3.1	9.6	.0	.0	3.1	.0	.0	6.9	13.1	4.1	.0	9
Ngoliba	7.1	11.7	14.2	.0	.0	.0	.0	.0	.0	.0	.0	23.4	.0	9.3	.0	.0	3.5	.0	6.7	20.0	4.2	18
Kalimoni	13.0	7.6	.0	.0	.0	.0	.0	5.5	7.3	.0	1.8	33.6	11.3	.0	.0	7.4	.0	.0	3.9	3.1	5.5	28
THIKA	**12.6**	**8.9**	**4.7**	**.0**	**1.6**	**.0**	**1.4**	**2.8**	**5.8**	**.0**	**1.4**	**26.3**	**5.7**	**3.1**	**.5**	**3.7**	**1.2**	**1.1**	**6.3**	**8.8**	**4.2**	**55**
Kagumoini	.0	16.3	.0	.0	4.1	.0	.0	.0	.0	4.1	.0	4.3	23.1	4.1	4.1	.0	.0	.0	3.2	16.7	20.1	9
Maragua Ridge	.0	.0	50.9	.0	26.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	22.5	4
Mariaini	.0	7.5	16.3	.0	8.5	.0	.0	.0	24.7	.0	.0	14.1	.0	10.7	.0	9.7	.0	.0	.0	.0	8.5	6
MARAGUA	**.0**	**10.1**	**15.9**	**.0**	**10.2**	**.0**	**.0**	**.0**	**7.7**	**2.0**	**.0**	**6.4**	**11.0**	**5.3**	**1.9**	**3.0**	**.0**	**.0**	**1.5**	**7.9**	**17.0**	**19**
Project Total 2010	**5.1**	**5.6**	**9.0**	**1.2**	**4.8**	**.6**	**3.7**	**2.3**	**5.2**	**1.4**	**2.2**	**13.2**	**6.2**	**1.7**	**.6**	**1.7**	**.7**	**1.2**	**5.9**	**7.2**	**16.5**	**158**
Project Total 2006	**9.9**	**6**	**11**	**0.4**	**6.5**	**1.5**	**10**	**3.1**	**7.8**		**1.6**	**3.7**									**36.3**	**224**

Chapter Six:

AGRICULTURE AND LIVESTOCK PRODUCTION

6.0 INTRODUCTION

The instruments used for this section had refence to 2009 and part of 2010. For example, a question such as Last year did your household experience a hungry season? is in reference to last year's season of 2009, and hence the prevailing climatic conditions of the year 2009. The drought experienced in the year under review contributed to lower production in agricultural produce.

The Long rain (March to May) 2009 analysis indicates that most parts of the country experienced poor rainfall performance. The poor performance was reflected both in the amounts received and the distribution in time and space. The total rainfall (TOT) amounts received over most parts of the country were below 75 per cent of the Long Term Means (LTMs). The Central highlands including Nairobi received a near normal rainfall.

6.1 FOOD SECURITY

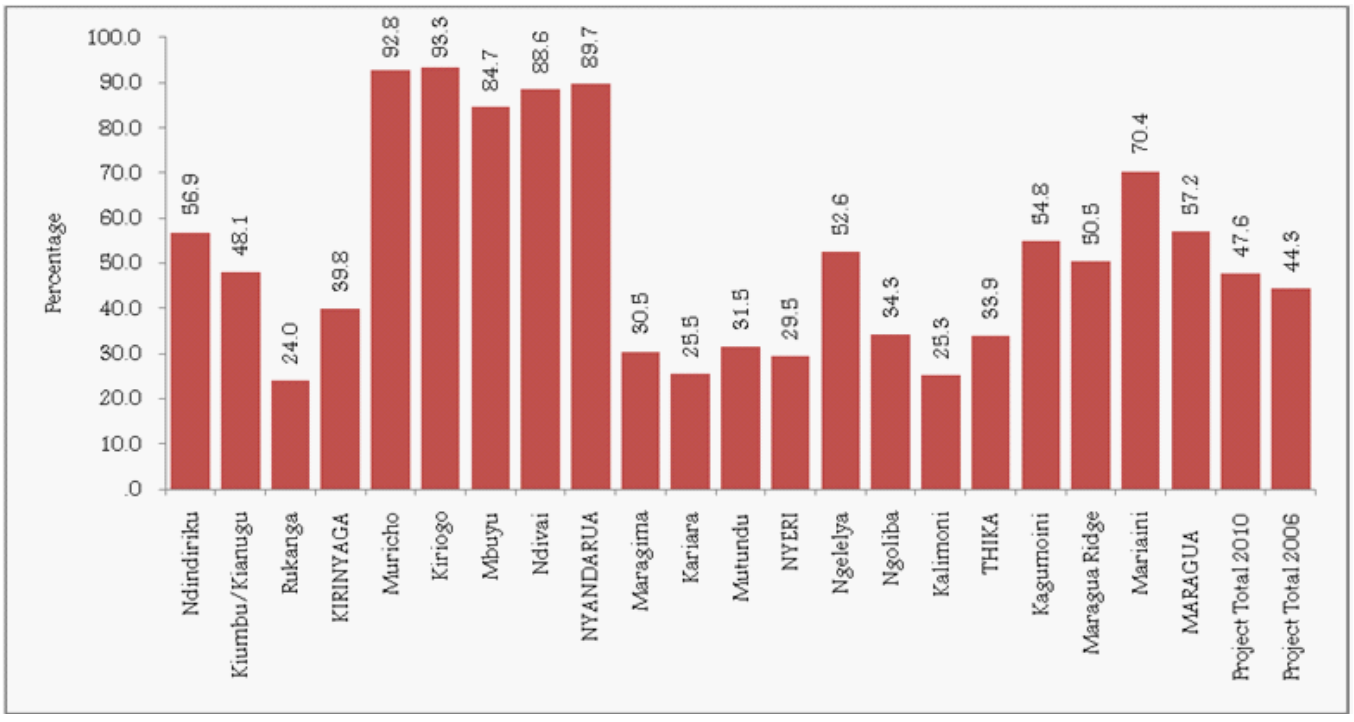
6.1.1 Hungry season

Food security remains a critical factor affecting the livelihoods of the people. Lack of food has severe consequences to the entire population. Many diseases especially among the vulnerable groups, such as children, arise due to malnutrition. The economic activities of the communities are slowed as a result of people spending more time looking for ways of survival.

A hungry season is defined as the number of months a household does not have enough food because their own stores are depleted.

Figure 6.1 shows households affected by a hungry season. Across the districts, Nyandarua was the most affected (90%) while Nyeri suffered the least (30%). The percentage of households experiencing a hungry season rose marginally from 44 percent in 2006 to 48 percent in 2010. In the FDAs, food shortage was acute in Muricho and Kiriogo where nine in ten households experienced hunger compared to approximately a quarter of the households in Rukanga, Kariara and Kalimoni.

Figure 6.1 Households affected by hungry season



6.1.2 *Beginning of hungry season*

Table 6.1 shows the percentage distribution of the start of the first hungry season. The results indicate that approximately a fifth of the households experienced the start of the first hungry season in January.

Table 6.1: Percentage distribution of Start of First Hungry Season

District/FDAs	Start of First Hungry Season	Total Sample	January	February	March	April	May	June	July	August	September	October	November	December	Continous	Number of HHs
Ndindiriku	56.9	165	11.0	1.7	5.9	11.9	9.9	5.7	13.1	6.0	15.8	8.2	5.0	1.2	4.7	94
Kiumbu/Kianugu	48.1	138	12.5	4.1	4.2	21.1	33.3	4.1	.0	4.1	4.1	4.1	4.2	.0	4.2	66
Rukanga	24.0	252	35.7	4.5	10.2	10.9	6.2	.0	1.8	.0	7.8	3.8	1.8	.0	17.5	60
KIRINYAGA	**39.8**	**555**	**18.2**	**3.2**	**6.6**	**14.4**	**15.9**	**3.6**	**6.1**	**3.8**	**10.1**	**5.7**	**3.9**	**.5**	**8.1**	**221**
Muricho	92.8	209	8.1	18.7	17.8	5.4	3.4	2.6	1.2	.3	.4	.6	.3	.3	41.0	194
Kiriogo	93.3	88	23.8	8.2	19.9	5.4	2.9	1.7	.7	.0	.0	.7	.0	.0	36.8	82
Mbuyu	84.7	179	30.7	17.9	15.8	7.3	5.9	2.6	3.4	1.4	1.1	1.5	1.6	.8	10.1	152
Ndivai	88.6	75	26.4	11.3	6.1	3.4	5.1	1.8	1.1	2.3	2.3	1.4	3.9	.0	35.0	67
NYANDARUA	**89.7**	**551**	**20.1**	**15.7**	**16.0**	**5.7**	**4.3**	**2.3**	**1.8**	**.8**	**.8**	**1.0**	**1.1**	**.4**	**30.0**	**494**
Maragima	30.5	144	21.4	13.3	.0	6.6	12.1	5.7	5.7	11.4	1.8	1.6	.0	.0	20.3	44
Kariara	25.5	95	11.7	9.1	16.1	8.9	21.3	2.5	3.4	4.1	3.2	2.5	.0	.0	17.4	24
Mutundu	31.5	130	8.9	10.6	22.0	8.9	20.0	8.2	6.3	3.5	1.2	1.6	.0	3.0	5.8	41
NYERI	**29.5**	**369**	**14.5**	**11.3**	**11.9**	**8.0**	**17.1**	**5.9**	**5.4**	**6.8**	**1.9**	**1.8**	**.0**	**1.1**	**14.2**	**109**
Ngelelya	52.6	252	13.7	1.6	2.5	6.5	3.6	8.1	2.7	9.2	1.6	.7	.4	.8	48.6	133
Ngoliba	34.3	387	14.4	3.6	8.5	10.7	3.7	10.2	8.4	12.3	4.9	5.1	.0	.4	17.9	133
Kalimoni	25.3	564	32.9	9.1	11.6	8.2	4.3	1.4	3.8	1.2	.0	.0	.0	.0	27.4	143
THIKA	**33.9**	**1 204**	**20.6**	**4.9**	**7.6**	**8.4**	**3.9**	**6.5**	**4.9**	**7.4**	**2.1**	**1.9**	**.1**	**.4**	**31.2**	**408**
Kagumoini	54.8	193	5.3	4.1	6.9	24.3	13.2	5.3	8.8	14.2	6.2	7.2	2.5	.3	1.8	106
Maragua Ridge	50.5	148	18.7	1.5	2.7	14.6	14.6	9.6	.0	10.9	1.4	9.8	4.4	.0	11.9	75
Mariaini	70.4	109	14.1	1.1	4.0	28.4	6.3	8.0	7.7	8.1	10.1	2.8	.6	1.1	7.7	77
MARAGUA	**57.2**	**450**	**11.8**	**2.4**	**4.8**	**22.7**	**11.5**	**7.3**	**5.9**	**11.4**	**6.0**	**6.7**	**2.5**	**.5**	**6.5**	**257**
Project Total 2010	**47.6**	**3 129**	**18.1**	**8.3**	**10.1**	**10.9**	**8.1**	**4.8**	**4.3**	**5.3**	**3.5**	**3.0**	**1.4**	**.5**	**21.8**	**1 490**
Project total 2006			**6.1**	**4.4**	**8.5**	**13.2**	**8**	**9.4**	**6.3**	**9.4**	**4.3**	**5.8**	**3.8**	**2.4**	**17.2**	**1 005**

1This period refers to continuous hungry season from last year.

The number of households experiencing a hungry season rose by 485 in the five year period prior to the survey. In addition to being the current start to the first hungry season, the month of January saw the highest rise in the percentages experiencing hunger (6% to 18%).

6.1.3 End of first hungry season

Table 6.2 highlights the percentage distribution of the end of first hungry season. A majority of the households (one in ten) reported the end of the first hungry season as November and December, maybe due to the onset of the short rains. Close to a quarter of households in Mbuyu and a fifth of those in Kiriogo and Ndivai were in this category. Majority of the households in Nyeri District experienced an end of the first hungry season in August with slightly over a third of households in Kariara and Mutundu being in this category. This may have coincided with the harvest season which is around that time.

Table 6.2: Percentage distribution of End of First Hungry Season

District/FDAs	Proportion with First Hungry Season	Total Sample	January	February	March	April	May	June	July	August	September	October	November	Decem-ber	Conti-nous	Number of HHs
Ndindiriku	56.9	165	.0	1.2	.0	.9	2.7	2.0	2.0	1.2	.0	11.7	11.9	11.4	55.0	94
Kiumbu/Kianugu	48.1	138	.0	.0	.0	.0	.0	4.2	.0	4.2	.0	21.0	12.5	16.7	41.3	66
Rukanga	24.0	252	.0	.0	.0	7.6	5.1	2.0	2.7	11.5	6.5	6.4	.0	4.8	53.4	60
KIRINYAGA	**39.8**	**555**	**.0**	**.5**	**.0**	**2.4**	**2.6**	**2.7**	**1.6**	**4.9**	**1.8**	**13.1**	**8.8**	**11.2**	**50.5**	**221**
Muricho	92.8	209	.9	.4	10.3	7.2	7.3	3.6	2.4	3.1	2.6	9.3	14.6	4.2	33.9	194
Kiriogo	93.3	88	.7	5.8	10.4	7.2	2.7	7.3	2.1	1.8	4.3	9.2	22.6	8.4	16.4	82
Mbuyu	84.7	179	1.2	1.4	4.3	5.5	4.7	7.6	.9	2.2	1.7	10.6	24.1	15.4	20.4	152
Ndivai	88.6	75	2.7	3.2	7.0	8.4	2.4	7.0	1.1	3.7	1.4	5.8	19.1	8.9	29.5	67
NYANDARUA	**89.7**	**551**	**1.2**	**2.0**	**8.0**	**6.8**	**5.1**	**5.9**	**1.7**	**2.7**	**2.5**	**9.2**	**19.5**	**9.0**	**26.2**	**494**
Maragima	30.5	144	5.7	.0	.0	.0	.0	5.0	5.7	13.2	11.3	9.7	13.3	10.2	25.8	44
Kariara	25.5	95	.0	.0	.0	.0	5.8	.0	4.1	36.1	5.1	9.9	1.7	8.4	28.9	24
Mutundu	31.5	130	.0	.0	.0	.0	.0	1.3	3.2	34.6	7.2	11.9	6.6	1.3	33.8	41
NYERI	**29.5**	**369**	**2.3**	**.0**	**.0**	**.0**	**1.3**	**2.5**	**4.4**	**26.3**	**8.4**	**10.6**	**8.2**	**6.5**	**29.5**	**109**
Ngelelya	52.6	252	1.1	1.8	.8	.6	.2	2.4	3.6	1.6	7.4	8.2	5.1	6.2	61.0	133
Ngoliba	34.3	387	1.0	3.0	1.3	4.4	3.1	5.7	3.9	12.7	5.1	6.7	11.3	19.9	21.8	133
Kalimoni	25.3	564	2.5	.0	.0	1.4	5.6	11.5	9.6	8.0	4.9	4.1	.5	23.4	28.5	143
THIKA	**33.9**	**1 204**	**1.6**	**1.5**	**.7**	**2.1**	**3.0**	**6.7**	**5.8**	**7.5**	**5.8**	**6.3**	**5.5**	**16.7**	**36.9**	**408**
Kagumoini	54.8	193	1.4	.0	.3	.0	1.0	2.3	4.4	12.2	7.0	6.3	3.7	6.6	54.8	106
Maragua Ridge	50.5	148	.0	1.2	.0	.0	1.2	2.7	13.2	14.4	3.9	1.4	2.7	4.1	55.1	75
Mariaini	70.4	109	.0	.0	.0	.5	2.3	3.0	.8	3.1	4.5	4.0	12.5	2.9	65.9	77
MARAGUA	**57.2**	**450**	**.6**	**.4**	**.1**	**.2**	**1.5**	**2.6**	**5.9**	**10.1**	**5.3**	**4.2**	**6.0**	**4.8**	**58.2**	**257**
Project Total 2010	**47.6**	**3 129**	**1.1**	**1.2**	**2.9**	**3.2**	**3.2**	**4.8**	**3.7**	**7.3**	**4.2**	**8.2**	**10.9**	**10.5**	**38.5**	**1 490**
Project total 2006						**0.4**	**0.8**	**2.7**	**4.7**	**11.2**	**7.6**	**2.2**	**1.9**	**2**	**65.4**	**1,005**

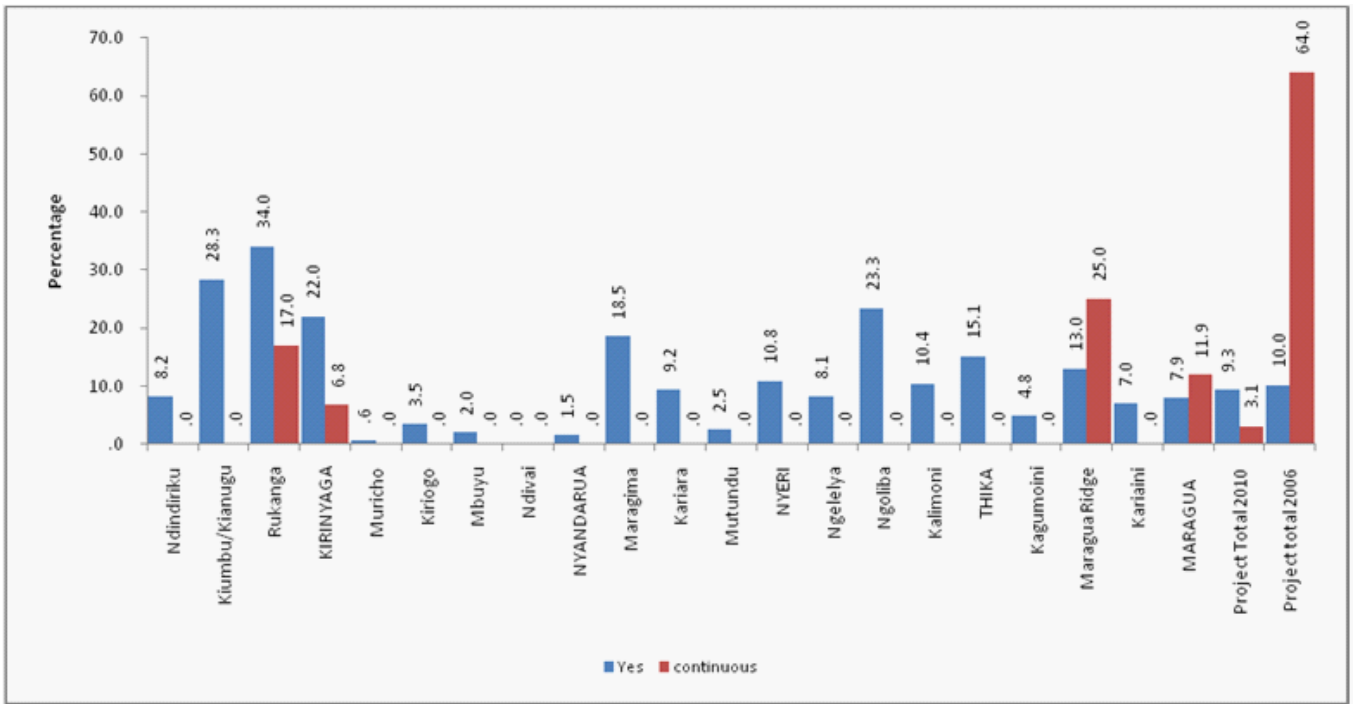
1This period refers to continuous hungry season from last year

Compared to 2006, there was a significant rise in the percentages experiencing an end to the first hungry season from the months of October to December; 6 percent rise in October, 9 percent in November and 9 percent in December. When comparison is made between the survey date and the one year interval before, there is a 27 percent decline in the number of households experiencing an end to hunger.

6.1.4 Second hungry season

The percentage distribution of households experiencing their second hungry season is depicted in Figure 6.2. Most of the households reporting a second hungry season were in Rukanga (34%) followed by Kiumbu/Kianugu (28%). In other areas, there was no end to the first season and so the drought was continuous. Maragua Ridge led this category with 25 percent followed by Rukanga (17%). Compared to 2006, the percentages reporting a continuation of the first hungry season declined from 64 percent to 3 percent in 2010.

Figure 6.2 Percentage distributions of households experiencing Second Hungry Season



6.1.5 Start of Second Hungry Season

Information on the start of the second hungry season is presented in Table 6.3. Approximately a fifth of the households in the project area reported this happening in the month of January. The most affected area was Muricho where this was universal. All the households in Maragima and Mutundu reported commencement of the second hungry season in September. With reference to 2006, January had the highest rise in households experiencing a second hungry season.

Table 6.3: Percentage distribution of Start of Second Hungry Season

District/FDAs	Proportion with Second Hungry Season	Total Sample	January	February	March	April	May	June	July	August	September	October	November	December	Continous	Number of HHs
Ndindiriku	2.1	165	31.5	.0	.0	.0	.0	.0	.0	.0	.0	37.0	.0	31.5	.0	3
Kiumbu/Kianugu	8.0	138	.0	24.7	.0	25.3	.0	24.7	.0	.0	.0	.0	.0	25.3	.0	11
Rukanga	3.8	252	15.1	.0	.0	.0	.0	.0	14.4	24.0	.0	17.0	12.4	.0	17.0	10
KIRINYAGA	**4.3**	**555**	**10.5**	**11.3**	**.0**	**11.6**	**.0**	**11.3**	**5.7**	**9.5**	**.0**	**12.1**	**4.9**	**16.2**	**6.8**	**24**
Muricho	.3	209	100.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1
Kiriogo	2.7	88	.0	31.4	.0	.0	.0	.0	.0	.0	.0	25.5	.0	.0	.0	2
Mbuyu	1.8	179	15.8	33.3	.0	.0	.0	.0	.0	.0	.0	25.4	25.4	.0	.0	3
Ndivai	2.8	75	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2
NYANDARUA	**1.5**	**551**	**14.6**	**21.6**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**16.9**	**9.7**	**.0**	**.0**	**8**
Maragima	4.2	144	.0	.0	.0	.0	.0	.0	.0	.0	100.0	.0	.0	.0	.0	6
Kariara	1.7	95	.0	.0	.0	.0	.0	.0	.0	61.7	.0	.0	38.3	.0	.0	2
Mutundu	.5	130	.0	.0	.0	.0	.0	.0	.0	.0	100.0	.0	.0	.0	.0	1
NYERI	**2.2**	**369**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**11.9**	**80.7**	**.0**	**7.4**	**.0**	**.0**	**8**
Ngelelya	1.7	252	31.0	.0	.0	.0	25.4	11.6	.0	.0	.0	.0	20.8	11.1	.0	4
Ngoliba	6.2	387	12.5	.0	5.0	14.6	9.9	8.7	5.5	16.0	10.1	12.8	5.0	.0	.0	24
Kalimoni	1.9	564	75.6	.0	.0	.0	.0	.0	.0	14.3	.0	10.1	.0	.0	.0	11
THIKA	**3.2**	**1,204**	**31.7**	**.0**	**3.1**	**9.0**	**8.8**	**6.7**	**3.4**	**13.8**	**6.3**	**10.7**	**5.4**	**1.2**	**.0**	**39**
Kagumoini	1.4	193	28.5	.0	.0	.0	.0	.0	.0	.0	.0	43.4	14.3	.0	.0	3
Maragua Ridge	2.9	148	.0	.0	.0	.0	.0	.0	.0	.0	25.0	50.1	.0	.0	25.0	4
Mariaini	2.0	109	.0	.0	.0	.0	.0	.0	.0	.0	41.2	44.7	.0	.0	.0	2
MARAGUA	**2.0**	**450**	**8.3**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**21.5**	**46.9**	**4.1**	**.0**	**11.9**	**9**
Project Total 2010	**2.8**	**3,129**	**19.0**	**5.1**	**1.4**	**7.1**	**3.9**	**6.0**	**3.0**	**9.7**	**12.5**	**14.4**	**5.7**	**4.9**	**3.1**	**89**
Project total 2006			**1.5**	**0.8**	**1.5**	**0.7**		**2.7**	**3.8**	**0.7**	**7**	**18.5**	**41.9**	**21**	**64.0**	**102**

6.1.6 *End of Second Hungry Season*

The end of the second hungry season begun in November (13%) but was mostly felt in December (22%) with all the households in Maragima being in this category. In Muricho, the end of this season was experienced in June where the event was universal. On the other hand, none of the households in Ndindiriku experienced a break from this season.

Table 6.4: Percentage distribution of End of Second Hungry Season

District/FDAs	Proportion with Second Hungry Season	Total Sample	January	February	April	May	June	July	August	September	October	November	December	Continous	Number of HHs
Ndindiriku	2.1	165	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0	3
Kiumbu/Kianugu	8.0	138	.0	25.3	.0	.0	.0	24.7	25.3	.0	.0	.0	.0	24.7	11
Rukanga	3.8	252	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	44.6	55.4	10
KIRINYAGA	**4.3**	**555**	**.0**	**11.6**	**.0**	**.0**	**.0**	**11.3**	**11.6**	**.0**	**.0**	**.0**	**17.7**	**47.7**	**24**
Muricho	.3	209	.0	.0	.0	.0	100.0	.0	.0	.0	.0	.0	.0	.0	1
Kiriogo	2.7	88	.0	.0	.0	.0	.0	25.5	.0	.0	.0	.0	.0	.0	2
Mbuyu	1.8	179	.0	.0	25.4	.0	.0	.0	32.5	.0	16.7	.0	.0	25.4	3
Ndivai	2.8	75	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2
NYANDARUA	**1.5**	**551**	**.0**	**.0**	**9.7**	**.0**	**8.6**	**7.2**	**12.4**	**.0**	**6.4**	**.0**	**.0**	**9.7**	**8**
Maragima	4.2	144	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0	.0	6
Kariara	1.7	95	38.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	61.7	.0	2
Mutundu	.5	130	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0	.0	1
NYERI	**2.2**	**369**	**7.4**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**92.6**	**.0**	**8**
Ngelelya	1.7	252	.0	.0	5.5	.0	.0	.0	.0	25.4	5.5	31.5	31.9	.0	4
Ngoliba	6.2	387	5.3	7.5	9.6	12.4	5.0	.0	.0	14.9	10.0	17.0	18.3	.0	24
Kalimoni	1.9	564	33.8	.0	29.8	.0	.0	.0	.0	.0	.0	24.4	11.9	.0	11
THIKA	**3.2**	**1,204**	**12.5**	**4.6**	**14.7**	**7.7**	**3.1**	**.0**	**.0**	**12.0**	**6.8**	**20.6**	**18.0**	**.0**	**39**
Kagumoini	1.4	193	.0	.0	.0	.0	.0	.0	.0	.0	.0	43.4	14.3	28.5	3
Maragua Ridge	2.9	148	.0	.0	.0	.0	.0	.0	25.0	.0	.0	25.1	.0	49.9	4
Mariaini	2.0	109	.0	.0	.0	.0	.0	.0	.0	.0	.0	44.7	20.6	20.6	2
MARAGUA	**2.0**	**450**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**11.9**	**.0**	**.0**	**35.0**	**9.0**	**36.8**	**9**
Project Total 2010	**2.8**	**3,129**	**6.2**	**5.2**	**7.3**	**3.4**	**2.2**	**3.8**	**5.6**	**5.2**	**3.6**	**12.6**	**22.2**	**17.6**	**89**
Project total 2006									**1.3**		**1.3**		**11.4**	**86.1**	**102**

Compared to 2006, there was a drop in the number of households coming out of the second hungry season (from 102 to 89). It is also observed that the month of December saw a doubling of the percentage of households coming out of their second hungry season.

6.1.7 Sources of Food during hungry season

Information on the sources of food during the hungry season is presented in Table 6.5. Government relief constituted two fifths of the support while one in ten households received support from relatives and friends. The combined efforts of faith based organizations and NGOs made up 10 percent of the assistance. Government relief was mostly consumed in Kiriogo (71%) and was absent in Kiumbu/Kianugu. Over a quarter of households in Maragua District sold their household assets to acquire food.

Table 6.5: Percentage distribution of Source of Food during hungry season

District/FDAs	Proportion with First Hungry Season	Total Sample	Government Relief	Faith based Organi-zation	NGOs	Rela-tives and Friends	Selling houshold assets	Other	NS	Number of HHs
Ndindiriku	56.9	165	3.9	.0	.0	9.8	6.7	82.1	1.4	94
Kiumbu/Kianugu	48.1	138	.0	.0	.0	16.7	12.4	83.3	.0	66
Rukanga	24.0	252	6.1	.0	.0	5.1	13.7	83.4	.0	60
KIRINYAGA	**39.8**	**555**	**3.3**	**.0**	**.0**	**10.6**	**10.3**	**82.8**	**.6**	**221**
Muricho	92.8	209	55.9	.3	.0	5.3	1.1	88.6	.3	194
Kiriogo	93.3	88	71.3	3.9	.0	13.7	.9	81.9	.7	82
Mbuyu	84.7	179	61.9	.2	3.5	14.9	.9	67.4	2.6	152
Ndivai	88.6	75	66.7	.0	.0	13.6	.0	76.6	1.2	67
NYANDARUA	**89.7**	**551**	**61.8**	**.8**	**1.1**	**10.8**	**.9**	**79.4**	**1.2**	**494**
Maragima	30.5	144	57.3	2.3	9.7	47.0	13.3	40.9	.0	44
Kariara	25.5	95	48.6	1.7	.0	20.0	3.2	75.1	.0	24
Mutundu	31.5	130	41.4	1.6	.0	32.6	1.6	78.4	.0	41
NYERI	**29.5**	**369**	**49.4**	**1.9**	**3.9**	**35.6**	**6.7**	**62.6**	**.0**	**109**
Ngelelya	52.6	252	60.2	5.6	7.9	12.2	.4	37.6	4.8	133
Ngoliba	34.3	387	39.5	3.0	10.7	17.0	8.3	37.7	10.9	133
Kalimoni	25.3	564	49.3	11.9	9.8	9.6	.0	37.5	3.6	143
THIKA	**33.9**	**1,204**	**49.7**	**7.0**	**9.4**	**12.8**	**2.8**	**37.6**	**6.3**	**408**
Kagumoini	54.8	193	28.9	13.7	15.4	14.8	20.5	43.0	9.1	106
Maragua Ridge	50.5	148	47.4	13.3	19.6	13.9	39.0	26.4	6.8	75
Mariaini	70.4	109	33.0	14.6	6.9	11.7	30.3	38.7	18.9	77
MARAGUA	**57.2**	**450**	**35.5**	**13.9**	**14.1**	**13.6**	**28.8**	**36.9**	**11.4**	**257**
Project Total 2010	**47.6**	**3,129**	**44.3**	**4.7**	**5.7**	**13.6**	**8.1**	**59.9**	**4.2**	**1,490**
Project total 2006			**42.7**	**8.1**	**4.1**	**27.7**	**27.9**	**56.6**		**962**

Compared to 2006, there is a marginal increase in the percentage relying on government relief (one percent). On the other hand, households relying on friends and relatives declined by 14 percent in the same reference period. Overall, the number of households in need of assistance rose from 962 in 2006 to 1,490 in 2010.

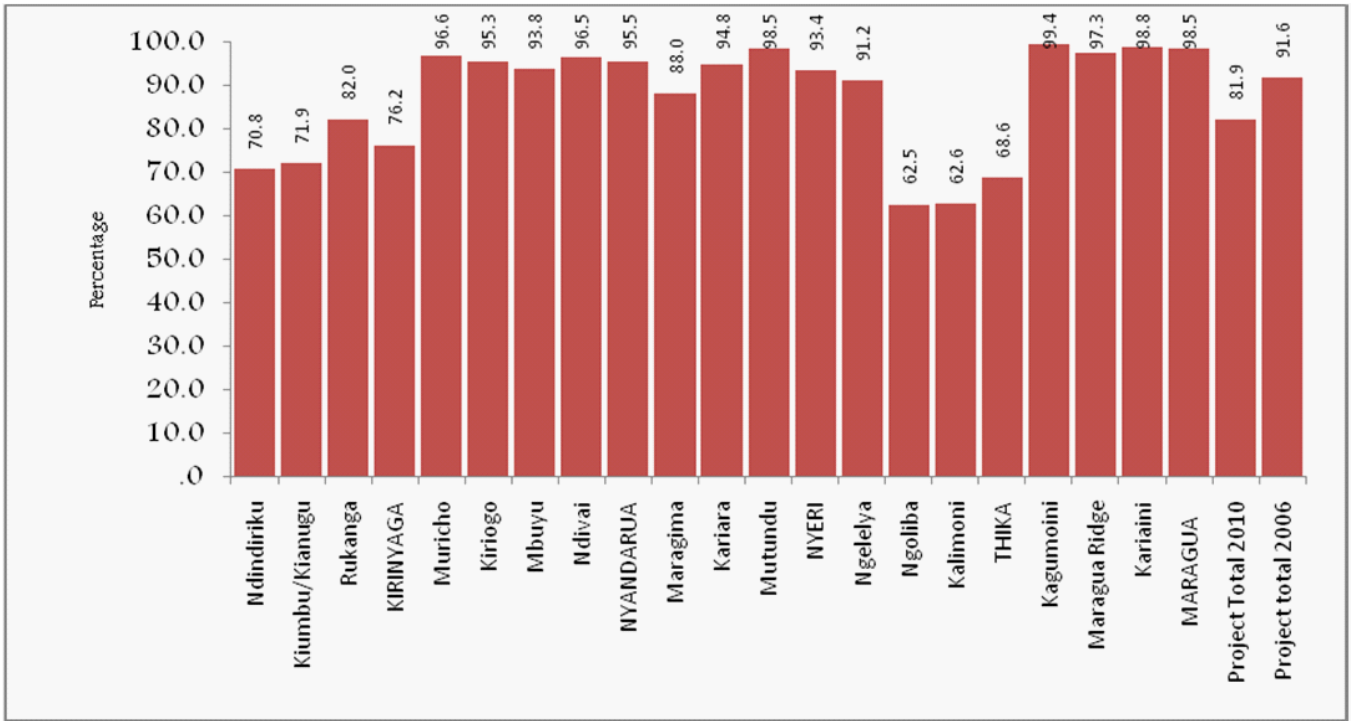
6.2 GENERAL AGRICULTURE

Land ownership is an economic factor and its tilling or rearing of livestock is a source of income to many households in the project area. These activities are either carried out in household-owned land, leased land or hired/rented land.

6.2.1 Farmland operation

Figure 6.3 show that the majority (81.9%) of the households in the FDAs operate land for agriculture and livestock production.

Figure 6.3 Percentage distribution of Households operating Farmland



6.2.2 Farmland ownership

Land ownership determines a number of economic activities in a household. Land preparation and planting will take place at right time and if land has title deeds, it will be used as collateral to secure loans. It is also a relative wealth determinant in female-headed households.

Figure 6.3 shows the percentage distribution of households operating farmland. Across all districts, over half of all households operate a farmland. This is highest in Nyandarua, Nyeri and Maragua (over 93% each) while Thika had the least at 69%. Farmlands are almost universal in Mutundu, Kagumoini and Mariaini (99% each) and are least common in Ngoliba and Kalimoni (63% each).

In the five year period preceding the survey, the percentage of households operating a farmland declined by 10 percent.

Table 6.6 shows the percentage distribution of farmland ownership by households. Two thirds of the households in the project area own their farmland while one in every ten households have leased theirs. Ownership is highest in Thika District (70%) with three quarters of Kalimoni residents being in this category. On the other hand, leasing is highest in Kirinyaga (28%) with 45% of Ndindiriku households being in this category.

Table 6.6: Percentage distribution of Farmland ownership by Households

District/FDAs	Proportion Owning Farmland	Total Sample	Owned by Household	Leased	Family Land	Other	None	Number of HHs
Ndindiriku	70.8	165	21.3	45.0	20.5	16.6	.0	117
Kiumbu/Kianugu	71.9	138	38.9	14.0	41.6	5.5	.0	99
Rukanga	82.0	252	51.3	25.7	28.7	3.5	1.1	206
KIRINYAGA	**76.2**	**555**	**40.1**	**28.3**	**29.5**	**7.6**	**.5**	**423**
Muricho	96.6	209	57.8	13.8	22.7	4.3	3.9	202
Kiriogo	95.3	88	57.0	5.9	34.4	5.3	.0	84
Mbuyu	93.8	179	53.3	9.2	38.3	.4	1.5	168
Ndivai	96.5	75	64.7	5.4	31.5	2.1	1.1	73
NYANDARUA	**95.5**	**551**	**57.2**	**9.9**	**30.8**	**2.9**	**2.1**	**526**
Maragima	88.0	144	69.6	9.3	22.8	1.3	1.1	126
Kariara	94.8	95	61.6	2.2	38.6	1.1	.7	90
Mutundu	98.5	130	66.2	1.9	33.3	.5	.0	128

Table 6.6: Percentage distribution of Farmland ownership by Households *(continued)*

District/FDAs	Proportion Owning Farmland	Total Sample	Owned by Household	Leased	Family Land	Other	None	Number of HHs
NYERI	**93.4**	**369**	**66.2**	**4.7**	**30.8**	**1.0**	**.6**	**345**
Ngelelya	91.2	252	72.2	2.7	22.1	3.7	.5	230
Ngoliba	62.5	387	62.8	8.8	19.6	8.0	1.2	242
Kalimoni	62.6	564	75.4	6.7	14.0	3.4	.9	353
THIKA	**68.6**	**1,204**	**70.8**	**6.2**	**17.9**	**4.8**	**.9**	**825**
Kagumoini	99.4	193	51.7	12.0	46.2	.1	.8	192
Maragua Ridge	97.3	148	55.2	11.1	42.6	.0	.8	144
Mariaini	98.8	109	59.5	16.2	35.4	2.9	.6	108
MARAGUA	**98.5**	**450**	**54.8**	**12.8**	**42.4**	**.8**	**.7**	**444**
Project Total 2010	**81.9**	**3,129**	**59.5**	**11.5**	**28.4**	**3.7**	**1.0**	**2,563**
Project total 2006			**48.3**	**12.8**	**40.3**	**8.3**		**2,030**

In the period under study, the number of households laying claim to land ownership rose from 2,030 to 2,563. There was a 12 percent decline in land owned by families while direct ownership (owned by household) increased from 48 percent to 60 percent in 2006 and 2010 respectively.

6.2.3 Total size of land

The percentage distribution of the total size of land is presented in Table 6.7. Majority of the households (four in ten) own between one and three acres while approximately one in ten own more than five acres. Most of the households (23%) who own more than five acres are in Ndindiriku while majority of Mariaini households (59%) own not more than an acre.

Table 6.7: Percentage distribution of Total size of the land

District/FDAs	Proportion disclosing Farmland ownership	Total Sample	Less than 1 acre	More than 1 acre but less than 3 acres	More than 3 acres but less than 5 acres	More than 5 acres	Do not Know	Other	Number of HHs
Ndindiriku	15.5	165	26.5	20.5	26.8	23.1	.0	3.1	26
Kiumbu/Kianugu	32.1	138	37.6	12.7	43.4	6.3	.0	.0	44
Rukanga	41.2	252	25.4	44.7	21.8	8.1	.0	.0	104
KIRINYAGA	**31.3**	**555**	**28.7**	**32.9**	**28.0**	**9.9**	**.0**	**.5**	**174**
Muricho	59.7	209	17.0	73.8	7.3	1.9	.0	.0	125
Kiriogo	62.9	88	19.3	47.3	21.5	11.9	.0	.0	55
Mbuyu	57.4	179	9.2	42.5	31.2	17.2	.0	.0	103
Ndivai	67.0	75	15.7	38.9	26.2	19.1	.0	.0	50
NYANDARUA	**60.5**	**551**	**14.7**	**54.4**	**19.9**	**10.9**	**.0**	**.0**	**333**
Maragima	59.5	144	18.0	57.5	14.3	10.2	.0	.0	85
Kariara	61.0	95	24.1	51.2	11.8	9.9	3.0	.0	58
Mutundu	69.1	130	30.6	39.0	14.5	15.9	.0	.0	90
NYERI	**63.3**	**369**	**24.4**	**48.8**	**13.8**	**12.3**	**.8**	**.0**	**233**
Ngelelya	78.7	252	39.6	36.8	14.3	8.5	.3	.5	199
Ngoliba	41.9	387	39.5	36.5	12.4	9.5	1.6	.5	162
Kalimoni	50.2	564	43.6	24.3	28.1	3.9	.0	.0	283
THIKA	**53.5**	**1,204**	**41.3**	**31.3**	**19.9**	**6.7**	**.5**	**.3**	**644**
Kagumoini	53.5	193	50.6	38.9	7.3	2.0	1.2	.0	103
Maragua Ridge	53.7	148	24.1	47.5	11.3	17.0	.0	.0	79
Mariaini	71.2	109	58.9	34.7	6.4	.0	.0	.0	78
MARAGUA	**57.9**	**450**	**45.0**	**40.3**	**8.2**	**6.0**	**.5**	**.0**	**261**
Project Total 2010	**52.6**	**3,129**	**32.8**	**40.0**	**18.0**	**8.6**	**.4**	**.2**	**1,645**
Project total 2006			**23.8**	**38.8**	**23.7**	**13.3**	**0.3**		**955**

In 2010, three in ten households had an acre or less of land compared to two in ten in 2006. However, a decline is observed in the percentage owning over five acres of land (24% to 19%).

6.2.4 Tools used for tilling land

Table 6.8 gives the types of tools commonly used by the households in cultivating their land. Most of the households (77%) use hand tools (hoe/jembe), followed by animal drawn ploughs (17%) and only 6 percent use tractor drawn ploughs. Across the Districts, hand tools are popular in Maragua (98%) and Nyeri (97%), while animal-drawn ploughs are common in Kirinyaga (79%).

Table 6.8: Percentage distribution of ways of tilling farmland

District/FDAs	Proportion owning Farmland	Total Sample	Hand tool	Animal Drawn Plough	Tractor drawn plough	Power tiller	Herbicides	Other	NS	Number of HHs
Ndindiriku	70.8	165	5.0	80.3	14.7	.0	.0	.0	.0	117
Kiumbu/Kianugu	71.9	138	16.5	69.6	11.0	.0	.0	2.8	.0	99
Rukanga	82.0	252	11.8	82.0	5.0	.0	.5	.0	.7	206
KIRINYAGA	**76.2**	**555**	**11.0**	**78.6**	**9.1**	**.0**	**.3**	**.7**	**.3**	**423**
Muricho	96.6	209	85.2	6.5	8.3	.0	.0	.0	.0	202
Kiriogo	95.3	88	91.6	.9	7.6	.0	.0	.0	.0	84
Mbuyu	93.8	179	74.2	4.9	20.9	.0	.0	.0	.0	168
Ndivai	96.5	75	65.1	3.5	31.4	.0	.0	.0	.0	73
NYANDARUA	**95.5**	**551**	**79.9**	**4.7**	**15.4**	**.0**	**.0**	**.0**	**.0**	**526**
Maragima	88.0	144	97.6	1.8	.0	.0	.0	.6	.0	126
Kariara	94.8	95	93.7	5.6	.0	.0	.0	.7	.0	90
Mutundu	98.5	130	98.8	1.2	.0	.0	.0	.0	.0	128
NYERI	**93.4**	**369**	**97.0**	**2.6**	**.0**	**.0**	**.0**	**.4**	**.0**	**345**
Ngelelya	91.2	252	91.2	8.5	.2	.1	.0	.1	.0	230
Ngoliba	62.5	387	90.9	7.0	.7	.2	.0	.0	1.2	242
Kalimoni	62.6	564	87.4	4.5	7.1	.4	.0	.6	.0	353
THIKA	**68.6**	**1,204**	**89.5**	**6.4**	**3.3**	**.2**	**.0**	**.3**	**.4**	**825**
Kagumoini	99.4	193	98.0	2.0	.0	.0	.0	.0	.0	192
Maragua Ridge	97.3	148	99.3	.7	.0	.0	.0	.0	.0	144
Mariaini	98.8	109	97.5	1.9	.0	.0	.4	.0	.3	108
MARAGUA	**98.5**	**450**	**98.3**	**1.6**	**.0**	**.0**	**.1**	**.0**	**.1**	**444**
Project Total 2010	**81.9**	**3,129**	**77.1**	**16.6**	**5.7**	**.1**	**.1**	**.3**	**.2**	**2,563**
Project total 2006			**81.4**	**13.3**	**4.3**	**0.1**			**0.9**	**2,030**

In 2010, there was a 3 percent increase in use of animal-drawn ploughs while hand tools saw a 4 percent decline.

6.2.5 Soil and water conservation

Soil conservation is paramount in agricultural production. Different structures are used by the households which include: - trash lines, stone lines, fanya juu, among others. Table 6.9 shows the percent distribution of soil and water conservation structures as reported by the households in the FDAs. Majority of the households (38%) use grass-strips as the main method of soil conservation, this is followed by cut-off drains (21%) and contour farming (20%). Over three quarters of the households in Mutundu and Kagumoini use grass strips while a half of those in Kiriogo use cut off drains.

Table 6.9: Percentage distribution of Soil and water conservation structures

District/FDAs	Trash lines	Stone lines	Fanya Juu	Grass strips	Cut-off drains	bench terrace	Sem-circular bunds	Con-tour farming	Pit-ting	basins 9 seeds in hole	Road runoff harvesting	Oth-er	None	Total
Ndindiriku	12.8	5.0	1.0	5.9	.8	4.0	1.3	17.0	7	.0	.0	.8	30.0	165
Kiumbu/Kianugu	11.9	15.8	.0	10.0	8.0	6.0	.0	26.1	2	.0	.0	8.1	28.5	138
Rukanga	6.5	.0	4.2	10.3	5.7	7.6	.6	21.2	12	.6	.0	.6	18.8	252
KIRINYAGA	**9.7**	**5.4**	**2.2**	**8.9**	**4.8**	**6.1**	**.6**	**21.2**	**8**	**.3**	**.0**	**2.5**	**24.6**	**555**
Muricho	15.8	.8	4.3	71.8	59.4	21.7	.7	36.6	5	1.3	15.2	4.0	3.3	209
Kiriogo	14.3	.0	1.6	74.5	53.1	9.2	.0	16.3	5	.0	12.4	9.4	3.0	88
Mbuyu	11.5	1.4	6.2	60.1	42.9	14.0	.3	19.8	1	.2	13.4	3.5	5.2	179
Ndivai	5.8	.0	7.9	64.8	46.6	7.6	.0	17.4	3	.0	7.0	2.8	3.8	75
NYANDARUA	**12.8**	**.7**	**5.0**	**67.4**	**51.3**	**15.3**	**.4**	**25.3**	**3**	**.6**	**13.1**	**4.5**	**4.0**	**551**
Maragima	2.3	2.3	25.0	48.0	13.8	7.8	.0	20.5	0	.0	7.4	1.0	.7	144
Kariara	5.7	2.5	36.3	73.4	12.7	28.3	.0	14.0	0	.6	2.1	5.4	5.4	95
Mutundu	3.9	1.9	33.0	78.2	22.8	19.3	.7	15.1	0	.0	.0	6.9	1.1	130
NYERI	**3.8**	**2.2**	**30.8**	**65.2**	**16.7**	**17.1**	**.3**	**16.9**	**0**	**.2**	**3.4**	**4.2**	**2.0**	**369**
Ngelelya	22.7	6.1	28.1	19.3	12.6	23.0	1.6	18.4	1	.0	.0	.0	9.1	252
Ngoliba	8.4	1.8	17.2	16.2	10.3	16.7	.0	15.9	0	.8	2.1	.7	37.2	387
Kalimoni	13.1	.6	13.6	13.8	7.0	7.9	.0	11.3	0	.3	.3	.0	37.9	564
THIKA	**13.6**	**2.1**	**17.8**	**15.7**	**9.2**	**13.9**	**.3**	**14.3**	**0**	**.4**	**.8**	**.2**	**31.6**	**1,204**
Kagumoini	23.2	1.2	54.3	82.3	47.7	26.3	1.8	30.4	3	.7	1.3	.6	.7	193
Maragua Ridge	18.6	.0	53.1	57.7	24.4	22.3	.0	19.7	1	2.6	.6	.0	1.5	148
Mariaini	20.3	1.1	34.7	80.1	35.5	30.1	3.8	28.7	3	.6	.0	.6	1.2	109
MARAGUA	**21.0**	**.8**	**49.2**	**73.7**	**37.1**	**25.9**	**1.7**	**26.4**	**2**	**1.3**	**.8**	**.4**	**1.1**	**450**
Project Total 2010	**12.7**	**2.3**	**18.8**	**37.8**	**20.7**	**14.9**	**.6**	**19.5**	**3**	**.5**	**3.1**	**1.9**	**17.6**	**3,129**
Project total 2006	**12.1**	**5.1**	**31.7**	**48.5**	**20.7**	**16.7**	**2.1**	**32.8**	**3.6**	**0.5**	**2.7**		**18.8**	**2,030**

The number of households practicing soil and water conservation rose from 2,030 in 2006 to 3,129 in 2010. This is perhaps a reflection of acquisition of new skills and knowledge.

6.2.6 Land under conservation

Table 6.10 shows the percentage distribution of the proportion of land under conservation. Approximately half of the respondents had a quarter or less of their land under conservation with majority hailing from Mbuyu (77%) and Ndivai (76%). On the higher side, slightly over one in ten households had over three quarters of their land under conservation with majority of them being from Maragua district (29%).

Table 6.10: Percentage distribution of Proportion of land under conservation

District/FDAs	Proportion of land under conservation	Total Sample	Between 0 – 25%	Above 25% to 50%	Above 50% to 75%	Above 75%	Not stated	Number of HHs
Ndindiriku	31.0	165	38.1	19.1	17.0	24.3	1.6	51
Kiumbu/Kianugu	48.0	138	37.4	29.0	0.0	29.3	4.2	66
Rukanga	40.7	252	27.9	30.3	24.2	17.5	0.0	102
KIRINYAGA	**39.6**	**555**	**33.2**	**27.3**	**15.2**	**22.7**	**1.6**	**220**
Muricho	87.0	209	68.7	18.9	11.7	0.0	0.8	182
Kiriogo	83.8	88	62.7	18.2	16.7	0.0	2.5	74
Mbuyu	79.6	179	76.5	10.5	9.6	1.0	2.5	143
Ndivai	78.9	75	75.5	15.0	6.5	2.0	1.0	59
NYANDARUA	**83.0**	**551**	**71.0**	**15.6**	**11.2**	**0.6**	**1.6**	**457**
Maragima	66.3	144	49.4	35.8	8.5	2.6	3.7	95
Kariara	86.5	95	65.9	22.6	10.8	0.7	0.0	82
Mutundu	91.4	130	62.4	25.3	11.8	0.0	0.4	119
NYERI	**80.3**	**369**	**59.2**	**28.0**	**10.5**	**1.1**	**1.3**	**296**
Ngelelya	73.5	252	49.9	25.8	13.9	10.3	0.1	185
Ngoliba	48.8	387	52.7	20.1	14.9	6.4	5.9	189
Kalimoni	36.4	564	36.4	14.3	30.5	17.3	1.6	206
THIKA	**48.2**	**1204**	**46.0**	**19.8**	**20.1**	**11.5**	**2.5**	**580**
Kagumoini	96.6	193	32.2	20.3	17.2	30.3	0.0	186
Maragua Ridge	89.7	148	32.1	12.0	23.7	25.8	6.4	133
Mariaini	94.6	109	31.9	24.3	13.6	30.2	0.0	104
MARAGUA	**93.8**	**450**	**32.1**	**18.7**	**18.4**	**28.9**	**2.0**	**423**
Project Total 2010	**63.2**	**3129**	**49.4**	**20.7**	**15.7**	**12.4**	**1.9**	**1,976**
Project total 2006			**60.2**	**18**	**7.8**	**8**	**6**	**2,030**

The five year period prior to the survey recorded a decline in the number of household whose land was under conservation; from 2,030 in 2006 to 1,976 in 2010. Households with a quarter or less of their land under conservation declined by 11 percent, while those with between 50 percent and 75 perccent of their land under conservation doubled within the reference period.

6.2.7 Water harvesting technologies

Different water harvesting technologies are used in the project area. Table 6.11 shows the percentage distribution of these technologies in the FDAs. Most of the households (33%) rely on roof catchment technology with slightly more than half of these being in Nyandarua. It's also observed that over half of all households in the project area do not harvest water.

The project period saw a 12 percent increase in households that reported not harvesting water perhaps due to rain failure. Across all categories, except for retention ditches, there were reductions in the percentages employing various technologies further pointing to a dry season.

Table 6.11: Percentage distribution of Water harvesting technologies

District/FDAs	Retention ditches	water bans	cut-off-drains	small dams	waterholes	irrigation dams	roof catchment	Other	None	Total
Ndindiriku	7.0	.5	.5	.5	.5	.5	25.0	.0	68.5	165
Kiumbu/Kianugu	9.9	2.0	6.0	.0	.0	.0	24.0	2.0	62.1	138
Rukanga	8.0	1.0	1.5	1.1	.6	.6	17.4	1.0	75.0	252
KIRINYAGA	**8.2**	**1.1**	**2.3**	**.7**	**.4**	**.4**	**21.3**	**.9**	**69.9**	**555**
Muricho	.3	1.0	18.8	.5	5.3	.5	53.6	1.5	40.0	209
Kiriogo	5.1	4.0	11.6	3.4	.9	.0	49.4	3.3	38.6	88
Mbuyu	4.1	2.6	4.3	1.1	3.1	.7	53.7	1.8	40.1	179
Ndivai	3.0	12.3	13.4	5.3	9.6	3.0	62.2	1.0	27.8	75
NYANDARUA	**2.7**	**3.5**	**12.2**	**1.8**	**4.5**	**.8**	**54.1**	**1.8**	**38.2**	**551**
Maragima	1.3	3.2	5.4	3.0	.0	1.7	37.3	.0	54.6	144
Kariara	.0	1.0	3.8	.0	.0	3.6	43.9	1.6	50.9	95
Mutundu	1.2	.5	9.6	.0	4.6	.5	38.0	.0	50.0	130
NYERI	**.9**	**1.7**	**6.5**	**1.2**	**1.6**	**1.8**	**39.2**	**.4**	**52.0**	**369**
Ngelelya	11.8	2.2	6.7	2.3	1.9	1.4	26.6	.0	58.4	252
Ngoliba	14.1	1.9	9.8	1.1	4.4	3.0	25.5	1.1	55.8	387
Kalimoni	7.2	1.1	5.1	4.3	1.2	3.3	22.4	.0	68.2	564
THIKA	**10.4**	**1.6**	**6.9**	**2.9**	**2.4**	**2.8**	**24.3**	**.4**	**62.1**	**1,204**
Kagumoini	34.6	2.0	24.4	.0	1.1	1.0	44.2	.0	23.8	193
Maragua Ridge	18.1	.0	20.9	.7	2.1	.6	46.7	1.4	26.4	148
Mariaini	15.8	.0	9.8	.0	6.4	2.2	35.0	.0	35.8	109
MARAGUA	**24.6**	**.8**	**19.7**	**.2**	**2.7**	**1.2**	**42.8**	**.5**	**27.6**	**450**
Project Total 2010	**9.6**	**1.8**	**8.8**	**1.7**	**2.4**	**1.7**	**33.4**	**.7**	**53.1**	**3,129**
Project total 2006	**9.6**	**1.1**	**12.4**	**1.9**	**5**	**1.1**	**42.5**	**2.4**	**40.6**	**2,030**

6.2.8 Planting Methods

Planting methods adopted may increase or decrease soil erosion. Table 6.12 shows the distribution of planting methods used in the project areas. A third of the households plant along contours and approximately a quarter do so across the contours. Many households in Nyeri District (48%) employ a mixture of these methods, while two fifths of households in Thika reported not using any method.

Table 6.12: Percentage distribution of planting Methods

District/FDAs	Along contours	Across contours	Mixture	Other	None	Total
Ndindiriku	41.2	5.0	12.2	.0	43.2	165
Kiumbu/Kianugu	38.0	10.1	13.9	2.0	38.0	138
Rukanga	60.2	6.3	20.7	.0	29.8	252
KIRINYAGA	**49.0**	**6.8**	**16.5**	**.5**	**35.8**	**555**
Muricho	30.4	51.0	31.5	.0	4.7	209
Kiriogo	25.9	44.3	24.3	1.2	7.5	88
Mbuyu	41.9	40.9	32.9	1.2	8.8	179
Ndivai	24.1	38.0	38.4	.0	6.3	75
NYANDARUA	**32.5**	**44.9**	**31.8**	**.6**	**6.7**	**551**
Maragima	34.1	26.4	39.7	1.7	14.1	144
Kariara	23.2	20.4	48.1	1.2	12.1	95
Mutundu	16.3	28.0	57.4	.4	3.4	130
NYERI	**25.0**	**25.4**	**48.1**	**1.1**	**9.8**	**369**
Ngelelya	36.7	36.3	10.0	.0	18.9	252
Ngoliba	30.0	17.2	11.7	.3	42.8	387
Kalimoni	24.3	13.2	21.0	.2	50.0	564
THIKA	**28.7**	**19.3**	**15.7**	**.2**	**41.2**	**1,204**
Kagumoini	41.5	30.7	27.9	.0	.6	193
Maragua Ridge	38.7	31.1	31.6	.7	3.5	148
Mariaini	39.7	32.6	26.0	.0	2.5	109
MARAGUA	**40.2**	**31.3**	**28.7**	**.2**	**2.0**	**450**
Project Total 2010	**34.2**	**24.0**	**24.4**	**.4**	**24.8**	**3,129**
Project total 2006	**69.6**	**14**	**16.2**	**1.6**	**3.6**	**2,030**

Households that had adopted a planting method increased by 1,009 between 2006 and 2010. Planting along contours reduced by half (70% to 34%) while those planting across contours increased by 10 percent.

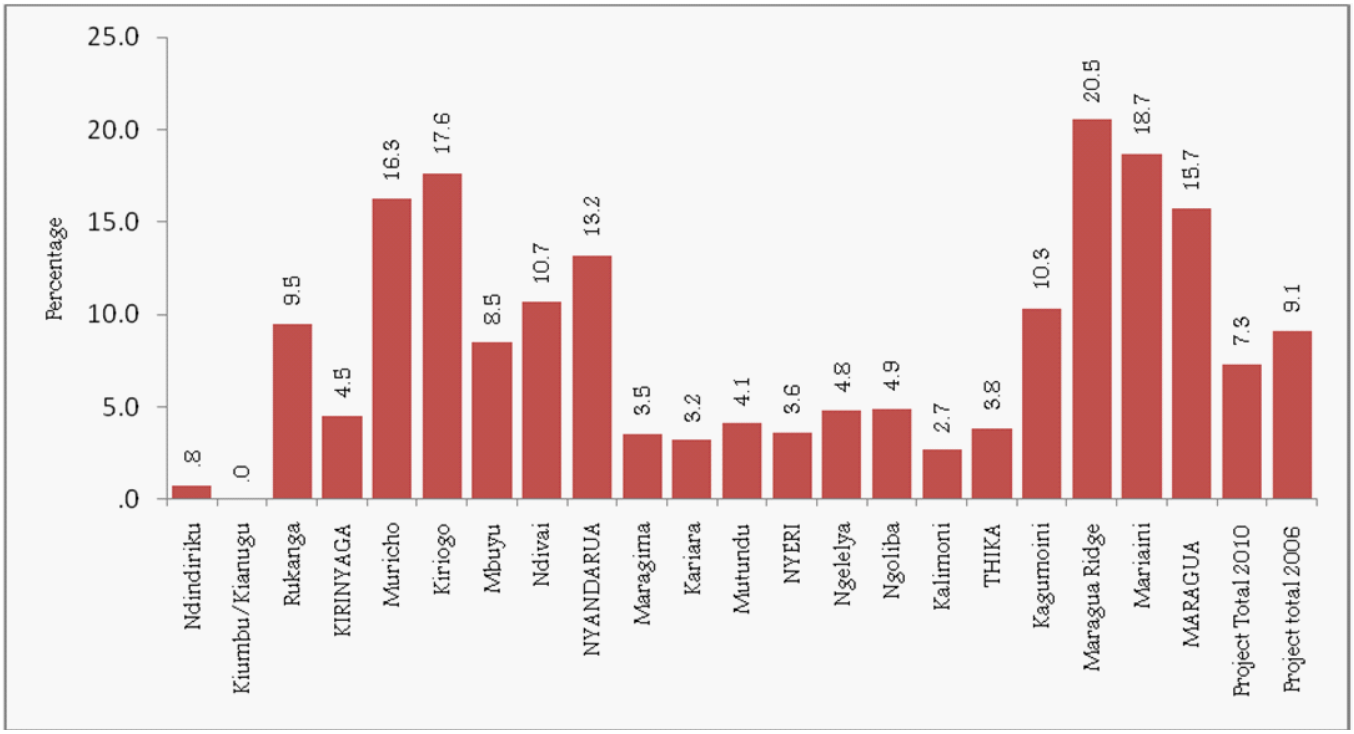
6.2.9 *Tree Nurseries*

Trees are vital in improving the environment and it is necessary for people to put more emphasis in their planting. Figure 6.4 shows the percentage distribution of households that have tree nurseries in the FDAs. Tree nurseries are popular in Maragua Ridge where a fifth of all households have one. On the other hand, they are virtually absent in Kiumbu/ Kianugu. Across the districts, they are more common in Maragua (16%) and least in Nyeri and Thika (4% each).

Table for Fig 6.4: Percentage distribution of Households having tree nurseries

District/FDAs	Yes	No	Not Specified	Total
Ndindiriku	.8	99.2	.0	165
Kiumbu/Kianugu	.0	100.0	.0	138
Rukanga	9.5	90.5	.0	252
KIRINYAGA	**4.5**	**95.5**	**.0**	**555**
Muricho	16.3	83.3	.4	209
Kiriogo	17.6	82.4	.0	88
Mbuyu	8.5	91.5	.0	179
Ndivai	10.7	87.3	2.1	75
NYANDARUA	**13.2**	**86.4**	**.4**	**551**
Maragima	3.5	96.5	.0	144
Kariara	3.2	96.2	.6	95
Mutundu	4.1	95.9	.0	130
NYERI	**3.6**	**96.2**	**.2**	**369**
Ngelelya	4.8	95.2	.0	252
Ngoliba	4.9	95.1	.0	387
Kalimoni	2.7	97.3	.0	564
THIKA	**3.8**	**96.2**	**.0**	**1,204**
Kagumoini	10.3	89.7	.0	193
Maragua Ridge	20.5	79.5	.0	148
Mariaini	18.7	81.3	.0	109
MARAGUA	**15.7**	**84.3**	**.0**	**450**
Project Total 2010	**7.3**	**92.6**	**.1**	**3,129**
Project total 2006	**9.1**	**90.9**		**2,175**

Figure 6.4 Percentage distributions of households having tree nurseries



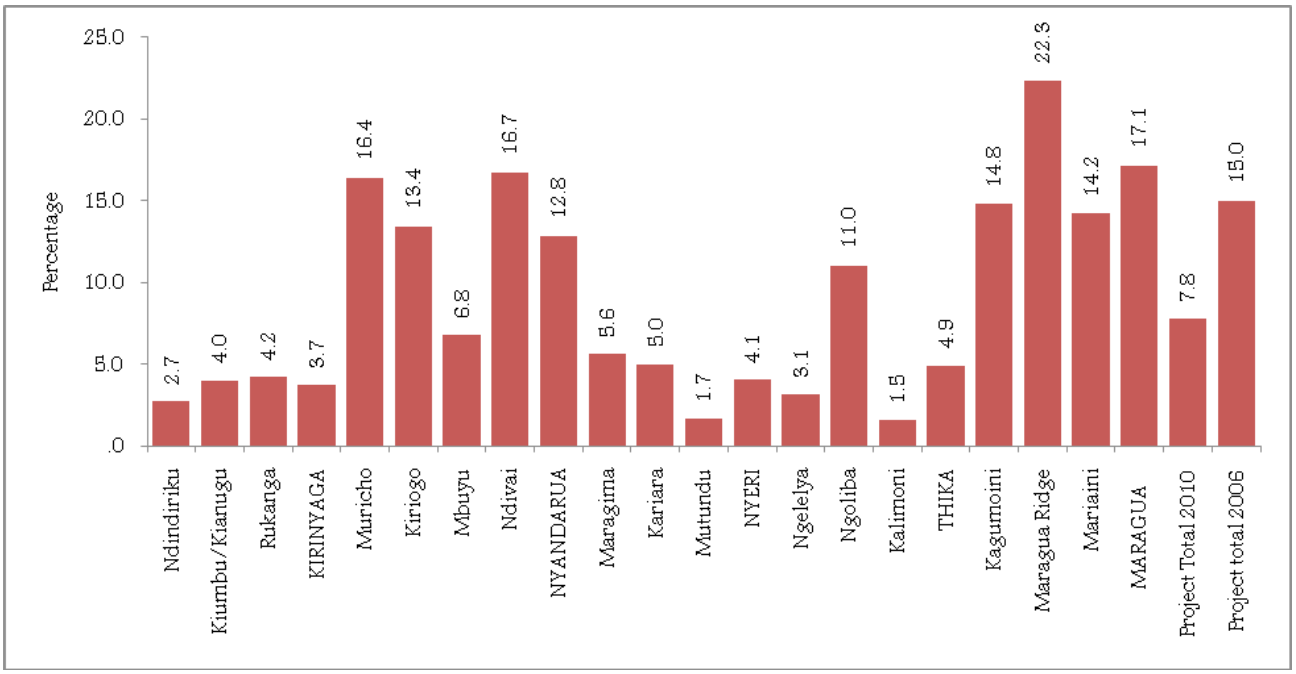
Cultivation of tree nurseries declined by 2 percent in the period under review. This may be as a result of rain failure or lack of interest in the project areas.

6.2.10 Households that received Agricultural Extension Services

Extension services are vital in improving agricultural production. The services help farmers keep abreast of new emerging farming technologies as well as pest conrol measures. Figure 6.5 shows the percentage distribution of households that reported receiving extension services.

Maragua Ridge recorded the highest percentage of extension services (21%) while this was almost not available in Mutundu and Kalimoni (2%). The percentage of households that reported receiving extension services declined by 7 percent between 2006 and 2010.

Figure 6.5 Percentage distributions of households having received extension services



6.2.11 Types of Agricultural Extension Services Received

Table 6.13 shows the percentage distribution of households that received agricultural services. Majority of them benefited from advice on best crop production (71%), followed by soil and water conservation advice (48%). Nine in ten households in Nyeri received advice on best crop production while half of those in Maragua learnt about soil and water conservation.

Table 6.13 Percent distribution of Households that received Agricultural Services

District/FDAs	Proportion receiving agricultural services in last 12 months	Total Sample	Advice on best crop production	Advice on best livestock production	Practical demonstration of new methods	Vaccination and treatment	Farm planning	Agro forestry	Advice on soil and water Conservation	Other	None	Number of HHs
Ndindiriku	2.7	165	46.8	0.0	46.8	0.0	0.0	0.0	57.5	24.4	0.0	4
Kiumbu/Kianugu	4.0	138	100.0	50.7	50.7	0.0	100.0	50.7	100.0	0.0	0.0	6
Rukanga	4.2	252	35.7	0.0	38.7	10.1	41.1	0.0	23.2	44.1	0.0	11
KIRINYAGA	**3.7**	**555**	**55.4**	**13.7**	**43.7**	**5.2**	**48.0**	**13.7**	**51.4**	**27.9**	**0.0**	**21**
Muricho	16.4	209	37.7	65.4	2.1	18.5	59.7	64.9	73.2	38.6	0.0	34
Kiriogo	13.4	88	55.0	54.4	40.6	9.1	14.3	40.1	54.4	19.7	0.0	12
Mbuyu	6.8	179	74.5	41.1	15.8	31.1	34.7	7.1	38.5	0.0	12.5	12
Ndivai	16.7	75	79.7	28.1	43.6	20.3	43.6	45.6	56.4	9.6	0.0	13
NYANDARUA	**12.8**	**551**	**54.4**	**52.8**	**18.2**	**19.4**	**45.0**	**47.4**	**61.1**	**23.7**	**2.2**	**71**
Maragima	5.6	144	100.0	62.0	28.6	30.1	40.3	0.0	51.3	0.0	0.0	8
Kariara	5.0	95	82.7	55.0	0.0	29.0	41.0	0.0	65.8	0.0	0.0	5
Mutundu	1.7	130	77.5	25.3	22.5	0.0	44.9	0.0	70.2	29.8	0.0	2
NYERI	**4.1**	**369**	**91.2**	**54.4**	**18.6**	**25.4**	**41.2**	**0.0**	**58.7**	**4.3**	**0.0**	**15**
Ngelelya	3.1	252	59.1	17.9	40.4	19.6	20.8	17.9	47.5	22.5	9.7	8
Ngoliba	11.0	387	84.1	23.9	24.6	30.7	30.2	21.7	24.3	13.5	0.0	43
Kalimoni	1.5	564	65.3	41.8	5.8	24.1	13.2	5.8	21.6	0.0	23.4	9
THIKA	**4.9**	**1204**	**78.0**	**25.8**	**23.9**	**28.3**	**26.5**	**18.8**	**27.0**	**12.7**	**4.7**	**59**
Kagumoini	14.8	193	77.6	51.5	11.2	20.2	45.2	6.7	39.9	7.5	0.0	29
Maragua Ridge	22.3	148	84.9	34.3	24.2	18.4	63.3	6.2	53.2	8.8	0.0	33
Mariaini	14.2	109	81.8	50.0	0.0	12.6	31.1	11.2	60.8	12.7	0.0	16
MARAGUA	**17.1**	**450**	**81.6**	**43.8**	**14.5**	**17.9**	**50.1**	**7.4**	**49.8**	**9.1**	**0.0**	**77**
Project Total 2010	**7.8**	**3129**	**71.1**	**40.1**	**20.6**	**20.3**	**42.1**	**21.9**	**48.2**	**15.5**	**1.8**	**243**
Project total 2006			**63.3**	**24.8**	**14.7**	**18.3**	**30.2**	**29.4**		**25.5**		**318**

The percentage that benefited from crop production advice increased from 63 percent in 2006 to 71 percent in 2010. However, agro forestry extension related services declined by 8 percent in the same period.

6.2.12 Attendance of agricultural activities

The survey sought to establish whether members of households attended agricultural activities such as agricultural show, field days, among others, during the 12 months preceding the study. Table 6.14 shows the percentage distribution of households that attended such activities. Over four fifths of the households did not attend any event. Of those that participated, close to one in ten attended agricultural shows and field days.

Table 6.14 Percentage distribution of households that attended agricultural activities

District/FDAs	Agricultural shows	Field days	Farm Exhibitions	farm competions	Demonstrations	None	Total
Ndindiriku	.0	2.5	.0	.0	4.9	93.3	165
Kiumbu/Kianugu	2.0	4.0	4.0	2.0	4.1	92.0	138
Rukanga	1.8	4.2	.6	.0	1.4	93.1	252
KIRINYAGA	**1.3**	**3.7**	**1.3**	**.5**	**3.1**	**92.9**	**555**
Muricho	5.6	17.8	4.7	.0	2.7	75.8	209
Kiriogo	7.7	12.5	1.4	1.9	8.2	80.0	88
Mbuyu	7.4	8.6	7.1	.7	8.0	81.1	179
Ndivai	10.3	24.5	10.2	.0	6.5	66.4	75
NYANDARUA	**7.2**	**14.9**	**5.7**	**.5**	**5.8**	**76.9**	**551**
Maragima	12.3	3.9	3.9	.0	8.3	77.8	144
Kariara	1.1	5.8	1.9	.0	4.4	89.7	95
Mutundu	.4	9.4	.8	.0	3.6	88.2	130
NYERI	**5.2**	**6.3**	**2.3**	**.0**	**5.6**	**84.5**	**369**
Ngelelya	5.1	5.3	3.4	1.6	.1	91.2	252
Ngoliba	15.4	7.1	3.6	1.3	7.0	77.4	387
Kalimoni	15.8	4.3	2.9	1.1	1.5	82.4	564
THIKA	**13.4**	**5.4**	**3.2**	**1.3**	**3.0**	**82.6**	**1 204**
Kagumoini	4.5	6.7	4.4	2.7	13.9	80.2	193
Maragua Ridge	19.7	26.9	15.5	6.0	30.9	49.9	148
Mariaini	5.8	6.1	9.8	5.1	21.4	76.1	109
MARAGUA	**9.8**	**13.2**	**9.4**	**4.3**	**21.3**	**69.2**	**450**
Project Total 2010	**8.7**	**8.0**	**4.1**	**1.3**	**6.4**	**81.7**	**3 129**
Project total 2006	**1.5**	**9.3**	**1.6**	**0.3**	**5**	**86.7**	**2 175**

The number of households that reported visiting an agricultural event increased from 2,175 in 2006 to 3,216 in 2010. The bulk of this growth is observed in the agricultural shows category which saw a 7 percent increase.

6.2.13 Farming Methods Learnt

The principal aim of agricultural activities is to disseminate information to the public and encourage adoption of the methods learnt. Table 6.15 shows the percentage distribution of farming methods learnt at agricultural activities. Majority of the respondents (65%) learnt about zero grazing, followed by grafting (33%) and brooding chicken (32%). Half of Kiumbu/Kianugu respondents learnt about grafting while an almost similar proportion in Ngoliba learnt about brooding chicken.

In 2006, 302 respondents reported acquiring new skills at agricultural activities. This rose to 572 in 2010. The percentage that learnt zero grazing, grafting, and brooding chicken doubled in the reference period.

Table 6.15: Percentage distribution of farming method learnt

District/FDAs	Proportion of attendance of agricultural activities in last 12 months	Total Sample	Zero grazing	Grafting	Bee keeping	Brooding chicken	Other	None	Number of HHs
Ndindiriku	.8	165	30.6	28.9	21.5	23.3	71.1	0.0	11
Kiumbu/Kianugu	.1	138	75.3	50.7	25.3	25.3	75.3	0.0	11
Rukanga	.1	252	40.1	19.2	9.3	9.3	68.2	0.0	17
KIRINYAGA	**.3**	**555**	**47.3**	**30.7**	**17.2**	**17.7**	**71.0**	**0.0**	**40**
Muricho	1.4	209	65.8	22.8	27.8	24.3	39.8	0.0	51
Kiriogo	1.4	88	68.7	7.3	13.2	22.8	39.8	0.0	18
Mbuyu	2.7	179	56.1	13.1	25.1	32.5	23.2	0.0	34
Ndivai	2.9	75	73.7	21.3	27.1	40.8	24.5	0.0	25
NYANDARUA	**2.0**	**551**	**65.2**	**17.8**	**24.9**	**29.5**	**32.4**	**0.0**	**127**
Maragima	3.7	144	70.0	16.0	2.5	25.0	35.2	0.0	32
Kariara	.1	95	43.8	4.3	0.0	29.0	60.6	0.0	10
Mutundu	.1	130	48.4	25.3	4.2	10.5	62.1	0.0	15
NYERI	**1.5**	**369**	**59.7**	**16.5**	**2.5**	**21.8**	**46.8**	**0.0**	**57**
Ngelelya	1.3	252	75.8	71.1	36.4	35.4	1.0	0.0	22
Ngoliba	1.8	387	68.7	26.7	10.1	48.6	22.3	0.0	88
Kalimoni	2.4	564	73.3	44.4	15.3	42.7	3.0	0.0	100

Table 6.15: Percentage distribution of farming method learnt *(continued)*

District/FDAs	Proportion of attendance of agri-cultural activities in last 12 months	Total Sample	Zero grazing	Grafting	Bee keep-ing	Brooding chicken	Other	None	Number of HHs
THIKA	**2.0**	**1204**	**71.6**	**39.8**	**15.4**	**44.4**	**10.9**	**0.0**	**209**
Kagumoini	1.0	193	60.6	40.1	18.6	31.5	43.6	0.0	38
Maragua Ridge	5.1	148	56.4	41.8	2.9	16.5	20.1	0.0	74
Mariaini	.2	109	69.2	55.4	25.3	37.3	51.3	0.0	26
MARAGUA	**2.2**	**450**	**60.0**	**43.9**	**11.5**	**24.5**	**32.5**	**0.0**	**139**
Project Total 2010	**1.7**	**3129**	**64.5**	**33.0**	**15.4**	**32.2**	**28.6**	**0.0**	**572**
Project total 2006			**30.6**	**12.5**	**11.1**	**11.8**	**63.1**	**9.6**	**302**

6.2.14 Farming Methods Adopted

Households that reported learning new agricultural methods were asked whether they adopted them. Table 6.16 shows proportions of those households that adopted the new methods or technologies. The results reveal that most of the households (31%) adopted zero grazing with bee keeping having the least adopters (3%).

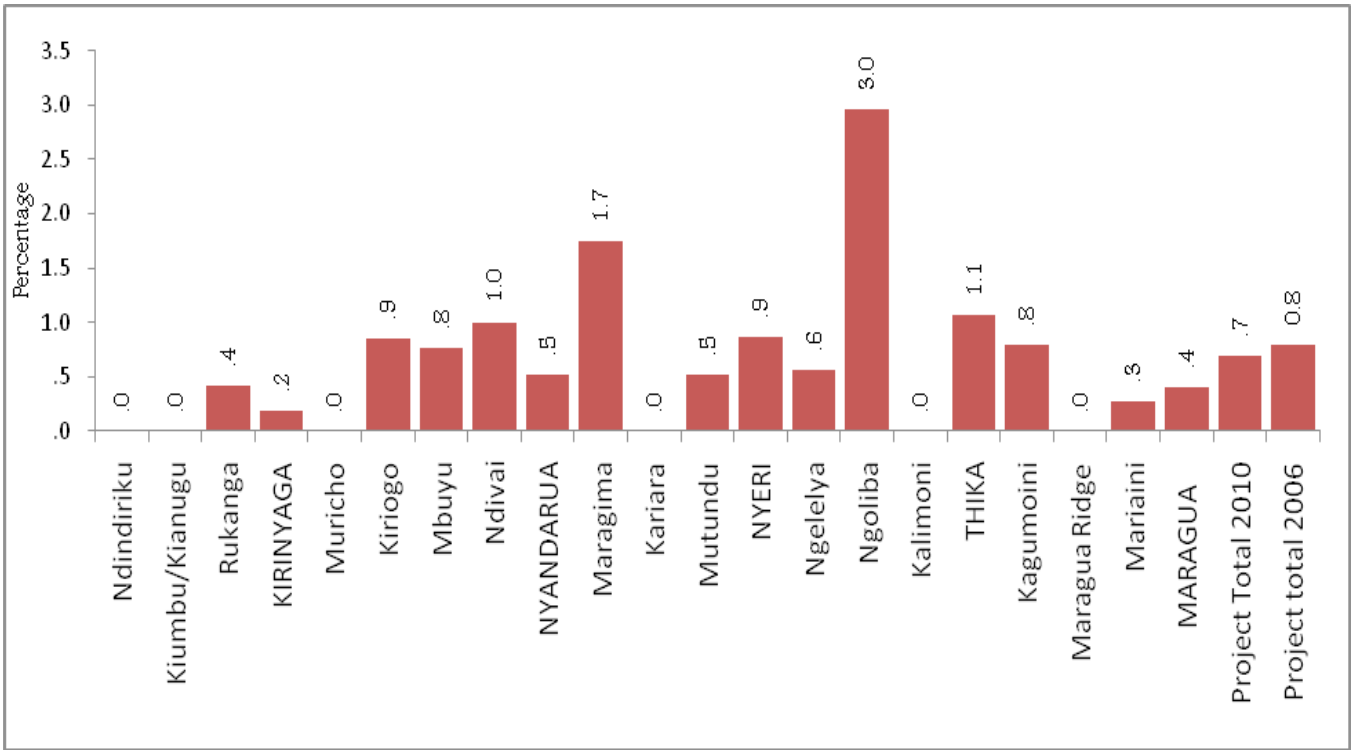
Table 6.16 Percentage distribution of farming methods adopted

District/FDAs	Proportion of attendance of agri-cultural activities in last 12 months	Total Sample	Zero grazing	Grafting	Bee keeping	Brooding chicken	Other	None	Number of HHs
Ndindiriku	2.7	165	11.6	30.6	.0	.0	40.5	.0	11
Kiumbu/Kianugu	4.0	138	50.0	.0	.0	25.3	.0	.0	11
Rukanga	2.0	252	13.1	19.2	.0	.0	52.8	.0	17
KIRINYAGA	**2.7**	**555**	**23.0**	**17.0**	**.0**	**7.1**	**34.6**	**.0**	**40**
Muricho	13.3	209	21.4	9.4	11.9	5.9	17.8	.0	51
Kiriogo	9.3	88	41.2	.0	7.3	10.0	5.9	.0	18
Mbuyu	9.1	179	10.9	2.4	12.6	20.4	17.7	.0	34
Ndivai	18.9	75	16.7	6.5	6.0	6.0	17.3	.0	25
NYANDARUA	**12.0**	**551**	**20.4**	**5.7**	**10.3**	**10.4**	**16.0**	**.0**	**127**
Maragima	13.1	144	26.1	2.5	.0	12.9	26.0	.0	32
Kariara	2.2	95	39.5	4.3	.0	14.7	38.0	.0	10
Mutundu	2.7	130	35.6	6.7	.0	6.3	35.9	.0	15
NYERI	**6.6**	**369**	**31.0**	**4.0**	**.0**	**11.5**	**30.7**	**.0**	**57**
Ngelelya	1.4	252	38.1	54.6	1.6	25.4	1.0	.0	22
Ngoliba	9.4	387	31.4	15.3	.0	25.1	15.9	.0	88
Kalimoni	7.4	564	32.5	18.9	.0	27.4	.3	.0	100
THIKA	**6.8**	**1204**	**32.6**	**21.2**	**.2**	**26.2**	**6.9**	**.0**	**209**
Kagumoini	4.9	193	46.5	17.6	2.2	10.0	35.5	.0	38
Maragua Ridge	12.9	148	36.7	31.7	1.5	16.5	14.2	.0	74
Mariaini	3.2	109	49.5	52.7	2.4	7.3	29.2	.0	26
MARAGUA	**7.1**	**450**	**41.8**	**31.8**	**1.8**	**13.0**	**22.9**	**.0**	**139**
Project Total 2010	**7.0**	**3129**	**31.3**	**18.3**	**2.8**	**16.7**	**17.1**	**.0**	**572**
Project total 2006			**22.4**	**7.5**	**3**	**4.5**	**41.5**	**36.2**	**302**

6.2.15 Household Farms used by Agricultural Research Organizations

At times, research organizations use farms belonging to individuals to carry out research trials. The survey sought to establish whether such farms exist within the project areas and the results are presented in Figure 6.6. It is observed that the practice is not common.

Figure 6.6 Percentage distributions of farms used by agricultural research organization



6.2.16 *Processing plants within the FDAs*

The respondents were asked to name the various value addition activities available in their sub-location. Table 6.17 presents this information. Sorting and grading is the predominant value addition activity (16%) followed by cereal processing (8%). It also emerged that two thirds of the respondents had no access to these activities within their sub-location.

Table 6.17: Percentage distribution of value addition activities

District/FDAs	Fruit processing	Sort-ing and Grading	packaging	Milk pro-cessing	Promo-tions	Cereal Process-ing	Other	None	Total Sample
Ndindiriku	.0	59.1	.0	.0	8.4	.0	.0	40.9	165
Kiumbu/Kianugu	.0	56.1	.0	.0	2.0	2.0	.0	43.9	138
Rukanga	.0	38.7	.0	.0	2.2	.0	1.6	59.7	252
KIRINYAGA	**.0**	**49.1**	**.0**	**.0**	**4.0**	**.5**	**.7**	**50.2**	**555**
Muricho	.0	8.0	1.4	27.6	.3	9.7	.0	63.0	209
Kiriogo	.0	3.5	.9	9.1	.0	3.5	.0	84.5	88
Mbuyu	.0	2.1	.0	.6	.3	6.4	.0	91.4	179
Ndivai	1.0	9.1	.0	.0	1.0	10.6	5.0	79.7	75
NYANDARUA	**.1**	**5.5**	**.7**	**12.1**	**.3**	**7.8**	**.7**	**78.0**	**551**
Maragima	.0	1.3	.0	.0	.0	24.7	6.0	69.2	144
Kariara	.6	.6	.0	.9	.0	4.8	35.8	58.8	95
Mutundu	.5	.0	.0	.0	.0	1.5	34.9	63.6	130
NYERI	**.3**	**.7**	**.0**	**.2**	**.0**	**11.4**	**23.9**	**64.5**	**369**
Ngelelya	.6	6.2	.3	.0	.0	13.8	1.7	77.9	252
Ngoliba	12.2	8.4	2.9	.4	.3	10.4	7.2	67.6	387
Kalimoni	3.3	11.7	2.5	1.9	.0	9.3	5.5	73.2	564
THIKA	**5.6**	**9.5**	**2.2**	**1.0**	**.1**	**10.6**	**5.3**	**72.4**	**1,204**
Kagumoini	.0	17.6	6.6	.0	.4	2.8	21.1	58.6	193
Maragua Ridge	8.0	17.7	1.8	2.9	2.7	9.6	11.3	65.3	148
Mariaini	5.3	6.3	7.9	.8	.0	5.0	3.5	71.2	109
MARAGUA	**3.9**	**14.9**	**5.3**	**1.1**	**1.1**	**5.6**	**13.6**	**63.8**	**450**
Project Total 2010	**2.8**	**15.5**	**1.7**	**2.7**	**1.0**	**7.7**	**7.0**	**67.3**	**3,129**
Project total 2006				**0.3**			**2.4**		**2,175**

There is an increase in the number of households with access to value addition activities in their sub-location, from 2,175 to 3,216, within the reference period.

6.3 CROP PRODUCTION

6.3.1 Crops grown

In Kenya, agriculture forms the backbone of the economy. Most of the households rely on agriculture for their livelihoods. Poor families generally grow crops primarily for consumption. However, when there is surplus, they may sell so as to meet other basic and secondary needs. It is therefore common practice for most poor people to plant crops which require little or no processing before consumption. The type of crops grown in a particular region is dependent on the type of soil and the weather patterns of the region. The aim of this variable was to establish the type of crops grown in the region. Households were asked to state whether they had grown certain pre-determined crops in the last 12 months prior to the survey. Such crops included maize, beans, Irish potatoes, coffee, rice, tea, and bananas. Table 6.18 shows the percentage distribution of crops grown during the 12 month period preceding the survey.

Majority of the households grew maize (77%) followed by beans (68%), Irish potatoes (18%) and bananas (15%). Maize production was highest in Maragua District (94%) and lowest in Kirinyaga (61%). Compared to 2006, these four crops declined in production in 2010.

6.3.2 Maize production

The results in Table 6.19 show the percentage distribution of maize production in the project area. Maize production is mainly on a small scale in the project area. Overall, over three fifths of all households grow maize on less than one acre of their land. On average, each household in the project area grew 489 Kilograms of maize per acre in 2010. This was an increase from the 389 Kilograms per acre observed in 2006.

Maize usually takes an average of 6 months to mature and farmers usually maximize the utilization of the area under cultivation by intercropping it with other crops. Virtually all (88%) of the households that grew maize reported intercropping it with other crops. Kirinyaga District had the highest proportion (23%) of households that reported not to have intercropped maize with another crop.

Most of the farmers cultivated maize for the sole purpose of consumption as indicated by 90 percent of the households. Maize growing for cash was recorded by 9 percent of the households. Across the districts, Kirinyaga had the highest proportion (23%) of households growing maize mainly for cash.

Table 6.18: Percentage distribution of Crops grown during the last 12 months

District/FDAs	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/ Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragi-ma	Kariara	Mutundu	Total	Ngele-lya	Ngoli-ba	Kali-moni	Total	Kagu-moini	Mara-gua Ridge	Mari-aini	Total		
Maize	56.8	56.1	68.1	61.8	94.7	93.6	90.9	89.9	92.6	83.5	92.5	94.4	89.7	90.2	62.4	59.6	66.9	93.8	94.9	92.9	94.0	77.1	87.3
Beans	39.4	42.0	42.1	41.3	72.6	68.3	77.2	63.2	72.1	81.1	88.4	91.9	86.8	89.6	57.9	58.6	64.9	88.6	90.0	86.0	88.4	67.9	81.4
Irish Potatoes	.0	.0	.9	.4	.0	47.1	46.9	35.5	42.2	72.0	16.6	2.7	33.3	1.2	8.6	6.9	6.3	40.1	26.4	12.8	29.0	18.0	33.3
Rice	1.4	6.0	.0	1.9		.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	0.1
Coffee	.0	.0	.0	.0	.0	.0	.0	1.0	.1	.7	38.8	31.2	21.3	.3	.0	.0	.1	15.4	.0	.0	6.6	3.5	12.4
Tea	.0	.0	.4	.2	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	0.2
Bananas	1.6	2.0	6.8	4.1	10.1	3.3	4.4	11.7	7.4	17.7	71.2	70.1	50.0	6.0	16.0	4.3	8.4	42.8	11.2	22.1	27.4	15.1	33.7
Sweet Potatoes	2.2	2.0	.6	1.5	15.1	7.2	19.3	21.9	16.1	20.5	18.9	21.9	20.6	7.1	13.4	8.5	9.8	20.1	13.2	14.9	16.6	11.7	19.2
Cassava	1.1	4.0	1.2	1.9	.3	.0	3.3	4.0	1.7	4.5	16.7	17.1	12.1	7.1	14.8	4.5	8.3	24.1	20.3	25.2	23.1	8.6	22.4
Arrow roots	.7	.0	.0	.2	.3	.0	.8	1.2	.5	1.1	11.0	9.9	6.8	.5	1.2	.0	.5	.8	.0	.0	.3	1.2	5.8
Sorghum	4.2	18.1	1.3	6.3	2.0	.7	3.6	6.2	2.9	.0	2.1	.8	.8	2.3	6.7	3.7	4.4	1.7	4.8	2.8	3.0	3.8	6.7
Millet	.0	.0	.0	.0	.6	1.4	3.5	5.0	2.3	.6	1.3	6.9	3.0	1.6	1.2	.0	.7	.1	3.5	1.4	1.5	1.3	0.7
French Beans	7.4	17.9	.0	6.7	1.7	2.0	.0	.0	1.0	4.6	.0	.0	1.8	.3	2.6	.3	1.0	4.5	.0	.0	1.9	2.2	4.7
Groundnuts	.0	.0	1.5	.7	.3	.0	.0	.0	.1	.0	.0	.0	.0	.1	1.1	.0	.4	.0	.0	1.4	.3	.3	0.2
Cow/Chick peas	5.0	10.0	14.3	10.4	6.8	7.7	13.9	6.8	9.2	.0	.0	.0	.0	9.5	13.1	6.6	9.3	.0	2.1	1.4	1.0	7.2	11.2
Pigeon	1.1	2.0	4.9	3.1	5.5	2.8	2.8	9.5	4.7	.6	.0	.0	.2	8.7	4.8	3.8	5.1	2.8	8.8	16.6	8.1	4.6	13.3
Pawpaws	2.3	4.0	1.0	2.1	.0	.0	.0	.0	.0	.6	15.3	15.1	9.5	4.5	11.4	3.4	6.2	8.8	13.0	19.4	12.7	5.7	11.9
Mangoes	4.3	.0	1.8	2.1	.0	.0	.5	.0	.2	.0	34.5	44.7	24.7	9.0	19.8	3.4	9.8	14.0	64.6	48.8	39.1	12.7	23.7
Kales	4.0	14.0	1.6	5.4	10.6	10.8	14.7	9.6	11.8	29.7	16.0	7.1	18.2	1.6	10.6	7.4	7.2	6.2	9.2	2.6	6.3	8.9	13.1
Tomatoes	24.2	29.9	14.1	21.0	2.7	.8	.6	.0	1.4	7.3	2.1	.0	3.4	2.3	7.6	5.5	5.5	1.5	9.0	.3	3.7	7.0	6.3
Onions	.0	.0	.0	.0	2.7	2.8	2.7	1.6	2.6	9.1	3.6	1.4	4.9	.7	4.6	2.9	3.0	.7	2.7	.8	1.4	2.4	3.8
Spinach	2.1	.0	.0	.6	6.4	4.2	6.0	4.8	5.7	18.2	.9	.9	7.6	.3	2.3	2.7	2.1	1.8	4.2	.8	2.4	3.1	2.9
Cabbage	.0	2.0	.0	.5	10.1	8.0	1.7	.8	5.8	4.9	1.6	.0	2.3	.8	.5	1.6	1.0	.0	.0	.0	.0	1.8	0.7
Pumpkin	.7	2.0	.0	.7	.3	2.2	2.4	3.4	1.7	1.1	3.7	2.3	2.2	1.2	9.6	4.0	5.2	12.6	13.7	12.2	12.9	4.6	7.5
Other	9.0	2.0	13.2	9.2	8.9	12.2	5.3	5.4	7.8	.0	5.0	3.2	2.4	3.5	2.6	2.0	2.5	3.3	2.7	.8	2.5	4.6	8.9
No. HH 2010	**165**	**138**	**252**	**555**	**209**	**88**	**179**	**75**	**551**	**144**	**95**	**130**	**369**	**252**	**387**	**564**	**1204**	**193**	**148**	**109**	**450**	**3129**	
No. HH 2006	**100**	**75**		**175**			**250**	**100**	**350**		**150**	**175**	**325**	**450**	**350**		**800**	**300**		**225**	**525**		**2,175**

Table 6.19: Percentage distribution of Maize Production

	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/ Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragima	Kariara	Mutundu	Total	Ngelelya	Ngoliba	Kalimoni	Total	Kagumoini	Maragua Ridge	Mariaini	Total		
HHs Growing Maize	56.8	56.1	68.1	61.8	94.7	93.6	90.9	89.9	92.6	81.7	92.5	94.4	89.0	90.2	62.4	59.6	66.9	93.8	94.9	92.9	94.0	77.0	89.1
Total Sample	165	138	252	555	209	88	179	75	551	144	95	130	369	252	387	564	1204	193	148	109	450	3129	2175
Acres Cultivated <1	89.0	71.4	53.3	67.1	76.9	61.8	52.8	54.0	63.7	83.8	86.3	86.5	85.5	64.7	75.4	66.0	68.5	80.1	63.0	74.3	73.0	70.4	46.1
1.00 - 2.99	4.7	17.9	34.0	22.3	22.3	32.3	36.1	32.4	29.7	11.0	10.9	11.5	11.2	25.0	13.9	24.1	21.3	16.1	29.9	21.1	21.9	21.9	46.5
3.00 - 4.99	1.7	7.1	12.8	8.5	.4	5.3	10.1	13.6	6.0	3.5	2.7	1.0	2.3	8.2	5.4	8.8	7.6	3.5	6.4	4.5	4.7	6.2	5.5
5.00 - 9.99	4.5	3.6	.0	2.1	.0	.7	1.0	.0	.4	.8	.0	.0	.3	2.1	5.2	1.1	2.6	.3	.8	.0	.4	1.4	1.3
10+	.0	.0	.0	.0	.5	.0	.0	.0	.2	.8	.0	1.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.1	0.2
Average	1.1	1.1	1.5	1.3	1.0	1.2	1.5	1.6	1.3	1.1	.9	.9	1.0	1.3	1.2	1.2	1.3	.9	1.3	1.0	1.1	1.2	1.12
Median	.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.5	.8	1.0	1.0	1.0	1.0	.8	1.0	.8	1.0	1.0	1
Maximum	10.0	5.0	4.5	10.0	15.0	5.0	5.0	4.0	15.0	32.0	4.0	15.0	32.0	5.0	10.0	8.0	10.0	6.0	7.0	4.0	7.0	32.0	11
Intercropping																							
Yes	75.9	78.7	75.1	76.2	81.3	74.2	83.1	74.7	79.9	86.3	97.1	94.1	92.1	98.0	90.1	92.0	93.1	99.0	93.1	98.3	96.9	88.4	95.8
No	24.1	21.3	24.0	23.4	18.7	25.8	16.9	25.3	20.1	13.7	2.9	5.5	7.7	2.0	9.9	8.0	6.9	1.0	6.9	1.7	3.1	11.5	3.4
Not specified	.0	.0	.8	.4	.0	.0	.0	.0	.0	.0	.0	.4	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	0.8
Crop Usage																							
Cash	13.7	24.8	27.5	23.1	5.2	8.5	11.0	19.7	9.5	13.1	4.0	2.1	6.5	1.8	9.2	5.6	5.6	7.3	11.2	3.3	7.6	9.4	9.3
Consumption	86.3	75.2	70.8	76.0	94.8	90.6	88.6	80.3	90.2	86.9	96.0	97.5	93.3	98.2	90.8	94.4	94.4	92.7	85.1	96.7	91.1	90.2	88.9
Other	.0	.0	.0	.0	.0	.9	.3	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.7	.0	1.2	.3	0.2
Not specified	.0	.0	1.6	.8	.0	.0	.0	.0	.0	.0	.0	.4	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	1.2
Yield(Kg/acre)																							
Average	610	680	423	532	623	810	670	685	676	662	356	340	459	495	417	426	443	399	308	262	336	489	389
Median	540	450	270	360	600	720	540	544	600	360	270	240	360	270	360	270	270	270	239	180	225	360	300
Std Deviation	473	612	601	581	459	785	953	431	705	1091	405	318	727	1801	482	527	1053	1200	260	234	807	849	337
No.Households, 2010	**94**	**77**	**171**	**343**	**198**	**82**	**163**	**68**	**511**	**117**	**88**	**123**	**328**	**228**	**241**	**337**	**806**	**181**	**141**	**102**	**423**	**2,410**	
No.Households, 2006	**73**	**68**		**141**			**235**	**95**	**330**		**147**	**171**	**318**	**389**	**242**		**631**	**300**		**219**	**519**		**1,939**

6.3.3 Beans Production

Table 6.20 shows the percentage distribution of production of beans in the project area. Majority of the households (three quarters) grow beans in less than an acre of their land with Ndindiriku leading in this category (94%). Nine in ten of the households intercrop beans with another crop in their farms with this being universal in Kiumbu/Kianugu. Most of the households (also nine in ten) grow beans for consumption. On average, each household grows 210 Kilogram per acre which is a rise from 113 Kilogram per acre in 2006.

Table 6.20: Percentage distribution of production of Beans, according to FDA

	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kium-bu/ Ki-anugu	Ru-kanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragi-ma	Kariara	Mu-tundu	Total	Ngele-lya	Ngoli-ba	Kali-moni	Total	Kagu-moini	Mara-gua Ridge	Mari-aini	Total		
HHs Growing Bean	38.8	42.0	42.1	41.1	72.3	68.3	75.6	63.2	71.5	79.6	88.4	90.3	85.6	89.4	57.9	58.3	64.7	88.3	90.0	86.0	88.3	67.6	84.0
Number of HHs	165	138	252	555	209	88	179	75	551	144	95	130	369	252	387	564	1204	193	148	109	450	3129	2175
Acres Cultivated <1	94.2	76.1	65.8	76.4	83.1	75.0	64.7	65.0	73.4	84.9	86.2	87.9	86.4	68.2	81.0	67.7	71.7	80.5	68.8	75.0	75.3	75.4	49.7
1.00 - 2.99	3.3	9.5	29.0	16.8	16.9	21.6	25.9	25.1	21.7	9.8	10.9	11.1	10.6	22.3	11.4	24.4	20.1	15.2	27.5	20.1	20.5	18.7	40.3
3.00 - 4.99	2.5	9.5	5.3	5.6	.0	3.3	8.9	8.0	4.5	4.5	2.8	1.0	2.7	7.4	4.0	6.7	6.1	4.1	3.7	4.9	4.1	4.9	3.9
5.00 - 9.99	.0	4.8	.0	1.2	.0	.0	.4	1.9	.4	.9	.0	.0	.3	2.1	3.6	1.1	2.1	.1	.0	.0	.1	1.0	0.6
Average	.6	1.1	1.1	1.0	.9	1.0	1.3	1.4	1.1	.9	.9	.7	.8	1.3	1.0	1.2	1.2	.9	1.2	1.0	1.0	1.0	0.97
Median	.5	.5	1.0	.5	1.0	.6	1.0	1.0	1.0	.9	1.0	.5	.5	1.0	.8	1.0	1.0	.8	1.0	.7	1.0	1.0	0.75
Maximum	4.0	5.0	4.0	5.0	2.0	4.0	5.0	5.0	5.0	6.0	4.0	3.0	6.0	5.0	5.0	8.0	8.0	5.0	4.0	4.0	5.0	8.0	10.0
Intercropping Yes	86.9	100.0	86.6	90.1	90.9	85.6	90.9	91.0	90.1	88.1	98.2	95.3	93.5	99.0	92.6	92.0	94.2	98.7	93.5	99.0	97.0	93.4	95.5
No	13.1	.0	13.4	9.9	9.1	14.4	9.1	9.0	9.9	11.9	1.8	4.7	6.5	1.0	7.4	8.0	5.8	1.3	5.7	1.0	2.7	6.5	2.4
Not specified	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.3	.1	2.2
Crop Usage Cash	11.6	14.1	24.8	18.4	6.0	2.4	6.4	4.4	5.4	13.4	1.7	3.6	6.6	2.8	8.0	3.5	4.6	6.6	9.5	2.9	6.7	6.9	4.1
Consumption	88.4	85.9	75.2	81.6	94.0	97.6	93.6	95.6	94.6	86.6	98.3	96.4	93.4	97.2	92.0	96.5	95.4	93.4	90.5	97.1	93.3	93.1	94.0
Yield(Kg/acre) Average	196	1468	123	494	117	114	95	100	107	351	120	105	198	185	163	189	180	130	408	103	217	210	113
Median	180	90	90	99	70	80	53	80	66	180	80	80	90	80	160	120	100	90	80	60	80	90	80
Std Deviation	146	5803	108	3005	146	119	161	98	143	683	196	114	443	514	141	386	381	194	3043	152	1770	1283	99
No. HH, 2010	64	58	106	228	151	60	136	47	394	114	84	117	316	226	224	329	779	170	133	94	398	2,115	
No. HH, 2006	**57**	**53**		**110**			**197**	**90**	**287**		**147**	**168**	**315**	**368**	**232**		**600**	**297**		**217**	**514**		**1,826**

6.3.4 Irish Potatoes Production

Table 6.21 shows the percentage distribution of Irish potato production in the project area. The average area cultivated was 2.6 acres while the median was 0.5 acres. Over four fifths of the households cultivated Irish potatoes on less than an acre. This practice was universal in Rukanga and absent in Ndindiriku and Kiumbu/Kianugu.

Sixty three percent of the households reported intercropping, with Maragua District leading with 79 percent while the practice was absent in Kirinyaga.

Over nine in ten households grew Irish potatoes for consumption and this was universal in Kirinyaga. The average yield (Kg/acre) was 465 kilos while the median was 200 kilos. Nyeri recorded the highest average yield at 676.

Table 6.21: Percentage distribution of production of potatoes, according to FDA

	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/ Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragi-ma	Kariara	Mutundu	Total	Ngele-lya	Ngoli-ba	Kali-moni	Total	Kagu-moini	Mara-gua Ridge	Mari-aini	Total		
HHs Growing Irish Potatoes	.0	.0	.9	.4	38.6	47.1	46.9	35.5	42.2	72.0	16.6	2.7	33.3	1.2	8.6	6.9	6.3	40.1	26.4	12.8	29.0	18.0	34.2
Total Sample	165	138	252	555	209	88	179	75	551	144	95	130	369	252	387	564	1204	193	148	109	450	3129	2175
Acres Cultivated <1	.0	.0	100.0	100.0	94.8	91.3	89.0	94.1	92.0	93.4	89.9	64.9	92.1	82.1	83.7	91.9	87.9	80.4	71.5	72.0	76.8	88.0	76.7
1.00 - 2.99	.0	.0	.0	.0	5.2	8.7	8.7	5.9	7.2	3.3	3.9	35.1	4.2	17.9	12.6	8.1	10.5	12.1	15.8	10.8	13.1	8.3	16.9
3.00 - 4.99	.0	.0	.0	.0	.0	.0	.4	.0	.1	.0	6.2	.0	.8	.0	3.6	.0	1.6	3.7	2.3	4.1	3.3	1.2	1.4
5.00 - 9.99	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.8	.0	.0	.0	.0	.8	.0	.0	.5	.3	0.2
10+	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.4	.0	.0	2.0	.0	.0	.0	.0	2.9	10.5	13.1	6.3	1.9	
Not specified	.0	.0	.0	.0	.0	.0	1.8	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	4.8
Average	3.0	.	.3	1.9	.5	.6	.7	.6	.6	.9	.7	1.0	.9	.6	.7	.5	.6	8.3	4.0	26.8	9.0	2.6	0.46
Median	3.0	.	.3	3.0	.3	.5	.8	.5	.5	.5	.5	.7	.5	.3	.5	.4	.4	.5	1.0	.5	.7	.5	0.2
Maximum	3.0	.	.3	3.0	2.0	2.5	4.0	2.5	4.0	15.0	3.0	2.0	15.0	2.0	3.3	1.5	3.3	360.0	30.0	200.0	360.0	360.0	5
Intercropping Yes	.0	.0	.0	.0	52.5	50.9	65.1	52.7	56.8	62.1	61.6	64.9	62.2	79.4	53.5	60.2	58.0	84.5	68.1	79.4	79.0	63.0	69
No	.0	.0	100.0	100.0	47.5	49.1	33.1	47.3	42.6	37.1	38.4	35.1	37.2	20.6	46.5	39.8	42.0	15.5	31.9	20.6	21.0	36.6	28.6
Not specified	.0	.0	.0	.0	.0	.0	1.8	.0	.7	.7	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.4	2.4
Crop Usage Cash	.0	.0	.0	.0	2.4	1.3	12.9	7.6	6.6	14.2	10.3	14.0	13.7	11.6	.0	3.5	2.3	1.5	2.8	6.2	2.4	6.6	**4.4**
Consumption	.0	.0	100.0	100.0	97.6	98.7	85.2	89.4	92.4	85.1	89.7	86.0	85.7	88.4	100.0	96.5	97.7	98.5	97.2	93.8	97.6	92.9	93.5
Other	.0	**.0**	**.0**	.0	**.0**	**.0**	**.0**	**3.1**	**.4**	.7	**.0**	**.0**	.6	**.0**	**.0**	**.0**	**.0**	.0	**.0**	**.0**	.0	**.3**	
Not specified	.0	.0	.0	.0	.0	.0	1.8	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	2.1
Yield(Kg/acre) Average	.	.	360	360	423	636	365	535	454	765	214	115	676	325	207	385	309	300	469	429	366	465	679
Median	.	.	360	360	302	360	192	320	270	360	118	72	270	160	180	183	176	120	86	72	90	200	400
Std Deviation	.	.	0	0	419	834	443	647	556	1190	346	156	1118	553	175	387	331	552	898	937	719	745	824
No. HH, 2010	**0**	**0**	**2**	**2**	**81**	**41**	**84**	**27**	**233**	**103**	**16**	**3**	**123**	**3**	**33**	**39**	**76**	**77**	**39**	**14**	**130**	**564**	
No. HH, 2006	**1**			**1**			**142**	**51**	**193**		**66**	**43**	**109**	**12**	**51**		**63**	**219**		**159**	**378**		**744**

6.3.5 *Intercropping of Crops*

Intercropping is a common practice in the project area as shown in Table 6.22. Over three quarters of the households intercrop, with beans being the most intercropped crop (93%). Data also suggests that rice is not intercropable.

Table 6.22: Intercropping of crops

	Yes Project Total 2010	No	Not specified	Total	Yes Project Total 2006
Maize	88.4	11.5	.1	2410	95.8
Beans	93.4	6.5	.1	2115	95.5
Irish potatoes	63.0	36.6	.4	564	69
Rice	.0	100.0	.0	11	0
Coffee	41.8	57.6	.6	110	31.3
Tea	45.0	55.0	.0	2	83.7
Bananas	76.5	22.9	.6	471	92.7
Sweet potatoes	53.1	46.7	.2	367	59.2
Cassava	78.5	21.2	.3	268	91.1
Arrow roots	29.9	70.1	.0	35	27.8
Sorghum	76.0	21.7	2.3	119	91.7
Millet	79.6	19.0	1.4	39	95.7
French beans	37.6	62.4	.0	70	49.5
Groundnuts	84.4	15.6	.0	11	78.2
Chickpeas and Cowpeas	71.2	28.8	.0	225	91.1
Pigeon peas	88.7	11.3	.0	143	92.4
Pawpaws	78.7	21.3	.0	177	94.8
Mangoes	76.2	23.4	.4	399	88.7
Kales (Sukuma Wiki)	44.2	55.8	.0	277	44.3
Tomatoes	29.8	69.6	.6	219	51.5
Onions	51.2	48.8	.0	76	69.2
Spinach	53.6	46.4	.0	98	57.4
Cabbage	32.6	67.4	.0	55	55.3
Pumpkin	70.3	29.7	.0	143	93.2
Avocados	n/a	n/a	n/a	n/a	81.1
Garden Peas	n/a	n/a	n/a	n/a	97
Tobacco	n/a	n/a	n/a	n/a	0
Oranges	n/a	n/a	n/a	n/a	83.1
Wheat	n/a	n/a	n/a	n/a	0
Green grams	n/a	n/a	n/a	n/a	64.2
Other	63.8	35.1	1.1	142	74.5
Project Total 2010	**78.0**	**21.8**	**.2**	**8 565**	

6.3.6 *Storage of Crops after Harvesting*

The analysis of storage of harvest is show in Table 6.23. Half of harvested food crops are stored on compound in residence. This is followed by those stored on compound in food store (29%) while direct consumption occurs for 16 percent of the harvests. Of the foods that are directly consumed, spinach ranks highest at 70 percent, while rice assumes a similar position for those that are stored on compound in the residence.

Table 6.23: Percentage distribution of Storage of food after harvesting

crops	On compound in residence	On compound in food store	At friends home	At relative home	Public store	Direct consump-tion	Other	Not specified	Total Sample
Maize	59.8	37.6	.0	.9	.1	.9	.1	.6	2 410
Beans	58.9	37.6	.2	.3	.1	1.6	.2	1.2	2 115
Irish potatoes	45.6	38.6	.3	.1	.1	13.4	.0	1.9	564
Rice	74.3	.0	.0	25.7	.0	.0	.0	.0	11
Coffee	12.9	19.7	.0	.0	24.7	29.8	6.9	5.9	110
Tea	.0	45.0	.0	.0	.0	.0	55.0	.0	2
Bananas	45.3	11.3	.0	.0	.2	38.9	.7	3.7	471
Sweet potatoes	30.7	13.6	.0	.3	.0	50.2	.0	5.2	367
Cassava	34.9	16.7	.0	.3	.0	40.2	.0	7.8	268
Arrow roots	23.9	14.2	1.9	.0	.0	59.9	.0	.0	35
Sorghum	87.8	6.2	.0	.0	.0	6.1	.0	.0	119
Millet	51.5	38.6	.0	.0	2.4	5.5	.0	2.0	39
French beans	8.0	15.6	.0	.0	.0	35.6	35.0	5.8	70
Groundnuts	50.4	20.5	.0	.0	.0	10.1	13.0	5.9	11
Chickpeas and Cowpeas	51.3	23.1	.0	.9	1.3	18.8	3.9	.6	225
Pigeon peas	51.4	33.8	.0	.0	.0	12.8	.0	2.0	143
Pawpaws	39.3	16.1	.0	.0	.0	37.2	2.6	4.8	177
Mangoes	41.1	14.9	.0	.2	.0	36.5	3.5	3.8	399
Kales (Sukuma Wiki)	21.8	12.4	1.2	.9	.0	57.1	4.5	2.0	277
Tomatoes	22.0	13.5	.0	.0	.0	33.2	28.8	2.5	219
Onions	46.4	25.3	.0	.0	.0	26.7	.0	1.6	76
Spinach	12.9	13.4	.0	.0	.0	71.0	.8	1.9	98
Cabbage	26.8	19.7	.0	.0	.0	46.5	5.5	1.5	55
Pumpkin	47.5	16.9	.0	.0	.0	28.1	.3	7.2	143
Other	51.6	13.6	.0	.0	.0	25.9	4.0	4.8	142

6.3.7 Marketing of Crops

Crops are either marketed by farmers themselves, marketing boards, SACCOs, marketing companies, brokers, etc as shown in Table 6.24. Self marketing accounts for the highest percentage (28%) in all crops except for tea which is mostly sold through SACCOS (55%). Tomatoes top the list of self marketed crops at 78 percent.

Table 6.24: Percentage distribution of Marketing of Crops

Crop	Self	Produce Board	SACCOs	Group	Private Companies	Other	Not specified	Total Sample
Maize	26.0	.3	.0	.1	.0	2.7	70.9	2 410
Beans	19.8	.0	.2	.1	.0	1.9	78.0	2 115
Irish potatoes	23.8	.2	.0	.0	.1	1.8	74.1	564
Rice	73.6	.0	.0	.0	.0	26.4	.0	11
Coffee	37.1	39.7	14.0	.0	.0	1.3	7.9	110
Tea	.0	.0	55.0	.0	.0	.0	45.0	2
Bananas	17.8	.1	.1	.0	.0	.1	82.0	471
Sweet potatoes	13.8	.0	.0	.0	.0	.3	85.9	367
Cassava	9.3	.0	.0	.0	.0	.3	90.4	268
Arrow roots	18.5	.0	.0	.0	.0	3.1	78.4	35
Sorghum	23.7	.0	.0	.0	.0	4.2	72.0	119
Millet	22.2	.0	.0	.0	.0	.0	77.8	39
French beans	64.6	.0	.0	1.2	11.5	3.9	18.8	70
Groundnuts	53.2	.0	.0	.0	.0	3.5	43.3	11
Chickpeas and Cowpeas	33.3	.0	.0	.0	.0	.8	65.9	225
Pigeon peas	23.3	.6	.0	.0	.0	.2	75.9	143
Pawpaws	30.1	.0	.0	.0	.0	.0	69.9	177
Mangoes	47.6	.3	.0	.0	.0	1.1	50.9	399

Table 6.24: Percentage distribution of Marketing of Crops *(continued)*

Crop	Self	Produce Board	SACCOs	Group	Private Companies	Other	Not specified	Total Sample
Kales (Sukuma Wiki)	44.6	1.9	.0	.0	.0	1.1	52.5	277
Tomatoes	78.3	.0	.0	.0	1.3	1.6	18.9	219
Onions	52.9	.0	.0	1.1	.0	.0	46.0	76
Spinach	33.5	.0	.0	3.7	.0	.0	62.9	98
Cabbage	69.9	.0	.0	.0	.0	.0	30.1	55
Pumpkin	23.3	.0	.0	.0	.0	1.3	75.3	143
Other	58.3	.7	.0	.3	.7	.2	39.8	142

6.3.8 *Utilization of surplus harvest*

Households that farm sometimes produce excess or surplus crop due to favourable weather conditions or a combination of several factors that encourage high production. Table 6.25 shows the percentage distribution of utilization of surplus harvest.

Two fifths of all surpluses are utilized in the household. This is most common in Kirinyaga (71%) and rarest in Thika (22%).

Table 6.25: Percentage distribution of Utilization of Surplus Harvest

District/FDAs	HH with agric	Number of HHs	Self	Feed to Livestok	Donate to needy	Other	None (NS)	Total Sample
Ndindiriku	63.1	165	71.7	.8	4.7	.0	27.5	104
Kiumbu/Kianugu	70.0	138	65.7	.0	5.7	2.9	25.7	97
Rukanga	73.0	252	72.4	.8	7.4	.0	26.8	184
KIRINYAGA	**69.3**	**555**	**70.6**	**.6**	**6.2**	**.7**	**26.7**	**385**
Muricho	95.7	209	51.4	.3	5.1	3.6	41.8	200
Kiriogo	93.6	88	68.0	3.3	9.5	1.4	29.8	82
Mbuyu	91.6	179	71.2	2.0	1.4	5.1	23.3	164
Ndivai	89.9	75	79.3	5.2	6.0	.9	19.8	68
NYANDARUA	**93.2**	**551**	**64.1**	**2.0**	**4.8**	**3.4**	**31.1**	**514**
Maragima	84.0	144	40.3	9.1	19.8	15.0	34.1	121
Kariara	92.5	95	29.8	4.5	5.4	10.8	61.6	88
Mutundu	95.9	130	12.5	1.3	7.1	15.7	72.3	125
NYERI	**90.4**	**369**	**27.2**	**5.0**	**11.2**	**14.2**	**55.7**	**333**
Ngelelya	90.3	252	11.9	4.9	8.1	.0	81.0	228
Ngoliba	62.9	387	38.2	2.6	6.6	2.8	55.3	243
Kalimoni	63.3	564	18.2	4.9	7.5	.4	76.0	357
THIKA	**68.8**	**1204**	**22.3**	**4.2**	**7.4**	**1.0**	**71.3**	**828**
Kagumoini	95.1	193	33.6	.2	2.4	.8	63.9	183
Maragua Ridge	95.7	148	65.5	1.4	5.0	1.5	28.0	142
Mariaini	94.9	109	30.1	.5	1.9	.0	68.1	104
MARAGUA	**95.2**	**450**	**43.3**	**.7**	**3.1**	**.9**	**53.1**	**429**
Project Total 2010	**79.6**	**3129**	**42.6**	**2.7**	**6.4**	**3.2**	**50.9**	**2 489**
Project total 2006			**35.3**	**1.3**	**6.6**	**3.7**	**59**	**1 968**

In 2010, there was a 7 percent increase in households utilizing their surplus production domestically.

6.3.9 *Selling price of major crops*

The following analysis deals with only major crops: maize, beans and potatoes.

(i) Maize

Table 6.26 shows the percentage distribution of selling prices (Kshs) per 90Kg bag of maize. The average price was Kshs 1,272 with the best price being recorded in Kariara (1,741). In most instances (20%) a 90Kg bag of maize fetched between Kshs 1001 and 1500.

Table 6.26: Percentage distribution of Selling Prices (Kshs per 90Kg bag) of Maize

District/FDAs	HHs with agric and selling Maize	Total Sample	<500	501 - 1000	1001 - 1500	1500+	Not specified	Average	Number of HHs
Ndindiriku	70.0	165	.9	37.3	26.1	9.0	26.6	1443	115
Kiumbu/Kianugu	70.0	138	.0	34.5	17.1	8.5	39.9	1124	97
Rukanga	77.9	252	.0	28.6	29.4	13.7	28.3	1200	196
KIRINYAGA	**73.6**	**555**	**.3**	**32.5**	**25.6**	**11.1**	**30.6**	**1257**	**408**
Muricho	97.1	209	.0	18.3	34.1	.4	47.2	1113	203
Kiriogo	94.4	88	.6	33.4	31.2	2.2	32.6	1186	83
Mbuyu	92.2	179	.0	40.0	29.5	.4	30.1	1130	165
Ndivai	92.4	75	1.1	41.2	33.8	1.1	22.8	1056	69
NYANDARUA	**94.4**	**551**	**.2**	**30.7**	**32.1**	**.8**	**36.2**	**1122**	**521**
Maragima	84.0	144	.0	2.1	30.9	5.0	62.1	1404	121
Kariara	92.5	95	.0	1.7	9.9	17.3	71.1	1741	88
Mutundu	95.9	130	.0	.0	9.4	2.5	88.0	1601	125
NYERI	**90.4**	**369**	**.0**	**1.2**	**17.3**	**7.3**	**74.2**	**1537**	**333**
Ngelelya	90.3	252	.0	3.7	5.0	.2	91.2	1106	228
Ngoliba	62.9	387	.0	4.6	16.1	8.2	71.1	1516	243
Kalimoni	63.3	564	.0	.9	10.8	1.2	87.0	1388	357
THIKA	**68.8**	**1204**	**.0**	**2.7**	**10.8**	**3.0**	**83.5**	**1413**	**828**
Kagumoini	95.3	193	.0	7.9	17.6	4.2	70.3	1369	184
Maragua Ridge	95.7	148	.0	20.1	20.5	6.7	52.7	1363	142
Mariaini	94.9	109	.0	4.8	15.4	5.9	73.9	1307	104
MARAGUA	**95.3**	**450**	**.0**	**11.2**	**18.0**	**5.4**	**65.3**	**1355**	**429**
Project Total 2010	**80.5**	**3129**	**.1**	**14.6**	**19.7**	**4.8**	**60.8**	**1272**	**2520**
Project total 2006			**0.4**	**54.7**	**39.4**	**5.5**		**1 074**	**520**

In 2010, the average price per 90 Kg bag of maize was Kshs 1,272, up from Kshs 1,074 in 2006. The number of households with surplus maize for sale rose from 520 to 2,520 within the same reference period. This was perhaps as a result of improved production through soil and water conservation among other technologies.

(ii) Beans

Table 6.27 summarizes the selling prices of beans in the project areas. A 90Kg bag of beans fetches more money compared to that of maize or potatoes. The average price was Kshs 3,604 with Maragua posting the highest price (Kshs 4,035) across the Districts. Eighteen percent of all sales fetched above Kshs 1,500 for the 90Kg bag.

Table 6.27: Percentage distribution of Selling Prices (Kshs per 90Kg bag) of Beans

District/FDAs	HHs with agric and selling Beans	Total Sample	<500	501 - 1000	1001 - 1500	1500+	Not specified	Average	Number of HHs
Ndindiriku	70.0	165	.0	.0	3.0	26.4	70.6	3874	115
Kiumbu/Kianugu	70.0	138	.0	.0	2.9	20.0	77.1	2693	97
Rukanga	77.9	252	.0	.0	.5	29.6	69.9	4312	196
KIRINYAGA	**73.6**	**555**	**.0**	**.0**	**1.8**	**26.4**	**71.8**	**3872**	**408**
Muricho	97.1	209	.0	.0	.0	19.9	80.1	3711	203
Kiriogo	94.4	88	.0	.0	.6	17.3	82.0	3814	83
Mbuyu	92.2	179	.0	1.8	2.6	20.8	74.8	3143	165
Ndivai	92.4	75	.0	.0	.0	25.0	75.0	3716	69
NYANDARUA	**94.4**	**551**	**.0**	**.6**	**.9**	**20.5**	**78.1**	**3518**	**521**
Maragima	84.0	144	.0	.0	.0	31.3	68.7	2856	121
Kariara	92.5	95	.0	.0	.9	18.3	80.9	4251	88
Mutundu	95.9	130	.0	.0	.0	11.4	88.6	3586	125
NYERI	**90.4**	**369**	**.0**	**.0**	**.2**	**20.4**	**79.3**	**3348**	**333**
Ngelelya	90.3	252	.0	.0	2.0	3.5	94.5	2576	228
Ngoliba	62.9	387	.2	1.0	1.9	16.7	80.2	3161	243
Kalimoni	63.3	564	.0	.3	.0	6.6	93.1	3313	357
THIKA	**68.8**	**1204**	**.1**	**.4**	**1.1**	**8.7**	**89.7**	**3118**	**828**
Kagumoini	95.3	193	.0	.0	.2	17.4	82.3	3894	184
Maragua Ridge	95.7	148	.0	.0	.0	33.5	66.5	4159	142
Mariaini	94.9	109	.0	.0	.7	7.9	91.5	3891	104
MARAGUA	**95.3**	**450**	**.0**	**.0**	**.3**	**20.4**	**79.3**	**4035**	**429**
Project Total 2010	**80.5**	**3129**	**.0**	**.3**	**.9**	**17.5**	**81.3**	**3604**	**2520**
Project total 2006				**3.2**	**9.2**	**87.6**		**2350**	**229**

The number of farmers dealing in beans rose from 229 in 2006 to 2,520 in 2010. Just like in maize production, this may be as a result of an intervention that enhanced their farming skills.

(iii) Potatoes

Table 6.28 shows the percentage distribution of selling prices for potatoes per 90Kg bag. On average, such a bag fetched Kshs 1,543 with the highest price being recorded in Kirinyaga at Kshs 6,000.

Table 6.28: Percentage distribution of Selling Prices (Kshs per 90Kg bag) of Potatoes

District/FDAs	HHs with agric and selling Irish Potatoes	Total Sample	<500	501 - 1000	1001 - 1500	1500+	Not specified	Average	Number of HHs
Ndindiriku	70.0	165	.0	.0	.0	.0	100.0	.	115
Kiumbu/Kianugu	70.0	138	.0	.0	.0	.0	100.0	.	97
Rukanga	77.9	252	.0	.0	.0	.8	99.2	6000	196
KIRINYAGA	**73.6**	**555**	**.0**	**.0**	**.0**	**.4**	**99.6**	**6000**	**408**
Muricho	97.1	209	.0	4.6	6.8	1.0	87.6	1294	203
Kiriogo	94.4	88	.0	2.8	7.7	1.8	87.7	1425	83
Mbuyu	92.2	179	.6	7.0	4.0	1.3	87.1	1432	165
Ndivai	92.4	75	.0	4.5	4.5	1.2	89.8	1289	69
NYANDARUA	**94.4**	**551**	**.2**	**5.1**	**5.8**	**1.2**	**87.7**	**1361**	**521**
Maragima	84.0	144	.0	2.3	13.7	12.3	71.7	1574	121
Kariara	92.5	95	.0	.0	1.2	4.9	93.9	1890	88
Mutundu	95.9	130	.0	.0	.0	.0	100.0	.	125
NYERI	**90.4**	**369**	**.0**	**.8**	**5.3**	**5.8**	**88.2**	**1617**	**333**
Ngelelya	90.3	252	.0	.0	.0	.0	100.0	.	228
Ngoliba	62.9	387	.0	2.4	2.0	.4	95.2	1193	243
Kalimoni	63.3	564	.0	.0	.0	.0	100.0	.	357
THIKA	**68.8**	**1204**	**.0**	**.7**	**.6**	**.1**	**98.6**	**1193**	**828**
Kagumoini	95.3	193	.2	.0	1.0	3.9	94.9	1903	184
Maragua Ridge	95.7	148	.0	1.4	2.2	3.7	92.6	1637	142
Mariaini	94.9	109	.0	.0	.0	.6	99.4	3500	104
MARAGUA	**95.3**	**450**	**.1**	**.5**	**1.1**	**3.1**	**95.2**	**1816**	**429**
Project Total 2010	**80.5**	**3129**	**.1**	**1.5**	**2.3**	**1.6**	**94.5**	**1543**	**2520**
Project total 2006			**16.4**	**55.1**	**15.5**	**13.1**		**1034**	**50**

The number of farmers selling potatoes increased from 50 in 2006 to 2,520 in 2010. Nonetheless, sales seem to have declined drastically perhaps due to crop failure.

6.3.10 Uses of income earned through sale of surplus crops

Table 6.29 shows the percentage distribution of uses of income earned through sale of surplus crop produce. Majority of this income is used to meet household expenditure (36%) followed by buying of clothes (20%) and paying school fees (19%).

Table 6.29: Percentage distribution of uses of income earned through sale of surplus crop produce

District/FDAs	HHs with Agric and Selling	Total Sample	Meeting HH expenditure	Paying school fees	Paying Medical Expenses	Paying Loans and advances	Buying assets	Buying clothes	Investing in banks	Buying other food stuff	Investment in stocks	Other	None	Number of HHs
Ndindiriku	63.1	165	48.9	16.8	15.5	5.3	19.2	29.4	.8	14.9	4.0	20.7	28.3	104
Kiumbu/Kianugu	70.0	138	48.6	11.4	20.0	.0	14.4	37.2	2.8	17.1	5.6	14.3	34.3	97
Rukanga	73.0	252	57.0	31.3	16.8	1.2	16.2	28.1	3.3	12.8	.0	18.7	27.6	184
KIRINYAGA	**69.3**	**555**	**52.7**	**22.4**	**17.3**	**2.0**	**16.6**	**30.7**	**2.5**	**14.5**	**2.5**	**18.1**	**29.4**	**385**
Muricho	95.7	209	46.0	25.5	16.5	2.8	10.7	22.4	.5	13.9	1.1	4.8	47.8	200
Kiriogo	93.6	88	61.1	29.4	20.6	.9	12.5	30.8	.9	13.0	.9	5.4	32.9	82
Mbuyu	91.6	179	59.9	43.5	27.0	1.7	15.9	31.3	1.3	28.9	.0	5.6	29.3	164
Ndivai	89.9	75	65.4	32.4	22.2	4.2	10.4	28.6	3.2	19.0	1.1	7.2	23.3	68
NYANDARUA	**93.2**	**551**	**55.4**	**32.8**	**21.3**	**2.3**	**12.6**	**27.4**	**1.1**	**19.2**	**.7**	**5.5**	**36.3**	**514**
Maragima	84.0	144	37.5	15.9	16.7	3.4	9.5	20.3	1.3	22.6	1.5	.0	60.3	121
Kariara	92.5	95	28.5	5.2	12.5	.0	11.0	18.9	1.2	20.4	.0	1.6	70.2	88
Mutundu	95.9	130	12.0	3.7	6.2	.0	2.1	6.2	.0	9.1	.0	.0	87.5	125
NYERI	**90.4**	**369**	**25.6**	**8.5**	**11.7**	**1.2**	**7.1**	**14.7**	**.8**	**17.0**	**.5**	**.4**	**73.1**	**333**
Ngelelya	90.3	252	8.7	4.7	2.6	.5	.6	5.5	.9	6.4	.0	.3	88.6	228
Ngoliba	62.9	387	28.2	21.7	15.5	1.1	6.5	20.6	.4	23.2	1.4	.7	64.6	243
Kalimoni	63.3	564	15.7	6.8	3.1	1.4	4.8	8.7	3.6	11.8	.5	.2	82.7	357
THIKA	**68.8**	**1204**	**17.4**	**10.6**	**6.6**	**1.1**	**4.2**	**11.3**	**1.9**	**13.7**	**.7**	**.4**	**79.0**	**828**
Kagumoini	95.1	193	31.3	15.4	13.5	1.6	10.6	15.5	.9	4.2	.0	3.4	66.8	183
Maragua Ridge	95.7	148	60.4	34.5	37.3	5.7	12.7	36.4	4.3	16.3	2.2	4.2	35.3	142
Mariaini	94.9	109	27.0	13.2	12.6	.5	8.1	14.3	.7	7.7	.0	4.3	69.4	104
MARAGUA	**95.2**	**450**	**39.9**	**21.2**	**21.1**	**2.7**	**10.7**	**22.1**	**2.0**	**9.0**	**.7**	**3.9**	**57.0**	**429**
Project Total 2010	**79.6**	**3129**	**35.7**	**18.5**	**14.5**	**1.8**	**9.3**	**19.9**	**1.7**	**14.6**	**.9**	**4.8**	**57.9**	**2 489**
Project total 2006			**73.2**	**21.3**	**25.9**	**1.9**	**22.3**	**37.4**	**5.9**	**41.3**		**13.8**	**16.6**	**647**

The number of households with surplus income increased from 647 in 2006 to 2,489 in 2010. Within the same reference period, there was a decline across all categories, with the highest recorded for households that used their surplus to meet household expenditure.

6.3.11 Households preference of foodstuffs

Respondents were asked to rank household preference of foodstuff. These included: maize, beans, Irish potatoes, sorghum, sweet potatoes, banana, cassava, and millet. It is important to note that the staple food in the region is githeri (a mixture of beans and maize) or mukimo (a mixture of mushed beans, maize, and potatoes).

(i) First preference crop

Table 6.30 shows the distribution of first preference crop. Three quarters of the households in the project area ranked maize as their preferred crop followed by beans (15%). Across the districts, maize is more popular in Maragua (94%) compared to Nyeri (43%).

Table 6.30: Percentage distribution of First Preference Crop

District/FDAs	HHs with Agric	Total Sample	Maize	Beans	Sorgum	Sweet Potatoes	Irish Potatoes	Cassava	Banana	Millet	Pigeon peas	Other	NS	Number of HHs
Ndindiriku	63.1	165	65.0	26.7	2.3	5.3	.8	.0	.0	.0	.0	.0	.0	104
Kiumbu/Kianugu	70.0	138	51.5	37.2	2.8	5.6	.0	2.8	.0	.0	.0	.0	.0	97
Rukanga	73.0	252	73.0	17.7	3.5	1.5	1.6	1.2	.0	.0	1.3	.0	.0	184
KIRINYAGA	**69.3**	**555**	**65.4**	**25.1**	**3.0**	**3.6**	**1.0**	**1.3**	**.0**	**.0**	**.6**	**.0**	**.0**	**385**
Muricho	95.7	209	79.8	10.2	2.7	1.3	1.2	1.6	.4	.0	.0	.0	2.9	200
Kiriogo	93.6	88	72.5	16.7	4.2	.0	.7	2.9	.0	1.3	.0	.0	1.7	82
Mbuyu	91.6	179	79.6	10.2	4.4	3.5	.7	.0	.0	.4	.8	.0	.3	164
Ndivai	89.9	75	79.0	9.5	5.3	3.9	1.1	.0	.0	.0	.0	.0	1.1	68
NYANDARUA	**93.2**	**551**	**78.4**	**11.2**	**3.8**	**2.1**	**1.0**	**1.1**	**.1**	**.3**	**.2**	**.0**	**1.6**	**514**
Maragima	84.0	144	44.7	39.2	4.1	4.6	3.3	2.0	.0	.0	1.5	.6	.0	121
Kariara	92.5	95	35.8	30.4	11.3	5.1	6.4	1.9	2.3	4.3	1.4	1.2	.0	88
Mutundu	95.9	130	45.8	29.6	11.7	3.1	4.8	.4	1.8	1.9	.0	.9	.0	125

Table 6.30: Percentage distribution of First Preference Crop *(continued)*

District/FDAs	HHs with Agric	Total Sample	Maize	Beans	Sorgum	Sweet Potatoes	Irish Potatoes	Cassava	Banana	Millet	Pigeon peas	Other	NS	Number of HHs
NYERI	**90.4**	**369**	**42.7**	**33.3**	**8.8**	**4.2**	**4.7**	**1.4**	**1.3**	**1.8**	**.9**	**.9**	**.0**	**333**
Ngelelya	90.3	252	86.0	9.7	2.1	1.2	.3	.3	.0	.0	.0	.0	.5	228
Ngoliba	62.9	387	87.2	8.2	2.4	1.0	.5	.7	.0	.0	.0	.0	.0	243
Kalimoni	63.3	564	82.9	11.5	1.7	.7	2.7	.0	.0	.0	.0	.0	.4	357
THIKA	**68.8**	**1204**	**85.0**	**10.0**	**2.0**	**.9**	**1.4**	**.3**	**.0**	**.0**	**.0**	**.0**	**.3**	**828**
Kagumoini	95.1	193	97.0	1.8	1.0	.2	.0	.0	.0	.0	.0	.0	.0	183
Maragua Ridge	95.7	148	91.0	6.6	.8	.8	.0	.0	.0	.0	.0	.0	.8	142
Mariaini	94.9	109	92.0	6.3	.6	.6	.0	.0	.0	.0	.0	.0	.5	104
MARAGUA	**95.2**	**450**	**93.8**	**4.5**	**.8**	**.5**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.4**	**429**
Project Total 2010	**79.6**	**3129**	**76.5**	**14.7**	**3.3**	**1.9**	**1.4**	**.7**	**.2**	**.3**	**.3**	**.1**	**.5**	**2 489**
Project total 2006			**85.8**	**7.2**	**0**	**0.2**	**0.4**	**0.1**	**0.2**	**0.2**		**7.9**		**2 082**

There was a 9 percent decline in households preferring maize as their first crop between 2006 and 2010. On the other hand, bean preference doubled from 7 percent to 15 percent in the same period.

(ii) Second preference crop

Table 6.31 shows the percentage distribution of the second preference crop. Seventy two percent of the households chose beans with 89 percent of households in Maragua belonging to this category.

Table 6.31: Percentage distribution of Second Preference Crop

District/FDAs	HHs with Agric	Total Sample	Maize	Beans	Sorgum	Sweet Potatoes	Irish Potatoes	Cassava	Banana	Millet	Pigeon peas	Other	NS	Number of HHs
Ndindiriku	63.1	165	10.7	61.0	20.3	2.0	6.1	.0	.0	.0	.0	.0	.0	104
Kiumbu/Kianugu	70.0	138	22.8	42.9	31.5	.0	.0	.0	.0	.0	.0	2.8	.0	97
Rukanga	73.0	252	13.8	58.3	21.3	4.0	.0	.6	.0	2.0	.0	.0	.0	184
KIRINYAGA	**69.3**	**555**	**15.2**	**55.2**	**23.6**	**2.5**	**1.6**	**.3**	**.0**	**1.0**	**.0**	**.7**	**.0**	**385**
Muricho	95.7	209	14.3	73.1	7.7	2.2	.9	.4	.0	.4	.0	.0	1.1	200
Kiriogo	93.6	88	22.2	64.6	8.2	.7	1.5	.0	2.0	.7	.0	.0	.0	82
Mbuyu	91.6	179	13.9	76.8	7.1	1.4	.0	.7	.0	.0	.0	.0	.0	164
Ndivai	89.9	75	13.2	79.4	4.9	1.3	1.1	.0	.0	.0	.0	.0	.0	68
NYANDARUA	**93.2**	**551**	**15.3**	**73.8**	**7.2**	**1.6**	**.7**	**.4**	**.3**	**.3**	**.0**	**.0**	**.4**	**514**
Maragima	84.0	144	20.6	43.2	31.6	.6	2.0	.6	1.5	.0	.0	.0	.0	121
Kariara	92.5	95	32.4	45.2	9.9	9.2	1.1	.0	.5	.9	.9	.0	.0	88
Mutundu	95.9	130	29.8	51.5	3.8	5.2	3.5	4.2	.0	1.3	.8	.0	.0	125
NYERI	**90.4**	**369**	**27.1**	**46.8**	**15.5**	**4.6**	**2.3**	**1.8**	**.6**	**.7**	**.5**	**.0**	**.0**	**333**
Ngelelya	90.3	252	11.3	79.8	6.1	1.1	.1	.0	.0	.0	.0	.0	1.6	228
Ngoliba	62.9	387	8.8	82.7	6.2	.7	.0	.0	.0	.0	.0	.0	1.7	243
Kalimoni	63.3	564	6.1	75.1	12.2	2.7	1.2	.0	.0	.0	.0	.0	2.8	357
THIKA	**68.8**	**1204**	**8.3**	**78.6**	**8.7**	**1.7**	**.5**	**.0**	**.0**	**.0**	**.0**	**.0**	**2.2**	**828**
Kagumoini	95.1	193	2.1	92.4	1.7	.4	1.0	.4	.4	1.3	.2	.0	.0	183
Maragua Ridge	95.7	148	3.0	86.6	5.9	1.4	2.3	.0	.0	.0	.0	.0	.8	142
Mariaini	94.9	109	5.1	88.2	3.0	1.4	1.5	.0	.0	.0	.3	.0	.5	104
MARAGUA	**95.2**	**450**	**3.1**	**89.4**	**3.4**	**1.0**	**1.6**	**.2**	**.2**	**.6**	**.2**	**.0**	**.4**	**429**
Project Total 2010	**79.6**	**3129**	**12.4**	**71.6**	**10.7**	**2.1**	**1.2**	**.4**	**.2**	**.4**	**.1**	**.1**	**.9**	**2 489**
Project total 2006			**10**	**84.7**	**1.1**	**1.1**	**2.5**	**1.2**	**1.5**	**1**		**4**		**2 097**

Compared to 2006, bean preference declined by 13 percent in 2010. In contrast, maize preference as a second crop increased by 2 percent within the reference period.

(iii) Third preference crop

From Table 6.32, Irish potatoes and pigeon peas were chosen as the third preference crop in the project area (9% each).

Table 6.32: Percentage distribution of Third Preference Crop

District/FDAs	HHs with Agric	Total Sample	Maize	Beans	Sorgum	Sweet Potatoes	Irish Potatoes	Cassava	Banana	Millet	Pigeon peas	Other	NS	Number of HHs
Ndindiriku	63.1	165	3.3	3.3	16.9	10.6	25.4	6.1	19.5	8.4	5.4	1.2	.0	104
Kiumbu/Kianugu	70.0	138	.0	.0	17.1	25.9	19.8	11.4	11.4	11.5	2.9	.0	.0	97
Rukanga	73.0	252	.8	.8	13.9	10.6	20.0	19.3	20.3	7.7	4.2	2.4	.0	184
KIRINYAGA	**69.3**	**555**	**1.3**	**1.3**	**15.5**	**14.5**	**21.4**	**13.8**	**17.9**	**8.9**	**4.2**	**1.5**	**.0**	**385**
Muricho	95.7	209	.0	1.8	3.7	8.2	16.1	11.2	4.2	2.4	2.0	3.6	46.9	200
Kiriogo	93.6	88	.0	4.3	.0	8.1	15.5	6.8	3.7	6.9	4.9	2.1	47.7	82
Mbuyu	91.6	179	.0	.4	4.0	14.0	14.1	11.7	10.1	6.7	6.3	.5	32.2	164
Ndivai	89.9	75	.0	.0	3.9	13.3	21.5	7.4	6.9	5.2	2.3	2.4	37.1	68
NYANDARUA	**93.2**	**551**	**.0**	**1.5**	**3.2**	**10.7**	**16.1**	**10.1**	**6.4**	**4.8**	**3.9**	**2.2**	**41.0**	**514**
Maragima	84.0	144	.0	.6	.8	.7	3.0	2.6	12.7	26.9	33.5	19.2	.0	121
Kariara	92.5	95	.0	1.7	1.6	.0	1.7	5.4	7.0	25.0	37.4	20.2	.0	88
Mutundu	95.9	130	.0	.8	.4	1.1	1.3	3.9	20.4	17.5	41.0	13.3	.4	125
NYERI	**90.4**	**369**	**.0**	**1.0**	**.9**	**.6**	**2.0**	**3.8**	**14.1**	**22.9**	**37.3**	**17.3**	**.2**	**333**
Ngelelya	90.3	252	.3	.3	.6	1.5	1.5	1.3	.0	.2	2.6	.0	91.6	228
Ngoliba	62.9	387	.0	.0	1.2	2.4	4.7	9.4	3.3	5.9	5.5	.5	66.9	243
Kalimoni	63.3	564	.0	.4	.4	2.1	1.2	1.0	.2	.0	.9	.0	93.7	357
THIKA	**68.8**	**1204**	**.1**	**.3**	**.7**	**2.1**	**2.3**	**3.6**	**1.1**	**1.8**	**2.7**	**.1**	**85.3**	**828**
Kagumoini	95.1	193	.0	.0	1.4	4.9	5.6	7.2	13.4	12.0	14.9	1.9	38.7	183
Maragua Ridge	95.7	148	.0	.0	8.4	9.2	14.7	14.8	12.0	10.5	3.8	.8	25.8	142
Mariaini	94.9	109	.0	.0	2.8	3.8	5.5	7.5	7.2	9.7	14.1	7.5	42.0	104
MARAGUA	**95.2**	**450**	**.0**	**.0**	**4.0**	**6.1**	**8.6**	**9.8**	**11.4**	**10.9**	**11.0**	**2.9**	**35.2**	**429**
Project Total 2010	**79.6**	**3129**	**.2**	**.7**	**4.1**	**6.3**	**9.1**	**7.6**	**8.3**	**7.9**	**9.3**	**3.5**	**42.9**	**2 489**
Project total 2006			**4.2**	**7.5**	**6.1**	**8.6**	**38.6**	**5.8**	**12.2**	**1.4**		**16.2**		**2 056**

It is observed that two fifths of the households did not respond to this question. This has a negative effect on the rate of change between the reference point and the survey date.

(iv) Sorghum preference

The percentage distribution of sorghum preference is shown in Table 6.33. A quarter of the households ranked sorghum in the 5th position, with three fifths of the households in Kiriogo and half of those in Muricho being in this category.

Table 6.33: Percentage distribution of Sorghum Preference rank

District/FDAs	HHs with Agric	Total Sample	1	2	3	4	5	6	7	8	9	No Rank	Number of HHs
Ndindiriku	63.1	165	2.3	20.3	16.9	9.9	13.4	1.8	14.7		4.5	16.2	104
Kiumbu/Kianugu	70.0	138	2.8	31.5	17.1	8.5	22.9	.0	11.5		.0	5.7	97
Rukanga	73.0	252	3.5	21.3	13.9	11.1	15.6	2.8	7.2		3.9	20.7	184
KIRINYAGA	**69.3**	**555**	**3.0**	**23.6**	**15.5**	**10.1**	**16.9**	**1.8**	**10.3**		**3.1**	**15.7**	**385**
Muricho	95.7	209	2.7	7.7	3.7	6.8	50.7	3.2	2.7		.4	22.2	200
Kiriogo	93.6	88	4.2	8.2	.0	4.4	59.2	3.2	3.4		.0	17.4	82
Mbuyu	91.6	179	4.4	7.1	4.0	17.1	39.9	3.7	1.3		1.4	21.1	164
Ndivai	89.9	75	5.3	4.9	3.9	17.5	34.6	1.2	3.9		1.3	27.2	68
NYANDARUA	**93.2**	**551**	**3.8**	**7.2**	**3.2**	**11.1**	**46.5**	**3.1**	**2.5**		**.8**	**21.7**	**514**
Maragima	84.0	144	4.1	31.6	.8	16.9	29.8	1.3	2.2		.0	13.3	121
Kariara	92.5	95	11.3	9.9	1.6	14.3	17.3	1.8	19.3		2.3	22.2	88
Mutundu	95.9	130	11.7	3.8	.4	21.5	17.6	1.6	31.9		.0	11.5	125
NYERI	**90.4**	**369**	**8.8**	**15.5**	**.9**	**17.9**	**21.9**	**1.5**	**17.8**		**.6**	**15.0**	**333**
Ngelelya	90.3	252	2.1	6.1	.6	3.9	11.8	5.2	11.1		2.3	57.0	228
Ngoliba	62.9	387	2.4	6.0	1.2	13.2	18.5	8.2	15.8		2.5	32.2	243
Kalimoni	63.3	564	1.7	12.2	.4	13.3	20.5	.6	6.2		1.3	43.7	357
THIKA	**68.8**	**1204**	**2.0**	**8.7**	**.7**	**10.7**	**17.5**	**4.1**	**10.4**		**1.9**	**44.0**	**828**
Kagumoini	95.1	193	1.0	1.7	1.4	17.8	30.6	2.9	21.6		1.2	21.8	183
Maragua Ridge	95.7	148	.8	5.9	8.4	29.0	22.6	6.6	14.8		2.3	9.7	142
Mariaini	94.9	109	.6	3.0	2.8	12.5	26.1	7.3	7.7		2.7	37.3	104
MARAGUA	**95.2**	**450**	**.8**	**3.4**	**4.0**	**20.2**	**26.9**	**5.2**	**16.0**		**1.9**	**21.5**	**429**
Project Total 2010	**79.6**	**3129**	**3.3**	**10.7**	**4.1**	**13.3**	**25.6**	**3.4**	**10.7**		**1.7**	**27.3**	**2 489**
Project total 2006			**0**	**1**	**5.8**	**11**	**11**	**13**	**18**	**10**	**1**	**29.4**	**2 175**

In 2006, sorghum ranked 7th in the project area, but in 2010 it climbed two spaces to take the 5th slot. This could have been as a result of an intervention that emphasized the crop.

(v) Cassava preference

Most (12%) of the households ranked cassava as the 7th most preferred food as shown in Table 6.34. This was the case in Kirinyaga with a fifth of the households being in this category. Almost half of the households did not rank the crop, perhaps since they do not cultivate it.

Table 6.34: Percentage distribution of Cassava Preference rank

District/FDAs	HHs with Agric Cassava Preference	Total Sample	1	2	3	4	5	6	7	8	9	No Rank	Number of HHs
Ndindiriku	63.1	165	.0	.0	6.1	20.7	13.6	7.6	17.8		15.3	19.0	104
Kiumbu/Kianugu	70.0	138	2.8	.0	11.4	11.5	2.8	14.4	34.3		14.1	8.6	97
Rukanga	73.0	252	1.2	.6	18.8	19.5	15.3	4.4	16.2		11.1	12.9	184
KIRINYAGA	**69.3**	**555**	**1.3**	**.3**	**13.5**	**17.8**	**11.7**	**7.8**	**21.2**		**13.0**	**13.5**	**385**
Muricho	95.7	209	1.6	.4	11.2	9.0	2.3	4.4	15.4		9.9	45.9	200
Kiriogo	93.6	88	2.9	.0	6.8	8.7	.0	7.6	13.9		6.1	54.1	82
Mbuyu	91.6	179	.0	.7	11.7	3.9	4.4	16.5	14.3		7.1	41.4	164
Ndivai	89.9	75	.0	.0	7.4	12.0	6.0	6.3	13.2		5.6	49.5	68
NYANDARUA	**93.2**	**551**	**1.1**	**.4**	**10.1**	**7.7**	**3.1**	**9.0**	**14.5**		**7.8**	**46.2**	**514**
Maragima	84.0	144	2.0	.6	2.6	22.5	1.8	29.0	18.7		8.7	14.1	121
Kariara	92.5	95	1.9	.0	5.4	22.0	8.7	12.6	16.5		17.1	15.8	88
Mutundu	95.9	130	.4	4.2	3.9	29.7	7.5	13.6	12.0		13.0	15.7	125
NYERI	**90.4**	**369**	**1.4**	**1.8**	**3.8**	**25.1**	**5.7**	**18.9**	**15.6**		**12.5**	**15.2**	**333**
Ngelelya	90.3	252	.3	.0	1.3	2.0	2.5	3.8	1.9		1.7	86.5	228
Ngoliba	62.9	387	.7	.0	9.4	5.9	3.5	7.2	4.5		3.7	65.0	243
Kalimoni	63.3	564	.0	.0	1.0	2.6	2.6	.8	6.2		.3	86.5	357
THIKA	**68.8**	**1204**	**.3**	**.0**	**3.6**	**3.4**	**2.8**	**3.5**	**4.5**		**1.7**	**80.2**	**828**
Kagumoini	95.1	193	.0	.4	7.2	14.8	10.3	5.7	9.6		5.8	46.1	183
Maragua Ridge	95.7	148	.0	.0	14.8	11.0	5.3	8.7	13.0		10.6	36.5	142
Mariaini	94.9	109	.0	.0	7.5	14.3	6.7	9.8	11.2		4.3	46.2	104
MARAGUA	**95.2**	**450**	**.0**	**.2**	**9.8**	**13.5**	**7.8**	**7.7**	**11.1**		**7.0**	**42.9**	**429**
Project Total 2010	**79.6**	**3129**	**.7**	**.4**	**7.6**	**11.2**	**5.5**	**8.1**	**11.8**		**7.1**	**47.7**	**2 489**
Project total 2006			**0**	**1**	**5.4**	**7.1**	**14**	**17**	**13**	**12**	**7.3**	**23.3**	**2 175**

In 2006, cassava ranked 6th in the project area but slipped to 7th in 2010. This may be due to the adoption of other crops or as a result of its poor performance in the area.

(vi) Millet preference

Millet was ranked 7th, just like cassava, with one in ten households selecting it. The percentage that did not rank the crop was almost half and just like cassava, perhaps the crop is not cultivated in the project area.

Table 6.35: Percentage distribution of Millet Preference rank

District/FDAs	HHs with Agric Millet Preference	Total Sample	1	2	3	4	5	6	7	8	9	No Rank	Number of HHs
Ndindiriku	63.1	165	.0	.0	8.4	8.6	7.6	26.4	7.2		17.5	24.4	104
Kiumbu/Kianugu	70.0	138	.0	.0	11.5	11.4	11.4	25.8	2.8		31.4	5.7	97
Rukanga	73.0	252	.0	2.0	7.7	5.4	10.9	15.8	4.2		31.4	22.5	184
KIRINYAGA	**69.3**	**555**	**.0**	**1.0**	**8.9**	**7.8**	**10.1**	**21.2**	**4.7**		**27.6**	**18.8**	**385**
Muricho	95.7	209	.0	.4	2.4	4.4	.0	9.4	8.7		10.2	64.4	200
Kiriogo	93.6	88	1.3	.7	6.9	2.1	.0	5.4	9.2		3.9	70.5	82
Mbuyu	91.6	179	.4	.0	6.3	3.9	.8	9.6	12.6		18.3	48.0	164
Ndivai	89.9	75	.0	.0	5.2	1.2	1.1	11.4	11.0		9.6	60.5	68
NYANDARUA	**93.2**	**551**	**.3**	**.3**	**4.7**	**3.5**	**.4**	**9.1**	**10.3**		**11.7**	**59.7**	**514**
Maragima	84.0	144	.0	.0	26.9	4.6	.0	5.7	7.7		30.5	24.5	121
Kariara	92.5	95	4.3	.9	25.0	5.6	3.0	10.0	4.8		24.8	21.7	88
Mutundu	95.9	130	1.9	1.3	17.5	1.6	9.2	15.4	2.9		29.4	20.8	125
NYERI	**90.4**	**369**	**1.8**	**.7**	**22.9**	**3.8**	**4.2**	**10.5**	**5.1**		**28.6**	**22.4**	**333**
Ngelelya	90.3	252	.0	.0	.2	.1	.2	2.3	.6		2.4	94.2	228
Ngoliba	62.9	387	.0	.0	5.9	.7	1.2	5.3	2.5		6.5	77.8	243
Kalimoni	63.3	564	.0	.0	.0	.9	.0	.0	1.9		1.8	95.5	357
THIKA	**68.8**	**1204**	**.0**	**.0**	**1.8**	**.6**	**.4**	**2.2**	**1.7**		**3.4**	**89.9**	**828**
Kagumoini	95.1	193	.0	1.3	12.0	3.6	1.2	9.1	3.3		18.0	51.5	183
Maragua Ridge	95.7	148	.0	.0	10.5	.8	4.4	14.7	2.2		17.6	49.9	142
Mariaini	94.9	109	.0	.0	9.7	5.5	.0	4.6	3.4		20.0	56.8	104
MARAGUA	**95.2**	**450**	**.0**	**.6**	**10.9**	**3.1**	**2.0**	**9.8**	**2.9**		**18.4**	**52.3**	**429**
Project Total 2010	**79.6**	**3129**	**.3**	**.4**	**7.9**	**3.2**	**2.7**	**9.0**	**4.6**		**14.8**	**57.2**	**2 489**
Project total 2006			**0.2**	**1**	**1.3**	**3.7**	**3.9**	**4.8**	**10**	**30.5**	**9.4**	**35.2**	**2 175**

In 2006, millet was in the 8th slot, but moved up one step to settle at 7th in 2010. Most of the households (10%) that chose this crop were in Nyandarua District with one in ten households in Ndivai and Mbuyu being in this category.

6.3.12 Farm inputs used for crop production

Table 6.36 shows the percentage distribution of farm inputs used for crop production. Majority of the households (76%) use farm yard manure, followed by hybrid seeds (60%) and fertilizer at 55 percent. Maragua district leads in fertilizer use (80%), while Nyandarua leads in use of hybrid seeds (78%).

Table 6.36: Percentage distribution of Farm inputs used for crop production

District/FDAs	HHs with Agric	Total Sample	Fertilizers	Farm Yard Manure	Pesticides	Hybrid Seeds	Number of HHs
Ndindiriku	63.1	165	56.4	70.2	61.2	61.3	104
Kiumbu/Kianugu	70.0	138	59.9	68.5	74.3	60.0	97
Rukanga	73.0	252	36.1	59.7	47.7	56.9	184
KIRINYAGA	**69.3**	**555**	**47.6**	**64.7**	**58.0**	**58.9**	**385**
Muricho	95.7	209	44.5	78.2	26.9	78.9	200
Kiriogo	93.6	88	20.3	91.1	23.1	86.6	82
Mbuyu	91.6	179	61.9	72.0	21.0	75.9	164
Ndivai	89.9	75	55.1	74.2	29.0	70.2	68
NYANDARUA	**93.2**	**551**	**47.6**	**77.7**	**24.7**	**78.0**	**514**
Maragima	84.0	144	28.0	72.6	19.7	39.7	121
Kariara	92.5	95	70.3	82.9	14.7	49.4	88
Mutundu	95.9	130	56.7	78.9	9.1	57.0	125
NYERI	**90.4**	**369**	**49.9**	**77.7**	**14.4**	**48.7**	**333**
Ngelelya	90.3	252	39.7	71.0	17.7	33.4	228
Ngoliba	62.9	387	58.8	73.3	28.4	54.8	243
Kalimoni	63.3	564	52.2	81.3	29.1	53.3	357
THIKA	**68.8**	**1204**	**50.7**	**76.1**	**25.8**	**48.3**	**828**
Kagumoini	95.1	193	89.3	85.8	23.3	78.2	183
Maragua Ridge	95.7	148	80.5	85.8	62.8	66.8	142
Mariaini	94.9	109	62.8	73.0	31.6	71.5	104
MARAGUA	**95.2**	**450**	**80.0**	**82.7**	**38.3**	**72.8**	**429**
Project Total 2010	**79.6**	**3129**	**54.5**	**76.0**	**31.2**	**60.3**	**2 489**
Project total 2006			**60.6**	**72.7**	**29.6**	**38.3**	**1 969**

The number of households using farm inputs increased from 1,969 in 2006 to 2,489 in 2010. The only observable decline was in fertilizer use which dropped by 5 percent in the reference period.

6.3.13 Sources of Farm Inputs

(i) Fertilizers

The percentage distribution of sources of fertilizer is shown in Table 6.37. Majority of the households buy their fertilizer from neighborhood shops (40%) while only about one in ten get fertilizer from major towns.

Table 6.37: Percentage distribution of Sources of Fertilizer

District/FDAs	HHs with agric Sources of Fertilizer	Total Sample	Shops around area	Shops from Major towns	Govern-ment agencies	Mar-keting societies	SACCOs	Other	NS	Number of HHs
Ndindiriku	63.1	165	31.0	25.4	.0	.0	.0	.0	43.6	104
Kiumbu/Kianugu	70.0	138	28.6	31.3	.0	.0	.0	.0	40.1	97
Rukanga	73.0	252	20.0	14.3	1.2	.0	.6	.0	63.9	184
KIRINYAGA	**69.3**	**555**	**25.1**	**21.6**	**.6**	**.0**	**.3**	**.0**	**52.4**	**385**
Muricho	95.7	209	28.6	16.4	.0	.0	.0	.0	55.0	200
Kiriogo	93.6	88	13.1	7.2	.0	.0	.0	.0	79.7	82
Mbuyu	91.6	179	49.0	11.6	.8	.0	.0	.5	38.1	164
Ndivai	89.9	75	37.5	17.9	.0	.0	.0	.9	43.7	68
NYANDARUA	**93.2**	**551**	**33.8**	**13.6**	**.2**	**.0**	**.0**	**.3**	**52.1**	**514**
Maragima	84.0	144	9.1	16.9	.0	2.1	.0	.0	72.0	121
Kariara	92.5	95	31.0	35.4	.7	.0	1.4	.7	30.8	88
Mutundu	95.9	130	27.1	27.5	.0	2.0	.0	.0	43.3	125
NYERI	**90.4**	**369**	**21.6**	**25.8**	**.2**	**1.5**	**.4**	**.2**	**50.4**	**333**
Ngelelya	90.3	252	39.2	.6	.5	.0	.0	.0	59.6	228
Ngoliba	62.9	387	37.4	20.9	.5	.0	.0	.2	41.0	243
Kalimoni	63.3	564	42.6	9.4	.3	.0	.0	.0	47.8	357
THIKA	**68.8**	**1204**	**40.1**	**10.4**	**.4**	**.0**	**.0**	**.1**	**49.0**	**828**
Kagumoini	95.1	193	82.7	6.6	.0	.0	.0	.0	10.7	183
Maragua Ridge	95.7	148	72.4	3.7	4.4	.0	.0	.0	19.5	142
Mariaini	94.9	109	60.4	.6	.9	.0	.0	.9	37.2	104
MARAGUA	**95.2**	**450**	**73.9**	**4.2**	**1.7**	**.0**	**.0**	**.2**	**20.0**	**429**
Project Total 2010	**79.6**	**3129**	**39.8**	**13.8**	**.6**	**.2**	**.1**	**.1**	**45.4**	**2 489**
Project total 2006			**73.2**	**21.3**		**2.2**	**2**	**0.2**	**1.2**	**1 197**

The percentage who bought their fertilizer from neighborhood shops declined from 73 percent in 2006 to 40 percent in 2010. This may indicate a scarcity of the commodity due to stock outs or lack of money.

(ii) Farm yard manure

Table 6.38 shows the percentage distribution of sources of farm yard manure. Approximately one in ten households get manure from sources outside their farms.

Table 6.38: Percentage distribution of Sources of Farm Yard Manure

District/FDAs	HHs with agric by Sources of Farm Yard Manure	Total Sample	Shops around area	Shops from Major towns	Govern-ment agencies	Mar-keting societies	SACCOs	Other	NS	Number of HHs
Ndindiriku	63.1	165	3.3	.0	.0	.0	.0	66.9	29.8	104
Kiumbu/Kianugu	70.0	138	2.8	2.9	.0	.0	.0	62.8	31.5	97
Rukanga	73.0	252	.6	2.1	.0	.0	.0	56.4	40.9	184
KIRINYAGA	**69.3**	**555**	**1.9**	**1.7**	**.0**	**.0**	**.0**	**60.8**	**35.5**	**385**
Muricho	95.7	209	7.8	3.1	.0	.0	.0	66.8	22.3	200
Kiriogo	93.6	88	5.2	12.8	.0	.0	.0	73.0	8.9	82
Mbuyu	91.6	179	12.0	.7	.4	.0	.0	57.8	29.1	164
Ndivai	89.9	75	4.9	8.0	.0	.0	.0	61.2	25.8	68

Table 6.38: Percentage distribution of Sources of Farm Yard Manure *(continued)*

District/FDAs	HHs with agric by Sources of Farm Yard Manure	Total Sample	Shops around area	Shops from Major towns	Govern-ment agencies	Mar-keting societies	SACCOs	Other	NS	Number of HHs
NYANDARUA	**93.2**	**551**	**8.4**	**4.5**	**.1**	**.0**	**.0**	**64.2**	**22.8**	**514**
Maragima	84.0	144	2.0	4.0	.0	.0	.0	66.6	27.4	121
Kariara	92.5	95	.9	2.6	.0	.0	.5	78.0	18.0	88
Mutundu	95.9	130	.9	.0	.0	.0	.0	78.0	21.1	125
NYERI	**90.4**	**369**	**1.3**	**2.1**	**.0**	**.0**	**.1**	**73.9**	**22.6**	**333**
Ngelelya	90.3	252	13.5	.2	.3	.0	.0	56.5	29.5	228
Ngoliba	62.9	387	20.2	5.4	.0	.5	.0	46.9	26.9	243
Kalimoni	63.3	564	20.0	3.3	.0	.9	.0	57.1	18.7	357
THIKA	**68.8**	**1204**	**18.3**	**3.1**	**.1**	**.5**	**.0**	**53.9**	**24.1**	**828**
Kagumoini	95.1	193	4.0	.0	.0	.0	.0	80.0	16.1	183
Maragua Ridge	95.7	148	7.4	.0	.0	.0	.0	76.9	15.7	142
Mariaini	94.9	109	.9	.0	.0	.0	.0	70.9	28.2	104
MARAGUA	**95.2**	**450**	**4.4**	**.0**	**.0**	**.0**	**.0**	**76.8**	**18.9**	**429**
Project Total 2010	**79.6**	**3129**	**9.0**	**2.5**	**.1**	**.2**	**.0**	**63.7**	**24.5**	**2 489**
Project total 2006			**2.9**	**2**				**22.7**	**5**	**1 471**

In 2006, only about 5 percent of the households were getting manure from sources outside their farms. However, this rose to 12 percent in 2010, and is perhaps a reflection of a rise in demand during the reference period.

(iii) Pesticides

Table 6.39 presents the percentage distribution of sources of pesticides. Majority of the households (23%) get it from neighborhood shops. Only 9 percent have to go to major towns. It is also observed that over two thirds of the respondents did not respond to this question.

Table 6.39: Percentage distribution of Sources of Pesticides

District/FDAs	HHs with agric by Sources of Pesticides	Total Sample	Shops around area	Shops from Major towns	Govern-ment agencies	Mar-keting societies	SACCOs	Other	NS	Number of HHs
Ndindiriku	63.1	165	36.8	24.4	.0	.0	.0	.0	38.8	104
Kiumbu/Kianugu	70.0	138	34.5	39.9	.0	.0	.0	.0	25.7	97
Rukanga	73.0	252	30.4	16.7	.0	.0	.0	.0	52.9	184
KIRINYAGA	**69.3**	**555**	**33.2**	**24.6**	**.0**	**.0**	**.0**	**.0**	**42.2**	**385**
Muricho	95.7	209	17.5	8.4	.0	.0	.0	1.1	73.1	200
Kiriogo	93.6	88	16.0	7.1	.0	.0	.0	.0	76.9	82
Mbuyu	91.6	179	16.8	3.1	.8	.0	.0	.2	79.2	164
Ndivai	89.9	75	20.8	8.2	.0	.0	.0	.0	71.0	68
NYANDARUA	**93.2**	**551**	**17.4**	**6.5**	**.2**	**.0**	**.0**	**.5**	**75.4**	**514**
Maragima	84.0	144	2.7	16.4	.0	.0	.0	.7	80.3	121
Kariara	92.5	95	1.1	8.3	.0	2.0	3.2	.0	85.3	88
Mutundu	95.9	130	2.8	2.6	.0	3.6	.0	.0	90.9	125
NYERI	**90.4**	**369**	**2.3**	**9.1**	**.0**	**1.9**	**.8**	**.2**	**85.6**	**333**
Ngelelya	90.3	252	16.7	1.2	.0	.0	.0	.1	82.0	228
Ngoliba	62.9	387	17.9	10.0	.0	.0	.0	.5	71.6	243
Kalimoni	63.3	564	24.6	4.5	.0	.0	.0	.0	70.9	357
THIKA	**68.8**	**1204**	**20.5**	**5.2**	**.0**	**.0**	**.0**	**.2**	**74.2**	**828**
Kagumoini	95.1	193	20.0	1.1	.0	.0	.0	1.5	77.4	183
Maragua Ridge	95.7	148	55.3	7.6	.0	.0	.0	.0	37.2	142
Mariaini	94.9	109	27.7	3.4	.0	.0	.0	.0	68.9	104
MARAGUA	**95.2**	**450**	**33.5**	**3.8**	**.0**	**.0**	**.0**	**.6**	**62.1**	**429**
Project Total 2010	**79.6**	**3129**	**21.6**	**8.7**	**.1**	**.3**	**.1**	**.3**	**68.9**	**2 489**
Project total 2006			**56.6**	**21.3**		**10.6**	**9.2**	**0.9**	**1.4**	**584**

The number of households using pesticides rose from 584 in 2006 to 2,489 in 2010. This may be as a result of acquisition of new skills on pest control during the project period.

(iv) Hybrid Seeds

Table 6.40 shows the percentage distribution of sources of hybrid seeds. Majority of the households obtain them from neighborhood shops (42%) while 17 percent have to travel to major towns. Approximately two thirds of households in Maragua District access the seeds from neighbourhood shops compared to a third in Kirinyaga.

Table 6.40: Percentage distribution of Sources of Hybrid Seeds

District/FDAs	HHs with agric	Total Sample	Shops around area	Shops from Major towns	Government agencies	Marketing societies	SACCOs	Other	NS	Number of HHs
Ndindiriku	63.1	165	34.9	26.4	.0	.0	.0	.0	38.7	104
Kiumbu/Kianugu	70.0	138	28.6	31.4	.0	.0	.0	.0	40.0	97
Rukanga	73.0	252	34.8	21.6	.0	.0	.0	.0	43.7	184
KIRINYAGA	**69.3**	**555**	**33.2**	**25.4**	**.0**	**.0**	**.0**	**.0**	**41.4**	**385**
Muricho	95.7	209	49.3	29.6	.0	.0	.0	.0	21.1	200
Kiriogo	93.6	88	56.0	29.7	.0	.0	.0	.0	14.3	82
Mbuyu	91.6	179	57.5	15.8	.8	.0	.0	.2	25.7	164
Ndivai	89.9	75	47.0	20.2	.0	.0	.0	1.8	31.0	68
NYANDARUA	**93.2**	**551**	**52.7**	**24.0**	**.2**	**.0**	**.0**	**.3**	**22.8**	**514**
Maragima	84.0	144	14.1	24.9	.0	.0	.7	.0	60.3	121
Kariara	92.5	95	17.8	30.4	.0	.5	.7	.0	50.6	88
Mutundu	95.9	130	30.4	25.6	.0	1.0	.0	.0	43.0	125
NYERI	**90.4**	**369**	**21.2**	**26.6**	**.0**	**.5**	**.4**	**.0**	**51.3**	**333**
Ngelelya	90.3	252	31.9	.5	.1	.0	.0	.1	67.4	228
Ngoliba	62.9	387	30.2	22.7	1.3	.0	.0	.0	45.7	243
Kalimoni	63.3	564	47.6	5.2	.0	.0	.0	.5	46.7	357
THIKA	**68.8**	**1204**	**38.2**	**9.1**	**.4**	**.0**	**.0**	**.2**	**52.1**	**828**
Kagumoini	95.1	193	67.0	10.5	.0	.0	.0	.2	22.3	183
Maragua Ridge	95.7	148	56.2	8.3	1.4	.0	.0	.8	33.2	142
Mariaini	94.9	109	62.5	4.6	.9	.0	.0	1.7	30.3	104
MARAGUA	**95.2**	**450**	**62.4**	**8.4**	**.7**	**.0**	**.0**	**.7**	**27.8**	**429**
Project Total 2010	**79.6**	**3129**	**42.3**	**16.9**	**.3**	**.1**	**.1**	**.3**	**40.1**	**2 489**
Project Total 2006			**64.4**	**32.7**		**0.1**	**0.4**	**0.1**	**2.4**	**721**

The number of households using hybrid seeds in the project area tripled from 721 to 2,489 within the reference period. This may also be accounted for by the acquisition of new skills on enhancing production.

6.4 LIVESTOCK REARING

6.4.1 Livestock reared

Table 6.41 shows the percentage distribution of livestock reared in the 12 months preceding the survey. Chicken farming is more common (76%) followed by cattle rearing (60%) and goat keeping (40%). Chicken farming is highest in Kirinyaga District (85%) and lowest universally in Maragua (66%).

Table 6.41 Livestock reared during the last 12 months

District/FDAs	Households owning Live-stock	Total Sample	Cattle	Sheep	Goats	Chicken	Rabbits	Bees	Other	Number of HHs
Ndindiriku	72.4	165	49.5	3.3	40.6	92.8	1.1	.7	.0	120
Kiumbu/Kianugu	66.0	138	45.3	.0	39.5	84.9	.0	.0	.0	91
Rukanga	77.0	252	62.3	13.3	36.7	79.7	2.9	.7	.0	194
KIRINYAGA	**72.9**	**555**	**54.7**	**7.3**	**38.5**	**84.8**	**1.7**	**.6**	**.0**	**405**
Muricho	79.1	210	59.6	34.7	18.9	83.1	7.1	3.6	1.8	166
Kiriogo	79.5	91	83.7	34.8	9.9	80.0	7.0	2.8	.0	73
Mbuyu	72.3	186	66.2	39.0	23.2	80.9	11.2	4.2	.0	134
Ndivai	82.9	77	71.1	38.3	13.7	74.5	10.9	3.5	2.1	64
NYANDARUA	**77.5**	**564**	**67.3**	**36.6**	**18.0**	**80.7**	**8.9**	**3.6**	**1.0**	**437**
Maragima	68.4	144	74.7	47.3	19.5	75.6	13.4	.0	.7	98
Kariara	88.8	95	80.2	7.9	40.5	57.9	5.9	.0	.5	85
Mutundu	83.6	130	71.5	13.4	49.5	64.8	7.9	.4	.4	109
NYERI	**79.0**	**369**	**75.1**	**23.2**	**36.8**	**66.4**	**9.2**	**.2**	**.5**	**291**
Ngelelya	72.8	258	62.8	6.8	60.3	77.1	.7	.1	.1	188
Ngoliba	45.6	407	43.8	12.8	54.0	70.3	1.3	4.0	.0	185
Kalimoni	58.5	583	60.4	35.2	28.8	72.2	.1	1.8	.0	341
THIKA	**57.2**	**1248**	**56.8**	**21.9**	**43.6**	**73.0**	**.6**	**1.9**	**.0**	**715**
Kagumoini	79.4	208	51.8	5.5	53.1	66.2	4.3	1.2	17.0	165
Maragua Ridge	82.6	155	60.7	6.4	65.6	79.3	6.2	.8	.0	128
Mariaini	78.1	117	43.7	2.4	62.8	79.7	9.7	.7	1.9	91
MARAGUA	**80.1**	**479**	**52.8**	**5.1**	**59.5**	**73.8**	**6.2**	**1.0**	**7.8**	**384**
Project Total 2010	**69.4**	**3216**	**60.2**	**19.4**	**39.5**	**75.9**	**4.5**	**1.6**	**1.6**	**2,232**
Project Total 2006			**45.2**	**17.3**	**42**	**67.4**	**4.3**	**2.5**	**3.6**	**2,175**

The number of households rearing animals increased from 2,175 in 2006 to 2,232 in 2010, with the highest growth (15%) being recorded for cattle rearing. It is also observed that there was a decline in bee and goat keeping.

The selected category of livestock reared during the 12 month period prior to the survey is presented in Table 6.42. Dairy cattle are more common (52%) followed by traditional chicken (39%). Kariara had the most households rearing dairy cattle (76%) while Ngelelya led in goat rearing (58%).

Table 6.42 Selected categories of Livestock reared during the last 12 months

District/FDAs	House-holds owning Livestock	Total Sample	Dairy Cattle	Beef cattle	Sheep	Local Goats	Dairy Goats	Chicken (Layers)	Chick-en (Broil-ers)	Chicken kenbrow	Chicken (local)	Rab-bits	Bees	Other	Num-ber of HHs
Ndindiriku	72.4	165	27.8	34.2	3.3	40.6	.9	.7	.9	92.8	13.0	1.1	.7	.0	120
Kiumbu/Kianugu	66.0	138	27.1	30.2	.0	36.4	3.1	.0	.0	84.9	3.1	.0	.0	.0	91
Rukanga	77.0	252	37.9	38.0	13.3	30.0	8.7	2.0	2.1	77.2	13.6	2.9	.7	.0	194
KIRINYAGA	**72.9**	**555**	**32.5**	**35.1**	**7.3**	**34.6**	**5.1**	**1.2**	**1.3**	**83.5**	**11.0**	**1.7**	**.6**	**.0**	**405**
Muricho	79.1	210	57.5	3.0	34.7	11.8	7.1	.0	.0	18.5	65.9	7.1	3.6	1.8	166
Kiriogo	79.5	91	80.2	6.3	34.8	7.1	2.8	.0	.7	.0	79.3	7.0	2.8	.0	73
Mbuyu	72.3	186	64.6	3.3	39.0	19.9	4.2	2.6	.2	11.4	69.5	11.2	4.2	.0	134
Ndivai	82.9	77	68.6	2.5	38.3	9.7	4.0	2.1	2.6	14.1	58.0	10.9	3.5	2.1	64
NYANDARUA	**77.5**	**564**	**65.1**	**3.5**	**36.6**	**13.2**	**5.0**	**1.1**	**.6**	**12.6**	**68.1**	**8.9**	**3.6**	**1.0**	**437**
Maragima	68.4	144	69.7	12.0	47.3	18.7	1.5	4.1	1.8	1.8	70.3	13.4	.0	.7	98
Kariara	88.8	95	76.2	12.4	7.9	26.6	18.0	3.8	3.4	.7	55.1	5.9	.0	.5	85
Mutundu	83.6	130	64.8	8.4	13.4	38.6	11.5	1.0	.5	1.7	63.0	7.9	.4	.4	109
NYERI	**79.0**	**369**	**69.8**	**10.8**	**23.2**	**28.4**	**10.0**	**2.9**	**1.8**	**1.5**	**63.2**	**9.2**	**.2**	**.5**	**291**
Ngelelya	72.8	258	55.7	13.6	6.8	58.3	2.9	.6	1.1	62.7	16.6	.7	.1	.1	188
Ngoliba	45.6	407	38.5	10.2	12.8	51.4	2.6	5.5	.0	64.2	5.9	1.3	4.0	.0	185
Kalimoni	58.5	583	52.1	12.0	35.2	28.0	.8	.8	1.4	67.3	7.4	.1	1.8	.0	341
THIKA	**57.2**	**1248**	**49.5**	**12.0**	**21.9**	**42.0**	**1.8**	**2.0**	**1.0**	**65.3**	**9.4**	**.6**	**1.9**	**.0**	**715**
Kagumoini	79.4	208	49.1	3.1	5.5	44.9	10.4	.0	.0	.5	65.6	4.3	1.2	17.0	165
Maragua Ridge	82.6	155	55.7	7.3	6.4	55.8	13.1	2.4	.0	.0	77.7	6.2	.8	.0	128
Mariaini	78.1	117	40.3	7.0	2.4	53.2	15.0	.0	.0	1.4	79.4	9.7	.7	1.9	91
MARAGUA	**80.1**	**479**	**49.2**	**5.4**	**5.1**	**50.5**	**12.4**	**.8**	**.0**	**.5**	**72.9**	**6.2**	**1.0**	**7.8**	**384**
Project Total 2010	**69.4**	**3216**	**52.1**	**13.2**	**19.4**	**34.7**	**5.9**	**1.6**	**.9**	**38.8**	**39.1**	**4.5**	**1.6**	**1.6**	**2,232**
Project Total 2006			**33.9**	**14.7**		**38.9**	**4**	**1.4**	**0.6**		**65.8**				**2,175**

6.4.2 Livestock Ownership

Livestock covered in the survey included cattle, goats, sheep, chicken, rabbits and bees. Ownership was based on the 12 month period preceding the survey.

Cattle Rearing

Majority of the households (89%) have between 0 and 10 cows. Across the districts, over four fifths of all households rear cattle.

The most common breed cannot be identified as nine in every ten households did not disclose this information. For those that disclosed, the majority (5%) kept the Zebu breed.

The data shows that 34 percent of the households keep cattle for milk, with zero grazing as the most popular method of management (17%) followed by open grazing (44%); while the traditional method of breeding is the most common (68%) followed by artificial insemination (14%).

Table 6.43 Distribution of cattle rearing

District/FDAs	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragima	Kariara	Mutundu	Total	Ngelelya	Ngoliba	Kalimoni	Total	Kagumoini	Maragua Ridge	Mariaini	Total		
Number of Livestock																							
0 - 10	90.6	100.0	89.6	91.9	89.3	85.0	87.6	83.6	87.2	92.0	92.6	95.0	93.2	92.6	90.2	76.6	84.4	92.4	86.1	93.8	90.5	88.6	98.5
11+	9.4	.0	10.4	8.1	10.7	15.0	12.4	16.4	12.8	8.0	7.4	5.0	6.8	7.4	9.8	23.4	15.6	7.6	13.9	6.2	9.5	11.4	1.4
average	5	4	5	5	5	9	8	6	7	5	4	4	4	5	6	10	8	4	6	4	5	6	2
Breed																							
Friesian	.0	2.5	.9	1.0	.0	8.3	14.4	5.3	6.6	.0	.0	.3	.1	.6	3.5	7.2	4.0	.0	.8	.0	.3	2.8	16.7
Jersey	.0	2.5	1.1	1.1	.0	1.4	3.2	.0	1.2	.0	.0	.2	.1	1.2	1.5	.9	1.2	.0	.8	.0	.3	.8	3.1
Guernsey	.0	.0	.4	.2	.0	.0	.0	.0	.0	.4	.0	.0	.2	.0	.4	1.1	.5	.0	.0	.0	.0	.2	3.7
Aryshire	.6	.0	.5	.4	.0	.4	1.2	.0	.4	.0	.0	.0	.0	.0	.0	1.8	.7	.0	.0	.0	.0	.4	3.1
Zebu	50.9	35.7	16.2	28.1	.0	.0	.2	.0	.1	.0	.0	.0	.0	.5	7.6	4.1	3.6	.0	.0	.0	.0	5.0	34.4
Cross breed	3.6	7.7	6.5	6.1	.0	6.5	16.7	9.2	7.5	1.1	.0	.0	.4	1.9	9.3	4.5	4.7	.0	.8	.0	.3	4.0	35
Chinchilla	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.3	.0	.5	.0	.0	.0	.0	.1	
New Zealand white	.0	.0	.4	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NS	44.9	51.5	73.9	62.9	100.0	83.4	64.3	85.4	84.2	98.5	100.0	99.5	99.3	95.8	75.4	80.4	84.7	100.0	97.7	100.0	99.2	86.6	4.1
Main Product																							
Milk	25.7	29.2	29.3	28.3	26.2	11.9	18.0	21.6	20.2	40.0	57.3	49.5	48.3	36.0	39.7	36.9	37.3	39.3	50.9	33.6	41.7	34.2	69.5
Meat	17.2	17.2	13.6	15.3	1.3	2.8	4.2	.0	2.3	26.5	10.2	9.3	15.8	11.0	20.5	23.3	19.0	9.1	11.8	12.2	10.7	12.8	5.2
Hide	7.0	.0	7.5	6.1	.0	.0	.2	.0	.1	.0	.0	.0	.0	.5	.0	.0	.1	.3	.0	.3	.2	1.2	
Manure	10.4	.0	13.5	10.3	10.6	4.0	10.0	10.4	9.2	17.2	17.5	19.2	18.0	8.0	5.9	3.0	5.1	15.5	18.1	18.8	17.2	10.7	4.8
Commercial	33.4	34.0	30.2	31.8	10.5	.5	4.7	4.5	5.8	15.4	14.5	19.9	16.7	36.6	30.6	36.7	35.2	35.4	14.2	33.4	27.9	24.4	13.2
Other	3.5	2.5	3.3	3.2	.3	.0	.2	.0	.2	.9	.4	.0	.5	.7	2.1	.0	.7	.1	.5	.7	.4	1.0	2
NS	2.7	17.0	2.5	5.1	51.1	80.9	62.7	63.5	62.3	.0	.0	2.1	.7	7.1	1.2	.1	2.4	.3	4.4	1.1	1.8	15.8	5.2
Management System																							
Zero grazing	11.3	13.1	17.3	14.7	22.7	10.6	31.6	7.2	21.3	75.0	79.5	65.2	72.7	17.4	45.8	23.8	27.4	91.7	80.1	78.2	84.4	39.7	46.2
Open Grazing	83.3	77.1	72.6	76.7	29.5	15.1	13.1	37.8	22.9	20.7	18.3	31.0	23.7	72.6	45.3	71.0	65.2	5.2	12.9	15.0	10.2	43.8	41.6
Fodder Production	.4	.0	.6	.4	4.4	.0	1.0	.0	1.9	2.5	1.2	.0	1.3	.2	1.2	.5	.6	.2	.4	.5	.4	.9	0.3
Semi Intensive	1.3	1.7	7.1	4.3	.3	.0	.2	.7	.2	.0	.0	.0	.0	4.1	6.3	4.4	4.8	.0	.0	.0	.0	2.3	2.7
Other	.0	.0	.9	.5	.6	.0	.0	.0	.2	1.4	.0	.0	.5	.0	.0	.1	.1	.0	3.2	.0	1.2	.4	1.1
NS	3.7	8.2	1.1	3.3	41.5	74.3	54.2	54.4	53.0	.4	1.0	3.6	1.7	5.7	.8	.1	1.8	2.5	3.4	6.3	3.7	12.7	8.2
Breeding Programme																							
AI	.3	1.8	7.5	4.2	8.6	6.9	6.1	8.3	7.4	21.4	45.5	30.2	31.3	9.0	18.6	19.8	16.4	14.5	18.5	9.8	14.7	14.0	19.5
Traditional	91.4	89.1	90.3	90.4	38.6	10.4	21.3	24.6	25.8	54.6	41.2	51.8	49.9	84.1	79.3	80.1	81.1	81.0	76.4	80.5	79.4	67.7	66.1
Other	.0	.0	1.0	.5	1.5	1.5	5.5	.0	2.6	18.0	11.2	13.3	14.4	.1	1.1	.0	.3	.0	.0	.0	.0	2.7	1.5
NS	8.3	9.1	1.2	4.9	51.4	81.2	67.1	67.1	64.2	6.0	2.2	4.7	4.5	6.8	1.0	.1	2.3	4.4	5.1	9.7	6.0	15.7	12.9
Sample 2010	**33**	**25**	**73**	**131**	**96**	**58**	**87**	**44**	**284**	**69**	**64**	**71**	**204**	**105**	**71**	**178**	**354**	**81**	**71**	**37**	**189**	**1,163**	
Sample 2006	**44**	**46**		**90**			**155**	**66**	**221**		**109**	**106**	**215**	**198**	**109**		**307**	**144**		**94**	**238**		**1,071**

Rearing of Goats

The percentage distribution of goat rearing is shown in Table 6.44. Majority of the households (97%) keep between 0 and 10 goats. Thirty nine percent of the households rear goats for commercial purposes with this being more common in Kirinyaga District (54%). Zero grazing of goats is more common than open grazing, though the difference is minimal (47% and 46% respectively). Over four fifths of the households breed their goats using the traditional method. Between 2006 and 2010, the number of households rearing goats declined from 1,027 to 774.

Sheep Rearing

The average number of sheep kept per households is six (Table 6.45). Most of the households have between 0 and 10 sheep (nine in ten). Merino is the most common breed (57%), followed by Dorper (27%). Sheep rearing is mainly for commercial purposes (36%) and is highest in Rukanga (82%) and non-existent in Kiriogo. Open grazing is the most common system of management (48%) followed by zero grazing (29%). Over half of the households breed sheep in the traditional way compared to one fifth that have upgraded their breed.

Chicken Rearing

Table 6.46 shows the percentage distribution of chicken rearing. The average number of chicken kept is 10 with three quarters having not more than 10 while the other quarter having more than 10. The local breed of chicken is the most common (25%). Chicken rearing is mostly for egg production (68%) while majority of the households (80%) breed chicken traditionally.

Rabbit Rearing

The percentage distribution of rabbit rearing is presented in Table 6.47. The average number of rabbits kept is five and nine in ten households have between 0 and 10 rabbits. A high rate of non-response was observed for breed. Nonetheless, local breeds of rabbits are more common in the project area (26%). Half of the households rear rabbits for meat compared to a quarter who do so for commercial purposes. Thirty percent of the households use the semi intensive system of management and 79% breed their rabbits using the traditional method.

Bee Keeping

The average number of hives is four with most of the households (98%) having ten or less hives (Table 6.48). The main product is honey (60%), the log bee-hive is the main management system recorded at 28 percent in 2010 and the bees are bred using the traditional method. However, this system has declined from 44% in 2006 while KTBH system has increased from 15 percent in 2006 to 25 percent in 2010.

Table 6.44: Percentage distribution of Goats Rearing

District/FDAs	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragi-ma	Kariara	Mutundu	Total	Ngele-lya	Ngoli-ba	Kali-moni	Total	Kagu-moini	Mara-gua Ridge	Mari-aini	Total		
Number of Livestock																							
0 - 10	97.4	100.0	100.0	99.2	100.0	100.0	92.4	100.0	97.0	96.2	100.0	100.0	99.3	99.0	98.0	77.5	91.9	100.0	99.0	99.2	99.4	96.6	97.4
11+	2.6	.0	.0	.8	.0	.0	7.6	.0	3.0	3.8	.0	.0	.7	1.0	2.0	22.5	8.1	.0	1.0	.8	.6	3.4	2
Average	2.9	2.8	2.4	2.6	2.0	2.7	3.2	4.8	2.8	3.9	2.5	2.6	2.8	3.6	3.9	8.0	5.1	2.4	2.9	2.6	2.6	3.5	3
Main Product	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Milk	11.5	15.3	25.2	18.7	45.5	20.1	12.7	51.9	30.6	25.7	45.6	40.0	39.3	11.3	13.6	4.3	9.8	23.7	31.5	27.3	27.5	21.6	9.4
Meat	1.7	7.8	3.6	4.0	.0	.0	7.5	.0	3.0	26.4	7.5	1.8	8.2	15.0	22.0	38.2	24.5	6.2	7.2	.9	5.2	11.9	12.6
Manure	9.2	.0	20.0	12.0	16.2	18.6	18.4	10.4	16.7	13.4	28.8	31.3	27.2	17.5	11.5	4.6	11.5	34.3	35.8	33.6	34.7	20.2	14.2
Commercial	67.9	53.8	45.3	54.2	9.5	.0	6.8	.0	6.5	34.6	18.1	27.0	25.3	49.3	48.7	52.9	50.2	35.4	21.7	36.8	30.8	38.7	50.8
Other	7.9	.0	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.1	4.3	.0	1.8	.0	.0	.0	.0	1.3	3.9
NS	1.7	23.1	2.3	7.1	28.8	61.4	54.6	37.7	43.2	.0	.0	.0	.0	5.8	.0	.0	2.1	.3	3.7	1.3	1.8	6.3	9
Management System																							
Zero grazing	5.0	.0	20.9	11.1	26.4	20.1	33.9	20.8	28.4	77.5	85.1	71.3	77.1	12.7	43.8	14.4	23.0	95.7	86.9	90.1	91.1	46.7	40.2
Open Grazing	83.4	83.1	79.1	81.4	38.0	18.6	5.4	41.5	22.4	22.5	14.9	28.7	22.9	80.4	56.2	85.6	74.5	1.4	5.7	8.6	4.8	45.9	35.8
Other	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	3.6	.0	1.3	.4	14.3
NS	11.6	16.9	.0	7.6	35.6	61.4	60.6	37.7	49.3	.0	.0	.0	.0	6.9	.0	.0	2.5	2.9	3.8	1.3	2.8	7.0	9.6
Breeding Programme																							
Sheep Upgrading	.0	.0	14.3	6.6	15.6	.0	9.0	51.9	16.4	4.4	3.8	.0	2.0	2.8	6.9	4.3	4.5	.0	.0	5.1	1.5	4.8	7.4
Traditional	88.4	83.1	85.7	86.0	39.4	23.2	21.2	10.4	25.8	72.5	74.9	76.3	75.1	89.4	93.1	95.7	92.5	93.0	94.7	88.9	92.4	83.7	75.3
Other	.0	.0	.0	.0	.0	.0	.0	.0	.0	23.1	21.3	23.7	22.9	.0	.0	.0	.0	.0	.0	.0	.0	2.7	3.5
NS	11.6	16.9	.0	7.4	45.1	76.8	69.7	37.7	57.8	.0	.0	.0	.0	7.8	.0	.0	3.0	7.0	5.3	6.1	6.2	8.8	12
Sample 2010	**49**	**33**	**58**	**140**	**20**	**5**	**27**	**6**	**58**	**18**	**22**	**41**	**82**	**110**	**95**	**96**	**301**	**74**	**71**	**48**	**194**	**774**	
Sample 2006	**37**	**49**		**86**			**45**	**3**	**48**		**73**	**122**	**195**	**304**	**109**		**413**	**164**		**121**	**285**		**1,027**

Table 6.45: Percentage distribution of sheep rearing

District/FDAs	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Ki-umbu/ Kianu-gu	Ru-kanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragi-ma	Kariara	Mu-tundu	Total	Ngele-lya	Ngoli-ba	Kali-moni	Total	Kagu-moini	Mara-gua Ridge	Mari-aini	Total		
Number of Livestock																							
0 - 10	100.0	n/a	100.0	100.0	97.9	86.8	86.6	81.9	90.0	100.0	100.0	100.0	100.0	100.0	86.4	80.6	83.0	100.0	100.0	100.0	100.0	90.2	91.7
11 +	.0	n/a	.0	.0	2.1	13.2	13.4	18.1	10.0	.0	.0	.0	.0	.0	13.6	19.4	17.0	.0	.0	.0	.0	9.8	7.9
Average	3.9	n/a	2.7	2.9	3.7	10.6	9.9	6.3	7.2	4.7	2.2	2.8	4.0	3.7	5.0	8.4	7.5	1.5	2.3	3.3	2.0	6.3	0.4
Breed																							
Merino	.0	n/a	.0	.0	.0	57.7	74.3	63.6	67.6	.0	.0	.0	.0	.0	75.3	46.7	51.3	.0	.0	.0	.0	56.8	3.1
German alpine	.0	n/a	.0	.0	.0	42.3	18.2	36.4	28.6	.0	.0	.0	.0	.0	.0	11.6	9.7	.0	.0	.0	.0	16.1	0.5
Dorper	.0	n/a	.0	.0	.0	.0	7.5	.0	3.8	.0	.0	.0	.0	.0	24.7	41.7	39.0	.0	.0	.0	.0	27.1	36.6
Main Product																							
Meat	32.2	n/a	5.9	9.5	3.4	5.3	.0	.0	2.1	28.1	27.1	.0	22.1	.0	25.1	33.1	29.3	.0	24.4	.0	10.8	15.9	27
Wool	.0	n/a	.0	.0	.0	.0	.0	3.7	.6	.0	.0	4.9	1.0	4.5	10.9	5.1	5.8	.0	25.0	.0	11.1	3.0	1
Manure	20.2	n/a	12.5	13.5	30.1	15.4	32.9	35.3	29.5	45.2	39.2	53.0	46.3	27.8	7.7	6.8	8.6	20.9	24.2	82.3	29.6	23.5	6.7
Commercial	27.4	n/a	81.7	74.1	15.7	.0	15.5	3.7	11.3	26.7	33.7	42.2	30.6	67.8	54.1	55.0	55.9	79.1	26.4	17.7	48.5	36.3	56.9
Other	.0	n/a	.0	.0	1.3	.0	1.1	.0	.8	.0	.0	.0	.0	.0	2.3	.0	.3	.0	.0	.0	.0	.4	3.3
NS	20.2	n/a	.0	2.8	49.6	79.4	50.5	57.2	55.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	20.9	5.2
Management System																							
Zero grazing	.0	n/a	5.6	4.9	18.5	8.5	36.5	3.7	20.6	72.9	82.2	52.2	69.7	13.3	40.2	13.8	17.8	90.7	100.0	100.0	95.7	29.4	37.9
Open Grazing	79.8	n/a	77.6	77.9	29.8	12.1	11.0	39.1	22.3	21.7	17.8	47.8	26.5	86.7	59.8	86.2	82.2	9.3	.0	.0	4.3	47.6	48
Semi Intensive	.0	n/a	10.5	9.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	4
Other	.0	n/a	.0	.0	.0	.0	.0	.0	.0	5.4	.0	.0	3.8	.0	.0	.0	.0	.0	.0	.0	.0	.6	
NS	20.2	n/a	6.3	8.2	51.7	79.4	52.4	57.2	57.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	21.7	10.1
Breeding Programme																							
Sheep Upgrading	.0	n/a	6.6	5.7	19.3	7.9	34.6	32.4	24.6	26.8	18.4	.0	20.6	2.9	51.2	22.8	24.8	9.3	24.3	.0	14.5	22.3	6.3
Traditional	79.8	n/a	86.8	85.8	28.1	10.4	12.7	10.4	17.5	50.1	81.6	100.0	63.0	97.1	48.8	77.2	75.2	90.7	75.7	100.0	85.5	52.9	83
Other	.0	n/a	.0	.0	.0	.0	.0	.0	.0	19.7	.0	.0	14.0	.0	.0	.0	.0	.0	.0	.0	.0	2.2	
NS	20.2	n/a	6.6	8.5	52.6	81.7	52.8	57.2	57.9	3.4	.0	.0	2.4	.0	.0	.0	.0	.0	.0	.0	.0	22.6	10.7
Sample 2010	4	n/a	26	30	58	25	52	24	160	46	7	15	68	13	24	120	156	9	8	2	20	433	
Sample 2006	**7**	**3**		**10**			**127**	**51**	**178**		**41**	**32**	**73**	**20**	**20**		**40**	**24**		**25**	**49**		**350**

Table 6.46: Percentage Distribution of Chicken Rearing

District/FDAs	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragima	Kariara	Mutundu	Total	Ngelelya	Ngoliba	Kalimoni	Total	Kagumoini	Maragua Ridge	Mariaini	Total		
Number of Livestock																							
0 - 10	82.2	100.0	74.7	82.8	76.6	69.6	75.9	68.4	74.1	76.1	76.5	85.4	79.6	81.8	79.1	58.9	70.2	78.6	63.9	84.2	74.7	75.4	82.4
11 +	17.8	.0	25.3	17.2	23.4	30.4	24.1	31.6	25.9	23.9	23.5	14.6	20.4	18.2	20.9	41.1	29.8	21.4	36.1	15.8	25.3	24.6	16.3
Average	7.4	6.6	9.8	8.3	8.4	9.4	11.3	10.6	9.8	9.3	8.0	6.4	7.9	7.4	9.7	14.8	11.5	8.7	11.6	7.3	9.4	9.7	9
Breed																							
Red Rhode island	1.0	.0	.9	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	.4	.0	.0	.0	.0	.3	0.4
Local breeds	94.8	69.2	50.1	68.8	.0	.0	.0	3.3	.4	1.1	.0	.0	.4	1.0	41.0	48.1	33.7	.0	.0	.0	.0	25.4	93.1
White Sussex	.0	.0	.9	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.6	2.2	1.5	.0	.0	.0	.0	.5	0.3
Ken-brow	.7	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.1	
Other	.0	.0	.9	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.2	.0	.0	.0	.0	.2	1.1
NS	3.5	30.8	47.3	29.4	100.0	100.0	100.0	96.7	99.6	98.9	100.0	100.0	99.6	99.0	56.4	48.6	64.1	100.0	100.0	100.0	100.0	73.5	5
Main Product																							
Meat	18.1	18.0	16.9	17.6	.7	.0	1.7	.0	.8	20.4	13.1	10.5	14.9	5.8	7.2	8.8	7.6	8.6	4.4	18.4	9.6	9.2	13.2
Eggs	69.9	71.5	65.8	68.5	56.2	23.9	44.1	41.9	45.2	74.6	68.3	72.5	72.2	69.4	84.2	77.9	77.1	72.6	89.3	55.7	74.2	67.6	74.2
Commercial	11.2	.0	16.3	10.6	3.1	1.2	.3	1.7	1.8	5.0	17.4	15.6	12.2	18.7	8.5	13.3	13.7	18.4	2.0	24.7	14.2	10.5	8.3
Other	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.3	.5	.0	.0	.2	.0	1.1	.0	.4	.1	0.2
NS	.8	10.6	1.1	3.3	40.0	74.8	53.9	56.3	52.3	.0	.0	1.3	.5	5.6	.0	.0	1.5	.3	3.3	1.1	1.6	12.5	4.1
Management Syste																							
Semi Intensive	53.5	.0	100.0	75.7	1.5	.0	.9	.0	.8	.0	.0	.0	.0	63.7	100.0	100.0	88.5	.0	.0	.0	.0	26.3	12
Other	.0	.0	.0	.0	3.7	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	2.7
NS	46.5	100.0	.0	24.3	94.8	100.0	99.1	100.0	98.1	.0	100.0	100.0	100.0	36.3	.0	.0	11.5	100.0	100.0	100.0	100.0	72.9	7.5
Breeding Programme																							
Traditional	95.3	95.7	100.0	97.5	35.4	8.6	20.6	24.1	24.0	77.3	76.7	72.8	75.4	91.4	100.0	100.0	97.4	97.9	92.9	88.2	93.7	79.8	85.8
Other	.0	.0	.0	.0	.0	.0	.0	.0	.0	16.1	18.6	22.2	19.1	.0	.0	.0	.0	.0	.0	.0	.0	2.1	1.4
NS	4.7	4.3	.0	2.5	64.6	91.4	79.4	75.9	76.0	6.6	4.8	5.0	5.5	8.6	.0	.0	2.6	2.1	7.1	11.8	6.3	18.1	8.3
Sample 2010	**1**	**0**	**4**	**5**	**0**	**0**	**3**	**1**	**5**	**4**	**3**	**1**	**8**	**1**	**10**	**3**	**14**	**0**	**3**	**0**	**3**	**35**	
Sample 2006	**61**	**56**		**117**			**141**	**38**	**179**		**115**	**126**	**241**	**380**	**231**		**611**	**217**		**164**	**381**		**1,529**

Table 6.47: Percentage distribution of Rabbit Rearing

District/FDAs	KIRINYAGA				NYANDARUA					NYERI				THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindi-riku	Kiumbu/Kianugu	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Maragi-ma	Kariara	Mutundu	Total	Ngele-lya	Ngoli-ba	Kali-moni	Total	Kagu-moini	Mara-gua Ridge	Mari-aini	Total		
Number of Livestock																							
0 - 10	93.0	100.0	82.6	87.3	93.4	64.0	93.3	80.5	87.5	100.0	84.7	89.1	93.4	95.1	100.0	100.0	98.7	100.0	74.4	100.0	91.4	90.9	90.8
11+	7.0	.0	17.4	12.7	6.6	36.0	6.7	19.5	12.5	.0	15.3	10.9	6.6	4.9	.0	.0	1.3	.0	25.6	.0	8.6	9.1	3
Average	4.3	6.0	6.8	5.9	6.0	9.2	4.2	5.8	5.6	3.7	4.5	5.3	4.4	4.8	3.4	2.1	3.3	3.0	6.8	3.9	4.6	5.0	4
Breed																							
Chinchilla	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	44.1	.0	17.5	.0	.0	.0	.0	3.1	8.5
New Zealand white	.0	.0	5.5	3.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	65.3
Local rabbits	62.8	100.0	56.5	61.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	55.9	64.5	45.9	.0	.0	.0	.0	25.9	9.8
NS	37.2	.0	38.0	35.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.0	35.5	36.6	100.0	100.0	100.0	100.0	70.0	12.7
Main Product																							
Meat	75.3	100.0	74.6	76.5	4.3	12.0	45.4	.0	18.9	60.4	44.0	50.0	53.8	19.1	77.2	55.8	53.7	73.7	63.8	42.5	58.9	51.9	75.1
Manure	.0	.0	.0	.0	.0	.0	.0	11.7	2.2	20.1	19.6	7.8	16.0	5.8	11.1	15.0	11.0	.0	13.6	12.9	9.3	6.4	0.9
Commercial	16.0	.0	10.5	11.7	64.6	.0	9.9	45.7	33.8	19.5	36.3	31.2	26.6	56.1	11.7	29.2	30.0	26.3	22.6	44.6	31.8	25.8	14
NS	8.7	.0	14.9	11.9	31.0	88.0	44.7	42.6	45.1	.0	.0	10.9	3.6	19.1	.0	.0	5.3	.0	.0	.0	.0	15.9	6.9
Management System																							
Semi Intensive	.0	.0	100.0	100.0	.0	.0	.0	21.6	4.4	.0	.0	.0	.0	43.2	100.0	54.9	59.1	.0	.0	.0	.0	30.2	22.6
Other	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	45.1	16.5	.0	.0	.0	.0	2.8	13.4
NS	.0	.0	.0	.0	100.0	100.0	100.0	78.4	95.6	.0	.0	100.0	100.0	56.8	.0	.0	24.4	.0	.0	100.0	100.0	67.0	22
Breeding Programme																							
Traditional	100.0	100.0	100.0	100.0	60.3	12.0	60.6	45.7	51.9	73.8	58.9	67.0	68.9	75.6	100.0	100.0	93.0	100.0	79.7	72.1	83.3	78.6	78.7
Other	.0	.0	.0	.0	.0	.0	.0	.0	.0	26.2	41.1	22.1	27.4	.0	.0	.0	.0	.0	.0	.0	.0	4.5	0.7
NS	.0	.0	.0	.0	39.7	88.0	39.4	54.3	48.1	.0	.0	10.9	3.7	24.4	.0	.0	7.0	.0	20.3	27.9	16.7	16.9	20.6
Sample 2010	**16**	**3**	**26**	**45**	**14**	**5**	**16**	**8**	**43**	**12**	**5**	**9**	**26**	**8**	**11**	**10**	**29**	**7**	**8**	**9**	**24**	**166**	
Sample 2006	**4**			**4**			**5**		**5**		**13**	**14**	**27**	**22**	**15**		**37**	**16**		**10**	**26**		**99**

Table 6.48: Percentage distribution of Bees Keeping

District/FDAs	KIRINYAGA			NYANDARUA					NYERI		THIKA				MARAGUA				Project Total 2010	Project total 2006
	Ndindiriku	Rukanga	Total	Muricho	Kiriogo	Mbuyu	Ndivai	Total	Mutundu	Total	Ngelelya	Ngoliba	Kalimoni	Total	Kagumoini	Maragua Ridge	Mariaini	Total		
Number of Livestock																				
0 - 10	100.0	100.0	100.0	100.0	100.0	100.0	66.7	95.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.5	93.5
11 +	.0	.0	.0	.0	.0	.0	33.3	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.5	4
Average	1.0	3.2	2.8	3.1	5.3	3.4	5.0	3.7	7.0	7.0	3.0	4.0	5.0	4.0	3.3	3.0	1.0	2.8	3.5	3
Main Product																				
Honey	.0	100.0	56.0	100.0	.0	5.9	.0	45.0	100.0	100.0	.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	60.0	86
NS	100.0	.0	44.0	.0	100.0	94.1	100.0	55.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	40.0	14
Management System																				
Kenya top bar hive	100.0	28.6	41.7	43.5	.0	.0	.0	19.1	.0	.0	100.0	.0	100.0	19.7	.0	.0	100.0	32.6	25.3	14.7
Log bee hive	.0	.0	.0	56.5	.0	.0	.0	24.8	100.0	100.0	.0	100.0	.0	80.3	100.0	.0	.0	67.4	28.8	44.3
Other	.0	71.4	58.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	14.5	12.5
NS	.0	.0	.0	.0	100.0	100.0	100.0	56.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	31.3	28.4
Breeding Programme																				
Traditional	.0	71.4	58.3	100.0	35.7	5.9	.0	47.4	100.0	100.0	.0	100.0	100.0	91.6	100.0	100.0	100.0	100.0	61.0	39.5
Other	.0	28.6	23.3	.0	.0	.0	.0	.0	.0	.0	100.0	.0	.0	8.4	.0	.0	.0	.0	6.1	2.4
NS	100.0	.0	18.3	.0	64.3	94.1	100.0	52.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	32.9	58.1
Sample 2010	**1**	**6**	**7**	**7**	**2**	**6**	**2**	**17**	**0**	**0**	**0**	**2**	**0**	**3**	**2**	**1**	**1**	**3**	**31**	
Sample 2006	**8**		**8**				**3**	**3**	**2**	**2**	**16**	**14**		**30**	**2**		**5**	**7**		**52**

6.4.3 Marketing of Livestock Products

The percentage distribution of marketing of milk is presented in Table 6.49. Over three quarters of the households market their own milk with Thika District leading at 94 percent. Self marketing was highest in Ngelelya (95%) and least in Mutundu (43%). The interval between 2006 and 2010 saw a 10 percent increase in self marketing of milk in the project area. In contrast, there was a decline of a similar percentage in marketing of milk through SACCOs.

Table 6.49: Percentage distribution of Marketing of Milk

District/FDAs	Self	Government Agencies	SACCO	Private Companies	Other	NS	Total
Ndindiriku	60.1	.0	2.3	.0	16.2	21.5	48
Kiumbu/Kianugu	75.1	.0	.0	.0	16.5	8.5	33
Rukanga	90.0	.0	.0	2.3	2.3	5.5	102
KIRINYAGA	**79.5**	**.0**	**.6**	**1.3**	**8.5**	**10.2**	**183**
Muricho	87.9	.0	4.3	.7	1.3	5.9	70
Kiriogo	80.6	.0	.0	.0	12.4	7.0	17
Mbuyu	49.0	2.3	.0	.7	.0	48.1	47
Ndivai	75.2	3.6	.0	.0	.0	21.2	25
NYANDARUA	**73.7**	**1.2**	**1.9**	**.5**	**1.9**	**20.8**	**159**
Maragima	61.5	.0	8.8	7.1	2.5	20.2	72
Kariara	57.9	.0	9.4	.0	4.1	28.5	82
Mutundu	43.4	.0	5.2	9.5	9.0	32.9	87
NYERI	**53.7**	**.0**	**7.7**	**5.5**	**5.4**	**27.6**	**241**
Ngelelya	94.6	.0	.0	.0	3.6	1.7	112
Ngoliba	94.4	.0	.0	.0	2.6	3.0	99
Kalimoni	93.1	.6	.0	.0	6.4	.0	184
THIKA	**93.9**	**.3**	**.0**	**.0**	**4.6**	**1.3**	**396**
Kagumoini	74.1	.0	.0	.0	.0	25.9	98
Maragua Ridge	81.0	.0	.0	.0	.0	19.0	100
Mariaini	58.5	.0	.0	.0	.0	41.5	51
MARAGUA	**73.7**	**.0**	**.0**	**.0**	**.0**	**26.3**	**249**
Project Total 2010	**77.1**	**.2**	**1.8**	**1.3**	**4.1**	**15.4**	**1227**
Project Total 2006	**67**	**0.2**	**11.2**	**6.3**	**15.1**		**470**

Table 6.50 shows the percentage distribution of marketing of meat in the project area. As depicted for the case of milk, majority of the households (79%) market their own meat. Overall, milk traders almost tripled from 470 to 1,227 within the reference period.

Table 6.50: Percentage distribution of Marketing of Meat

District/FDAs	Self	Government Agencies	SACCO	Private Companies	Other	NS	Total
Ndindiriku	74.2	.0	.0	.0	14.2	11.6	32
Kiumbu/Kianugu	57.4	.0	.0	.0	.0	42.6	20
Rukanga	91.7	.0	.0	.0	8.3	.0	47
KIRINYAGA	**79.3**	**.0**	**.0**	**.0**	**8.5**	**12.2**	**99**
Muricho	73.7	.0	.0	.0	26.3	.0	3
Kiriogo	32.5	.0	.0	.0	52.6	14.9	4
Mbuyu	47.9	.0	.0	.0	.0	52.1	11
NYANDARUA	**49.3**	**.0**	**.0**	**.0**	**16.7**	**34.0**	**18**
Maragima	62.4	.0	1.7	5.2	.0	30.7	48
Kariara	47.8	.0	.0	.0	2.8	49.4	15
Mutundu	32.4	.0	.0	.0	.0	67.6	16
NYERI	**53.5**	**.0**	**1.0**	**3.2**	**.5**	**41.8**	**79**
Ngelelya	100.0	.0	.0	.0	.0	.0	34
Ngoliba	95.4	.0	.0	2.1	2.6	.0	51
Kalimoni	91.5	1.8	2.6	.0	4.1	.0	120
THIKA	**93.9**	**1.0**	**1.5**	**.5**	**3.0**	**.0**	**205**
Kagumoini	82.2	.0	.0	.0	.0	17.8	23
Maragua Ridge	69.2	.0	.0	.0	.0	30.8	23
Mariaini	56.6	.0	.0	.0	.0	43.4	18
MARAGUA	**70.2**	**.0**	**.0**	**.0**	**.0**	**29.8**	**64**
Project Total 2010	**78.9**	**.5**	**.9**	**.8**	**3.9**	**15.1**	**465**
Project Total 2006	**88.9**	**0.9**		**0.6**	**9.5**		**304**

The number of farmers selling meat rose from 304 in 2006 to 465 in 2010. However, there was a 10 percent decline in the number of farmers who handled the sale of their own meat.

The percentage distribution of marketing of honey is shown in Table 6.51. Nine in ten households sell their own honey with this being universal in Kirinyaga, Nyandarua and Thika Districts.

Table 6.51: Percentage distribution of Marketing of Honey

District/FDAs	Self	NS	Total
Rukanga	100.0	.0	2
KIRINYAGA	**100.0**	**.0**	**2**
Muricho	100.0	.0	7
Mbuyu	100.0	.0	0
NYANDARUA	**100.0**	**.0**	**7**
Mutundu	28.5	71.5	2
NYERI	**28.5**	**71.5**	**2**
Ngelelya	100.0	.0	0
Ngoliba	100.0	.0	6
Kalimoni	100.0	.0	0
THIKA	**100.0**	**.0**	**7**
Kagumoini	100.0	.0	1
Maragua Ridge	100.0	.0	1
Mariaini	.0	100.0	1
MARAGUA	**79.1**	**20.9**	**3**
Project Total 2010	**91.1**	**8.9**	**21**
Project Total 2006	**97.6**		**26**

There was a 7 percent decline in the number of farmers who sold their own honey within the reference period. Similarly, the number of bee farmers declined from 26 in 2006 to 21 in 2010.

Table 6.52 shows the percentage distribution of marketing of eggs in the project area. Over three quarters of the households handle their own sales with Thika District leading at 93%.

Table 6.52: Percentage distribution of Marketing of Eggs

District/FDAs	Self	Government Agencies	Private Companies	Other	NS	Total
Ndindiriku	80.9	.0	.0	8.1	11.0	72
Kiumbu/Kianugu	65.1	.0	.0	24.9	10.0	55
Rukanga	93.8	.0	.0	5.0	1.2	88
KIRINYAGA	**82.1**	**.0**	**.0**	**11.1**	**6.7**	**216**
Muricho	94.4	.0	.0	3.9	1.7	77
Kiriogo	86.8	.0	.0	.0	13.2	14
Mbuyu	**59.4**	**1.1**	**.0**	**.0**	**39.5**	**48**
Ndivai	81.6	.0	.0	.0	18.4	20
NYANDARUA	**81.5**	**.3**	**.0**	**1.9**	**16.3**	**159**
Maragima	72.9	.0	.0	2.5	24.6	54
Kariara	45.0	1.7	.0	1.2	52.1	36
Mutundu	48.4	.0	.0	.0	51.6	52
NYERI	**57.0**	**.4**	**.0**	**1.3**	**41.4**	**141**
Ngelelya	94.7	.3	.0	3.8	1.2	100
Ngoliba	94.3	.0	.0	4.7	1.0	104
Kalimoni	92.6	.0	.2	7.2	.0	200
THIKA	**93.5**	**.1**	**.1**	**5.7**	**.5**	**404**
Kagumoini	62.7	.0	.0	.0	37.3	80
Maragua Ridge	71.4	.0	.0	.0	28.6	89
Mariaini	42.1	.0	.0	.0	57.9	41
MARAGUA	**62.4**	**.0**	**.0**	**.0**	**37.6**	**210**
Project Total 2010	**79.3**	**.1**	**.0**	**4.6**	**15.9**	**1131**
Project Total 2006	**93.7**	**0.8**		**5.4**	**0.2**	**484**

The number of households producing eggs rose from 484 in 2006 to 1,131 in 2010. However, there was a 14 percent decline in households that managed their own egg sales.

6.4.4 Inputs and services in livestock rearing

Table 6.53 shows main inputs and services used by farmers in the 12 months preceding the survey. Majority of the households (38%) reported using drugs followed by animal treatment (32%). Animal feeds were mostly used in Kagumoini (25%) while AI services were mostly used in Kariara (24%).

Table 6.53: Percentage distribution of Use of Livestock inputs/Services

District/FDAs	Animal Feeds	Drugs	AI	Anuimal Treatment	Other	Total Sample
Ndindiriku	7.7	54.4	.0	37.9	.0	90
Kiumbu/Kianugu	5.1	48.7	.0	46.3	.0	61
Rukanga	16.2	45.8	8.6	29.1	.4	149
KIRINYAGA	**11.7**	**48.8**	**4.6**	**34.8**	**.2**	**300**
Muricho	18.8	39.9	11.7	29.2	.4	139
Kiriogo	13.0	36.2	18.1	32.4	.3	70
Mbuyu	**17.2**	**38.1**	**12.5**	**31.5**	**.7**	**108**
Ndivai	19.8	35.1	13.6	31.5	.0	54
NYANDARUA	**17.3**	**38.0**	**13.4**	**30.9**	**.4**	**371**
Maragima	15.6	36.8	16.6	30.0	1.0	81
Kariara	14.3	31.3	23.6	30.4	.3	75
Mutundu	9.7	33.4	22.3	34.6	.0	91
NYERI	**13.1**	**33.8**	**20.9**	**31.7**	**.4**	**247**
Ngelelya	15.3	37.1	9.8	37.7	.1	154
Ngoliba	15.7	37.2	10.2	35.8	1.1	155
Kalimoni	22.3	33.4	11.6	32.5	.3	285
THIKA	**19.1**	**35.2**	**10.8**	**34.5**	**.4**	**595**
Kagumoini	25.2	35.4	11.9	26.8	.8	141
Maragua Ridge	21.4	38.5	10.2	29.9	.0	104
Mariaini	21.6	43.2	5.5	29.3	.3	70
MARAGUA	**23.2**	**38.0**	**10.1**	**28.3**	**.4**	**314**
Project Total 2010	**17.5**	**37.9**	**12.0**	**32.2**	**.4**	**1827**
Project Total 2006	**25.4**	**56.9**	**57**	**43.6**	**1.4**	**1,857**

Table 6.53 shows percentage distribution of households using livestock inputs and services. Generally, the use of livestock services decreased, the animal feeds dropped by 8 percent from 25.4 percent in 2006 to 17.5 percent in 2010. Similary, drugs AI and animal treatment dropped by 19 percent, 45 percent and 11 percent repectively, compared to 2006.

Sources of inputs and services in livestock rearing

The utilization of the inputs and services is dependent on various factors which may include cost, accessibility, and efficiency, among others. The survey sought to know from the respondents the source of the above inputs and services. Categories given were: shops around the area; shops from major town; government agencies; marketing societies; government veterinary officers; private veterinary officers; or any other source. Tables 6.54 – 6.57 summarize the results.

The percentage distribution of sources of animal feeds is shown in Table 6.54. Over two thirds of the households buy their animal feeds from shops within their neighbourhood with this being more common in Maragua District (85%). On the other hand 27 percent reported buying these feeds from major towns. Traveling to major towns is more common in Maragima (88%) and almost absent in Ngelelya (3%).

Table 6.54: Percentage distribution of Sources of animal Feeds

District/FDAs	Shops around the area	shops from major towns	Government Agencies	marketing Societies	SACCO	Government vet Office	Private Vet Officers	Other	NS	Total Sample
Ndindiriku	41.4	58.6	.0	.0	.0	.0	.0	.0	.0	13
Kiumbu/Kianugu	50.0	50.0	.0	.0	.0	.0	.0	.0	.0	5
Rukanga	52.5	47.5	.0	.0	.0	.0	.0	.0	.0	49
KIRINYAGA	**50.2**	**49.8**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**.0**	**67**
Muricho	62.5	34.1	.0	.0	3.3	.0	.0	.0	.0	63
Kiriogo	68.3	31.7	.0	.0	.0	.0	.0	.0	.0	24
Mbuyu	**70.1**	**23.3**	**.0**	**.0**	**.0**	**.0**	**6.6**	**.0**	**.0**	**46**
Ndivai	60.2	39.8	.0	.0	.0	.0	.0	.0	.0	28
NYANDARUA	**65.2**	**31.6**	**.0**	**.0**	**1.3**	**.0**	**1.9**	**.0**	**.0**	**161**
Maragima	12.0	88.0	.0	.0	.0	.0	.0	.0	.0	33
Kariara	39.9	45.1	1.9	4.4	8.7	.0	.0	.0	.0	33
Mutundu	32.9	43.3	.0	.0	21.4	.0	2.4	.0	.0	23
NYERI	**27.7**	**60.6**	**.7**	**1.6**	**8.8**	**.0**	**.6**	**.0**	**.0**	**89**
Ngelelya	96.6	2.5	.0	.0	.0	.5	.5	.0	.0	49
Ngoliba	72.6	20.0	.0	1.0	.0	6.4	.0	.0	.0	51
Kalimoni	77.9	20.2	.0	.0	.0	.0	1.6	.3	.0	160
THIKA	**80.4**	**16.8**	**.0**	**.2**	**.0**	**1.3**	**1.1**	**.2**	**.0**	**259**
Kagumoini	88.2	11.5	.0	.0	.0	.3	.0	.0	.0	89
Maragua Ridge	77.2	18.5	2.2	.0	.0	.0	2.1	.0	.0	50
Mariaini	85.5	12.7	.0	.0	.0	.0	.0	.0	1.8	32
MARAGUA	**84.5**	**13.8**	**.6**	**.0**	**.0**	**.2**	**.6**	**.0**	**.3**	**172**
Project Total 2010	**69.1**	**27.4**	**.2**	**.3**	**1.3**	**.5**	**1.0**	**.1**	**.1**	**748**
Project Total 2006	**71.1**	**20.3**		**2.6**	**3.6**	**0.4**	**1.5**	**0.2**	**0.4**	**494**

The number of households that bought animal feeds increased by 254 within the study period. The number of households who have to travel to major towns increased by 7 percent, while those who access the same within their areas declined by 2 percent.

Table 6.55 shows the percentage distribution of sources of animal drugs in the project area. Over three fifths of the households buy animal drugs from shops within their neighborhood while approximately a quarter have to go to major towns.

Table 6.55: Percentage distribution of Sources of animal drugs

District/FDAs	Shops around the area	shops from major towns	Government Agencies	SACCO	Government vet Office	Private Vet Officers	Other	NS	Total Sample
Ndindiriku	67.3	14.3	.0	.0	1.2	12.5	4.7	.0	90
Kiumbu/Kianugu	47.5	15.6	.0	.0	5.2	31.7	.0	.0	52
Rukanga	65.5	27.6	1.2	.0	.8	4.9	.0	.0	139
KIRINYAGA	**62.7**	**21.1**	**.6**	**.0**	**1.7**	**12.3**	**1.5**	**.0**	**281**
Muricho	46.1	47.6	.0	1.6	1.6	3.2	.0	.0	134
Kiriogo	60.6	32.5	.8	.0	.0	3.3	.0	2.8	66
Mbuyu	**70.8**	**18.0**	**.0**	**.0**	**.5**	**8.9**	**1.8**	**.0**	**105**
Ndivai	57.4	37.5	.0	.0	.0	2.4	1.2	1.5	49
NYANDARUA	**57.6**	**34.6**	**.2**	**.6**	**.7**	**4.8**	**.7**	**.7**	**355**
Maragima	16.1	69.9	.0	.0	6.0	8.0	.0	.0	78
Kariara	35.2	29.5	.0	1.4	4.2	29.7	.0	.0	71
Mutundu	43.6	28.1	2.4	1.5	3.0	21.4	.0	.0	79
NYERI	**31.6**	**42.8**	**.8**	**1.0**	**4.4**	**19.4**	**.0**	**.0**	**229**
Ngelelya	91.1	4.3	.0	.0	2.2	2.4	.0	.0	120
Ngoliba	51.2	26.2	.0	.0	15.8	6.7	.0	.0	120
Kalimoni	72.7	16.1	.0	1.3	6.5	3.2	.2	.0	240
THIKA	**72.0**	**15.7**	**.0**	**.7**	**7.8**	**3.8**	**.1**	**.0**	**481**
Kagumoini	72.3	14.4	.2	.0	10.7	1.8	.6	.0	126
Maragua Ridge	72.6	12.7	2.3	.0	4.4	8.1	.0	.0	91
Mariaini	82.6	8.1	.0	.0	9.3	.0	.0	.0	65
MARAGUA	**74.7**	**12.4**	**.8**	**.0**	**8.3**	**3.4**	**.3**	**.0**	**281**
Project Total 2010	**62.0**	**24.0**	**.4**	**.5**	**4.8**	**7.6**	**.5**	**.2**	**1627**
Project Total 2006	**54.3**	**24.1**		**1.9**	**3.8**	**12.7**	**0.3**	**1.4**	**1,079**

Access to animal drugs within local shops increased by 8 percent while there was no change in households that have to travel to major towns.

Table 6.56 shows the sources of animal treatment services in the project area. Approximately half of the households get their services from private vetinary officers with Kirinyaga District leading at 79%.

Table 6.56 Sources of Animal Treatment Services to the FDAs

District/FDAs	Shops around the area	shops from major towns	Government Agencies	mar-keting Societies	SACCO	Government vet Office	Private Vet Officers	Other	NS	Total Sample
Ndindiriku	2.1	.0	.0	.0	.0	9.5	81.2	7.3	.0	62
Kiumbu/Kianugu	5.5	.0	.0	.0	.0	11.1	83.4	.0	.0	50
Rukanga	.0	.0	.0	.0	.0	17.4	75.0	7.6	.0	88
KIRINYAGA	**2.0**	**.0**	**.0**	**.0**	**.0**	**13.4**	**79.0**	**5.6**	**.0**	**200**
Muricho	10.8	.0	.0	.0	8.8	27.3	51.0	2.1	.0	98
Kiriogo	15.6	4.2	.0	.0	.0	16.9	63.3	.0	.0	59
Mbuyu	**9.0**	**.8**	**.0**	**.0**	**.4**	**15.6**	**72.4**	**1.9**	**.0**	**87**
Ndivai	3.1	1.7	.0	.0	.0	9.4	80.4	3.8	1.7	44
NYANDARUA	**10.0**	**1.3**	**.0**	**.0**	**3.1**	**18.9**	**64.5**	**1.9**	**.3**	**288**
Maragima	4.0	20.7	2.5	.0	.0	16.4	56.3	.0	.0	64
Kariara	2.2	.9	2.4	.0	.0	16.5	78.0	.0	.0	69
Mutundu	.8	2.0	2.3	.0	.0	12.0	82.9	.0	.0	82
NYERI	**2.2**	**7.2**	**2.4**	**.0**	**.0**	**14.8**	**73.5**	**.0**	**.0**	**215**
Ngelelya	43.1	1.2	.0	.0	.0	18.1	37.6	.0	.0	122
Ngoliba	24.9	16.7	.0	.9	.0	39.6	15.2	2.6	.0	115
Kalimoni	44.6	9.0	.0	.0	.0	17.7	28.7	.0	.0	233
THIKA	**39.4**	**8.8**	**.0**	**.2**	**.0**	**23.2**	**27.7**	**.6**	**.0**	**471**
Kagumoini	8.0	10.9	1.2	.0	.0	38.9	41.0	.0	.0	95
Maragua Ridge	13.4	4.7	4.5	.0	.0	36.5	39.4	1.5	.0	70
Mariaini	11.4	7.9	.0	.0	.0	45.9	34.8	.0	.0	44
MARAGUA	**10.5**	**8.2**	**2.0**	**.0**	**.0**	**39.6**	**39.2**	**.5**	**.0**	**210**
Project Total 2010	**17.7**	**5.6**	**.7**	**.1**	**.7**	**22.0**	**51.6**	**1.5**	**.1**	**1385**
Project Total 2006	**14.9**	**4.2**	**0.7**	**1.7**	**3.1**	**13.7**	**58**	**1.5**	**2.1**	**772**

The number of households utilizing animal treatment services almost doubled from 772 in 2006 to 1,385 in 2010. There was a 6 percent decline in households relying on private veterinary officers while those relying on government veterinary officers grew by 8 percent.

Different sources of AI services were used by households as indicated in Table 6.57 below. Private veterinary services were mostly used (54%) followed by those from government officers (27%). Private services were mostly used in Ndivai (85%) while government services were common in Ngelelya (53%).

Table 6.57: Percentage distribution of Sources of AI Services

District/FDAs	Shops around the area	shops from major towns	Government Agencies	SACCO	Government vet Office	Private Vet Officers	Other	Total Sample
Rukanga	15.0	5.3	.0	.0	4.1	75.7	.0	26
KIRINYAGA	**15.0**	**5.3**	**.0**	**.0**	**4.1**	**75.7**	**.0**	**26**
Muricho	5.4	2.3	.0	18.4	25.1	47.3	1.5	39
Kiriogo	12.5	3.1	.0	.0	23.8	60.6	.0	33
Mbuyu	4.0	.0	.0	1.0	27.5	67.5	.0	34
Ndivai	4.3	.0	.0	.0	10.5	85.2	.0	19
NYANDARUA	**6.7**	**1.5**	**.0**	**6.0**	**23.2**	**62.1**	**.5**	**126**
Maragima	2.3	7.1	2.2	.0	21.8	66.6	.0	35
Kariara	5.6	.0	1.1	.0	18.0	75.3	.0	54
Mutundu	.0	.0	5.4	1.0	13.4	80.2	.0	53
NYERI	**2.7**	**1.8**	**3.0**	**.4**	**17.2**	**75.0**	**.0**	**142**
Ngelelya	13.0	5.2	.0	.7	53.0	28.2	.0	32
Ngoliba	6.3	17.9	.0	.0	39.8	32.1	3.9	32
Kalimoni	38.2	8.4	.0	.0	27.3	26.0	.0	83
THIKA	**25.7**	**9.8**	**.0**	**.2**	**35.6**	**27.8**	**.9**	**147**
Kagumoini	1.8	7.9	.0	.0	45.7	44.6	.0	42
Maragua Ridge	**8.2**	**.0**	**4.6**	**.0**	**37.5**	**49.8**	**.0**	**24**
Mariaini	12.9	.0	.0	.0	40.7	41.0	5.3	8
MARAGUA	**5.1**	**4.5**	**1.5**	**.0**	**42.5**	**45.9**	**.6**	**75**
Project Total 2010	**11.2**	**4.6**	**1.0**	**1.6**	**26.9**	**54.1**	**.4**	**515**
Project Total 2006	**7.1**	**6.4**	**1.2**	**16**	**9.3**	**48.9**	**0.9**	**195**

The number of households using AI services rose by 320 between 2006 and 2010. The highest growth was observed for users of government services (from 9% to 27%).

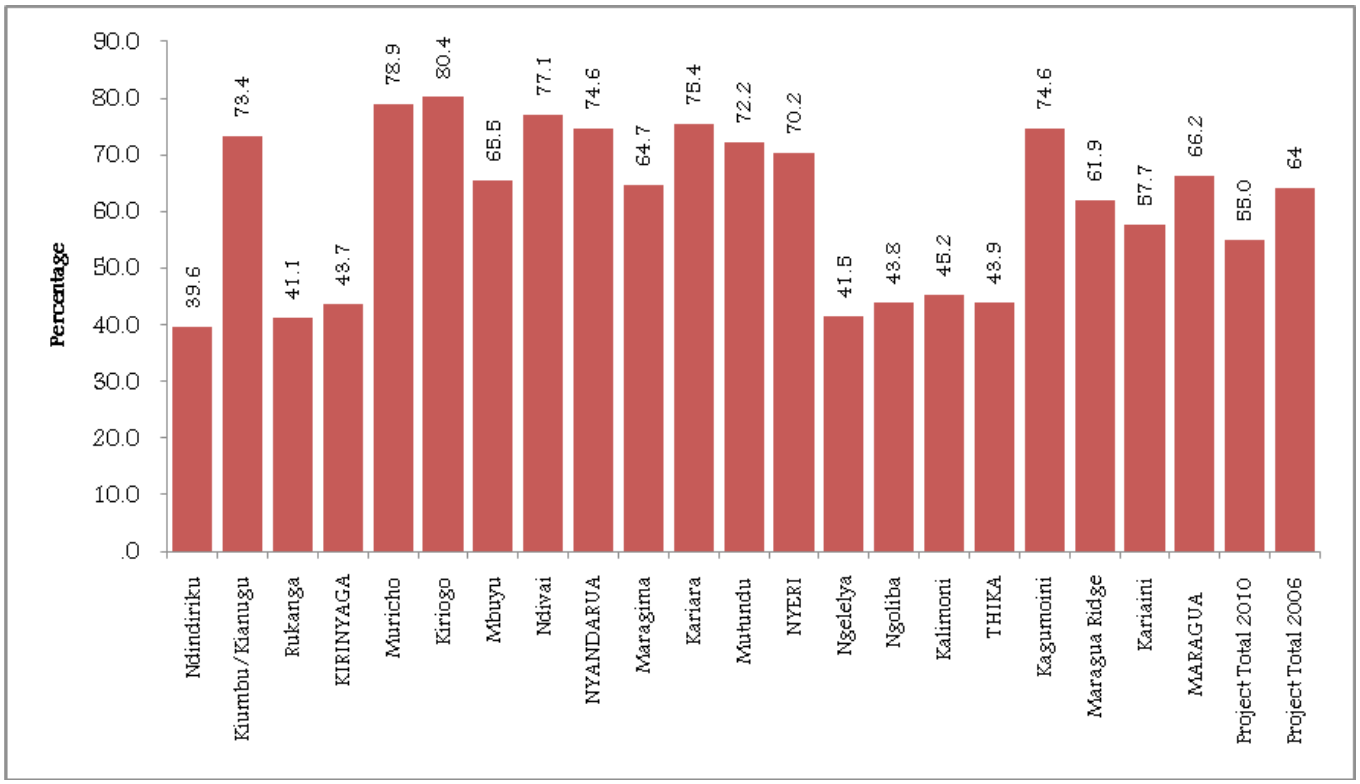
6.4.5 *Livestock Vaccinations*

The question on livestock vaccination was targeted at the households that reported rearing livestock during the 12 month period prior to the survey. Data was analyzed on the five common types of livestock namely: cattle; goats, sheep, poultry and rabbits.

(i) Cattle vaccinations

From Figure 6.6, cattle vaccination was highest in Kiriogo (80%) and least in Ndindiriku (40%). Across the districts, Kirinyaga and Thika had the least coverage of cattle vaccination (44% each). Compared to 2006, there was a 9 percent decline in cattle vaccination.

Figure 6.6 Cattle Vaccination in the last 12 months in the FDA



NOTE: The results are based on the households who reported to have reared Cattle in the last 12 months

The percentage distribution of frequency of cattle vaccination in the 12 month period preceding the survey, indicated the average number of vaccinations were two with over four fifths of the households reporting less than two vaccinations. The highest number of vaccinations was 30 with Kariara leading in this category.

Table 6.58: Percentage distribution of frequency of Cattle vaccination in last 12 months

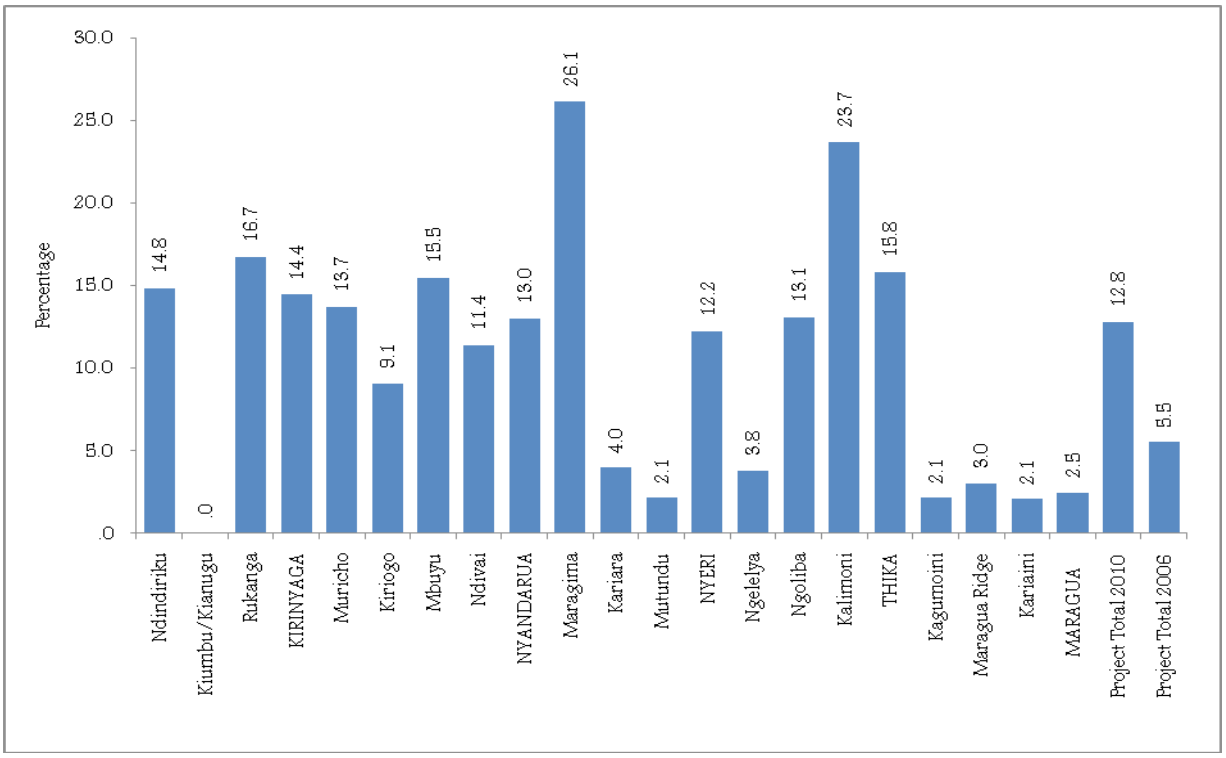
District/FDAs	<2 times	3 - 5 times	6 - 10 times	10+ times	NS	Average	Median	Maximum	Total Sample
Ndindiriku	79.0	13.0	8.0	.0	.0	1.9	1.0	6.0	59
Kiumbu/Kianugu	72.5	27.5	.0	.0	.0	1.7	1.0	3.0	30
Rukanga	95.9	4.1	.0	.0	.0	1.4	1.0	4.0	96
KIRINYAGA	**86.7**	**10.7**	**2.5**	**.0**	**.0**	**1.6**	**1.0**	**6.0**	**186**
Muricho	91.1	3.0	2.0	3.9	.0	1.9	1.0	20.0	79
Kiriogo	97.4	.0	1.5	.0	1.1	1.2	1.0	10.0	48
Mbuyu	**95.2**	**4.0**	**.8**	**.0**	**.0**	**1.5**	**1.0**	**6.0**	**65**
Ndivai	86.2	2.1	10.3	.0	1.5	2.2	1.0	10.0	40
NYANDARUA	**92.7**	**2.5**	**3.0**	**1.3**	**.5**	**1.7**	**1.0**	**20.0**	**232**
Maragima	83.8	16.2	.0	.0	.0	1.8	2.0	5.0	55
Kariara	97.1	.8	1.2	.8	.0	1.7	1.0	30.0	50
Mutundu	100.0	.0	.0	.0	.0	1.2	1.0	2.0	45
NYERI	**93.1**	**6.2**	**.4**	**.3**	**.0**	**1.6**	**1.0**	**30.0**	**150**
Ngelelya	77.9	21.3	.8	.0	.0	2.0	2.0	10.0	76
Ngoliba	71.0	27.2	1.9	.0	.0	2.2	2.0	10.0	64
Kalimoni	76.8	23.2	.0	.0	.0	2.1	2.0	5.0	147
THIKA	**75.8**	**23.6**	**.6**	**.0**	**.0**	**2.1**	**2.0**	**10.0**	**287**
Kagumoini	89.4	10.6	.0	.0	.0	1.7	2.0	3.0	79
Maragua Ridge	64.6	35.4	.0	.0	.0	2.2	2.0	5.0	60
Mariaini	85.8	14.2	.0	.0	.0	1.8	2.0	5.0	33
MARAGUA	**80.0**	**20.0**	**.0**	**.0**	**.0**	**1.9**	**2.0**	**5.0**	**172**
Project Total 2010	**84.8**	**13.4**	**1.4**	**.3**	**.1**	**1.8**	**1.0**	**30.0**	**1026**
Project Total 2006	**90.1**	**6.5**	**0.6**	**1.1**	**1.7**	**2**	**1**	**12**	**622**

The number of households using cattle vaccinations grew from 622 in 2006 to 1,026 in 2010. It is also observed that the percentage reporting vaccinating their cattle three to five times grew by 3 percent while those who did so less than two times declined by 5 percent.

(ii) Sheep vaccinations

Figure 6.7 shows sheep vaccination in the 12 months prior to the survey. Sheep vaccination was highest in Maragima (26%) while in Kiumbu/Kianugu, it was absent. Compared to 2006, there was a 7 percent increase in farmers reporting sheep vaccination.

Figure 6.7 Sheep vaccination in the last 12 months



The percentage distribution of the frequency of sheep vaccination is shown in Table 6.59. On average, each household reported three vaccinations with the highest being 33 as observed in Kalimoni FDA and Thika District. Over four fifths of the households vaccinated their sheep only once with this being universal in Rukanga, Kariara, Mutundu, Ngelelya, Kagumoini and Mariaini.

Table 6.59: Percentage distribution of frequency of Sheep vaccination in last 12 months

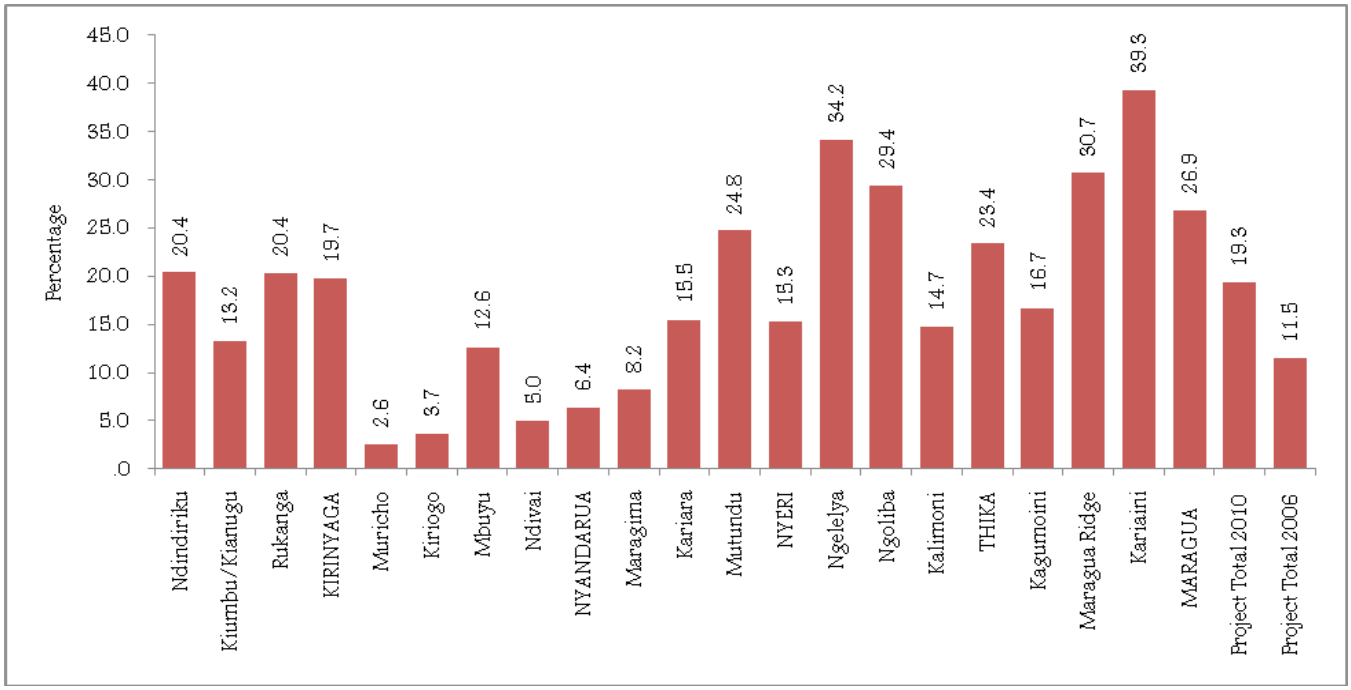
	< 2 times	3 - 5 times	6 - 10 times	10 + times	NS	Average	Median	Maximum	Total Sample
Ndindiriku	94.2	5.8	.0	.0	.0	1.2	1.0	3.0	22
Rukanga	100.0	.0	.0	.0	.0	1.3	1.0	2.0	39
KIRINYAGA	**97.9**	**2.1**	**.0**	**.0**	**.0**	**1.3**	**1.0**	**3.0**	**61**
Muricho	62.5	6.6	.0	30.9	.0	7.5	1.0	32.0	14
Kiriogo	90.0	.0	.0	.0	10.0	1.2	1.0	2.0	5
Mbuyu	73.3	21.2	.0	5.4	.0	3.6	2.0	32.0	15
Ndivai	74.4	.0	.0	25.6	.0	3.9	2.0	11.0	6
NYANDARUA	**72.0**	**10.3**	**.0**	**16.3**	**1.3**	**4.7**	**1.0**	**32.0**	**40**
Maragima	85.0	11.4	3.7	.0	.0	1.8	1.0	10.0	22
Kariara	100.0	.0	.0	.0	.0	1.5	1.6	2.0	3
Mutundu	100.0	.0	.0	.0	.0	1.0	1.0	1.0	1
NYERI	**87.3**	**9.6**	**3.1**	**.0**	**.0**	**1.7**	**1.0**	**10.0**	**26**
Ngelelya	100.0	.0	.0	.0	.0	1.4	1.0	2.0	7
Ngoliba	93.7	.0	6.3	.0	.0	1.9	2.0	6.0	19
Kalimoni	76.1	19.9	.0	4.0	.0	3.3	2.0	33.0	79
THIKA	**80.9**	**14.9**	**1.2**	**3.0**	**.0**	**2.9**	**2.0**	**33.0**	**105**
Kagumoini	100.0	.0	.0	.0	.0	1.3	1.2	2.0	2
Maragua Ridge	69.4	30.6	.0	.0	.0	2.9	2.0	5.0	3
Mariaini	100.0	.0	.0	.0	.0	2.0	2.0	2.0	1
MARAGUA	**85.8**	**14.2**	**.0**	**.0**	**.0**	**2.2**	**2.0**	**5.0**	**6**
Project Total 2010	**84.6**	**10.3**	**.8**	**4.1**	**.2**	**2.6**	**2.0**	**33.0**	**239**
Project Total 2006	**86.8**	**13.2**				**2**	**1**	**4**	**20**

Farmers reporting sheep vaccination increased eleven fold within the reference period.

(iii) Goat vaccinations

Goats are normally vaccinated twice in a year. The results in Figure 6.8 reveal that Mariaini had the highest goat vaccination coverage (39%) and Muricho had the lowest with 3 percent. Compared to 2006, there was a 7 percent increase in goat vaccinations.

Figure 6.8 Goats vaccination in the last 12 months



Note: the results are based on households who reported to have reared goats in the last 12 months

Table 6.60 shows the percentage distribution of the frequency of goat vaccination in the 12 months preceding the survey. On average, each households reported two vaccinations with the highest being 11 as observed in Ndivai FDA in Nyandarua District. Majority of the households (84%) reported less than two vaccinations with Kirinyaga District leading at 99%.

Table 6.60: Percentage distribution of frequency of Goats vaccination in last 12 months

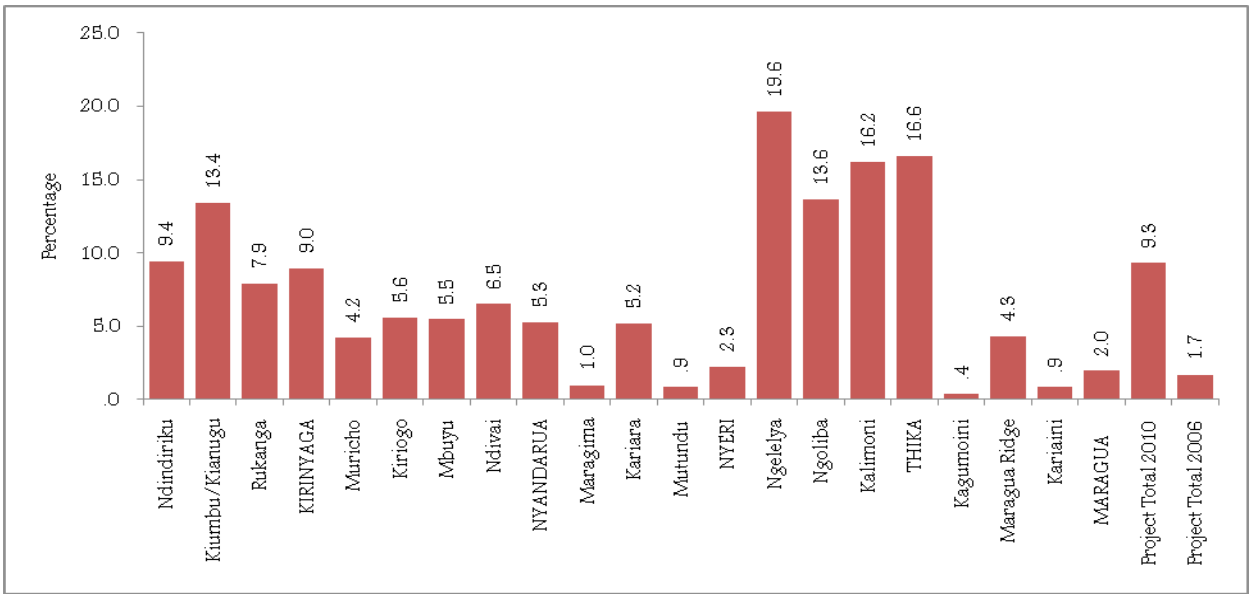
District/FDAs	<2 times	3 - 5 times	6 - 10 times	10+ times	Average	Median	Maximum	Total Sample
Ndindiriku	95.8	4.2	.0	.0	1.3	1.0	3.0	30
Kiumbu/Kianugu	100.0	.0	.0	.0	1.0	1.0	1.0	5
Rukanga	100.0	.0	.0	.0	1.3	1.0	2.0	48
KIRINYAGA	**98.5**	**1.5**	**.0**	**.0**	**1.3**	**1.0**	**3.0**	**84**
Muricho	100.0	.0	.0	.0	1.0	1.0	1.0	3
Kiriogo	100.0	.0	.0	.0	1.3	1.2	2.0	2
Mbuyu	**68.4**	**31.6**	**.0**	**.0**	**2.2**	**2.0**	**4.0**	**13**
Ndivai	70.8	.0	.0	29.2	4.3	2.0	11.0	3
NYANDARUA	**76.2**	**20.0**	**.0**	**3.8**	**2.2**	**2.0**	**11.0**	**20**
Maragima	88.3	11.7	.0	.0	1.5	1.0	4.0	6
Kariara	100.0	.0	.0	.0	1.2	1.0	2.0	10
Mutundu	100.0	.0	.0	.0	1.2	1.0	2.0	15
NYERI	**97.5**	**2.5**	**.0**	**.0**	**1.3**	**1.0**	**4.0**	**32**
Ngelelya	80.8	19.2	.0	.0	1.8	2.0	4.0	63
Ngoliba	85.9	11.3	2.8	.0	1.7	1.0	10.0	43
Kalimoni	66.3	33.7	.0	.0	2.3	2.0	4.0	49
THIKA	**77.7**	**21.6**	**.8**	**.0**	**1.9**	**2.0**	**10.0**	**156**
Kagumoini	76.9	14.8	8.3	.0	2.2	1.7	8.0	18
Maragua Ridge	69.8	30.2	.0	.0	2.0	2.0	5.0	30
Mariaini	85.6	14.4	.0	.0	1.7	1.9	5.0	22
MARAGUA	**76.6**	**21.3**	**2.1**	**.0**	**2.0**	**2.0**	**8.0**	**70**
Project Total 2010	**84.0**	**15.1**	**.7**	**.2**	**1.7**	**1.0**	**11.0**	**361**
Project Total 2006	**69.5**	**18.2**	**0.6**	**2.9**	**2**	**2**	**14**	**105**

Households reporting less than two vaccinations rose by 15 percent within the reference period. The number of households reporting goat vaccinations doubled from 105 in 2006 to 361 in 2010.

(iv) Poultry vaccinations

Poultry are among the most vulnerable species of all the livestock in terms of severity of an epidemic, especially if they are kept in crowded places. The most recent case of Bird Flu epidemic that shook the whole world is an appropriate example. In this survey, poultry has been grouped to include chicken, turkey and ducks. According to Figure 6.9, poultry vaccination is highest in Ngelelya (20%) with Thika leading across the districts with 17%. Compared to 2006, there was a 7 percent increase in poultry vaccination.

Figure 6.9 Poultry Vaccination in the last 12 months



The percentage distribution of the frequency of poultry vaccination is shown in Table 6.62. On average, each household reported three vaccinations with the highest being 25 as seen in Ngelelya. Overall, majority of the households (79%) reported less than two vaccinations.

The number of households reporting poultry vaccination grew from 49 to 175 between 2006 and 2010. The highest growth (14%) was observed for those reporting less than two vaccinations.

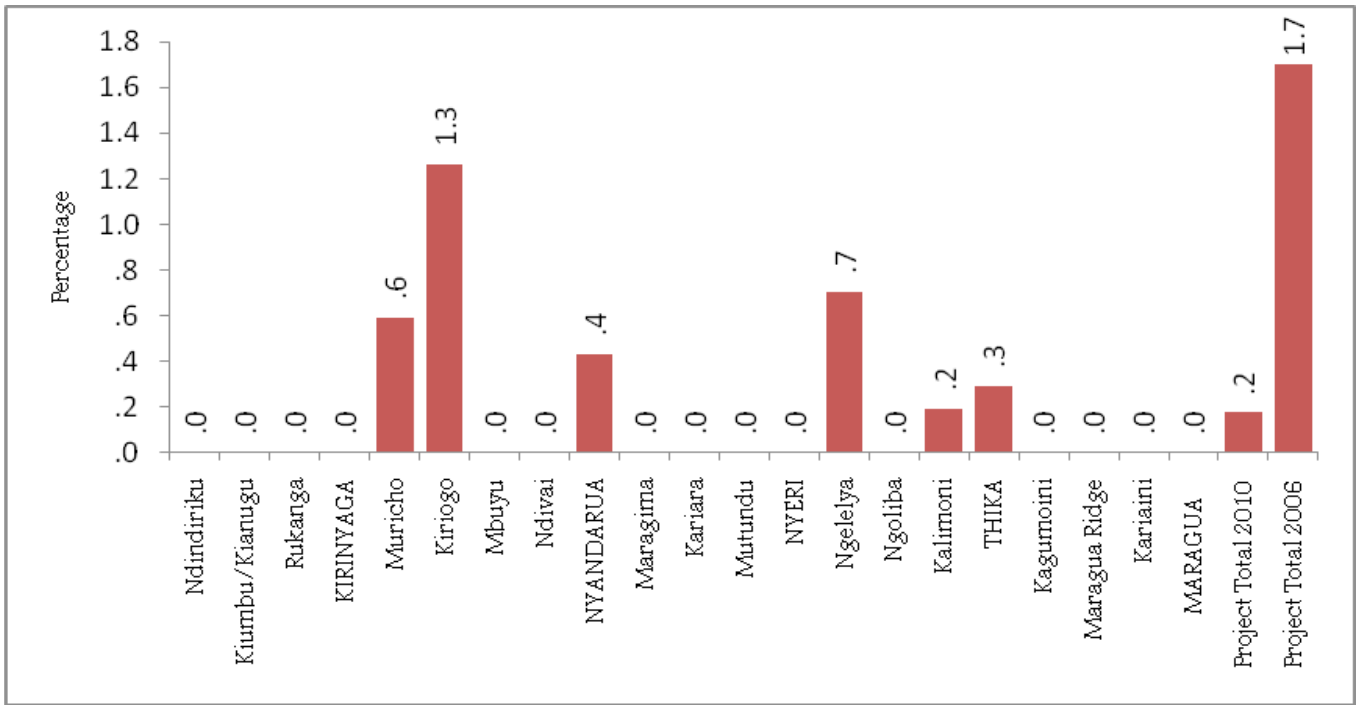
Table 6.61: Percentage distribution of frequency of Poultry vaccination in last 12 months

District/FDAs	<2 times	3 - 5 times	6 - 10 times	10+ times	Average	Median	Maximum	Total Sample
Ndindiriku	92.3	7.7	.0	.0	1.7	2.0	3.0	14
Kiumbu/Kianugu	100.0	.0	.0	.0	1.5	1.5	2.0	6
Rukanga	79.9	12.4	7.8	.0	1.9	1.0	6.0	19
KIRINYAGA	**87.3**	**8.9**	**3.8**	**.0**	**1.8**	**1.0**	**6.0**	**38**
Muricho	.0	.0	100.0	.0	8.5	8.5	10.0	4
Kiriogo	.0	38.7	.0	61.3	8.7	11.0	12.0	3
Mbuyu	**36.1**	**38.9**	**.0**	**25.0**	**5.9**	**3.6**	**24.0**	**5**
Ndivai	58.0	24.2	.0	17.8	3.4	1.6	12.0	3
NYANDARUA	**23.9**	**25.8**	**25.8**	**24.5**	**6.6**	**5.6**	**24.0**	**16**
Maragima	100.0	.0	.0	.0	1.0	1.0	1.0	1
Kariara	100.0	.0	.0	.0	1.4	1.0	2.0	3
Mutundu	100.0	.0	.0	.0	1.0	1.0	1.0	1
NYERI	**100.0**	**.0**	**.0**	**.0**	**1.3**	**1.0**	**2.0**	**5**
Ngelelya	79.8	16.0	.0	4.2	2.7	2.0	25.0	36
Ngoliba	75.0	19.0	.0	6.0	2.5	2.0	12.0	20
Kalimoni	88.1	11.3	.0	.6	1.7	2.0	12.0	54
THIKA	**83.0**	**14.2**	**.0**	**2.8**	**2.2**	**2.0**	**25.0**	**110**
Kagumoini	100.0	.0	.0	.0	2.0	2.0	2.0	0
Maragua Ridge	74.1	25.9	.0	.0	2.5	2.0	4.0	4
Mariaini	100.0	.0	.0	.0	1.0	1.0	1.0	1
MARAGUA	**78.6**	**21.4**	**.0**	**.0**	**2.3**	**2.0**	**4.0**	**5**
Project Total 2010	**78.7**	**14.0**	**3.2**	**4.1**	**2.5**	**2.0**	**25.0**	**175**
Project Total 2006	**64.5**	**5.1**	**3.5**		**2**	**1**	**8**	**49**

(v) Rabbit vaccinations

Figure 6.10 shows that rabbit rearing is not common in the project area.

Figure 6.10 Rabbits Vaccination in the last 12 months



6.4.6 Pest Control

All the respondents who reported to have reared livestock during the last 12 months preceding the survey were asked to list the various ways of pest control in their animals. It should be noted that different kinds of pests attack different animals. For example, ticks are common in cattle, sheep and goats but not in poultry. The results should therefore be interpreted with caution since it has been generalized and not differentiated per livestock type.

Table 6.62 shows the percentage distribution of pest control technique. Four fifths of the households spray their livestock with this being highest in Kiriogo (94%). Physical plucking of ticks was reported in 15 percent of households in Ngoliba.

Table 6.62: Percentage distribution of Pest control technique

District/FDAs	Spraying	Using Communal Dips	Physical plucking of ticks	Using traditional herbs	Other	None	Sample
Ndindiriku	87.3	4.6	.0	.0	1.7	6.3	74
Kiumbu/Kianugu	91.2	.0	4.4	8.8	.0	4.4	64
Rukanga	89.6	.0	1.1	.0	5.9	6.0	148
KIRINYAGA	**89.4**	**1.2**	**1.5**	**2.0**	**3.5**	**5.8**	**286**
Muricho	84.2	.6	2.5	.0	.0	15.2	124
Kiriogo	93.6	.8	1.8	.0	1.1	5.2	67
Mbuyu	**60.7**	**33.6**	**3.7**	**.0**	**3.8**	**6.9**	**108**
Ndivai	82.9	13.4	3.5	.0	2.3	5.5	51
NYANDARUA	**78.6**	**12.7**	**2.9**	**.0**	**1.7**	**9.3**	**350**
Maragima	87.9	3.7	.9	.0	2.9	9.3	88
Kariara	77.5	2.0	.0	.0	12.0	11.5	78
Mutundu	71.0	.0	1.1	.0	5.4	22.6	102
NYERI	**78.5**	**1.8**	**.7**	**.0**	**6.5**	**15.0**	**268**
Ngelelya	84.8	3.0	3.8	5.7	.0	10.3	160
Ngoliba	76.6	7.9	14.7	2.0	.6	8.7	150
Kalimoni	83.5	15.3	1.5	2.0	.0	9.5	263
THIKA	**82.1**	**9.9**	**5.6**	**3.0**	**.1**	**9.5**	**573**
Kagumoini	67.0	.5	.8	.0	.6	31.7	135
Maragua Ridge	87.9	.0	1.9	3.1	1.9	10.1	106
Mariaini	59.6	.7	.0	.0	.0	39.7	70
MARAGUA	**72.4**	**.4**	**1.0**	**1.0**	**.9**	**26.1**	**311**
Project Total 2010	**80.3**	**6.2**	**2.9**	**1.5**	**2.1**	**12.6**	**1 789**
Project Total 2006	**48**	**4.6**	**2.2**	**3.6**	**6.3**	**39.7**	**1 857**

Spraying of livestock increased by 32 percent while households reporting non use of any method declined by 27 percent. A decline is also observed in the number of households using any method of pest control within the study period (from 1,857 to 1,789).

Table 6.63 shows the percentage distribution of households with livestock in the one year period preceding the survey that also practiced animal husbandry. Animal husbandry was highest among cattle farmers (19%) followed by sheep and goat farming (10% each) and finally poultry farming at 8 percent.

Table 6.63: Percentage distribution of Households with Livestock in last 12 months and Practicing Animal Husbandry

District/FDAs	Cattle	Sheep	Goats	Poultry	Rabbits	Other	Total
Ndindiriku	15.0	1.5	8.4	7.0	.3	.2	120
Kiumbu/Kianugu	10.3	.0	6.5	3.0	.0	.4	91
Rukanga	16.6	3.3	8.6	6.1	.3	.0	194
KIRINYAGA	**14.7**	**2.1**	**8.1**	**5.7**	**.2**	**.1**	**405**
Muricho	19.8	18.6	7.5	10.0	1.4	.2	163
Kiriogo	29.8	20.8	3.0	9.3	.2	.0	73
Mbuyu	**24.6**	**22.4**	**8.0**	**8.3**	**1.4**	**.1**	**134**
Ndivai	23.6	18.5	3.2	4.4	.4	.0	64
NYANDARUA	**23.5**	**20.1**	**6.3**	**8.6**	**1.1**	**.1**	**434**
Maragima	23.5	22.4	5.3	9.2	1.3	.1	98
Kariara	22.8	3.5	11.4	10.1	1.2	.1	85
Mutundu	15.4	3.2	11.5	7.9	.7	.0	109
NYERI	**20.3**	**9.7**	**9.4**	**9.0**	**1.1**	**.1**	**291**
Ngelelya	19.6	3.6	16.2	10.6	.8	.0	188
Ngoliba	12.3	6.4	12.9	4.7	.4	.0	185
Kalimoni	22.1	19.8	8.1	9.2	.5	.3	341
THIKA	**18.9**	**12.1**	**11.5**	**8.4**	**.6**	**.1**	**713**
Kagumoini	15.2	3.0	9.6	5.3	.2	3.7	160
Maragua Ridge	17.3	3.6	13.4	7.2	.3	.0	128
Mariaini	10.5	.7	12.5	7.2	.5	.3	91
MARAGUA	**14.8**	**2.7**	**11.6**	**6.4**	**.3**	**1.6**	**379**
Project Total 2010	**18.5**	**9.9**	**9.6**	**7.7**	**.6**	**.4**	**2222**

7

Chapter Seven:

INCOME GENERATING ACTIVITIES AND SAVINGS

7.1 INCOME GENERATING ACTIVITIES

Succeeding rural development approaches share the distinct feature of taking a more holistic view on rural households. Among rural households there is a great degree of heterogeneity in asset position and in income generating activities. Rural households are engaged in a wide variety of activities. They cultivate crops on their farms, work as wage labourers on other farms, retail trade or small scale manufacturing processes. The 2010 Household Impact Survey sought to establish progress made by households from the FDAs towards income generating activities and savings made thereof. The findings are also compared with the situation during the 2006 Baseline Survey of the FDAs.

Table 7.1 presents details on the kind of income generating activities by households in the FDAs. Nearly one in every four households within the FDAs is engaged in an income generating activity. Overall, most households (7.9%) engage in horticulture farming. Horticulture farming, as an income generating activity, was reported by most households in Kirinyaga with a proportion of 14.8 percent, which was lower than 15.4 percent reported in 2006. Kiumbu/Kianugu FDA reported the highest proportion (28.0%) of households that engaged in horticulture farming. Although there was a decline in the overall proportion of households engaged in manufacturing processes to 0.5 percent, there was a slight improvement by households within FDAs of Kirinyaga and Nyandarua when compared to the situation in 2006. The proportion of households that reported buying and selling cereals increased from 2.6 percent in 2006 to 2.9 percent in 2010, which was associated with increased participation within FDAs in Kirinyaga and Nyandarua. However, trade in animals during 2010 was reported by fewer households (1.5%) compared with the scenario in 2006. This may be attributed to business substitution from animal trading to shop keeping, which was reported by more households (5.0%) as opposed to 3.7 percent in 2006.

Table 7.1: Percentage distribution of Households undertaking IGAs

Districts/FDAs	Buying and Selling Cereals	Shop	Animal trading	Horticulture farming	Manu-facturing Processing	Buying and Selling Fruits	Other	None	Total Sample
Ndindiriku	3.0	3.0	1.0	23.0	1.0	6.0	10.0	62.0	100
Kiumbu/Kianugu	2.0	4.0	2.0	28.0	2.0	6.0	16.0	50.0	50
Rukanga	2.9	4.6	.6	6.3	1.7	7.4	16.6	67.4	175
KIRINYAGA	**2.8**	**4.0**	**.9**	**14.8**	**1.5**	**6.8**	**14.5**	**63.1**	**325**
Muricho	4.0	3.5	.0	.0	.0	2.9	8.7	82.1	173
Kiriogo	4.1	4.1	.0	.0	.0	5.0	10.7	78.5	121
Mbuyu	**5.8**	**5.3**	**4.9**	**1.2**	**.8**	**3.3**	**2.9**	**81.9**	**243**
Ndivai	1.0	2.0	.0	3.1	.0	3.1	4.1	86.7	98
NYANDARUA	**4.3**	**4.1**	**1.9**	**.9**	**.3**	**3.5**	**6.1**	**82.0**	**635**
Maragima	4.8	2.4	4.0	2.4	.0	5.6	9.6	76.0	125
Kariara	2.0	1.3	.0	1.3	.0	3.3	12.0	83.3	150
Mutundu	.6	1.7	1.1	7.4	.0	2.3	17.1	78.3	175
NYERI	**2.2**	**1.8**	**1.6**	**4.0**	**.0**	**3.6**	**13.3**	**79.3**	**450**
Ngelelya	1.4	5.7	.2	1.4	.7	2.5	2.5	87.5	440
Ngoliba	4.9	6.5	1.0	3.3	.3	8.5	5.6	77.5	306
Kalimoni	3.3	10.6	3.6	1.9	.8	1.9	2.5	80.5	359
THIKA	**3.0**	**7.5**	**1.5**	**2.1**	**.6**	**4.0**	**3.3**	**82.4**	**1105**
Kagumoini	1.0	3.9	.7	.7	.3	2.3	4.3	88.5	304
Maragua Ridge	5.0	2.5	2.5	24.4	.0	14.3	1.7	58.0	119
Kariaini	1.6	6.3	1.6	4.7	.0	5.8	7.9	74.9	191
MARAGUA	**2.0**	**4.4**	**1.3**	**6.5**	**.2**	**5.7**	**4.9**	**78.3**	**614**
Project Total 2010	**2.9**	**5.0**	**1.5**	**4.3**	**.5**	**4.4**	**6.8**	**79.1**	**3129**
Project Total 2006	**2.6**	**3.7**	**2.3**	**3.4**	**0.8**		**13.2**	**73.5**	**2,175**

7.2 HOUSEHOLD MEMBERS INVOLVED IN INCOME GENERATING ACTIVITIES

The percentage distribution of households with members involved in income generating activities within the FDA is shown in Table 7.2. One in every five households reported to have members engaged in horticulture farming. This was a decline compared to the engagements in 2006 when three in every 10 households reported to have members engaged in horticulture farming. This could be attributed to changes in distribution of preference in income generating activities by household members, especially in Kirinyaga where they seem to have diversified when compared to the situation in 2006. These resulted in FDAs in Maragua (38.3%) having the highest proportion of households that had members engaged in horticulture farming. The households that reported to have members engaging in buying and selling of cereals was 9.1percent, with FDAs in Nyandarua, Thika and Nyeri reporting 13.2 percent, 12.3 percent and 11.7 percent respectively, having the highest representation. Nearly one in every five households reported to have members engaged in buying and selling of fruits. Although this income generating activity is practiced in all the Districts, Thika and Maragua were the leading, with Ngoliba (35.0%) having the most household members.

Table 7.2: Percentage distribution of household with members involved in income generating activities

Districts/FDAs	Buying and selling cereals	Shop	Animal trading	Horticulture farming	Manufacturing	Buying and selling fruits	other	Total Sample
Ndindiriku	4.5	13.4	3.3	43.2	4.5	11.4	19.8	61
Kiumbu/Kianugu	3.7	3.6	7.4	44.4	3.7	11.0	26.1	61
Rukanga	4.5	10.5	1.1	16.7	4.4	15.4	47.4	85
KIRINYAGA	**4.3**	**9.4**	**3.6**	**32.9**	**4.2**	**12.9**	**32.7**	**207**
Muricho	6.2	18.2	1.7	.0	.0	16.0	57.9	51
Kiriogo	17.8	16.5	.0	.0	.0	22.6	43.1	17
Mbuyu	**22.6**	**19.7**	**28.8**	**6.7**	**2.1**	**10.4**	**9.7**	**25**
Ndivai	10.8	7.1	.0	21.4	.0	25.1	35.5	8
NYANDARUA	**13.2**	**17.6**	**9.2**	**3.5**	**.6**	**16.1**	**39.8**	**101**
Maragima	17.5	9.5	15.3	9.0	.0	17.6	31.1	29
Kariara	10.9	4.7	.0	5.6	2.8	16.6	59.4	18
Mutundu	3.0	10.4	6.0	19.4	.0	14.0	47.2	21
NYERI	**11.7**	**8.5**	**8.6**	**10.9**	**.7**	**16.3**	**43.2**	**68**
Ngelelya	9.6	36.8	.0	11.2	3.3	20.1	19.1	27
Ngoliba	12.6	20.1	4.4	9.0	.0	35.0	18.9	85
Kalimoni	12.8	41.2	14.9	10.1	1.7	9.2	10.1	106
THIKA	**12.3**	**32.4**	**9.1**	**9.8**	**1.2**	**20.6**	**14.6**	**218**
Kagumoini	7.6	27.3	7.5	3.3	1.1	27.2	26.0	20
Maragua Ridge	5.3	6.5	5.3	58.1	.0	20.1	4.8	56
Kariaini	6.2	23.2	7.2	23.3	.0	12.3	27.9	26
MARAGUA	**5.9**	**14.9**	**6.2**	**38.3**	**.2**	**19.5**	**14.9**	**101**
Project Total 2010	**9.1**	**18.9**	**7.0**	**19.8**	**1.8**	**17.1**	**26.2**	**695**
Project Total 2006	**10**	**13**	**8.9**	**29.2**	**3.4**		**51.1**	**514**

7.3 MEMBERS ENGAGED IN INCOME GENERATING ACTIVITIES ON FULL TIME BASIS

The percentage distribution of household members with income generating activities on a full time basis is presented in Table 7.3. Most households reported to have members engaged in shop keeping (23.8%) on full time basis. This was a change in preference of income generating activities by household members when compared to the situation during the 2006 Baseline study which reported 24.5 percent engaged in horticulture on full time basis. Shop keeping was a full time activity for FDAs in Thika, where Ngelelya and Kalimoni reported 44.7 percent and 42.3 percent of their members engaged, respectively. Horticulture, as a full time activity continued to be practiced mainly by FDAs in Kirinyaga at 33.4 percent, which was nearly a third of the level reported in 2006. Buying and selling of fruits was a full time activity for 16.1 percent of all the household members within the FDAs. Trading in animals was practiced by more household members on a full time basis during the review period compared to the situation in 2006. Manufacturing processes were practiced by fewer household members than during 2006. Buying and selling of cereals was practiced by slightly fewer members compared to 2006, which may be associated with the season.

Table 7.3: Percentage distribution of Members with IGAs on full time basis

Districts/FDAs	Buying and selling cereals	Shop	Animal trading	Horticulture farming	Manufacturing	Buying and selling fruits	other	Total Sample
Ndindiriku	1.7	16.5	4.1	38.7	5.5	12.3	21.2	48
Kiumbu/Kianugu	.0	.0	11.1	55.5	.0	5.5	28.0	44
Rukanga	.0	11.3	1.4	14.5	4.1	15.7	52.9	64
KIRINYAGA	**.6**	**10.0**	**4.9**	**33.4**	**3.5**	**11.9**	**35.7**	**157**
Muricho	4.0	15.7	2.8	.0	.0	.0	77.5	33
Kiriogo	6.4	32.4	.0	.0	.0	22.9	38.4	8
Mbuyu	**19.9**	**29.9**	**21.3**	**6.6**	**3.1**	**9.7**	**9.6**	**19**
Ndivai	.0	34.2	.0	.0	.0	.0	65.8	2
NYANDARUA	**9.7**	**23.5**	**8.6**	**2.3**	**1.0**	**6.5**	**48.3**	**62**
Maragima	17.9	15.0	14.0	10.7	.0	17.9	24.4	17
Kariara	19.6	8.6	.0	.0	.0	28.7	43.1	6
Mutundu	.0	22.8	8.7	.0	.0	15.7	52.8	7
NYERI	**14.6**	**15.4**	**10.3**	**6.6**	**.0**	**19.5**	**33.6**	**30**
Ngelelya	5.4	44.7	.0	.0	5.0	15.8	29.1	20
Ngoliba	9.2	19.6	.0	5.8	.0	41.2	24.2	67
Kalimoni	10.9	42.3	14.1	10.6	1.8	9.7	10.6	103
THIKA	**9.8**	**35.2**	**8.2**	**8.1**	**1.5**	**20.5**	**16.7**	**190**
Kagumoini	7.5	36.8	.0	2.5	1.7	17.2	34.3	13
Maragua Ridge	.0	17.3	.0	28.5	.0	46.2	7.9	10
Kariaini	.0	38.1	10.0	9.3	.0	14.3	28.3	14
MARAGUA	**2.7**	**31.8**	**3.6**	**12.3**	**.6**	**24.3**	**24.7**	**38**
Project Total 2010	**6.5**	**23.8**	**7.0**	**16.0**	**1.9**	**16.1**	**28.6**	**476**
Project Total 2006	**7.6**	**15.3**	**5.6**	**24.5**	**3.2**		**53.9**	**371**

7.4 HOUSEHOLD SAVING METHODS

The number of households that kept their cash savings in the house increased to 56.0 percent during the review period compared to 51.8 percent reported during 2006, as shown in Table 7.4. This may be attributed to the nature of income generating activities that household members are engaged in. In an ideal situation, people tend to keep some money to enable them transact at any time of the day. The number of households opting to save their cash in banks increased from 18.6 percent in 2006 to 31.4 percent during the review period. The increased number of households opting for bank savings was reported by all FDAs except in Nyeri. Nearly three in every ten households prefer having their cash savings in mobile phones. Savings through merry-go-rounds and/or a trusted person/relative was reported by fewer households during the review period when compared to the situation in 2006. The highest proportion of households that prefer saving through merry-go-rounds was reported by households in Nyeri FDAs, while Kiriaini FDA in Maragua had most households using this means.

Table 7.4: Percentage distribution of methods of cash saving used by households

Districts/FDAs	Kept in the house	Bank savings	Mobile Phone	Merry go round	Keeping with trusted person	Other	None	Total Sample
Ndindiriku	59.0	23.0	21.0	30.0	6.0	5.0	.0	100
Kiumbu/Kianugu	52.0	28.0	32.0	22.0	.0	.0	6.0	50
Rukanga	50.3	33.1	25.1	29.7	1.7	2.9	2.3	175
KIRINYAGA	**53.2**	**29.2**	**24.9**	**28.6**	**2.8**	**3.1**	**2.2**	**325**
Muricho	48.0	34.7	45.7	32.9	1.7	4.6	6.9	173
Kiriogo	37.2	29.8	49.6	29.8	.8	2.5	9.1	121
Mbuyu	**48.1**	**32.1**	**40.7**	**28.4**	**3.7**	**1.2**	**8.2**	**243**
Ndivai	46.9	30.6	42.9	27.6	5.1	.0	4.1	98
NYANDARUA	**45.8**	**32.1**	**44.1**	**29.8**	**2.8**	**2.2**	**7.4**	**635**
Maragima	53.6	29.6	26.4	37.6	1.6	5.6	2.4	125
Kariara	58.0	46.7	30.7	30.0	.0	6.0	2.0	150
Mutundu	69.7	39.4	22.9	34.3	.6	2.3	1.1	175
NYERI	**61.3**	**39.1**	**26.4**	**33.8**	**.7**	**4.4**	**1.8**	**450**
Ngelelya	54.5	15.9	25.5	20.2	.7	.7	19.3	440
Ngoliba	45.4	33.3	30.7	18.3	.3	3.6	10.8	306
Kalimoni	47.9	34.5	42.6	21.2	.8	3.1	11.1	359
THIKA	**49.9**	**26.8**	**32.5**	**20.0**	**.6**	**2.3**	**14.3**	**1,105**
Kagumoini	75.0	36.2	25.3	33.9	.0	1.3	1.6	304
Maragua Ridge	63.0	41.2	36.1	14.3	.0	3.4	1.7	119
Kariaini	82.2	27.7	26.2	39.8	1.6	1.0	1.0	191
MARAGUA	**74.9**	**34.5**	**27.7**	**31.9**	**.5**	**1.6**	**1.5**	**614**
Project Total 2010	**56.0**	**31.4**	**32.2**	**27.2**	**1.3**	**2.5**	**7.3**	**3,129**
Project Total 2006	**51.8**	**18.6**		**33.7**	**1.9**	**2.8**	**19.5**	**2,175**



8

Chapter Eight:
GROUP DEVELOPMENT

8.1 INTRODUCTION

The objective of this component was to strengthen capacities of beneficiaries to be able to mobilize their own resources and manage water, health, agriculture and off-farm income generating projects that are implemented through the Project. Project group activities include organizing the target population and establishing viable and sustainable water, health, agriculture and income generating groups.

To make conclusions on the extent to which the project has strengthened these groups, the survey collected data on organization structures of these groups, current activities they are involved in, strengths in terms of management and capacity building, etc. In all the FDAs, groups interviewed fell under Community Groups which were either self help, men, women, youth or project groups. Community Based Organizations (CBOs) were found only in Thika District.

8.2 TYPES OF GROUPS AND REGISTRATION

Groups are categorized as cooperative societies, trade/business associations, sports associations, cultural associations, faith based organizations, community based organizations and community groups. Community groups are further divided into women groups, self help groups, youth groups, men groups, etc.

From Table 8.1, 67.1 percent of the groups interviewed were self help groups and 2.4 percent were self help projects (trade/business associations). Further, 19 percent were women groups and only 2.4 percent were youth groups. Men groups and community based organizations (CBOs) were each at 1.2 percent and unspecified groups were 2.4 percent. Self help groups are the majority in all the FDAs with Mutundu having 88.9 percent and Rukanga the least number at 33.3 percent.

The 2010 survey results indicate a general increase in the number of groups, especially self help groups (60.7% to 67.1%). Women and youth groups have declined from 25 percent to 19 percent and 3.6 percent to 2.4 percent respectively. Previously, men groups were not reported but are noted only in Karukungu (14.3%).

Table 8.1: Types of Groups Operating in the FDAs

	Type of Groups							
FDA	**Trade/Business Associations**	**CBO**	**Women Group**	**Men Group**	**Self Help Group**	**Youth Group**	**Other**	**Number of Groups**
Kirinyaga								
Karukungu	14.3	0.0	0.0	14.3	71.4	0.0	0.0	7
Rukanga	33.3	0.0	0.0	0.0	33.3	0.0	33.3	3
Total	**20.0**	**0.0**	**0.0**	**10.0**	**60.0**	**0.0**	**10.0**	**10**
Nyandarua								
Mbuyu	0.0	0.0	25.0	0.0	62.5	12.5	0.0	8
Ndivai	0.0	0.0	33.3	0.0	66.7	0.0	0.0	9
Total	**0.0**	**0.0**	**29.4**	**0.0**	**64.7**	**5.9**	**0.0**	**17**
Nyeri								
Kariara	0.0	0.0	0.0	0.0	66.7	0.0	33.3	3
Mutundu	0.0	0.0	11.1	0.0	88.9	0.0	0.0	9
Total	**0.0**	**0.0**	**8.3**	**0.0**	**83.3**	**0.0**	**8.3**	**12**
Thika								
Ngelelya	0.0	0.0	22.2	0.0	77.8	0.0	0.0	9
Ngoliba	0.0	9.1	36.4	0.0	54.5	0.0	0.0	11
Total	**0.0**	**5.0**	**30.0**	**0.0**	**65.0**	**0.0**	**0.0**	**20**
Maragwa								
Kagumoini	0.0	0.0	23.1	0.0	69.2	7.7	0.0	13
Mariaini	0.0	0.0	40.0	0.0	60.0	0.0	0.0	10
Total	**0.0**	**0.0**	**30.4**	**0.0**	**65.2**	**4.3**	**0.0**	**23**
Project 2010	**2.4**	**1.2**	**19.0**	**1.2**	**67.1**	**2.4**	**2.4**	**82**
Project 2006	**0.0**	**1.8**	**25.0**	**0.0**	**69.6**	**3.6**	**0.0**	**168**

8.3 THE YEAR GROUPS WERE FORMED

Graphs 8.1 and 8.2 below show that most of the groups were formed between 2001 and 2007. Out of the 81 groups interviewed, 55 groups (67.9%) were formed in this period.

Figure 8.1: Number of Groups and Years they were formed

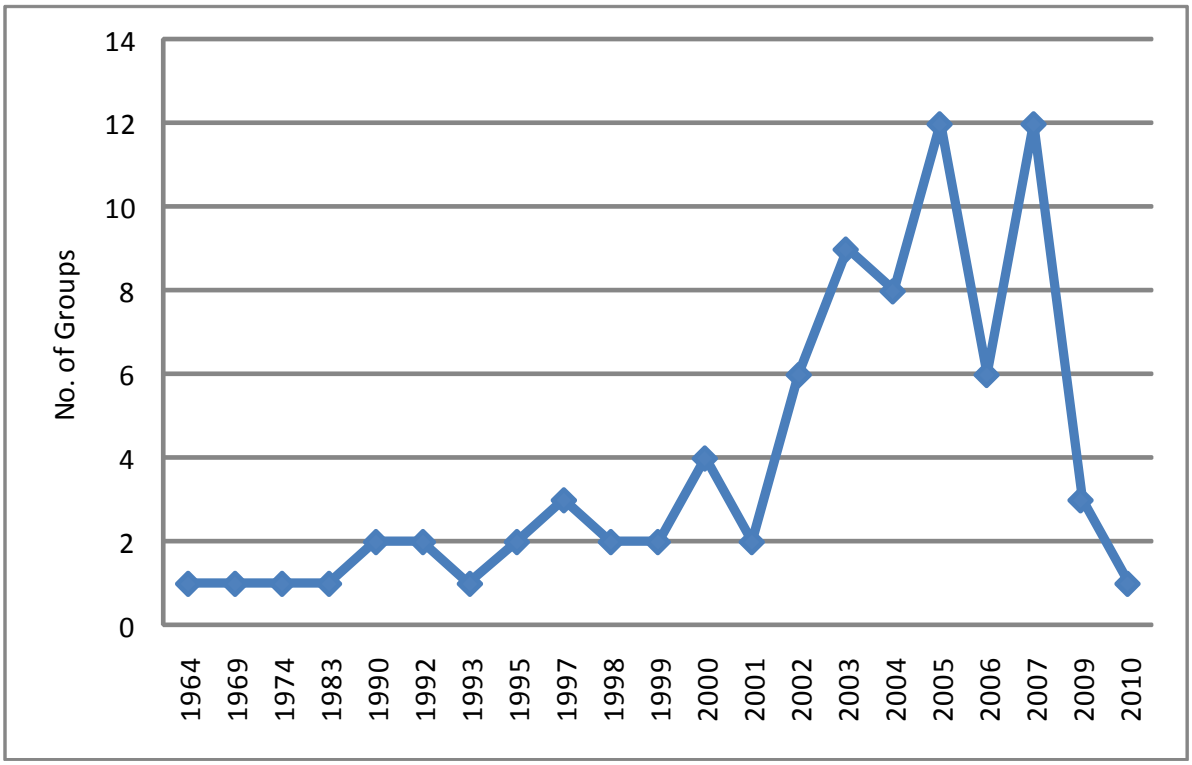


Figure 8.2: Percentage of the groups formed at various years

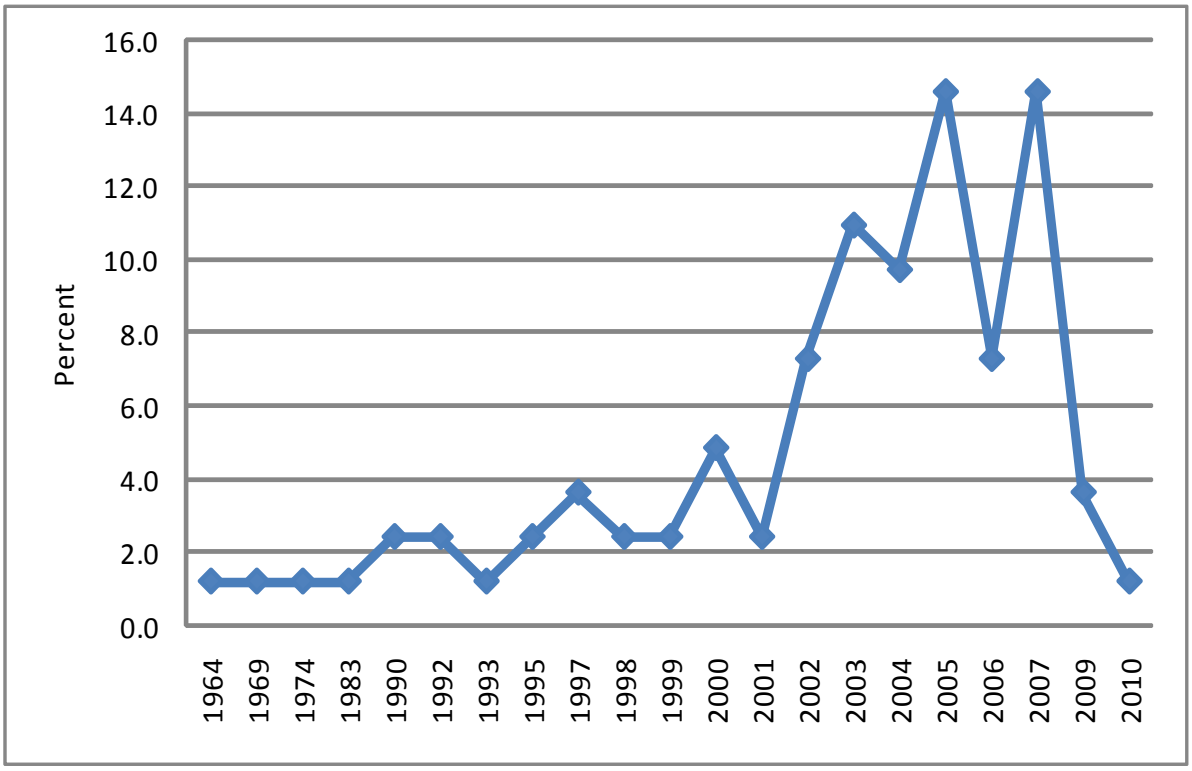


Table 8.2 below, which is related to the 2 graphs above, gives the analysis of ages of the groups. Most groups (32.1%) were found to be between 4 to 6 years old, many of them being in Nyeri (41.7%). Groups between 7 to 10 years were 25.9 percent and those over 10 years were only 22.2 percent.

Groups formed after the 2006 baseline survey were 19.8 percent (Maragwa 45.5%, Kirinyaga 30%, Nyandarua 11.8%, Thika 5% and Nyeri 0%). There is a decline in groups that were less than 3 years during the baseline survey at 45.8 percent to 32.1 percent (currently between 4 to 6 yrs).

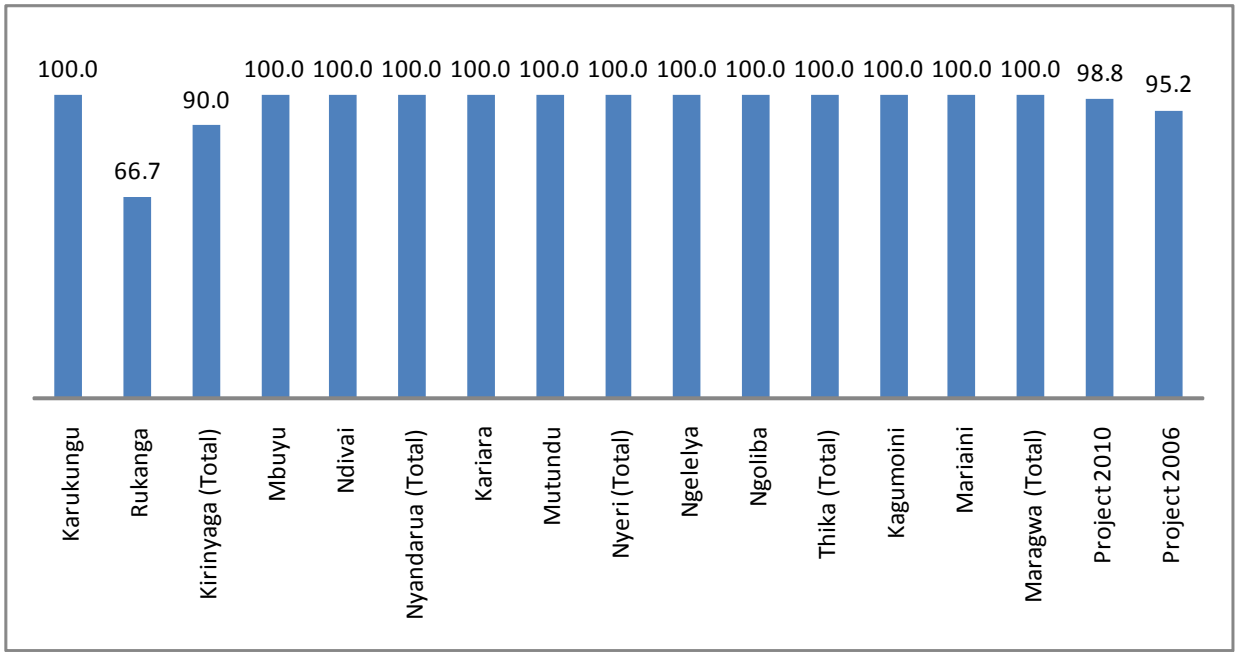
Table 8.2: Age of the groups

FDAs	3 years and below	4 to 6 years	7 to 10 years	More than 10 years	Maximum Age (Oldest)	Number of Groups
Kirinyaga						
Karukungu	42.9	14.3	0.0	42.9	18	7
Rukanga	0.0	66.7	33.3	0.0	10	3
Total	**30.0**	**30.0**	**10.0**	**30.0**	**18**	**10**
Nyandarua						
Mbuyu	25.0	25.0	12.5	37.5	46	8
Ndivai	0.0	44.4	22.2	33.3	27	9
Total	**11.8**	**35.3**	**17.6**	**35.3**	**46**	**17**
Nyeri						
Kariara	0.0	0.0	100.0	0.0	7	3
Mutundu	0.0	55.6	0.0	44.4	36	9
Total	**0.0**	**41.7**	**25.0**	**33.3**	**36**	**12**
Thika						
Ngelelya	11.1	33.3	55.6	0.0	10	9
Ngoliba	0.0	9.1	54.5	36.4	15	11
Total	**5.0**	**20.0**	**55.0**	**20.0**	**15**	**20**
Maragwa						
Kagumoini	33.3	41.7	16.7	8.3	41	12
Mariaini	60.0	30.0	10.0	0.0	8	10
Total	**45.5**	**36.4**	**13.6**	**4.5**	**41**	**22**
Project 2010	**19.8**	**32.1**	**25.9**	**22.2**	**46**	**81**
Project 2006	**45.8**	**25**	**16.1**	**11.3**	**38**	**168**

8.4 GROUP REGISTRATION STATUS AND REGISTERING AUTHORITY

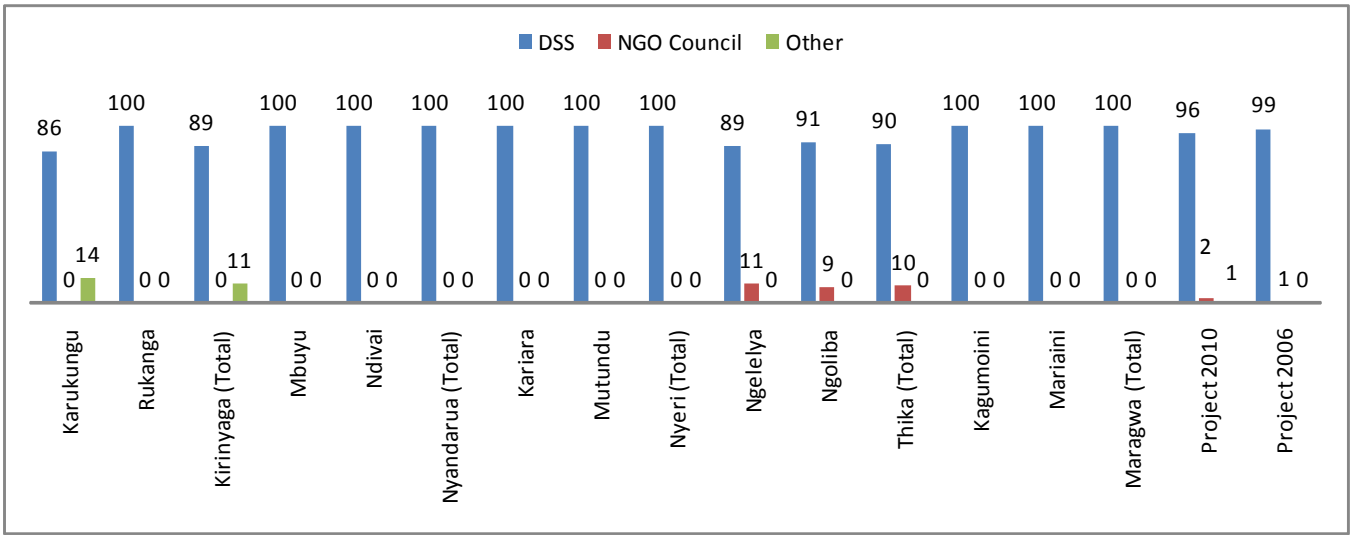
Figure 8.3 shows the distribution of registered groups by FDAs. Most of the groups 98.8 percent (previously 95.2%) were found to be registered. Registration is relatively high in all FDAs except in Rukanga (66.7%).

Figure 8.3: Percent Distribution of Registration Status of Groups



Department of Social Services (DSS) of the Ministry of Gender, Culture and Social Services is the main group registering authority of the interviewed groups as indicated in Figure 8.4. 96.3 percent are registered with the department, 2.5 percent of the groups are registered with NGO council and 1.2 percent are registered with Other.

Figure 8.4: Groups Registering Authority by FDAs



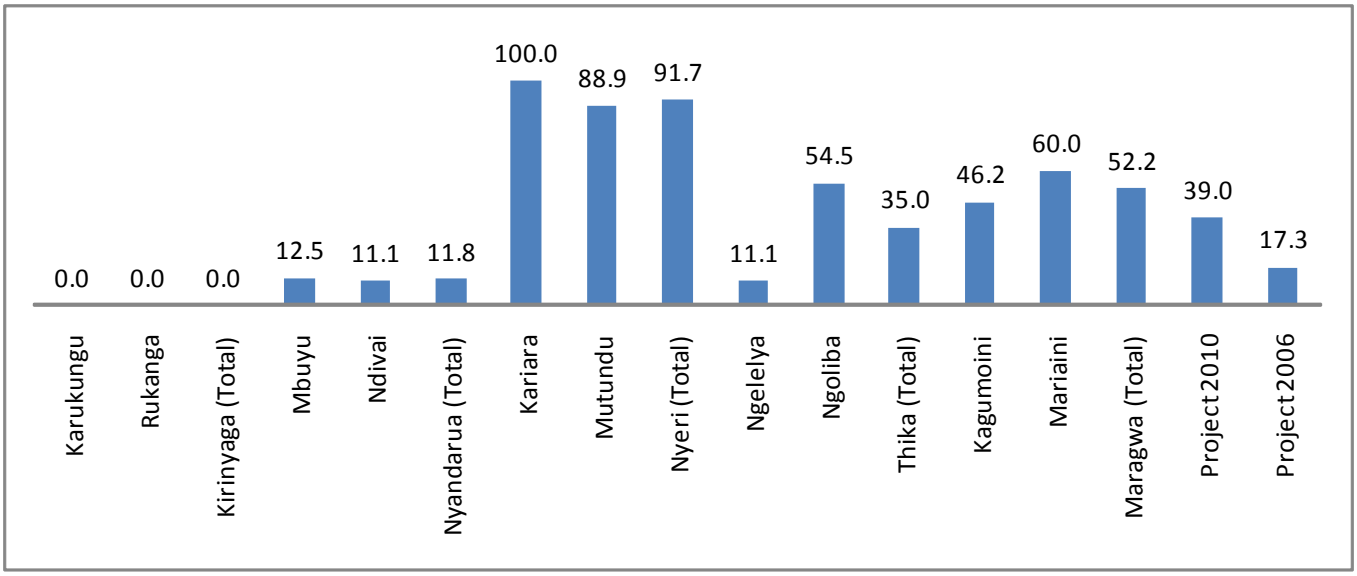
Only from Ngelelya FDA (Thika) were 11.1 percent of the groups registered with the NGO council and while in Karukungu FDA 14.3 percent of the groups were registered with others. Comparatively, there has been a total shift from registration by cooperatives to registration with NGO Council, especially in Ngelelya.

8.5 GROUP AFFILIATION

In this context, affiliation is defined as partnering with certain development partners or being registered for cooperation purpose with another organization. From Figure 8.5 only 39.0 percent of the sampled groups were found to be affiliated to different organizations. The affiliation is highest in Nyeri District at 91.7 percent with Kariara FDA having 100 percent and Mutundu FDA with 88.9 percent. The highest number of the groups (61.0%) however, is not affiliated to any organization. Karukungu and Rukanga FDAs had none of the groups interviewed being affiliated to any organization.

Generally, there is an increase in affiliations; Nyeri increased from 4 percent to 91.7 percent while Nyandarua from 6.3 percent to 11.8 percent and Maragua from 14.6 percent to 52.2 percent.

Figure 8.5: Percent Distribution of Affiliated Groups



For those groups with affiliation, most of them (53.1%) are affiliated to IFAD (Table 8.3).
K-rep, DGAK, World Vision, CKDAP and NACC have each 3.1 percent of the groups affiliated to them. Similarly, others (FBOs, CBO, NGO, and International Bodies) are 3.1 percent (previously 41.4%) while groups affiliated to the GoK ministry are 31.3 percent.

Table 8.3: Percent Distribution of Group Affiliations

FDAs	IFAD	GoK Ministry	K-Rep	Local CBO	DGAK	World Vision	CKDAP	NACC	Other	Not stated	Number of Groups
Karukungu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Rukanga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Kirinyaga (Total)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**
Mbuyu	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Ndivai	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Nyandarua (Total)	**0.0**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2**
Kariara	66.7	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
Mutundu	62.5	50.0	0.0	0.0	12.5	0.0	12.5	12.5	0.0	0.0	8
Nyeri (Total)	**63.6**	**54.5**	**0.0**	**0.0**	**9.1**	**0.0**	**9.1**	**9.1**	**0.0**	**0.0**	**11**
Ngelelya	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Ngoliba	16.7	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	0.0	6
Thika (Total)	**14.3**	**0.0**	**0.0**	**85.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**7**
Kagumoini	83.3	16.7	16.7	0.0	0.0	0.0	0.0	0.0	16.7	0.0	6
Mariaini	66.7	16.7	0.0	0.0	0.0	16.7	0.0	0.0	0.0	16.7	6
Maragwa (Total)	**75.0**	**16.7**	**8.3**	**0.0**	**0.0**	**8.3**	**0.0**	**0.0**	**8.3**	**8.3**	**12**
Project 2010	**53.1**	**31.3**	**3.1**	**18.8**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**32**

Others (FBO, CBO, NGO, International Bodies)

8.6 GROUP MEMBERSHIP BY GENDER

The purpose was to establish distribution of men and women in the groups. The groups were asked to provide the total membership by gender. The results are presented in Table 8.4 below.

Table 8.4: Percent Distribution of the Number of Men in the Groups

FDAs	None	1-10	11-20	21-50	50-100	Average	Maximum	Number of Groups
Karukungu	14.3	14.3	57.1	14.3	0.0	14	33	7
Rukanga	33.3	33.3	0.0	33.3	0.0	11	25	3
Kirinyaga (Total)	**20.0**	**20.0**	**40.0**	**20.0**	**0.0**	**13**	**33**	**10**
Mbuyu	25.0	25.0	37.5	12.5	0.0	13	49	8
Ndivai	33.3	33.3	11.1	22.2	0.0	9	21	9
Nyandarua (Total)	**29.4**	**29.4**	**23.5**	**17.6**	**0.0**	**10**	**49**	**17**
Kariara	0.0	50.0	50.0	0.0	0.0	11	13	2
Mutundu	0.0	12.5	50.0	25.0	12.5	34	59	8
Nyeri (Total)	**0.0**	**20.0**	**50.0**	**20.0**	**10.0**	**30**	**59**	**10**
Ngelelya	22.2	66.7	0.0	11.1	0.0	5	22	9
Ngoliba	18.2	72.7	9.1	0.0	0.0	5	16	11
Thika (Total)	**20.0**	**70.0**	**5.0**	**5.0**	**0.0**	**5**	**22**	**20**
Kagumoini	23.1	15.4	38.5	23.1	0.0	12	33	13
Mariaini	40.0	60.0	0.0	0.0	0.0	3	10	10
Maragwa (Total)	**30.4**	**34.8**	**21.7**	**13.0**	**0.0**	**8**	**33**	**23**
Project 2010	**22.5**	**38.8**	**23.8**	**13.8**	**1.3**	**11**	**59**	**80**
Project 2006	**32.8**	**7.8**	**33.6**	**22.4**	**3.4**	**17**	**100**	**116**

Out of the groups interviewed, 22.5 percent had no men, 38.8 percent had men between1-10; 23.8 percent had men between 11-20; and 13.8 percent had men between 21-50; and between 50-100 constituted 1.3 percent. Generally there is increased male membership in groups with high rates being recorded in Nyeri, Kariara 14.3 percent to 0 percent, Mutundu 13.3 percent to 0 percent such that all groups had male members.

Women were found to be more active than men, as it was found that only 3.7 percent of groups interviewed had no women, while 18.3 percent had women between 1-10; 35.4 percent had women between11-20; 31.7 percent had women between 21-50; and 8.5 percent of the groups had women members between 51-100. The majority members of these groups are women, where on average each group has 24 women members. Most of the group had women members except in Karukungu at 28.6 percent and Kagumoini at 7.7 percent.

Table 8.5: Percent Distribution of Number of Females in the Groups

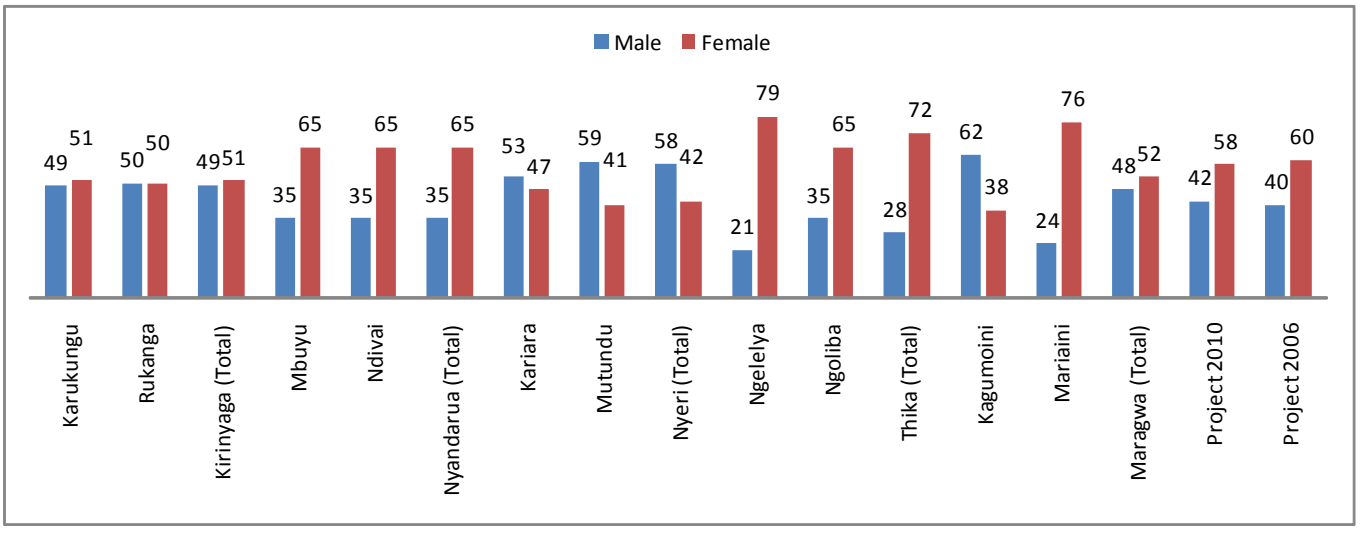
FDAs	None	1-10	11-20	21-50	51-100	100+	Average	Maximum	Number of Groups
Karukungu	28.6	28.6	14.3	0.0	28.6	0.0	22	61	7
Rukanga	0.0	33.3	0.0	66.7	0.0	0.0	24	34	3
Kirinyaga (Total)	**20.0**	**30.0**	**10.0**	**20.0**	**20.0**	**0.0**	**23**	**61**	**10**
Mbuyu	0.0	0.0	50.0	37.5	12.5	0.0	26	57	8
Ndivai	0.0	11.1	44.4	44.4	0.0	0.0	23	50	9
Nyandarua (Total)	**0.0**	**5.9**	**47.1**	**41.2**	**5.9**	**0.0**	**24**	**57**	**17**
Kariara	0.0	33.3	33.3	0.0	0.0	33.3	10	13	3
Mutundu	0.0	22.2	11.1	44.4	11.1	11.1	36	110	9
Nyeri (Total)	**0.0**	**25.0**	**16.7**	**33.3**	**8.3**	**16.7**	**31**	**110**	**12**
Ngelelya	0.0	0.0	44.4	44.4	11.1	0.0	27	68	9
Ngoliba	0.0	9.1	63.6	27.3	0.0	0.0	18	35	11
Thika (Total)	**0.0**	**5.0**	**55.0**	**35.0**	**5.0**	**0.0**	**22**	**68**	**20**
Kagumoini	7.7	38.5	23.1	23.1	7.7	0.0	21	91	13
Mariaini	0.0	20.0	40.0	30.0	10.0	0.0	23	63	10
Maragwa (Total)	**4.3**	**30.4**	**30.4**	**26.1**	**8.7**	**0.0**	**21**	**91**	**23**
Project 2010	**3.7**	**18.3**	**35.4**	**31.7**	**8.5**	**2.4**	**24**	**110**	**82**
Project 2006	**22.6**	**4.5**	**27.7**	**38.7**	**5.8**	**0.6**	**23**	**124**	**155**

8.7 COMMITTEE MEMBERS BY GENDER

Group decisions are made by group committees and therefore the gender composition of these committees is crucial in determining decisions to be taken. The survey was interested in composition of committee members (gender disaggregated), education level, and roles.

From Figure 8.6 below, it was found that women constitute larger number in the committees, totalling 58 percent and men at 42 percent. Kariara, Matundu and Kagumoini were the only FDAs with more men than women in the committees (53%, 59% and 62% respectively). Rukanga had equal representation for both men and women.

Figure 8.6: Percent Distribution of Committee Members by Sex



8.8 LEVEL OF EDUCATION OF COMMITTEE MEMBERS

Over half of the committee members (51.8%) attained primary education. 39.3 percent have secondary education, 5.8 percent have college education, 0.5 percent university and 1.0 percent have adult education. Only 1.8 percent of committee members have no formal education as shown in Table 8.6. Level of education is improving especially secondary (28.4% to 39.3%) while members with no education declined from 4.5% to 1.8%.

Table 8.6: Percent Distribution of Committee Members by Level of Education

	Level of Education						
FDAs	Primary	Secondary	College	University	Adult Education	No Education	No. of Committee Members
Karukungu	36.8	42.1	21.1	0.0	0.0	0.0	38
Rukanga	64.3	35.7	0.0	0.0	0.0	0.0	14
Kirinyaga (Total)	**44.2**	**40.4**	**15.4**	**0.0**	**0.0**	**0.0**	**52**
Mbuyu	64.4	22.2	0.0	0.0	8.9	4.4	45
Ndivai	44.2	42.3	13.5	0.0	0.0	0.0	52
Nyandarua (Total)	**53.6**	**33.0**	**7.2**	**0.0**	**4.1**	**2.1**	**97**
Kariara	28.6	71.4	0.0	0.0	0.0	0.0	14
Mutundu	59.6	36.5	1.9	0.0	0.0	1.9	52
Nyeri (Total)	**53.0**	**43.9**	**1.5**	**0.0**	**0.0**	**1.5**	**66**
Ngelelya	53.8	38.5	0.0	0.0	0.0	7.7	39
Ngoliba	59.3	37.0	1.9	0.0	0.0	1.9	54
Thika (Total)	**57.0**	**37.6**	**1.1**	**0.0**	**0.0**	**4.3**	**93**
Kagumoini	51.8	37.5	10.7	0.0	0.0	0.0	56
Mariaini	41.7	52.8	0.0	5.6	0.0	0.0	36
Maragwa (Total)	**47.8**	**43.5**	**6.5**	**2.2**	**0.0**	**0.0**	**92**
Project 2010	**51.8**	**39.3**	**5.8**	**0.5**	**1.0**	**1.8**	**400**
Project 2006	**51.6**	**28.4**	**4.9**	**0.4**	**4.3**	**4.5**	**1668**

8.9 LEADERSHIP DISTRIBUTION BY GENDER AND EDUCATION

In distribution of leadership to gender, it was found that 61.0 percent of Chairpersons are men and 39.0 percent are women. 43.5 percent of Vice Chairpersons are men and 56.5 percent are women. 50.8 percent of Secretaries are men and 49.2 percent are women. However, majority (82.5%) of Treasurers are women.

Looking closer at education of officials, namely; Chairpersons, Vice Chairpersons, Secretaries, Treasurers and Assistant Secretaries, it was found that 48.0 percent of Chairpersons have primary education and 45.3 percent have secondary education. 61.4 percent of Vice Chairpersons have primary education and 29.8 percent have secondary education. 33.3 percent of Secretaries have primary education and 58.7 percent have secondary education. 62.3 percent of Treasurers have primary education and 27.9 percent have secondary education. Generally, groups elect Secretaries with higher level of education.

Table 8.7: Percent Distribution of Gender and Education in Group Leadership

	Chair Person	Vice Chair Person	Secretary	Treasurer	Asst. Secretary
Male	61.0	43.5	50.8	17.5	39.0
Female	39.0	56.5	49.2	82.5	61.0
Total	**100**	**100**	**100**	**100**	**100**
Primary	48.0	61.4	33.3	62.3	43.6
Secondary	45.3	29.8	58.7	27.9	47.3
College	4.0	3.5	7.9	6.6	9.1
University	1.3	1.8	0.0	0.0	0.0
Adult Literacy	0.0	1.8	0.0	1.6	0.0
None	1.3	1.8	0.0	1.6	0.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

8.10 ACTIVITIES THE GROUPS WERE REGISTERED TO UNDERTAKE

Groups were registered to engage in various activities ranging from rearing of small stock, bee keeping, farming, savings and credit, provision of water, keeping of dairy cows, education, social welfare, environmental conservation, etc. These activities were defined as follows: Small stock (dairy goat, poultry, rubbery, sheep, fish farming, etc); Horticulture, fruits and other crops; Savings and credit (merry-go-round, home improvement, buying utensils, iron sheets, table banking, etc); Provision of water (water tanks, springs, water pans, etc); Dairy cows (buying, artificial insemination, etc); Education (nursery school, primary, adult education, etc); Social welfare (Members welfare, assisting orphans, sick, aged, disabled, support of HIV/Aids patients, etc); Environmental conservation (trees nurseries, afforestation); Sanitation and hygiene (VIPs, slabs, fighting malaria, etc); Energy saving devices; Infrastructure (roads, bridges, footpaths, etc); IGA (rental houses, small scale businesses, transportation, buying and selling cereals and farm produce, soap jelly making, etc); Health education (HIV/Aids awareness, herbal medicine, BI, nutrition etc); Purchase of assets/investments (plots, land, shares etc); Provision of electricity; Construction of cattle dips.

Table 8.8 below summarises the various activities the groups were registered to undertake. Majority of the groups in all FDAs were registered for social welfare 77.5 percent (from 22.0%) followed by livestock farming (75.0%), savings and credit 41.3 percent (previously 51.8%). Other activities mentioned by groups were environment (47.5%), water (40%), IGAs (36.3% from 6.5%), crop farming (38.8%), health (20.0%), education (10%) and energy 3.8 percent (from 1.2%).

Notable is the increased involvement in IGAs and social welfare while decline in savings and credit activities.

Table 8.8: Percent Distribution of Groups by Activities Registered

	Activities Groups Registered to Undertake											
FDAs	Education	Health	Crop Farming	Livestock Farming	Water	Environment	Social Welfare	En-ergy	IGAs	Savings & Credit	Others	Number of Groups
Karukungu	0.0	0.0	42.9	14.3	14.3	0.0	28.6	0.0	28.6	57.1	14.3	7
Rukanga	0.0	0.0	50.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	2
Kirinyaga (Total)	**0.0**	**0.0**	**44.4**	**11.1**	**11.1**	**22.2**	**22.2**	**0.0**	**22.2**	**44.4**	**11.1**	**9**
Mbuyu	12.5	12.5	0.0	37.5	25.0	62.5	50.0	0.0	37.5	12.5	0.0	8
Ndivai	0.0	11.1	22.2	55.6	22.2	11.1	44.4	11.1	22.2	22.2	0.0	9
Nyandarua (Total)	**5.9**	**11.8**	**11.8**	**47.1**	**23.5**	**35.3**	**47.1**	**5.9**	**29.4**	**17.6**	**0.0**	**17**
Kariara	0.0	33.3	0.0	0.0	33.3	33.3	33.3	0.0	66.7	0.0	0.0	3
Mutundu	0.0	11.1	22.2	44.4	33.3	0.0	22.2	0.0	33.3	0.0	0.0	9
Nyeri (Total)	**0.0**	**16.7**	**16.7**	**33.3**	**33.3**	**8.3**	**25.0**	**0.0**	**41.7**	**0.0**	**0.0**	**12**
Ngelelya	0.0	12.5	37.5	75.0	50.0	50.0	87.5	0.0	0.0	0.0	0.0	8
Ngoliba	27.3	9.1	18.2	45.5	9.1	36.4	81.8	0.0	0.0	45.5	0.0	11
Thika (Total)	**15.8**	**10.5**	**26.3**	**57.9**	**26.3**	**42.1**	**84.2**	**0.0**	**0.0**	**26.3**	**0.0**	**19**
Kagumoini	0.0	15.4	7.7	46.2	23.1	23.1	23.1	0.0	30.8	30.8	0.0	13
Mariaini	0.0	20.0	40.0	60.0	10.0	10.0	10.0	10.0	10.0	50.0	0.0	10
Maragwa (Total)	**0.0**	**17.4**	**21.7**	**52.2**	**17.4**	**17.4**	**17.4**	**4.3**	**21.7**	**39.1**	**0.0**	**23**
Project 2010	**5.0**	**12.5**	**22.5**	**45.0**	**22.5**	**26.3**	**41.3**	**2.5**	**21.3**	**26.3**	**1.3**	**80**

8.11 ACTIVITIES THE GROUPS ARE CURRENTLY UNDERTAKING

Groups do undertake sometimes more or less the activities they were registered to undertake. Comparing the activities groups were registered to undertake with what they are currently doing (Table 8.9); it was found that majority of the groups rotate around the activities they were registered to engage in. Compare for example groups registered to undertake health and those actually engaging in it: Mbuyu-12.5 percent (12.5%)[3], livestock farming in Mariaini- 60.0 percent (70%).

Table 8.9: Percent Distribution of Groups by Activities Being Undertaken

	Activities Currently Undertaken by Groups									
FDAs	Education	Health	Crop Farming	Livestock Farming	Water	Environment	Social Welfare	IGAs	Savings & Credit	Number of Groups
Karukungu	0.0	14.3	14.3	42.9	14.3	14.3	14.3	57.1	42.9	7
Rukanga	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	66.7	3
Kirinyaga (Total)	**0.0**	**10.0**	**20.0**	**30.0**	**10.0**	**10.0**	**10.0**	**50.0**	**50.0**	**10**
Mbuyu	0.0	12.5	0.0	37.5	12.5	50.0	37.5	12.5	12.5	8
Ndivai	0.0	11.1	33.3	44.4	22.2	11.1	22.2	22.2	44.4	9
Nyandarua (Total)	**0.0**	**11.8**	**17.6**	**41.2**	**17.6**	**29.4**	**29.4**	**17.6**	**29.4**	**17**
Kariara	0.0	33.3	0.0	33.3	33.3	33.3	33.3	33.3	0.0	3
Mutundu	0.0	12.5	25.0	37.5	25.0	0.0	12.5	0.0	0.0	8
Nyeri (Total)	**0.0**	**18.2**	**18.2**	**36.4**	**27.3**	**9.1**	**18.2**	**9.1**	**0.0**	**11**
Ngelelya	0.0	25.0	25.0	25.0	37.5	25.0	62.5	37.5	0.0	8
Ngoliba	27.3	9.1	36.4	27.3	9.1	27.3	81.8	9.1	45.5	11
Thika (Total)	**15.8**	**15.8**	**31.6**	**26.3**	**21.1**	**26.3**	**73.7**	**21.1**	**26.3**	**19**
Kagumoini	0.0	16.7	8.3	58.3	8.3	0.0	25.0	33.3	33.3	12
Mariaini	0.0	0.0	20.0	70.0	20.0	10.0	30.0	20.0	50.0	10
Maragwa (Total)	**0.0**	**9.1**	**13.6**	**63.6**	**13.6**	**4.5**	**27.3**	**27.3**	**40.9**	**22**
Project Total	**3.8**	**12.7**	**20.3**	**41.8**	**17.7**	**16.5**	**35.4**	**24.1**	**30.4**	**79**

[3] Percentages in brackets are what the groups were registered to do in relation to savings and credit etc.

8.12 GROUP TRAINING

Training increases the capacities of groups to mobilise resources and manage their activities better. Based on this, groups were asked whether they had received any training during the last 2 years (i.e. 2009 -2010). They were further asked who sponsored their training, duration of training, major areas of training, how they (groups) utilised the training, and any benefits the groups had received from these trainings.

Table 8.10 below combines two responses: whether the groups had received any training, and the duration of trainings for those that had received the trainings. 70.7 percent of the groups said they had received some training while 29.3 percent indicated they had not. Groups in Kirinyaga appear to have received the least trainings than the rest of the districts at 30 percent. Ngelelya, recorded the highest affirmative response of 100 percent while Karukungu recorded 14.3 percent. Most of the trainings (82.9%) lasted between 0 to 7 days, about 3 days on average. There is a general increase in training received in groups (49.4% to 70.7%).

Table 8.10: Training of Groups in the Last 2 Years and Duration of Training

FDA	Yes	No	Total Sample	0-7 days	8-14 days	15-28 days	> 28 days	Average Days	Median days	Maximum days	Frequency of Training
Karukungu	14.3	85.7	7	100	0	0	0	0.4	0	3	1
Rukanga	66.7	33.3	3	100	0	0	0	0.6	1	1	2
Kirinyaga (Total)	**30.0**	**70.0**	**10**	**100**	**0**	**0**	**0**	**0.5**	**0**	**3**	**3**
Mbuyu	75.0	25.0	8	100.0	0.0	0.0	0.0	2.4	3	5	6
Ndivai	77.8	22.2	9	66.7	11.1	22.2	0.0	8.1	5	28	14
Nyandarua (Total)	**76.5**	**23.5**	**17**	**82.4**	**5.9**	**11.8**	**0.0**	**5.4**	**3**	**28**	**20**
Kariara	33.3	66.7	3	66.7	33.3	0.0	0.0	2.7	0	8	3
Mutundu	77.8	22.2	9	66.7	22.2	0.0	11.1	8.9	1	60	6
Nyeri (Total)	**66.7**	**33.3**	**12**	**66.7**	**25.0**	**0.0**	**8.3**	**7.3**	**1**	**60**	**9**
Ngelelya	100.0	.0	9	100.0	0.0	0.0	0.0	2.7	3	4	10
Ngoliba	72.7	27.3	11	81.8	0.0	9.1	9.1	6.1	4	30	9
Thika (Total)	**85.0**	**15.0**	**20**	**90**	**0**	**5**	**5**	**4.6**	**3.5**	**30**	**19**
Kagumoini	76.9	23.1	13	69.2	23.1	7.7	0.0	5.5	5	15	16
Mariaini	70.0	30.0	10	90.0	10.0	0.0	0.0	4.0	5	12	10
Maragwa (Total)	**73.9**	**26.1**	**23**	**78.3**	**17.4**	**4.3**	**0.0**	**4.8**	**5**	**15**	**26**
Project 2010	**70.7**	**29.3**	**82**	**82.9**	**9.8**	**4.9**	**2.4**	**4.7**	**3**	**60**	**77**
Project 2006	**49.4**	**50.6**	**168**	**70.6**	**13.8**	**0.9**	**2.8**	**9**	**4**	**180**	**96**

8.13 MAJOR AREAS OF TRAINING

Most of the trainings given to the groups were on group development and management (leadership skills, conflict resolution, savings and credit, record keeping, participatory M&E, training needs assessment, sustainability, group registration, etc), health related trainings (VIP, sanitation, malaria control, HIV/Aids, TBA, CHWs, herbal medicine, home management), and crop husbandry and soil conservation.

Table 8.11: Percent Distribution of Areas Groups Were Trained In

FDAs	Group Dev & Mgt	Health related Training	Crop Husbandry & Soil Conservation	Livestock Husbandry	Water Management	Marketing of Farm Produce	IGA & Value Adding	Energy Conservation Methods	No. of Groups
Karukungu	17	0	17	0	0	0	0	0	6
Rukanga	50	0	50	0	0	0	0	0	2
Kirinyaga (Total)	**25**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**8**
Mbuyu	50	13	38	13	13	0	0	0	8
Ndivai	44	11	11	22	22	0	22	11	9
Nyandarua (Total)	**47**	**12**	**24**	**18**	**18**	**0**	**12**	**6**	**17**
Kariara	0	0	0	33	0	0	33	0	3
Mutundu	22	11	11	11	11	0	44	0	9
Nyeri (Total)	**17**	**8**	**8**	**17**	**8**	**0**	**42**	**0**	**12**
Ngelelya	50	25	63	50	25	0	13	0	8
Ngoliba	40	30	40	20	20	0	10	0	10
Thika (Total)	**44**	**28**	**50**	**33**	**22**	**0**	**11**	**0**	**18**
Kagumoini	46	15	15	23	15	8	8	8	13
Mariaini	40	0	10	10	10	10	10	10	10
Maragwa (Total)	**43**	**9**	**13**	**17**	**13**	**9**	**9**	**9**	**23**
Project 2010	**38**	**13**	**24**	**19**	**14**	**3**	**14**	**4**	**78**
Project 2006	**47**	**19**	**39**	**22**	**5**	**3**	**6**	**1**	**168**

From Table 8.11, all groups except Kariara, received training on group development and management. Kariara did not receive this training either in the baseline survey.

8.14 UTILIZATION OF TRAININGS RECEIVED BY THE GROUPS

When groups were interviewed on ways in which they utilized trainings received, different answers were given. The answeres recorded were improving crop and livestock farming (drought resistance crops, beekeeping, kitchen gardening, fruits, beekeeping, farm management, buying more animals, etc), environmental conservation (tree nurseries, tree planting, etc), health education (HIV awareness, educating community members on public health, etc), formation of groups, registration, management, educating other members, revolving funds, mobilization of group, start of water projects, initiating IGA (e.g. soap making etc), adoption of new technologies (energy saving devices, time management, etc), undertaking social welfare(e.g. care for aged, orphans, etc), teaching other group members etc. Table 8.12 below summarizes the results.

Table 8.12: Utilization of Training Received by Groups

FDAs	Improve crop & livestock farming	Environmental conservation	Health education	Formation & Mgt of groups	Not utilized	Start of water project	Initiating IGA	For social welfare	Training members	Totals
Karukungu	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100
Rukanga	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Kirinyaga (Total)	**50.0**	**0.0**	**0.0**	**50.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100**
Mbuyu	0.0	16.7	0.0	16.7	0.0	0.0	0.0	33.3	33.3	100
Ndivai	40.0	10.0	0.0	0.0	0.0	10.0	10.0	20.0	10.0	100
Nyandarua (Total)	**25.0**	**12.5**	**0.0**	**6.3**	**0.0**	**6.3**	**6.3**	**25.0**	**18.8**	**100**
Kariara	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Mutundu	25.0	12.5	0.0	12.5	0.0	0.0	25.0	25.0	0.0	100
Nyeri (Total)	**33.3**	**11.1**	**0.0**	**11.1**	**0.0**	**0.0**	**22.2**	**22.2**	**0.0**	**100**
Ngelelya	50.0	0.0	8.3	0.0	8.3	0.0	8.3	25.0	0.0	100
Ngoliba	30.0	0.0	10.0	0.0	0.0	20.0	20.0	20.0	0.0	100
Thika (Total)	**40.9**	**0.0**	**9.1**	**0.0**	**4.5**	**9.1**	**13.6**	**22.7**	**0.0**	**100**
Kagumoini	38.5	0.0	0.0	23.1	7.7	7.7	15.4	7.7	0.0	100
Mariaini	50.0	12.5	0.0	12.5	0.0	0.0	0.0	25.0	0.0	100
Maragwa (Total)	**42.9**	**4.8**	**0.0**	**19.0**	**4.8**	**4.8**	**9.5**	**14.3**	**0.0**	**100**
Project 2010	**37.1**	**5.7**	**2.9**	**10.0**	**2.9**	**5.7**	**11.4**	**20.0**	**4.3**	**100**
Project 2006	**34.9**	**11.9**	**8.3**	**37.6**	**1.8**	**2.8**	**3.7**	**0.9**	**1.8**	

In comparison with the 2006 baseline report, utilization to start water projects has doubled (2.8% to 5.7%).

8.15 BENEFITS ACCRUED TO GROUPS FROM TRAININGS

Benefits reported by groups (Table 8.13) included improved group management (record keeping, leadership and awareness), improved health and sanitation, HIV awareness and preventive education, improved crop husbandry and food security, soil conservation, improved animal husbandry and acquisition of livestock, provision of water and its management, opening of marketing linkages, access to credit services and loans, increased level of income, and improved skills (family education, exchange of views, replications etc).
The highest improvement reported from training was in market linkages which increased by about 20 percent. Further improvements include; provision of water (5.6% to 10.0%), access to credit services (2.8% to 6.3%) and improved skills (13.0% to 20%).

A decrease in benefits from training was recorded in improved group management (33.3% to 12.5%) and improved animal husbandry (16.7% to 10.0%). Only 1.3 percent (previously 4.6%) reported to have received no benefits from the trainings.

Table 8.13: Percent Distribution of Benefits Received From Training

FDAs	Improved group management	Improved health & sanitation	Improved crop husbandry	Improved animal husbandry	Provi-sion of water	Market linkages	Access to credit services	Im-proved skills	No benefits
Karukungu	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Rukanga	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Kirinyaga (Total)	**33.3**	**0.0**	**66.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Mbuyu	0.0	16.7	16.7	16.7	16.7	0.0	0.0	33.3	0.0
Ndivai	23.1	0.0	30.8	7.7	7.7	0.0	7.7	23.1	0.0
Nyandarua (Total)	**15.8**	**5.3**	**26.3**	**10.5**	**10.5**	**0.0**	**5.3**	**26.3**	**0.0**
Kariara	0.0	0.0	33.3	0.0	0.0	33.3	0.0	33.3	0.0
Mutundu	0.0	12.5	12.5	25.0	12.5	0.0	0.0	37.5	0.0
Nyeri (Total)	**0.0**	**9.1**	**18.2**	**18.2**	**9.1**	**9.1**	**0.0**	**36.4**	**0.0**
Ngelelya	7.1	21.4	21.4	7.1	14.3	0.0	21.4	7.1	0.0
Ngoliba	8.3	25.0	25.0	8.3	8.3	8.3	8.3	8.3	0.0
Thika (Total)	**7.7**	**23.1**	**23.1**	**7.7**	**11.5**	**3.8**	**15.4**	**7.7**	**0.0**
Kagumoini	18.2	9.1	9.1	9.1	18.2	9.1	0.0	18.2	9.1
Mariaini	20.0	10.0	20.0	10.0	0.0	10.0	0.0	30.0	0.0
Maragwa (Total)	**19.0**	**9.5**	**14.3**	**9.5**	**9.5**	**9.5**	**0.0**	**23.8**	**4.8**
Project 2010	**12.5**	**12.5**	**22.5**	**10.0**	**10.0**	**22.5**	**6.3**	**20.0**	**1.3**
Project 2006	**33.3**	**12**	**21.3**	**16.7**	**5.6**	**2.8**	**2.8**	**13**	**4.6**

8.16 GROUPS SOURCES OF FUNDS

Groups get funds for their activities mostly through own members' contributions as shown in Table 8.14. This constitutes 97.6 percent of their source of funding. Other sources are Government (19.5%), assistance from donors (9.8%) and other sources at 9.8 percent. Assistance from donors was highest in Nyeri and Maragua, at 16.7 percent and 17.4 percent respectively and none in Kirinyaga. It reduced in Thika from 16.7 percent to 5.0 percent.

Further, Nyeri received the highest grants from the government at 50.0 percent while a notable reduction in Maragua (12.5% 4.3%) and Thika (33.3% to 25.0%).

Table 8.14: Sources of Funds to Gropus

FDAs	Members Contributions	Assitance from Donors	Government Grants	Other Sources	Total No. of Groups
Karukungu	100.0	0.0	14.3	14.3	7
Rukanga	100.0	0.0	0.0	0.0	3
Kirinyaga (Total)	**100.0**	**0.0**	**10.0**	**10.0**	**10**
Mbuyu	100.0	0.0	12.5	12.5	8
Ndivai	100.0	11.1	22.2	11.1	9
Nyandarua (Total)	**100.0**	**5.9**	**17.6**	**11.8**	**17**
Kariara	100.0	33.3	33.3	0.0	3
Mutundu	100.0	11.1	55.6	11.1	9
Nyeri (Total)	**100.0**	**16.7**	**50.0**	**8.3**	**12**
Ngelelya	100.0	0.0	11.1	0.0	9
Ngoliba	81.8	9.1	36.4	27.3	11
Thika (Total)	**90.0**	**5.0**	**25.0**	**15.0**	**20**
Kagumoini	100.0	23.1	7.7	7.7	13
Mariaini	100.0	10.0	0.0	0.0	10
Maragwa (Total)	**100.0**	**17.4**	**4.3**	**4.3**	**23**
Project 2010	**97.6**	**9.8**	**19.5**	**9.8**	**82**
Project 2006	**95.8**	**7.1**	**16.7**		**168**

Funding from GoK as shown in Table 8.15 below comes in the form of CKDAP (87.5%), CDF (12.5%) and LATF (0%). Although there is an increase in distribution of sources of government funds to the groups, CDF has reduced (29.0% to 12.5%) having been reported in Thika (20.0%) and Nyeri (16.7%). All the groups reported to have received funds from CKDAP except Rukanga and Mariaini FDAs.

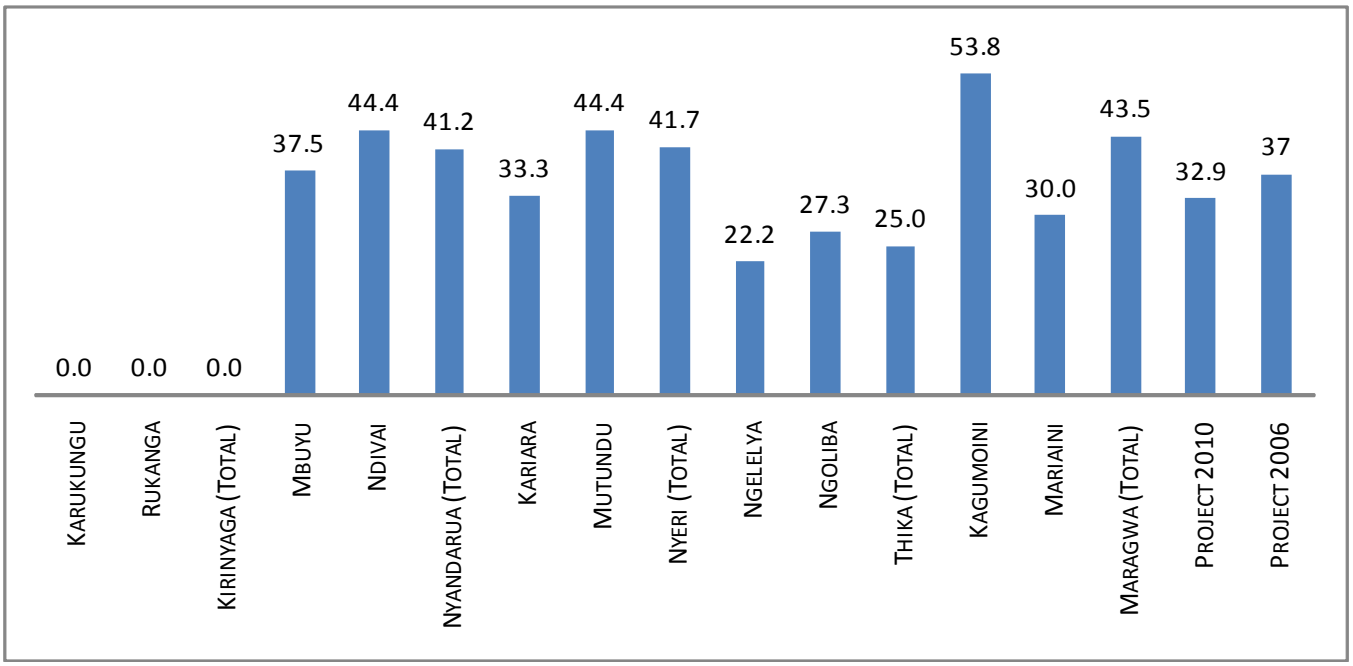
Table 8.15: Percent Distribution of Government Funds to Groups

FDAs	CDF	LATIF	CKDAP	Poverty Eradication Commission	Total No. of Groups
Karukungu	0.0	0.0	100.0	0.0	1
Rukanga	0.0	0.0	0.0	0.0	0
Kirinyaga (Total)	**0.0**	**0.0**	**100.0**	**0.0**	**1**
Mbuyu	0.0	0.0	100.0	0.0	1
Ndivai	0.0	0.0	50.0	0.0	2
Nyandarua (Total)	**0.0**	**0.0**	**66.7**	**0.0**	**3**
Kariara	0.0	0.0	100.0	0.0	1
Mutundu	20.0	0.0	100.0	0.0	5
Nyeri (Total)	**16.7**	**0.0**	**100.0**	**0.0**	**6**
Ngelelya	0.0	0.0	100.0	0.0	1
Ngoliba	25.0	0.0	75.0	0.0	4
Thika (Total)	**20.0**	**0.0**	**80.0**	**0.0**	**5**
Kagumoini	0.0	0.0	100.0	0.0	1
Mariaini	0.0	0.0	0.0	0.0	0
Maragwa (Total)	**0.0**	**0.0**	**100.0**	**0.0**	**1**
Project 2010	**12.5**	**0.0**	**87.5**	**0.0**	**16**
Project 2006	**29.0**	**12.9**	**45.2**	**0.0**	**31.0**

8.17 ASSISTANCE TO GROUPS IN THE LAST TWELVE MONTHS

This analysis relates to the period lasting between January – December 2010. From Figure 8.5 below, 32.9 percent of the groups indicated they had received assistance and 67.1 percent indicated they had not. Majority of groups are from Maragwa 43.5 percent of which received assistance, and many of them were from Kagumoini FDA (53.8%). On the other hand, majority of groups that did not receive assistance were from Kirinyaga FDAs (100.0%). Only in Nyeri (28.0% to 41.7%) and Nyandarua (22.6% to 41.2%) recorded an increase in assistance in the past 12 months.

Figure 8.7 Proportion of Groups that received assistance in the last 12 months



8.18 MAJOR CHALLENGES FACED BY THE GROUPS

Major challenges mentioned by the groups during discussions included, inadequate funding and low incomes; inadequate extension services and skills, lack of inputs, lack of dairy goat breeds, pests and diseases (to crops and animals); limited group management (leadership skills, low membership contributions, absenteeism, low literacy levels, etc); HIV/Aids infections and stigma; diseases (human) including death of member; inadequate markets for farm produce, exploitation by brokers; inadequate water and drought/famine/ drying wells; limited land for cultivation, poor topography; limited social amenities (meeting place, etc); insecurity; poor infrastructure (roads, bridges, electricity, telephones, etc), long distances; failed technologies (back in Kariara goat buying group did not serve their ewes, poor beehives, lack of exotic goat breeds); external interference (political, administration, staff, dependency syndrome); lack of inputs (seeds, fertilizers etc); wildlife menace etc.

Table 8.16: Challenges Facing Groups

Challenges facing groups	Kirinyaga			Nyandarua			Nyeri			Thika			Maragwa			Project 2010	Project 2006
	Karu-kungu	Ru-kanga	Total	Mbuyu	Ndivai	Total	Kariara	Mutundu	Total	Ngele-lya	Ngoli-ba	Total	Kagu-moini	Mari-aini	Total		
Inadequate Funds	57.1	33.3	50.0	75.0	77.8	76.5	66.7	33.3	41.7	55.6	45.5	50.0	53.8	90.0	69.6	59.8	87.5
Inadequate Extension	42.9	0.0	30.0	12.5	11.1	11.8	66.7	0.0	16.7	0.0	9.1	5.0	15.4	0.0	8.7	12.2	20.2
Pests and Diseases	14.3	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	9.1	10.0	7.7	20.0	13.0	7.3	5.4
Limited Groups Management	71.4	0.0	50.0	62.5	22.2	41.2	100.0	100.0	100.0	55.6	45.5	50.0	46.2	140.0	87.0	65.9	58
Inadequate Markets	14.3	0.0	10.0	0.0	11.1	5.9	0.0	0.0	0.0	11.1	0.0	5.0	15.4	30.0	21.7	9.8	13.7
Inadequate Water	0.0	33.3	10.0	25.0	0.0	11.8	0.0	0.0	0.0	0.0	9.1	5.0	15.4	0.0	8.7	7.3	34.5
Limited Social Amenities	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.4
Insecurity	0.0	0.0	0.0	12.5	0.0	5.9	33.3	0.0	8.3	0.0	9.1	5.0	0.0	0.0	0.0	3.7	1.8
Poor Infrastructure	14.3	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	5.0	46.2	10.0	30.4	11.0	6.5
External Interference	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	8.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2	4.8
Lack of Inputs	14.3	66.7	30.0	0.0	22.2	11.8	0.0	0.0	0.0	22.2	27.3	25.0	30.8	20.0	26.1	19.5	6
Other	57.1	66.7	60.0	37.5	66.7	52.9	0.0	33.3	25.0	66.7	54.5	60.0	38.5	60.0	47.8	50.0	-
Not Specified	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	27.3	20.0	7.7	0.0	4.3	6.1	1.2
Number of Groups	**7**	**3**	**10**	**8**	**9**	**17**	**3**	**9**	**12**	**9**	**11**	**20**	**13**	**10**	**23**	**82**	**168**

Of the above challenges, inadequate funding and low incomes 59.8 percent (from 87.5%); limited group management skills 65.9 percent (from 58%) inadequate extension services and skills 12.2 percent (20.2%) and lack of inputs (19.5%) featured prominently in all FDAs. Further, inadequate water was 7.3 percent (from 34.5%) and others at 50 percent.

8.19 INFORMATION, EDUCATION AND COMMUNICATION MATERIALS

These are materials available to groups for communication of information and training on different areas in agriculture, health, water, etc. Table 8.17 shows that most have access to brochures 12.2 percent, posters (8.5%), and books (2.4%). The majority (81.7%) have none of these or did not specify. Many of these are Kagumoini (13%), Ngoliba (11%), Mariaini (10%). Information on TV/radios was not given.

Table 8.17: Percentage distribution of ICT materials available in groups

FDAs	Brochures	Posters	Books	None/Not Specified	Number of Groups
Karukungu	0.0	0.0	0.0	100.0	7
Rukanga	0.0	0.0	0.0	100.0	3
Kirinyaga (Total)	**0.0**	**0.0**	**0.0**	**100.0**	**10**
Mbuyu	0.0	0.0	0.0	100.0	8
Ndivai	11.1	11.1	0.0	77.8	9
Nyandarua (Total)	**5.9**	**5.9**	**0.0**	**88.2**	**17**
Kariara	0.0	0.0	33.3	66.7	3
Mutundu	44.4	0.0	0.0	55.6	9
Nyeri (Total)	**33.3**	**0.0**	**8.3**	**58.3**	**12**
Ngelelya	33.3	55.6	0.0	44.4	9
Ngoliba	18.2	9.1	0.0	81.8	11
Thika (Total)	**25.0**	**30.0**	**0.0**	**65.0**	**20**
Kagumoini	0.0	0.0	7.7	92.3	13
Mariaini	0.0	0.0	0.0	100.0	10
Maragwa (Total)	**0.0**	**0.0**	**4.3**	**95.7**	**23**
Project 2010	**12.2**	**8.5**	**2.4**	**81.7**	**82**
Project 2006	**6**	**13.7**	**2.4**	**72**	**168**

Note however responses from Nyandarua District FDAs on these question. They are highly positive, especially on radio/TV sets, calendars and posters. These conclusions cannot therefore be relied upon.

8.20 GROUP OFFICES

Most of these groups (80.2%) do not have a central office where they conduct their business. Of those that have (19.8%), 40.0 percent of them are rented, 20.0 percent are owned by the group and a further 30.0 percent are donated. All the available offices are located within the sub-location (FDA).

There is an increase in number of offices rented and donated, 21.4 percent to 40 percent and 17.9 percent to 30 percent respectively.

Table 8.18: Office availability, ownership and location

			Office ownership					Office location	
FDAs	Groups with central office	Number of groups	Owned	Rented	Donated	Other	Number of groups	Within FDA	Number of groups
Karukungu	14.3	7	100.0	0.0	0.0	0.0	1	100	1
Rukanga	0.0	3	0.0	0.0	0.0	0.0	0	0	0
Kirinyaga (Total)	**10.0**	**10**	**100.0**	**0.0**	**0.0**	**0.0**	**1**	**100**	**1**
Mbuyu	12.5	8	0.0	0.0	100.0	0.0	1	100	1
Ndivai	22.2	9	0.0	0.0	100.0	0.0	2	100	2
Nyandarua (Total)	**17.6**	**17**	**0.0**	**0.0**	**100.0**	**0.0**	**3**	**100**	**3**
Kariara	0.0	3	0.0	0.0	0.0	0.0	0	0	0
Mutundu	22.2	9	0.0	0.0	0.0	100.0	1	100	1
Nyeri (Total)	**16.7**	**12**	**0.0**	**0.0**	**0.0**	**100.0**	**1**	**100**	**1**
Ngelelya	22.2	9	0.0	100.0	0.0	0.0	1	100	1
Ngoliba	45.5	11	50.0	50.0	0.0	0.0	2	100	2
Thika (Total)	**35.0**	**20**	**33.3**	**66.7**	**0.0**	**0.0**	**3**	**100**	**3**
Kagumoini	7.7	13	0.0	100.0	0.0	0.0	1	100	1
Mariaini	22.2	9	0.0	100.0	0.0	0.0	1	100	1
Maragwa (Total)	**13.6**	**22**	**0.0**	**100.0**	**0.0**	**0.0**	**2**	**100**	**2**
Project 2010	**19.8**	**81**	**20.0**	**40.0**	**30.0**	**10.0**	**10**	**100**	**10**
Project 2006	**16.7**	**83.3**	**17.9**	**21.4**	**17.9**	**42.9**	**28**	**100**	**27**

8.21 MATERIALS USED TO CONSTRUCTION GROUP OFFICES

Most of these office as shown in Table 8.19 were built of stones (50.0%) and 20.0 percent were wooden. Plaster, brick, grass/thatch/makuti each stood at 10 percent. Floors are made of either cement 80 percent or dung 20.0 while 90.0 percent of the roofing was done using iron sheet and other materials constitutes 10 percent. There is general improvement in materials used for construction of offices as cement is mostly used for the floor and iron sheet for roofing.

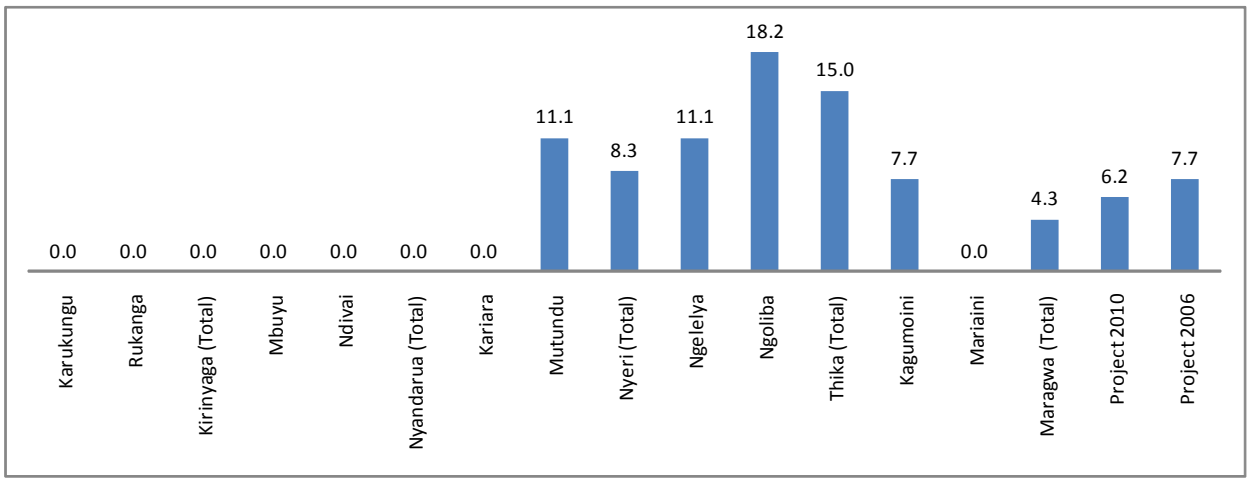
Table 8.19: Materials used in groups' office construction

FDAs	Wall Materials (%)					Floor Materials (%)		Roof Materials (%)		Total No. of Groups
	Grass thatched/ makuti	Stone	Plastered	Wooden	Bricks	Mud,dung	Cement	Iron Sheet	Other	
Karukungu	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	1
Rukanga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Kirinyaga (Total)	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**0.0**	**0.0**	**100.0**	**1**
Mbuyu	0.0	0.0	0.0	100.0	0.0	0.0	100.0	100.0	0.0	1
Ndivai	0.0	0.0	50.0	50.0	0.0	50.0	50.0	100.0	0.0	2
Nyandarua (Total)	**0.0**	**0.0**	**33.3**	**66.7**	**0.0**	**33.3**	**66.7**	**100.0**	**0.0**	**3**
Kariara	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Mutundu	0.0	100.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	1
Nyeri (Total)	**0.0**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**	**0.0**	**1**
Ngelelya	0.0	100.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	1
Ngoliba	0.0	50.0	0.0	0.0	50.0	0.0	100.0	100.0	0.0	2
Thika (Total)	**0.0**	**66.7**	**0.0**	**0.0**	**33.3**	**0.0**	**100.0**	**100.0**	**0.0**	**3**
Kagumoini	0.0	100.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	1
Mariaini	0.0	100.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	1
Maragwa (Total)	**0.0**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**	**0.0**	**2**
Project 2010	**10.0**	**50.0**	**10.0**	**20.0**	**10.0**	**20.0**	**80.0**	**90.0**	**10.0**	**10**
Project 2006		**44.4**	**7.4**	**7.4**	**7.4**	**22.2**	**59.3**	**80.8**	**15.4**	**27**

8.22 GROUP EMPLOYEES

Employment of Staff by groups is shown in Figure 8.8. Only a small number of groups (6.2%) do employ Staff. This is a decrease from 7.7 percent in Baseline Survey of 2006.

Figure 8.8: Percent Distribution of Groups with Employees by FDAs



8.23 DETAILS OF GROUPS EMPLOYEES

In Figure 8.8 above 6.2 percent of the groups had employed Staff of some kind. The following two Tables (8.19 and 8.20) give details of these employees in terms of position/title of the job, gender, education levels and main duties.

Table 8.20 shows that majority of employees who had been employed had actually been employed by self-help groups. Majority of the employees (50%) were shop attendants. The rest were directors, plumbers or security personnel, each at 16.7 percent.

Table 8.20: Percent distribution of groups by position of employed staff

Position	Type of Group		Total
	Self Help Group	CBO	
Shop attendant	100.0	0.0	50.0
Director	0.0	100.0	16.7
Plumber	100.0	0.0	16.7
Watchman	100.0	0.0	16.7
No. of Staff	5	1	6

Characteristics of these employees in terms of gender, education and duties performed are discussed in Table 8.21 below.

Table 8.21: Percent distribution of position of employed staff by background characteristics

	Title of Job					
	Shop attendant	Director	Plumber	Watchman	No. of Staff	Percent
Sex						
Male	50.0	0.0	25.0	25.0	**4**	**66.7**
Female	50.0	50.0	0.0	0.0	**2**	**33.3**
Education						
Primary	33.3	0.0	33.3	33.3	**3**	**50.0**
Secondary	100.0	0.0	0.0	0.0	**2**	**33.3**
College	0.0	100.0	0.0	0.0	**1**	**16.7**
Main Duty						
Run institution	0.0	100.0	0.0	0.0	**1**	**16.7**
Run mill	100.0	0.0	0.0	0.0	**2**	**33.3**
Selling	100.0	0.0	0.0	0.0	**1**	**16.7**
Plumbing	0.0	0.0	100.0	0.0	**1**	**16.7**
Security	0.0	0.0	0.0	100.0	**1**	**16.7**

Both male and female shop attendants were hired with most shop attendants at least having secondary school level of education.Their main role was selling. Only females were Directors who had college level of education and their main role was running the institution. Plumbers and security personnel were male who only had primary school level of education.

8.24 TYPES OF RECORDS KEPT BY GROUPS

Groups keep various records including minutes, cash book, store lagers, assets inventory, members' register, diary, visitors' book, correspondence file, petty cash book, group constitution, etc as shown in Table 8.22. 96.3 percent of groups had minutes, 93.9 percent had members' registers, 92.7 percent had group constitution, 67.1 percent had cash records, and 36.0 percent had correspondences files, as shown in Table 8.22.

Table 8.22: Types of records kept by groups (%)

FDAs	Minutes	Cash Book	Store Ledger	Assets Inventory	Members Register	Diary	Visitor's Book	Correspondence File	Petty Cash Voucher	Group Constitution	Others	Total No. of Groups
Karukungu	100.0	57.1	14.3	28.6	71.4	28.6	14.3	14.3	14.3	100.0	0.0	7
Rukanga	100.0	100.0	33.3	33.3	100.0	33.3	33.3	0.0	66.7	100.0	0.0	3
Kirinyaga (Total)	**100.0**	**70.0**	**20.0**	**30.0**	**80.0**	**30.0**	**20.0**	**10.0**	**30.0**	**100.0**	**0.0**	**10**
Mbuyu	100.0	50.0	25.0	37.5	87.5	37.5	37.5	37.5	25.0	75.0	25.0	8
Ndivai	100.0	55.6	33.3	11.1	100.0	11.1	11.1	33.3	33.3	100.0	33.3	9
Nyandarua (Total)	**100.0**	**52.9**	**29.4**	**23.5**	**94.1**	**23.5**	**23.5**	**35.3**	**29.4**	**88.2**	**29.4**	**17**
Kariara	100.0	66.7	33.3	0.0	100.0	0.0	33.3	33.3	0.0	100.0	0.0	3
Mutundu	100.0	88.9	33.3	22.2	88.9	33.3	44.4	55.6	22.2	66.7	11.1	9
Nyeri (Total)	**100.0**	**83.3**	**33.3**	**16.7**	**91.7**	**25.0**	**41.7**	**50.0**	**16.7**	**75.0**	**8.3**	**12**
Ngelelya	88.9	77.8	55.6	22.2	100.0	66.7	66.7	77.8	11.1	100.0	0.0	9
Ngoliba	100.0	81.8	72.7	45.5	100.0	45.5	45.5	54.5	36.4	100.0	0.0	11
Thika (Total)	**95.0**	**80.0**	**65.0**	**35.0**	**100.0**	**55.0**	**55.0**	**65.0**	**25.0**	**100.0**	**0.0**	**20**
Kagumoini	100.0	69.2	46.2	30.8	100.0	23.1	38.5	46.2	23.1	100.0	15.4	13
Mariaini	80.0	40.0	50.0	10.0	90.0	30.0	20.0	40.0	40.0	90.0	0.0	10
Maragwa (Total)	**91.3**	**56.5**	**47.8**	**21.7**	**95.7**	**26.1**	**30.4**	**43.5**	**30.4**	**95.7**	**8.7**	**23**
Project 2010	**96.3**	**67.1**	**42.7**	**25.6**	**93.9**	**32.9**	**29.0**	**36.0**	**26.8**	**92.7**	**9.8**	**82**
Project 2006	**97.0**	**83.1**	**18.1**	**9.0**	**91.0**	**18.7**	**16.3**	**53.6**	**24.7**	**91.0**	**10.2**	**166**

In comparison, improved record keeping was for Store ledger, Assets inventory, Diary, Visitors book and Correspondence file. Cash book records reduced from 83.1 percent to 67.1 percent.

8.25 STORAGE OF GROUP RECORDS

Storage of group records is analysed in Table 8.23, in which 82.9 percent of the groups keep their records in ordinary books and 59.8 percent keep them in files, while computers (0% to 1.2%) are only in Ngoliba.

Table 8.23: Storage of Group Records

FDAs	Files	Ordinary Books	Computers	Others	Total No. of Groups
Karukungu	28.6	71.4	0.0	0.0	7
Rukanga	33.3	66.7	0.0	0.0	3
Kirinyaga (Total)	**30.0**	**70.0**	**0.0**	**0.0**	**10**
Mbuyu	50.0	87.5	0.0	0.0	8
Ndivai	77.8	77.8	0.0	0.0	9
Nyandarua (Total)	**64.7**	**82.4**	**0.0**	**0.0**	**17**
Kariara	66.7	33.3	0.0	33.3	3
Mutundu	66.7	77.8	0.0	0.0	9
Nyeri (Total)	**66.7**	**66.7**	**0.0**	**8.3**	**12**
Ngelelya	88.9	100.0	0.0	0.0	9
Ngoliba	54.5	72.7	9.1	0.0	11
Thika (Total)	**70.0**	**85.0**	**5.0**	**0.0**	**20**
Kagumoini	61.5	100.0	0.0	0.0	13
Mariaini	50.0	90.0	0.0	0.0	10
Maragwa (Total)	**56.5**	**95.7**	**0.0**	**0.0**	**23**
Project 2010	**59.8**	**82.9**	**1.2**	**1.2**	**82**
Project 2006	**58.4**	**81.9**	**0.0**	**1.2**	**166**

8.26 CUSTODY OF GROUP RECORDS

Most groups (85.4%) keep their records in their officials' residences as shown in Table 8.24. This means officials (mostly Secretaries and Treasurers) keep the records in their homes. 7.3 percent of the groups keep the records in their offices while 4.9 percent keep the records in their officials offices. There has been minimal change as custody of group records has remained more less the same.

Table 8.24: Custody of Group Records

FDAs	Official's residence	Member's office	Group offices	Other	Total No. of Groups
Karukungu	100.0	0.0	0.0	0.0	7
Rukanga	100.0	0.0	0.0	0.0	3
Kirinyaga (Total)	**100.0**	**0.0**	**0.0**	**0.0**	**10**
Mbuyu	87.5	0.0	0.0	12.5	8
Ndivai	66.7	22.2	11.1	0.0	9
Nyandarua (Total)	**76.5**	**11.8**	**5.9**	**5.9**	**17**
Kariara	66.7	0.0	0.0	33.3	3
Mutundu	88.9	0.0	11.1	0.0	9
Nyeri (Total)	**83.3**	**0.0**	**8.3**	**8.3**	**12**
Ngelelya	88.9	0.0	11.1	0.0	9
Ngoliba	63.6	18.2	18.2	0.0	11
Thika (Total)	**75.0**	**10.0**	**15.0**	**0.0**	**20**
Kagumoini	92.3	0.0	7.7	0.0	13
Mariaini	100.0	0.0	0.0	0.0	10
Maragwa (Total)	**95.7**	**0.0**	**4.3**	**0.0**	**23**
Project 2010	**85.4**	**4.9**	**7.3**	**2.4**	**82**
Project 2006	**89.9**	**4.2**	**4.8**	**1.2**	**168**

8.27 SAVING OF GROUP MONEY

Security of group's finances is presented in Table 8.25. 63.4 percent of the groups keep their money in the banks, 31.7 percent have their money kept by officials and 4.9 percent have their money kept in SACCCOs. A small percentage (3.7%) constitutes other ways of keeping their money. The number of groups saving in banks has increased (51.8% to 63.4%) while groups whose officials keep money have reduced (36.1% to 31.7%).

Table 8.25: Savings of Group Funds

FDAs	Group Officials	SACCO	Bank	Other	Total No. of Groups
Karukungu	42.9	14.3	28.6	14.3	7
Rukanga	0.0	0.0	66.7	0.0	3
Kirinyaga (Total)	**30.0**	**10.0**	**40.0**	**10.0**	**10**
Mbuyu	25.0	0.0	75.0	0.0	8
Ndivai	22.2	0.0	66.7	11.1	9
Nyandarua (Total)	**23.5**	**0.0**	**70.6**	**5.9**	**17**
Kariara	66.7	0.0	0.0	33.3	3
Mutundu	22.2	33.3	44.4	0.0	9
Nyeri (Total)	**33.3**	**25.0**	**33.3**	**8.3**	**12**
Ngelelya	44.4	0.0	55.6	0.0	9
Ngoliba	27.3	0.0	81.8	0.0	11
Thika (Total)	**35.0**	**0.0**	**70.0**	**0.0**	**20**
Kagumoini	38.5	0.0	69.2	0.0	13
Mariaini	30.0	0.0	90.0	0.0	10
Maragwa (Total)	**34.8**	**0.0**	**78.3**	**0.0**	**23**
Project 2010	**31.7**	**4.9**	**63.4**	**3.7**	**82**
Project 2006	**36.1**	**10.2**	**51.3**	**3.0**	**166**

8.28 GROUPS LIABILITIES IN TERMS OF LOANS

Groups get loans from banks, SACCOs, FOSAs, Micro-finanace institutions, individuals, etc. In the survey the Project wanted to establish the most common sources of groups' loans in terms of amounts, when loans were given, interest rates charged and outstanding balances at the time of the survey. The survey also sought to establish whether loans are given to groups and/or to individual members through the groups. The analysis discussed below is based on 8 groups which had loans during the last 12 months (January – December 2010).

Table 8.26 combines the analysis of types of groups that had acquired loans and loaning institutions. A total of 8 loans had been acquired by different groups during the year in question, i.e. 2010. Self help groups had 3 loans (62.5%) while women groups had 2 loans (37.5%). In most cases these loans were acquired from individuals (50%). Loans acquired though micro-finance institutions and other sources were at 12.5 percent each.

Table 8.26: Percent Distribution of Groups with loans and Lending Institutions

FDAs	Type of Group			Source of Loans				Total Loans
	Self Help Groups	Women Groups	Total Loans	Bank	Micro Credit Institutions	Individuals	Other	
Karukungu	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Rukanga	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Kirinyaga (Total)	**0.0**	**0.0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**
Mbuyu	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Ndivai	100.0	0.0	1	0.0	0.0	0.0	100.0	1
Nyandarua (Total)	**100.0**	**0.0**	**1**	**0.0**	**0.0**	**0.0**	**100.0**	**1**
Kariara	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Mutundu	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Nyeri (Total)	**0.0**	**0.0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**
Ngelelya	66.7	33.3	3	33.3	0.0	66.7	0.0	3
Ngoliba	0.0	100.0	1	0.0	100.0	0.0	0.0	1
Thika (Total)	**50.0**	**50.0**	**4**	**25.0**	**25.0**	**50.0**	**0.0**	**4**
Kagumoini	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Mariaini	0.0	0.0	0	0.0	0.0	0.0	0.0	0
Maragwa (Total)	**0.0**	**0.0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**
Project 2010	**62.5**	**37.5**	**8**	**25.0**	**12.5**	**50.0**	**12.5**	**8**
Project 2006	**81.8**	**9.1**	**11**		**18.2**	**54.5**	**27.3**	**11**

Amount of loans given to the groups and interest charged are analysed in Table 8.27. This table combines both the loan amount and interest charged. The average loans given to these groups were Kshs 56, 875.00 and the maximum loan was Kshs. 100,000.00. Most loans were above 10,000.00 (60%). Information on interest was not given.

Table 8.27: Loan Amounts Borrowed by Groups

FDAs	Loan Amounts (Kshs)					Total Loans
	2,001 - 5000	10,000+	Not Specified	Average	Maximum	
Karukungu	0.0	0.0	0.0	0.00	0.00	0
Rukanga	0.0	0.0	0.0	0.00	0.00	0
Kirinyaga (Total)	**0.0**	**0.0**	**0.0**	**0.00**	**0.00**	**0**
Mbuyu	0.0	0.0	0.0	0.00	0.00	0
Ndivai	0.0	100.0	0.0	50,000.00	50,000.00	1
Nyandarua (Total)	**0.0**	**0.0**	**0.0**	**50,000.00**	**50,000.00**	**1**
Kariara	0.0	0.0	0.0	0.00	0.00	0
Mutundu	0.0	0.0	0.0	0.00	0.00	0
Nyeri (Total)	**0.0**	**0.0**	**0.0**	**0.00**	**0.00**	**0**
Ngelelya	33.3	33.3	33.3	27,500.00	50,000.00	3
Ngoliba	0.0	100.0	0.0	100,000.00	100,000.00	1
Thika (Total)	**25.0**	**50.0**	**25.0**	**63,750.00**	**100,000.00**	**4**
Kagumoini	0.0	0.0	0.0	0.00	0.00	0
Mariaini	0.0	0.0	0.0	0.00	0.00	0
Maragwa (Total)	**0.0**	**0.0**	**0.0**	**0.00**	**0.00**	**0**
Project 2010	**20.0**	**60.0**	**20.0**	**56,875.00**	**100,000.00**	**5**
Project 2006	**-**	**72.7**	**-**	**49,847.00**	**295,100.00**	**11**

From discussion with the groups, it was found that members obtain loans through groups as shown in Table 8.28 below. In total, 57 members had such loans. (The baseline survey had 60 pax in 11 groups).

Table 8.28 Number of members with loans through the group

	Number of Members	No. of Groups	% of Groups
	0	1	20
	3	1	20
	7	**1**	**20**
	22	1	20
	25	1	20
Total	**57**	**5**	**100**

Note: Based on the 5 groups who reported to have had loans

By the time of the survey, 20% of loans between Kshs. 2,001-5,000 were outstanding 60 percent of loans above Kshs. 10,000 were outstanding and unspecified outstanding loans were 20 percent as shown in Table 8.29.

Table 8.29: Percent Distribution of Outstanding Loans

FDAs	Loan Amounts						Total Loans
	2,001 - 5,000 Kshs		10,000 + Kshs		Not Specified		
	Freq	%	Freq	%	Freq	%	
Karukungu	0	0.0	0	0.0	0	0.0	0
Rukanga	0	0.0	0	0.0	0	0.0	0
Kirinyaga (Total)	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Mbuyu	0	0.0	0	0.0	0	0.0	0
Ndivai	0	0.0	1	100.0	0	0.0	1
Nyandarua (Total)	**0**	**0.0**	**1**	**100.0**	**0**	**0.0**	**1**
Kariara	0	0.0	0	0.0	0	0.0	0
Mutundu	0	0.0	0	0.0	0	0.0	0
Nyeri (Total)	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Ngelelya	1	33.3	1	33.3	1	33.3	3
Ngoliba	0	0.0	1	100.0	0	0.0	1
Thika (Total)	**1**	**25.0**	**2**	**50.0**	**1**	**25.0**	**4**
Kagumoini	0	0.0	0	0.0	0	0.0	0
Mariaini	0	0.0	0	0.0	0	0.0	0
Maragwa (Total)	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Project 2010	**1**	**20.0**	**3**	**60.0**	**1**	**20.0**	**5**
Project 2006	**-**	**-**	**5**	**45.5**	**-**	**-**	**11**

8.29 MEETINGS HELD/ORGANIZED BY GROUPS

Groups' decisions are arrived at and activities organised in group meetings. Different meetings are organised by groups and these are discussed in Table 8.30 below. It was found that 70.7 percent of the groups hold monthly meetings, 37.8 percent of groups hold Management Committee Meetings and 50 percent hold special Annual General Meetings. Twenty eight percent of the groups hold weekly meetings, 19.5 percent hold fortnightly meetings and 7.3 percent hold quarterly meetings. Generally, these functions are organised in all the groups across the FDAs.

There is an upward trend in group meetings except for Management Committee (63.1% to 37.8%)

Table 8.30: Types of Meetings Held by Groups

FDAs	AGM	Special GM	Monthly	Quarterly	Mgt. Committee	Weekly	Fortnight	Total No. of Groups
Karukungu	85.7	71.4	42.9	0.0	42.9	42.9	0.0	7
Rukanga	66.7	33.3	33.3	0.0	33.3	33.3	33.3	3
Kirinyaga (Total)	**80.0**	**60.0**	**40.0**	**0.0**	**40.0**	**40.0**	**10.0**	**10**
Mbuyu	0.0	37.5	75.0	0.0	37.5	25.0	0.0	8
Ndivai	66.7	33.3	88.9	11.1	33.3	11.1	0.0	9
Nyandarua (Total)	**35.3**	**35.3**	**82.4**	**5.9**	**35.3**	**17.6**	**0.0**	**17**
Kariara	66.7	100.0	100.0	0.0	100.0	0.0	33.3	3
Mutundu	100.0	100.0	100.0	0.0	100.0	0.0	11.1	9
Nyeri (Total)	**91.7**	**100.0**	**100.0**	**0.0**	**100.0**	**0.0**	**16.7**	**12**
Ngelelya	77.8	77.8	77.8	44.4	77.8	44.4	44.4	9
Ngoliba	45.5	27.3	54.5	0.0	18.2	27.3	18.2	11
Thika (Total)	**60.0**	**50.0**	**65.0**	**20.0**	**45.0**	**35.0**	**30.0**	**20**
Kagumoini	46.2	30.8	53.8	7.7	0.0	38.5	46.2	13
Mariaini	10.0	30.0	80.0	0.0	0.0	40.0	10.0	10
Maragwa (Total)	**30.4**	**30.4**	**65.2**	**4.3**	**0.0**	**39.1**	**30.4**	**23**
Project 2010	**53.7**	**50.0**	**70.7**	**7.3**	**37.8**	**28.0**	**19.5**	**82**
Project 2006	**57.7**	**45.8**	**64.3**	**8.3**	**63.1**	**20.8**	**10.7**	**168**

During these meetings, different issues are discussed which include members' contribution, group finances/accounts/ withdrawing money, buying of assets, change of signatories, maintenance of group facilities, building of new structures and transporting construction materials, new members, election of committee/Board, procurement (of all items such as water, livestock, inputs etc). Others are sharing of profits (dividend, bonuses etc) marketing, planning, starting new projects/activity/preparation for a new season, food security, social welfare and profit conflict management, support of orphans, festivities, administrative (stationery, transport, allowances, registration, absenteeism, punctuality, attendance

etc), resourse mobilization, (proposal writing, revolving funds, fundraising etc), development of constitution, bylaws, training/capacity building and soil conservation, starting of tree nurseries etc.

From Table 8.31, most discussed issues (58.5%) centre around members' contribution and group finances.

Table 8.31: Issues Discussed in Group Meetings

FDAs	Community Contributions	Maintenance of Group Facilities	Animals in Spring	Building of New Structures	New Members	Elections of Committee/ Board	Other Issues	Total No. of Groups
Karukungu	42.9	57.1	14.3	28.6	0.0	14.3	57.1	7
Rukanga	33.3	0.0	0.0	0.0	0.0	0.0	100.0	3
Kirinyaga (Total)	**40.0**	**40.0**	**10.0**	**20.0**	**0.0**	**10.0**	**70.0**	**10**
Mbuyu	37.5	0.0	0.0	0.0	12.5	12.5	87.5	8
Ndivai	66.7	0.0	11.1	0.0	33.3	0.0	44.4	9
Nyandarua (Total)	**52.9**	**0.0**	**5.9**	**0.0**	**23.5**	**5.9**	**64.7**	**17**
Kariara	0.0	33.3	0.0	33.3	0.0	0.0	66.7	3
Mutundu	11.1	11.1	0.0	0.0	11.1	0.0	88.9	9
Nyeri (Total)	**8.3**	**16.7**	**0.0**	**8.3**	**8.3**	**0.0**	**83.3**	**12**
Ngelelya	100.0	22.2	11.1	22.2	77.8	44.4	22.2	9
Ngoliba	63.6	18.2	0.0	9.1	27.3	18.2	45.5	11
Thika (Total)	**80.0**	**20.0**	**5.0**	**15.0**	**50.0**	**30.0**	**35.0**	**20**
Kagumoini	76.9	46.2	23.1	15.4	0.0	0.0	76.9	13
Mariaini	80.0	20.0	10.0	10.0	0.0	0.0	80.0	10
Maragwa (Total)	**78.3**	**34.8**	**17.4**	**13.0**	**0.0**	**0.0**	**78.3**	**23**
Project 2010	**58.5**	**22.0**	**8.5**	**11.0**	**18.3**	**9.8**	**64.6**	**82**
Project 2006	**54.8**	**33.9**	**9.5**	**11.3**	**25**	**14.9**	**-**	**168**

8.30 TERMS OF OFFICE BEARERS

Terms of office as stipulated by the constitution for majority of the groups as shown in Table 8.32 below ranged from 1-3 years. For 1 year was 19.5 percent of the groups, 48.8 percent of the groups had 2 years and 29.3 percent of the groups had 3 years.

Table 8.32: Percent Distribution of Duration of Office Term for Office Bearers

FDAs	One year	Two Years	Three years	Other	Total No. of Groups
Karukungu	14.3	42.9	28.6	14.3	7
Rukanga	66.7	33.3	0.0	0.0	3
Kirinyaga (Total)	**30.0**	**40.0**	**20.0**	**10.0**	**10**
Mbuyu	12.5	62.5	25.0	0.0	8
Ndivai	0.0	77.8	11.1	11.1	9
Nyandarua (Total)	**5.9**	**70.6**	**17.6**	**5.9**	**17**
Kariara	0.0	100.0	0.0	0.0	3
Mutundu	11.1	66.7	22.2	0.0	9
Nyeri (Total)	**8.3**	**75.0**	**16.7**	**0.0**	**12**
Ngelelya	55.6	22.2	22.2	0.0	9
Ngoliba	18.2	54.5	27.3	0.0	11
Thika (Total)	**35.0**	**40.0**	**25.0**	**0.0**	**20**
Kagumoini	15.4	30.8	53.8	0.0	13
Mariaini	20.0	30.0	50.0	0.0	10
Maragwa (Total)	**17.4**	**30.4**	**52.2**	**0.0**	**23**
Project 2010	**19.5**	**48.8**	**29.3**	**2.4**	**82**
Project 2006	**35.7**	**31.0**	**22.6**	**3.0**	**168**

To find out whether the groups followed their constitution, they were asked to state when the current office bearers were elected. Table 8.33 below shows that those groups whose constitutions stipulate that they elect their officials at end of 1 year period revealed that 43.8 percent had actually done so. For those that are supposed to hold elections at the end of 2 years, majority (85%) had done so.

Table 8.33: Terms of Office Bearers by Year Elected into Office (Percent)

	Year of Last Group Election								
Term	**2002**	**2003**	**2004**	**2005**	**2007**	**2008**	**2009**	**2010**	**Total No. of Groups**
One year	6.3	0.0	0.0	0.0	0.0	12.5	37.5	43.8	16
Two Years	0.0	2.5	0.0	0.0	2.5	10.0	57.5	27.5	40
Three years	**0.0**	**0.0**	**4.2**	**4.2**	**25.0**	**20.8**	**20.8**	**25.0**	**24**
Other	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	2
Total	1.2	1.2	1.2	2.4	8.5	13.4	41.5	30.5	82

Chapter Nine:

QUALITATIVE FINDINGS FROM FOCUS GROUP DISCUSSION

9.1 OBJECTIVE

This component compliments the main survey objectives. Specifically the qualitative component assessed the following:

- The community views on observable changes in the health status and poverty levels
- The community perception of the impact, acceptance, approval of project
- The community participation in project activities
- The challenges faced and suggestions on ways of improving

9.2 METHODOLOGY

Qualitative techniques of Focus Group Discussions (FGDs) and Key informant interviews were applied using open-ended qualitative discussion guides, to assess observable changes in the health status and poverty levels of target communities, explore community participation in project activities, their perception of the impact, acceptance, approval, and draw lessons learnt and make recommendations.

Information was collected from community members and individuals who are members of various projects within the community. Their experience and perceptions provide insight about the impact of the project in the community and challenges faced and suggestions on ways of improving.

Key informant interviews were conducted with representatives from community projects in the following 4 major categories;

i. Health Committee Members
ii. Community Health Workers
iii. Agriculture/Livestock Extension Workers
iv. Water Committee Members

Group discussions were organized with community members in Focal Development Areas (FDA). The focus group discussions comprised the following:-

i. FDC members
ii. Representatives of various sectors (Health, water, agriculture)
iii. Opinion leaders
iv. Ordinary community members
v. Umbrella enterprise group

A sample was drawn from the 5 project Districts: Nyandarua North, Nyeri South, Kirinyaga, Muranga South and Thika. A total of 43 in-depth interviews and 28 Focus Group Discussions were conducted during the survey.

9.3 DATA ANALYSIS

Qualitative data analysis was undertaken using version 6.0 of the Nudist software (N6). This software assists to access, manage, shape and analyze textual data. Transcribed field notes on Focus Group Discussions and key informant interviews were imported into the qualitative software as text units, which were worked on according to the project areas of focus. All common themes were coded and categorized in a standard way using the "tree nodes" structure so that comparisons could be made across sub-samples and easily analyzed.

9.4 QUALITATIVE FINDINGS

9.4.1 Improved access to facility based health care

The objective of this section was to find out the types of facilities available at the local level, challenges in accessing these facilities, perceptions of community members and their involvement in management of health facilities.

Dispensaries and health centers are the most available and accessed health facilities at the local level. Community members were also aware of other health facilities from which they could seek services.

Additionally, community members acknowledged that health care has been brought closer to them and thus increased access. It is evident that some of the dispensaries like Ndivai have been recently constructed by CKDAP project (mostly referred to as IFAD).

Worth noting is the fact that communities acknowledged that they can access health care through services provided by Community Health Workers who are affiliated to health facilities. As was pointed out by a participant:

> ***"Nituri na dispensary thiinii wa ituura riri ria ndivai, na nituri na andu angi aria mateithagiriria kuri utungata wigii micii-ini mathomithitio ni IFAD metwagwo community health workers."*** (We have a dispensary here in Ndivai and we also have services provided by some people at household level trained by IFAD. They are called community Health Workers) ***(Nyandarua)***

Women can access maternal services at health facilities. It is mainly, through referrals and sensitization by CHW that awareness is created and maternal and child services sought.

> ***"Since IFAD came here we have seen some improvement especially with medicine, it is always available. Before you could go to the dispensary and there you would find some missing. Even before the maternity was constructed people would go for more than 6 miles.. even till Thika."*** (Maragua)

> ***"Before IFAD built us a maternity wing here in Ndaragwa, we used to go to Nyahururu. Before this many births were registered at home. We are discouraging the use of local TBAs and telling the women to use the facility"*** (Nyandarua)

It was noted by majority that services provided by CHWs promote practice in prevention and control of diseases in the community thus reduction of incidences.

Consequently, participants reported that there is reduced incidence of disease evidenced by health records in health facilities and as observed by community members. Common disease in both adults and children include Malaria, Typhoid, Pneumonia, Coughs, Amoeba, Diarrhoea, HIV/Aids and TB. Skin itchiness and Mumps were most common in children.

Doctor-patient relationship has improved with medical staff being friendly and respecting patients. In some cases, patients are attended to even when they are unable to pay for services, especially if they are identified by a medical staff who is a member of the community. One participant reported,

> ***"....Na riu riria twaikaririe thi nituonire tukirikanira ati ti wega kuringana na utua ati twina karani hau, nituri na ndagitari kuu, makarora tondu kwi mundu ungiuka na ndari na kindu, ona ndari na kibau kiu kia dawa ona ndari na shilingi icio 20 cia registration no tugaikara thii tondu niagire na aria mararuta wira hau hau no a itura riri...the nurse is from the locality, the clerk is from the locality, the lab technician no wa itura riri uguo makona ti itheru mundu uyu akiuga ndari kibau niaramenyeka ahan uu plus ona kumwona."*** *(Therefore as the management committee of this dispensary, we decided that the nurse, clerk and the lab technician since they come from this locality they should not turn back anyone who comes without money. They are able to tell that someone indeed cannot pay the Ksh20 for registration and they cannot go back without being attended to because of lack of money)* ***(Nyandarua)***

Generally, most discussants reported that services are satisfactory and hygiene is maintained at the health facilities. The services are relatively fair, registration is about Kshs 20 and the health facilities are accessible; located within reach which saves on transport costs. Comparatively, private hospitals are considered relatively expensive although drugs/ medicines are readily available.

For majority, cost of health services becomes expensive as drugs are unavailable at facilities forcing them to buy prescribed medicine from private pharmacies. Poverty is an impediment in accessing health services; majority lack money to pay transport costs and basic charges like medicine at health facilities.

The commonly cited challenge in reaching health facilities is terrain especially during the rainy season and night services are rendered impossible; the means of transport is also a problem since people either walk or use motorbikes to access health services. Ambulances are not available in most communities.

> ***"But if the road could be in very good condition, we would not have a problem, even if we do not have an ambulance, motorcycles are in abundance here, we can hire, and you would find us moving around without..."*** *(Kirinyaga)*
>
> ***"There is no ambulance"*** *(Thika)*

Shortage of medical staff leads to slow service, overworking of the available staff and ulitimately, compromised service.

9.4.2 Improved access to community based health care

This section explores the services provided and challenges faced by Community Health Workers and community members perception about these services. CHWs are available in all the communities visited and are charged with enormous responsibilities within the community. The community seeks services from CHWs as they are members of the community and are easily accessible. They are also trusted by some.

The presence of CHWs has promoted facility based health care and people are moving away from traditional home remedies. CHWs provide referrals for health services at facilities. They emphasize the importance of facility based health care creating awareness of services provided by health facilities. For example, women are encouraged to seek maternal and child health services at facilities and to deliver in hospitals.

"Wira ucio niukuragwo wi mwega tondu reke njuge kuuma hindi iria maambiriirie ii andu nimathiite magi taukagirwo ni maundu. Tondu andu tene matiretikagia uhoro wa guuka thibitari angi makoiga mekunyua dawa cia miti no riu nimarutite wira mwega, ukona andu niatheru na micii ni mitheru" (Their services are very good…ever since they started, the community is now educated. People now value the dispensary and they have stopped taking herbs and the people themselves and homes are also clean) (Kirinyaga)

CHWs are trained to provide health services to the community.

> ***"I have also been trained as a CHW when IFAD came here I was trained."*** *(Kirinyaga)*

> ***"That is in progress because we just finished training on Friday and we were told that we would be given first aid kits and weighing scales."*** *(Maragua)*

CHWs are sought for services such as treatment, first aid, de-worming, weighing children and advice before visiting health facilities.

> ***"We also take them to CHWs place for First Aid"*** *(Thika)*

There is strengthened communication of health information through the CHWs. They educate community members on health and prevention of diseases. They also offer community education on hygiene and sanitation focusing on the importance of pit latrines, dish racks and cloth lines. A recent introduction is the promotion of 'leaky tin', technology adopted to ensure that individuals wash hands after visiting the toilet. They also encourage use of safe drinking water by teaching them how to treat the water. In Maragwa, CHWs also engaged in jigger eradication by spraying. ("..... and they spray jigger-affected homes") this statement seems misplaced.

> ***"There is a new system whereby we put a 5 liters container near the latrine so that immediately you come out of the toilet you wash your hands. Through the help of the CHWS many people have this technology"*** *(Maragua)*

CHWs undertake community outreach and sensitization activities. Through door to door services, they are able to provide home based care for the sick and ensure drug adherence, distribute contraceptives in the community and consequently, compile reports and hand them over to the health facilities.

CHWs also provide nutrition counseling and promote kitchen gardens for improved diets.

The community concurs that the CHWs work is of importance and has improved their lifestyles.

> ***"They have done a good job because now most homes are clean and have toilets."*** *(Nyeri)*

> ***"They are important people***
> ***They are important because the level of cleanliness is high now***
> ***They are good and have made nutrition to be good"*** *(Thika)*

In their line of duty CHWs use their own money to support patients by offering to make phone calls, pay for transport and hospital charges where such need arises. All the CHWs are volunteers; they offer services in the community without compensation. In all areas where interviews were conducted, there is no payment made to CHWs although training is seen as a motivation. It is during such trainings that they may be given lunch allowances and transport reimbursement.

> ***".....However, the problem is that we do not get any form of payment and we would do with some"*** *(Nyeri)*

Further, providing services to the community takes most of their time leaving less time for their personal activities.

The community assumes CHWs are paid or are given some aid for the community, and thus expect assistance. This becomes a problem as some community members develop attitude; not everyone receives them well. They are regarded as a waste of time or have ill motive and are ignored and sometimes chased away by drunkards. In some instances people refuse services from CHWs since they are not doctors.

> ***"They are undermined by the community"*** *(Thika)*

> ***"Some think that the best health service is the one provided by the doctor in a white coat. I remember there is a time I went to do growth monitoring in a certain home and I was supposed to fill the monitoring card. That mother told me I could not fill in anything because I was just a CHW and not a doctor so she would take the card to be filled by a doctor."*** *(Nyandarua)*

CHWs are facilitated by the provision of bicycles to aid their movement. However, not all CHWs have been given bicycles and thus they walk. Bicycles are not conducive for the elderly and women who opt for public transport.

> ***" ii nikuri tondu riri tariu nii ingitwarithia muthikiri ndihotaga guthii itana inene. No mundu ta uyu niekuhota"*** *(Even the women who have the bicycles sometimes are not able to use them, for instance I cannot ride a bicycle for long distances but for a man that is not a challenge)* ***(Kirinyaga)***

Further, the bicycles are depreciating creating need for them to be replaced. CHWs require facilitation like provision of gumboots and umbrellas for use during the rainy season. They lack necessary supplies and equipment such as gloves and weighing machines sometimes making it impossible for them to assist during deliveries.

CHWs want to be recognized both by the government and community; in one case, it was suggested that they should be given identification badges, salary or free medical treatment at health facilities.

9.4.3 Food Security

Communities engage in subsistence farming; food is mainly for consumption. Surplus is either sold or stored. Produced food is exchanged for money that is used to buy other basic needs.
The farm produce is sold within and outside the community. Schools, brokers and millers offer ready markets to farmers since the Cereal Boards stopped buying.

9.4.4 Crops

Farming activities involve crop and animal production for both consumption and for sale. The main crops cultivated include maize and beans regarded as staple food. Other crops include wheat, sorghum, sweet potatoes, cassava, bananas and arrow roots. Horticultural crops include pumpkins, green peas; french beans, cow peas, cabbages, kales and tomatoes while fruits include avocadoes, ribena fruits, mangoes and paw paws. Crops recently introduced to the community are sweet potatoes, sorghum, wheat and fruits.

Irrigation is used on small scale basis (mainly for vegetables through kitchen gardens) due to water shortage. Those living along rivers are advantaged and are engaged in planting vegetables for consumption and sale. Water pans conserve water which is used for irrigation through drip, bucket and money maker pumps for those who can afford. Water pans also do promote fish farming.

> ***"tundu guku gwitu reke juge gutirari undu wigie thamaki" No riu andu aria maroria thamaki ni aingi gukira thamanki cio nyene"*** *(There was no fish prior, but they showed us how to keep and eat fish. Nowadays the demand for fish exceeds the supply)* ***(Nyeri)***

> ***"And french beans, tomatoes, I do not think that there is anything that does not grow here, as long it is well watered"*** *(Kirinyaga)*

> ***"There is French beans after the coming of water project. If you visit the lower part you will see French beans."*** *(Maragwa)*

> ***"I can also add that people will start to irrigate when the gravity water and that from the project are combined."*** *(Nyeri)*

9.4.5 Domestic animals

Animals reared include cattle, goats, sheep, chicken, rabbits, pigs and fish. Fish-rearing is among the recent introductions in the community and has been well embraced.

9.4.6 Technology adopted to improve animals reared

Communities are upgrading their animals through cross breeding and adopting new breeds. For cattle, artificial insemination is used. There is a shift from local breeds to exotic breeds for goats and poultry.

> ***"....goats are reproduced from the traditional Kikuyu to grade***
> ***....since IFAD came we have began to notice change in a big way where goats are concerned. A young goat that we could sell before for 1,500 is now being sold for 4,000 or 5,000 thousand when we changed the grade***
>
> ***....If I may say about goats, we did not know how to upgrade goats. We were used to the goats of 'foundation'. Now we have those of 'pedigree'. We also have he-goats that have reached pedigree.***
>
> ***....the goats when they give birth they produce a lot of milk and we are able to milk a lot in the kitchen you are able use it"*** *(Maragua)*

Feeding plans have introduced silage, fodder, bran and dairy meal which have led to zero-grazing. In turn, farmers have constructed stores where they can store fodder for future use.
Scheduled feeding is practiced for animals to maximize production and save on costs. Coups for chicken have been adopted besides the popular free range methods. Farmers also rear animals that they can manage in terms of quality rather than quantity.

9.4.7 Soil Conservation

Community conserves soil by adopting new methods to improve and conserve soil. Common practices include digging terraces and trenches, tree planting and cover crop farming. As reported by a group from Nyeri:

> ***'There were no trees. But now since we started planting trees and grass, erosion no longer happens. Now even if it rains the erosion is minimal. And that's why we can farm on a small portion and harvest enough'***

Techniques of planting to increase production and maximally utilize land have been adopted. Farming practices constitute right depth, spacing of crops, crop rotation, mixed cropping, nappier planting in terraces and slopes, kitchen gardens and planting fast growing foods. Farm manure is used for fertilization.

9.4.8 Drought

All communities admitted to have experienced drought and had coping mechanisms. Food for human and animal consumption is sought in neighboring communities. In Nyandarua, people were forced to move animals to areas with pasture. Food was bought from the market since it was the only place to find food. Businessmen would acquire food from other communities. The government introduced feeding programmes in schools and provided relief food to the rest of the community. Community members received donations and support from relatives, FBOs and NGOs. In Thika, IFAD provided millet for planting while Red Cross provided food.

9.4.9 Water

i. Sources of water

The source of water is mainly rain and runoff water. Communities have adapted to dry seasons by digging wells and boreholes. In Ndivai, Nyandarua the project has installed hand pumps on dug wells.

ii. Water source preference

Community members prefer water from the stream and wells because of the taste. Members are confident about rain water as it is regarded clean though it is scarce. In comparison water from wells and dams is polluted by animals. A community that relies on rain water has devised other sources during dry seasons. They either buy water or use boreholes.

Water source preference depends on whether the services are free or not. For instance people would buy water only when need arises, whatever source they chose had to be cheaper and the water clean. In this respect, piped water is available to those who can afford to pay the monthly fee charged, of about Ksh 200. Piped water is rationed and people are encouraged to supplement with other sources. When there is no other source of water the community does not have options to choose from. For example in Thika the only available source is boreholes.

iii. Water conservation

Water projects have supported digging of wells and boreholes as well as construction of tanks for water harvesting. Through self help groups, individuals are able to support one another to buy tanks. Rain water is harvested by dams or water pans and tanks to deal with dry seasons and for agriculture. Community members help each other in constructing tanks and buying plastic ones.

Significant change is seen in the material used to roof houses with a shift to corrugated iron sheets as reported in Nyandarua to enhance rain water harvesting.

> ***" maya ma gutega barabara me ma kiguu, nituthomithitio uria turimategaga ukaingiria gwaku mucii ukenja gateemu makahitagwo hau maai macio. Ona roof catchment no twikirire tondu andi kuma manjiriria kuhiga nundu wa kumenya maai matheru me bata- ri na nigetha tunyihie mirimu-ri, andu magicenjia mabati magituika megwikira mabati handu na nyeki nia iraturaga magacoka magekira gutters magatana maai"*** *(We have also been trained on how to harvest run-off water. We also harvest water from the roof and thus many people have replaced grass thatch with iron sheets so that they can collect clean water)* ***(Mbuyu, Nyandarua).***

In all communities, it was reported water is treated and boiled before drinking. The water is then stored well as mentioned in one case, with the help of the CKDAP project, where emphasis is made to cover wells.

All communities are knowledgeable on waterborne diseases; among those mentioned include typhoid, cholera, amoebiosis, worms and dysentery. Malaria was mentioned largely because water serves as a breeding place for mosquitoes.

9.4.10 Energy

The popular source of energy is kerosene for lighting and firewood/charcoal for cooking. Solar and electrical energy is minimally used, because of cost and delayed rural electrification. Not so many people can afford solar though it is used. Those who live near towns have access to electricity while gas is used on a low scale.

The energy saving methods mentioned by communities are mainly *maendeleo jiko and kuni mbili jiko*. GTZ have introduced the smokeless jiko in Nyeri. However, most homes use firewood to cook.

Biogas has not been adopted as the community does not have enough cattle to sustain it. In Nyandarua, only one person mentioned using biogas. Jikos cook faster and save on energy. Comparatively with energy saving mechanisms, they are

able to save on firewood consumed. This saves time used to find firewood, hence the women do not get tired. Jikos are very conducive since these are dry areas, it has led to tree conservation as they use less firewood and are aware of the advantage of trees. In general, it saves on cost

9.4.11 Technology

PERCEPTIONS ABOUT TECHNOLOGY

1. **Increased production**
   There is increased farm production across the province. Examples show that with better feeding, zero-grazing and training, milk production has increased. With the use of fertilizers and manure, there is increased soil fertility and thus more yields. In some cases, the increase in production results in wastage.

2. **Farming as a business**
   Farm produce is mainly for consumption and the surplus is sold. This way, produce is exchanged for money which in turn is used to meet other basic needs mostly mentioned for fees payment.

3. **Utilize resources**
   Technology has led to maximum utility of resources by improving productivity of small pieces of land. Water is harnessed and used on farms, coups for chicken and zero-grazing saves on space and diseases.

4. **Climate effects e.g. drought**
   Climate effects become less severe as people now preserve food for future use. For example, vegetable leaves are dried and stored.

5. **Better prices for goods**
   Farmers engage in value addition activities such as drying maize and vegetables, making juice or yoghurt and usage of preservatives when storing. This way, they are able to fetch better prices for their produce as they are not disposing off.

6. **Improved storage mechanisms**
   Harvest is normally stored for own consumption and while waiting for better prices in the market. At least there are granaries in each homestead. In Nyandarua, CKDAP is building a store where the community can store their produce. Most farmers use preservatives when storing maize.

7. **Affordability/costs**
   Artificial Insemination is expensive to farmers, thereby limiting its use. They use fertilizers and chemicals which require money to purchase.

8. **Effectiveness of technology Vs Counterfeits**
   Maize seeds purchased as hybrid sometimes do not work well on their farms. Hybrid seeds grow very fast but are easily infested with weevils during storage despite the use of chemicals. AI is said to work after being administered more than once instead of working with the first administration.

9. **Unfamiliar diseases**
   Foods that grow fast leave the soils infertile and introduce unfamiliar diseases. In Nyandarua, there is one case of seeds purchased being susceptible to an unknown disease. On the other hand, animals that feed on grains infected with aflatoxin get infected.

10. **Soil pollution**
    The use of fertilizers which have chemicals destroy soil. This is seen as a drawback

9.4.12 Factors affecting sustainability of technology

Communities are embracing change and are open to new ideas which results in gradual adoption of new technologies. For example, IFAD provides seedlings for fruits such as mangoes and pawpaw which are now grown in addition to the

staple maize and beans. The communities are aware that for a technology to thrive, they need to be informed on how to use it and thus training is necessary.

i. Community needs
New technologies should address the needs of the community for its sustainability. For example, in Kirinyaga, they want to introduce new breeds of chicken since they do not have.

ii. Reliability
Reliability is key to sustainability; farm manure is available for use as long as animals are reared. In Nyeri, grafted mangoes are highly marketable compared to local ones which lead to more grafted mangoes being produced.

iii. Productivity
Technology that increases productivity is sustainable as long as there is market for the produce locally or nationally. An example from Kirinyaga shows that IFAD encouraged pumpkin planting and there was bumper harvest yet demand was not catered for.

iv. Affordability
In terms of cost, the lesser costs incurred for a technology to be adopted the better since most of the farmers are unable to afford.

iv. Value addition
Value addition is key to sustainability of technology; farmers are able to preserve and sell produce to get income.

"Mostly it's drying them. We add value to sweet potatoes by using them to make cakes and drop corns. We also use sorghum to make cakes." *(Nyandarua)*

"IFAD has educated members on good farming methods leading to good harvests" *(Thika)*

"They have managed to train the community about water harvesting and hygiene through CHW. When it comes to the issue of health they look at the future." *(Maragwa)*

"At the moment groups dealing with fruits have been taught on value addition techniques. How to make juice. The Ministry of agriculture introduced coca cola and techno serve companies, and they have already supplied us with a juicer" *(Nyeri)*

"numbers, there is a market that was built in Gamwa. A slaughter house" *(Nyeri)*

9.4.13 Income Generating Activities

All communities have groups. Groups are formed mainly to engage in income generating activities. Majority of groups are self- help groups engaged in activities that generate income for members. They are involved in rearing chicken, bees, rabbits and goats. Financial groups include merry-go-rounds and table-banking. Groups are perceived as mechanisms through which poverty and idleness is reduced.

Group organization varies from at different levels: for example from the level of management and service provision to the community members. Examples include management committees, CHWs group, HIV/Aids patients groups, groups dealing with OVCs and persons with disabilities. There are groups that are formed due to the project workin in the community: as the project requests to work with others. Mainly mentioned are health and agri-business groups. Few NGOs are named; these are IFAD, CF, and TIST. They support groups by giving training, providing financial and material resources.

Stakeholder organizations providing training include the government, department of livestock and agriculture, department of social services, IFAD, NALEP and microfinance institutions such as KWFT and Faulu. Areas of training include conflict management, financial and group management, resource mobilization, leadership and gender mainstreaming. Groups mainly receive training from CHWs and agricultural officers or extension workers. Farmers are taught on soil conservation, water harvesting improved methods in crop and animal rearing.

The recent past has seen the transformation of groups which have expanded in the scope of their activities by undertaking new ventures. For example groups that initially started as merry go rounds are now involved in table-banking and members are able to access financial services.

Membership has increased with many individuals joining the group after seeing how others have benefited from them. Commendable is the impact to men who are now being more involved than in the past. Groups have increased the sense of ownership of projects within the community. People are able to share and exchange ideas and support one another. Groups have mobilized resources by pooling their small resources to engage in activities that improve their livelihoods.

Trainings received by groups have improved levels of transparency, accountability, leadership and management as the knowledge is put to practice. In agriculture, there is improvement in terms of farming methods and environmental conservation.

i. Improved lifestyle

- Through training, community members are knowledgeable about farming practices.
- Saves on time and space
- Earn money which they use for education and other businesses.
- Farmers are now able to account through record-keeping
- Improved health through improved diets and nutrition, hygiene and sanitation.
- Reduced disease incidences
- Availability of food

ii. Challenges associated with IGAs

- Leadership and mismanagement of funds (e.g. One person holding different posts)
- Groups lack finances to grow their activities
- Poverty has resulted in many defaulters
- Dependency on climate as groups do not perform well in dry seasons
- Group vulnerability to fake projects
- Conflict management where disagreements arise

9.4.14 Community Participation

There was a common response that the community is very much involved.

> ***' You see this facility that was built by IFAD, the community had to put in 25% to dig terraces, to fence and to carry out certain community tasks'*** *(Mbuyu sub-location, Nyandarua)*
>
> ***'During construction of this dispensary the community contributed about 970 thousand shillings and IFAD donated 3.6 million shillings'*** *(Nyandarua)*
>
> ***" Reke njuge ringi niukuona embarkment ya demu ithukitio ni nyeki na committee niukuigua wira moke manange nyeki niguo demu ndikae guthukio. O korwo ni spring, nikuri na kamiti iri cirugamagirira springs icio. Nimathiaga gucingetia kuona kana cirri uria ciagiriirwo ni guikara niguo itikae guthukangio"*** *(When the dam embankment has been destroyed by grass, the committee usually organizes for community days so that it can be cleared. In case of the springs, there is a committee that is charged with responsibility of manning them. They visit the springs time to time to ensure that the water is not polluted)* ***(Nyandarua)***

Management committees are members from the community elected by the community and in most cases the medical staff are from the community. For example, Community Health Workers belong to the community. The work of the committee is to run the health centre, and ensuring that all things proposed by the government are seen through in the facility. For example, funds availed are utilized for the intended purpose, and to make sure that the medical staff work diligently.

In prevention of diseases, community members are responsive of health messages disseminated by community health workers. They now dig latrines, clear compounds, boil drinking water, wash hands after visiting the toilet, use mosquito nets and ensure they adhere to medication.

Community members participate in meetings that involve water with committee members mandated to man water projects. Activities that result in polluting the water are prohibited. They include washing by the river banks, control livestock activities, ensure latrines are not close to the rivers and campaigns against deforestation.

They provide labor by digging terraces and wells, clear rivers and repair pumps.
As consumers, community members believe that the bills paid help in sustaining projects.

Chapter Ten:

VIEWS OF THE COORDINATION AND MANAGEMENT COMMITTEES

10.1 METHODOLOGY

The Central Kenya Dry Area Smallholder Community Services Development Project (CKDAP) contributes to poverty reduction, hunger and vulnerability to diseases among the poor rural communities living in semi-arid areas in Central Province. The respective Districts are Nyandarua, Thika, Maragua, Kirinyaga and Nyeri. The undertaken activities are aimed at improving health status, food security, nutrition and income.

In addition to the community component, there was need to involve the Management to understand their views on the implemented project. The areas focused upon were:-

- Relevance or involvement of the various categorization of officials
- Roles/decision in project planning and implementation
- Challenges encountered when performing their duties and responsibilities
- Views on the feasibility/sustainability of the project

Questionnaires were distributed to the respective Districts to be filled by the officials, then remitted for analysis. The questionnaires were in hard copies and were analyzed in this form, manually by keying in all given responses. Only responses from the PMU's were in soft copy. The analysis process took two weeks. The following represents the responses given by each category of officials in hierarchy i.e. PCC, PMU, DPCC/DPIT and finally the FDAC at the community level.

Distribution of interviewed project officials

Officials	No of representatives
PCC	9
PMU	7
DPCC/DPCU/DPIT	32
FDAC	80

10.2 PROJECT COORDINATING COMMITTEE (PCC)

10.2.1 Relevance of PCC

Core decision-makers: The PCC mandate is clearly outlined and documented and has been relevant in enhancing CKDAP agenda through execution of its duties towards implementation of the project. PCCs are the core decision-makers and they ensure that projects are functioning as required.

Work with MOH & stakeholders: They reinforce and ensure accountability of diverse stakeholders to the project. CKDAP works with the Ministry and the existence of PCC has influenced the Ministry to effectively deal with assignments. PCC hold meetings to endorse annual work plans and budget which are subsequently submitted to the Ministry for funding. PCC Strengthens institutional mechanisms; by overseeing the general management of the projects. PCC is an advisory organ to the PMU providing necessary direction and guidance as well as policies which govern the project. It works closely with project mission while producing aide memoirs.

PCC sets objectives and targets; providing mechanisms in which realization of goals can be achieved. Its decisions have improved project performance. It has facilitated recruitment of project staff and support technical staff based on competence. Similarly the PCC has the mandate to dismiss Staff.

Sets performance targets: the PCC being performance-based, sets performance targets. Staff (including the PMU) are assessed before appraisal to ensure competence. They further deal with Staff welfare and resolve conflicts. Evaluation for purposes of assessment of performance and determination of awarding annual increments and motivation has improved performance.

Supervision and monitoring of activities : this is done to ensure activities are completed on time to detailed specification of design. Yearly supervision by IFAD Head Office adds more value to the project and motivates staff.

10.2.2 Decisions by Committee that have Improved Project Performance

The need to end the project in time: led to the fast tracking of the project's implementation through direct payment (AIA) and timely approval of annual work plans and budgets. Pre-financing of project addressed liquidity challenges.

Re-launch of project as a participatory approach: re engineered its activities by increasing and up scaling activities to cover many areas. This saw an increase in the annual budget of 180m to over 400m in 2009/2010. In what currency? Fully- fledged PMU established: to aide in management and coordination of activities, a fully fledged PMU was established and provided office space in Nyeri, which led to its relocation from Nairobi. This enhanced monitoring and evaluation.

Meetings are held at project location: which ensures visibility and maximizes on potential while facilitating monitoring and evaluation visits to the project and interaction with Staff. This has contributed to experience sharing thus improving the bar as well as creating standards for implementation. The annual visits by PCC and technical officers motivate Staff. Approvals related to PMU Staff which boosted their morale, as well as effective seconding of project officers to project beyond normal period, led to improved implementation.

To ensure the community benefited from the project as planned, the following decisions were taken:-

- Waiver of community contribution to increase absorption and meet project physical targets.
- Increased irrigation infrastructure, which improved agriculture and minimized poverty by providing income and food security and consequently improved livelihood.
- Affirmatively addressing aspects of value chain for example, construction of produce marketing centers and input output stores.
- Alleviation of diseases – access to water and health facilities.
- Involvement of the community as well as community capacity building – community ownership of the projects for sustainability.

Established FDA was strategic in saving funds as well as providing an advantage over duplication of activities among competing financiers.

10.2.3 Challenges faced by PCC

In general, there has been passion, commitment, and responsibility from PCC to ensure achievement of the set targets. However, the following are presented as challenges.

Project conceptualization: has been a hindrance since various institutions fail to comprehend the project mechanisms. Further, the fact that it does not feature in the Ministry's project portfolio resulted in it not being prioritized by Staff on ground (PC's). Consultants from donors do not understand the project and government policies.

Lack of forums: the project is not fully appreciated and its function fully utilized due to lack of forums/quorum that bring together in person Permanent Secretaries.

Staff turnover: in addition to inadequate Staff the high turnover of field officers at District level results in fresh training for new officers.

High expectations from the beneficiaries.

Poor communication: such that PCC receive inadequate notices for functions as a result of late circulation of documents on agenda.

There is inadequate supply of ICT materials and maintenance of computers.

Inadequate funding & planning: results in slow disbursement and processing rates to facilitate constant monitoring and evaluation by PCC. Meetings are not held frequently as required.

10.2.4 Feasibility of Project

Lessons learnt should be used to improve future project designs/restructured. Continue or plan for similar projects. The project was relevant, appropriate and effectively coordinated to deliver value for money. The project achieved its intended objectives given the numerous completed projects and the high number of beneficiaries. Sustainability mechanisms have been reinforced. High absorption rates as they have been able to disburse 74 percent loans and 93 percent grants.

10.2.5 Recommendation

- Strengthen existing structures.
- Issues of transfers of Staff midstream should be avoided.
- Asset matters should be handled progressively during the period but not at the end.

10.3. PROJECT MANAGEMENT UNIT MEMBERS (PMU)

10.3.1 Relevance of PMU

Planning, implementation & coordination of projects and activities: The formation of PMU was as a result of the need for timely implementation of CKDAP projects. There was need to coordinate activities on the ground and thus PMU were strategically situated within project areas. Key areas mentioned by respondents in terms of relevance of the PMU are in planning and implementation of projects and activities thereof, and the review of annual work plans and budget.

Managerial role for PMU: includes logistics and procurement with administrative support, financial management (budget and audit) and review of annual work plan.

PMU identify activities that are relevant and strategic to the community and those that lead to the achievement of the project objectives. Hence, resources are distributed to impacting and sustainable activities.

Composition of PMU: the implementation of the integrated project is credited to the composition of the PMU whose technical officers are representatives of various components. Further, the project outcomes and outputs are standardized. Centralized procurement of goods and services results in quicker deliveries of goods and services.

PMU mandate: PMU are mandated to make independent decisions which should be prompt and informed to avoid delays in implementation of the project.

PMU has led to the capture and flow of information among the various stakeholders with subsequent improved Information Management Systems. Its establishment in project areas has facilitated monitoring and evaluation by giving timely recommendations and review of work plans in line with set objectives, thus increased outreach. The PMU saves on costs and ensures quality of projects delivered in time.

10.3.2 Decisions by PMU that have Improved Project Performance

Direct fund payment: the PMU have mostly been credited with direct fund payment rather than revenue, which accelerated the completion of projects. Further, the time spans for completion of projects reduced as funds were available for expenditure. Comparatively, funding through revenue was problematic as payment was slow consequently delaying implementation of projects.

Project funds were budgeted during planning resulting in improved coordination and flow of funds. The agriculture component led to the construction of markets which would not have been realized were it not for this arrangement.

The involvement of beneficiaries in the preparation of community action plan informed the final preparation of the project AWPB. There has been a shift to fund water projects which has multiple benefits for example in health and in agriculture.

Improved supervision: there has been improved supervision through the involvement of provincial heads from the government promoting loyalty to projects at the District level.

PMU operates on performance and activity-based allocation: the decision to fund cost centers using the monthly activity schedules enables careful allocation of resources, whereas collection and submission of statements of expenditure ensured reimbursements.

PMU integrated approach has led to joint monthly meetings and review workshops among DPCU and DPIT members to allow learning and sharing of information. The PMU awards full contracts rather than labor/service contracts for construction improved performance of projects.

10.3.3 Challenges faced by PMU

Delays in financial flow: the biggest challenge cited is the delay in financial flow attributed to complex fund flow processes and in turn affecting the pace and quality of project implementation.

Divided attention: Partnership was easy but ensuring the MOU was being observed was difficult, as collaborators had divided attention and varying interests. Further, Ministries are differently managed with different perspectives. However, in one case, slow spending of funds was cited as a challenge as it clogs the flow of funds.

Lack of ownership and commitment by implementers: the PMU had no direct authority on implementers who are government employees with respective duties that do not include CKDAP projects. Lack of ownership and commitment by implementers affected the performance of the projects as CKDAP depended purely on good will which affected timely execution of CKDAP activities.

Difficult supervision: Consequently, supervision becomes difficult as the stakeholders do not provide required support. CKDAP does not have direct reporting authority as the implementers report to the heads of department in the government system. CKDAP finds it difficult to ensure implementation is progressing as required.

Poverty has led to the slow uptake of technologies by communities due to low economic capability.

Inadequate funding leads to poor sustainability mechanisms.

Policy shift: For example, scraping cost sharing at health facilities and dispensaries without adequate allocation of funds by the Ministry and the reduced supply of subsidized mosquito nets.

Inadequate documentation: In the initial stages of the project, documentation of the activities was inadequate affecting the creation of benchmarks to govern subsequent activities.

The operation system is a challenge: the procurement process is cumbersome and time consuming, delaying provision of goods and services. Documenting process has been highly associated with delays especially the preparation of bills of quantity by the Works Department. In one instance, the project design has been described as rigid and inflexible as it provides long procedures for adjustments.

10.3.4 Feasibility of the Project

It is autonomous that the project is feasible and various reasons have been provided. The nature of the project has been designed in line with MDGs especially in poverty eradication, a fact cemented by its partnership with the government.

The design and structure of the project has a beneficial output to the community. For example, areas range from water, health and agriculture which benefit farmers, women, men, youth and the community in general, transforming their way of life. Feasibility can be viewed in terms of projects that involve community participation for example, water and primary health component. Involvement of community majors on ownership of the projects for sustainability. The community is involved from initial design to completion of projects. In addition, capacity building is done through training of community members. Officials are trained to train community members.

10.3.5 Recommendations

- Address financial flow issues; donors to fund on yearly basis rather than quarterly.
- Participation by collaborators.

10.4 DISTRICT PROJECT COORDINATING UNIT/DIVISIONAL PLANNING AND IMPLEMENTATION TEAM

10.4.1 Participatory planning structures

The highly mentioned participatory planning and monitoring structure was the *DPCU*, followed by the *FDAs*, then *PMU* and *DPIT*. Those mentioned only once are the *DMT* and *ministry staff* at divisional office.

The *DMT, ToTs* and *Umbrella groups* were only mentioned by the DPIT with additional structures which included training, reports and implementation of follow ups.
Other structures mentioned are CEPs, CAP, and Sector Committees

10.4.2 How active is each of them

The Committees meet to plan and monitor project activities; the PMU, DMT and FDA meet on quarterly basis while DPIT and DPCU mostly on monthly basis. Further, the umbrella groups and TOTs have monthly meetings to deliberate on their activities. Follow ups and reports are activity based and done on quarterly basis.

10.4.3 How implementation has benefited from existence of the planning and monitoring of structures

The major benefit involves planning, monitoring and evaluation of the projects. They assess and obtain feedback by coordinating and undertaking activities. This is done through technical backstopping, project advisory, frequent decision-making and follow-ups. It collects component reports, evaluates ongoing activities, shares emerging issues and comes up with solutions, shares lessons learnt during project implementation, and ensures resources are shared equitably among the components and implementing Districts.

Project implementation was adequate as it promoted cohesion, ownership and prioritization of activities as a result of joint planning, implementation and monitoring. It provides links at the community level and the implementing team. It also assists in policy implementation and mobilization of beneficiaries and resources e.g. funds from CDF and brainstorm implementers and beneficiaries

Farmers benefit through mobilized training and extension activities. They are able to market produce from income generating activities such as growing of TC bananas and avocados which improves levels of income in the community. Further, commercial nurseries have been established. Another, benefit is environmental conservation through soil and water conservation, soil fertility improvement and use of energy saving devices.

10.4.4 Rating of the Implementation Integration Level

The implementation integration level is highly rated despite slow fund disbursement mainly because it involves the participation of all components during planning and implementation, and its collaboration with major stakeholders during the project implementation period. Input from the technical department was also beneficial.

However, in few cases, it is lowly rated due to lack of performance contract in CKDAP in other components and the fact that each component concentrates on its activities with minimal reference to other components. Finally, participation of the provincial administration was minimal.

10.4.5 Organizations and Areas of Collaboration

The main areas of collaboration with other organization are training and food security (capacity building and resource sharing) as given below:-

- KARI (Install biogas and digesters for farmers; Research & Training; Source of clean planting material)
- AGRO-supplies (Field days and exhibition)
- GBIAC (Training facilities; Promotion of organic farming)
- WEMHIS (Training and extension)
- SNV (Value addition, e.g. of mangoes)
- Department of Vetinary Services (Vaccination of poultry and goats)
- World Vision (Construction of health facilities; Promote food security through supply of cassava, sweet potatoes, planting materials, TC bananas, paw paws and macadamia seedling; Promote post harvest management of cereals through metal silos)
- APHIA II (Training of health workers)
- SACDEP (Training Farmers on energy conservation)
- Community (Project acceptance)
- GoK Departments (Other technical inputs from Ministries of Planning, Public Health, Livestock, Water, Gender and Social Services and Agriculture)
- Africa Harvest (Training in husbandry practices; Marketing of TC bananas)
- KIOF (Training on soil fertility-compositing)
- FRIGOKEN (Promotion and marketing of french beans)
- DGAK (Registering & Marketing dairy goats and bull breeding)
- CDF (Funding)/LATIF/CACC
- Othaya-Mukurweini Water and Sanitation (Omwasco)
- GTZ (Environment conservation i.e. rocket building)
- PSDA
- Technoserve(Linkage of banana groups to market)

Other organizations mentioned include, Red Cross, NAWEP, DOREP

i. Challenges

Re-engineering of the project that left out some areas in terms of further investment which created constant demands from the community that the project could not address. Proper integration was not achieved. There was poor fund disbursement through delays and partial funding of some work plans.

Low adoption rate of technology which may be attributed to;-

- High cost of production compared to unit price
- Inability of communities to contribute effectively
- Illiteracy and poverty
- Low community participation
- Community dependency syndrome
- The issue of clear job descriptions for various structures e.g. FDAC and DPCC on planning and implementation.
- Inadequate transport as few vehicles are available compared to the need and the creation of new Districts.
- Change of government policies e.g. water act, frequent transfers of technical officers, newly created Districts.
- No direct control of the project/stakeholders not readily available for sustainability of the projects which affects priority setting and implementation of recommendations.
- Natural phenomenon such as drought and unfavorable weather conditions
- Procurement procedures lead to delayed project implementation affecting the timeliness of the project.
- There is lack of FDAC in some areas as well as inadequate sources of breeding stock/animals

10.4.6 Feasibility of the Project

Water and health projects are highly feasible as a result of direct benefit to the community, a lot has been achieved although some activities are not complete as the project ends.

Brought services closer to the people especially health and water

Feasible financially, socially, environmentally

In line with Vision 2030 to fight hunger and alleviate poverty/increased food security/Income through IGAs

10.5 FOCAL DEVELOPMENT AREA COMMITTEE

10.5.1 Community involvement

A majority of the Focal Development Area Committee members reported community involvement during the Participatory Rural Appraisal [PRA] carried out in the year 2004 and reviewed in 2009. This was important in development and review of the community action plan (CAP) which formed the basis of project implementation.

In almost all FDAs it was reported that the community was involved in identification of problems they faced, among those cited were: lack of water, lack of adequate health facilities, food insecurity, poverty, and poor infrastructure among others. Members were involved in meetings to share their opinion on what areas should be prioritized and the possible interventions towards implementation of the project. In almost all the interviews it was reported that the community identified and provided project construction sites for construction of health facilities, water projects and plots for demonstration.

During public barazas, the community was involved in selection of FDA Committee representatives. In addition, members engaged in activities they had been trained in by their Committee representatives which included kitchen gardening, VIP latrines, use of improved jikos to save energy and formation of self help groups.

As reported in all FDAs, the community contributed about 25 percent in all projects undertaken since they were the beneficiaries of the projects and by extension, owned the project. Only in few cases did the community participate in the project by attending meetings and capacity building programs.

The community participated in voluntary work such as digging trenches to install water pipes, filling of water gullies caused by rain etc. It was only in Kagumoini FDA that the community reported having been trained on how to seek or mobilize funds from other development partners. As a result members were registered with organizations such as the Dairy Goats Association of Kenya [DGAK].

10.5.2 Role of FDA Committee

The major roles of FDAC as reported include mobilizing the community on various project activities such as scheduling meetings and trainings in FDAs. This is aimed at sensitizing the community on the importance of a 25 percent community contribution and full project ownership. They also meet on a weekly basis to evaluate the progress made by different sectional committees which entails visits to the site project.

In most cases, the FDAC had the role of overseeing implementation and coordination of project activities for example issues concerning water, health, and agriculture as stipulated in CAP.
Further, FDAC links the community to relevant project implementers and CKDAP officials. This is done through submitting the monthly report on the progress of activities and recommendations given by community members.

In few incidences, FDAC attended the annual workshop organized by GoK and with the knowledge gained, embarled on the role of creating awareness to the community on the importance of forming groups, resolving group conflicts, how to sustain the groups and facilitate groups registration with the Department of Social Services(DSS).

10.5.3 Main challenges in executing FDAC roles

Majority of respondents cited lack of recognition from the community members, poor communication linkage from the central office and local administration as the main challenges impeding their work. Others cited slow acceptance by community members to adopt new technology, members' unwillingness to volunteer, lack of project ownership and poor community participation in group projects.

Further, financial constraints such as lack of adequate funds, delayed funds for the project, lack of external support from other partners and high poverty levels in the community were reported as being common challenges in all FDAs. This contributed to slow implementation of project activities hence taking a long time before completion.

Only in few instances did respondents cite lack of a central office, lack of facilitation materials and poor infrastructure as a challenge in implementation of the community action plan.

Another challenge mentioned in some FDAs was that of internal leadership wrangles; political interference from some leaders who were envious that they didn nt begin the project(s).

Only in Mariaini FDA was climatic change that affected the crops and animals, and the challenge of animal diseases cited.

10.5.4 The Future of FDAC after Project Conclusion

A substantial number mentioned that FDAC will remain active within the FDAs, and that they intend to work towards the project goals and follow up on the project to ensure it does not collapse. Also mentioned was the intention to engage in other IGAs activities like goat rearing and rabbit keeping.

Despite a lack of clarity on FDACs future after project completion, respondents mentioned the need to link with and strengthen the relationship with relevant ministries and implementers for technical support; use of CDF funds; and, continued mobilization of the community to own the project.

10.5.5 Project Sustainability

On the section concerning sustainability of the implemented project, majority of respondents cited the need for proper management and monitoring and evaluation, all which entail holding regular meetings with members of community to solve problems and to evaluate the progress.

Further, full community participation and involvement is cited as essential in project ownership, and as being possible through community contribution.

On the other hand, collaborating with other partners such stakeholders, donors, GoK and other financial institutions is important to source funds. There was a general view that communities will be more empowered if they form more groups, especially IGAs.

10.5.6 Recommendation

It is evident the FDAC links the community and project implementers, there is therefore need to engage more stakeholders to sustain the projects.

RECOMENDATION

Qualitative analysis done shows CKDAP projects have had a positive impact on the community. The numerous groups formed are involved in income generating activities centered on crop and animal farming, water harvesting and, soil and tree conservation. In addition, a few groups are involved in community health and welfare activities. These activities have greatly benefited the community; from providing food, water and employment, to improving the general health of the community and helping conserve the environment.

These projects are well accepted by the community and their sustenance will continue to improve the standards of living of the community in general.

Nevertheless, communities continue to face numerous challenges. The following recommendations will assist in solving some of the problems and improving the efficiency of CKDAP projects

Health
- CHWs require recognition and ways to motivate them, for example free health services,
- Train community members on simple water treatment methods
- Continuous training of health service providers
- Enhance linkage between health providers and facility-based services
- Enhance mobile clinics

Water
- Need to address water shortage

Groups
- Enhance IGAs
- Capacity building through training
- Reinforce enterprise specific/umbrella groups for sustainability
- Promote male involvement

Agriculture
- New Markets for produces should be sought
- There is need for intensive and improved services by extension workers or agricultural officers
- Training of community in soil conservation, crop and animal rearing with emphasis on irrigation and value addition
- Address water shortage

Management
- Need to strengthen the existing structure
- Provide clear job descriptions
- Conflict resolution
- Improved fund flow
- Source/mobilize funds
- Collaboration with other partners

CONCLUSION AND RECOMMENDATIONS

Conclusion
The Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP) had a positive impact on the community in the project area. The overall the aim of the project was to improve the well-being of the target communities in the project area. The study shows the community in the project area are involved in income generating activities centered on agriculture and extension services in crop and animal farming, water harvesting and soil and tree conservation. In addition, a few are involved in community health and welfare activities. These activities have

greatly benefited the community; from providing food, water and employment, to improving the general health of the community and helping conserve the environment.

The study shows that during the project period there was an increase in economic activities. The study found out that most households were in some form of employment. The income of most households rose as reflected by uptake of modern technologies, use of cement and stones as the main building materials. Electricity connections have risen and LPG use has gone up as a form of lighting and cooking technologies

Households can now allocate more of their income to rent, school fees, water and clothing. School fees expenditure has benefited most from income raised through the sale of agricultural surplus. The well being of the households have been improved as seen from the increased savings, merry-go-round contributions, amounts lent, amounts invested and amounts spent on land. This is a positive change as the impact is felt at the household level, thereby confirming that availability of disposable income increases spending choice. Use of modern cooking and lighting energy sources will help reduce the destruction of forests for firewood and charcoal.

Although the proportion of households dependent on unsafe water sources during the dry season has decreased overtime, overall, slightly more than half of the households are dependent on unsafe water sources notably river/dam/stream. Use of safe water sources, notably piped and borehole, has increased overtime indicating a significant improvement in the provision of safe water. The study further shows that overally during the dry season, fewer households travel over 1 Kilometer to fetch water, implying that more households have access to water within shorter distances. Nevertheless, communities continue to face numerous challenges. The Qualitative analysis study shows that there still exist shortages of water though in low numbers. Although there were water projects still underway, some communities were still experiencing water problems, despite using water harvesting techniques.

The study further shows that access to health facilities improved with more households accessing the facilities within 5 Kilometers. This in turn has led to more of the deliveries occurring in a health facility. However, more work is needed in Ndindiriku, Ndivai and Mbuyu where half of their reported deliveries occur at home. The project period saw an increase in awareness of the modes of HIV/Aids transmission as well as where to go for testing. There was a shift in the main mode of prevention cited from sex with one partner in five years ago to condom use at present. Overall, health projects also had a positive impact. Interventions at local health facilities reduced distances covered to seek medical attention. This impacted positively on health seeking behavior and will also aid in controlling diseases as well as monitoring their incidences.

Project activities focusing on agriculture extension services were not entirely successful. The study shows that there was increase in the number of households visiting agricultural events, with the greatest impact being in the numbers that reported learning zero grazing, grafting and chicken brooding. These interventions led to a shift in crop preference and possibly an adoption of other crops not native to the project regions. Maize preference as a first crop and bean preference as a second crop declined. Further, there was an increase in households conserving soil.

In contrast, food security in the project area has not improved. There was an increase in number of households reporting a hungry season with the number of households requiring relief food rising. The number of households operating a farmland declined while land ownership declined as well. While there was an increase in the number of households rearing cattle, there was a decline in goat keeping. AI services, use of animal drugs, and use of animal treatment also declined. Rain failure may be one of the causes of poor agricultural performance. The data points out to a strong possibility of drought as implied by the decline in water harvesting. Livestock interventions may have failed due lack of resources to adopt new technologies and breeds and lack of fodder due to drought. The drought experienced in the year under review contributed to lower production in agricultural produce

The qualitative data shows great impact of CKDAP projects. Many groups have been formed and are engaging in IGAs. The community was involved the implementation of these activities as beneficiaries by mostly providing labor, construction sites and maintenance. Thus the community has highly accepted and has adopted these activities evidenced by the fact that they are practicing especially in crop and animal farming.

However, The use of energy saving technology is still low with minimal adoption. Access to health care has greatly improved with construction of health facilities and dispensaries and the availability of trained CHWs.The project is feasible as it is in line with MDGs and has greatly benefited the community

Recommendations

1. Though there was a significant positive change in living standards, there is a need to focus on the variations within the regions and target areas with least improvements.

2. While overall use of unsafe water sources during both dry and wet seasons has significantly declined overtime this sentence is incomplete

3. Health interventions did not have a positive effect across the Districts. The occurrence of home deliveries is a good example and as such, reasons for retention of such practices should be investigated.

4. The factors associated with poor performance in crop and livestock farming need to be looked at in depth. The drop out in the use of modern technologies should be investigated further.

5. Overall, the sustainability of the new practices introduced by the project should be assessed and strategies developed to buttress them if the project's goals are to be realized in the long run and or in the event of exit by project supporters.

6. An in-depth analysis could be undertaken using the data collected to answer questions on causes or correlates of certain patterns and trends observed from the data.

7. Hunger reduction has proved difficult overtime and there is urgent need to reexamine more and better appropriate strategies.

8. Continued involvement of community for sustainability due to sense of ownership.

9. Group empowerment through training.

10. Improve on the flow of funds.

11. Work on conflict resolution.

Annex 1

HOUSEHOLD IMPACT ASSESSMENT SURVEY QUESTIONNAIRE

Republic of Kenya

KNBS
KENYA NATIONAL BUREAU OF STATISTICS
Keeping you informed

International Fund for Agricultural Development

Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP)
Household Impact Assessment Survey Questionnaire (December 2010)

IDENTIFICATIONI		
	NAME	CODE
DISTRICT	_____	☐☐☐
DIVISION	_____	☐☐
LOCATION	_____	☐☐
SUB-LOCATION (FDA)	_____	☐☐
ENUMERATION AREA (EA)	_____	☐☐☐
CLUSTER NUMBER	.....	☐☐☐
HOUSEHOLD NUMBER	.....	☐☐☐
QUESTIONNAIRE ID:	.....	☐☐☐☐☐☐ [Cluster No.] [Household No.]

INTERVIEWER VISITS			
VISIT 1	VISIT 2	FINAL VISIT	SUPERVISOR'S CHECK
DAY ☐☐	DAY ☐☐	DAY ☐☐	DAY ☐☐
MONTH ☐☐	MONTH ☐☐	MONTH ☐☐	MONTH ☐☐
*RESULT ☐	*RESULT ☐	*RESULT ☐	*STATUS ☐
TIME START _____ / ____	TIME START _____ / ____	TIME START ____ / ____	* STATUS CODE
TIME END _____ / ____	TIME END _____ / ____	END _____ / ____	1 = INTERVIEWER ACCEPTABLE
		TOTAL NO OF VISIT ☐	2 = INTERVIEW TO BE FURTHER COMPLETED
			3 = INTERVIEW TO BE REJECTED

* **RESULTS CODES**		
1 = COMPLTED	4 = REFUSED	8 = OTHER (SPECIFY)
2 = NOT AT HOME	5 = PARTLY COMPLETED	
3 = POSTPONED	6 = INCAPACITATED	
	7 = VACANT / UNOCCUPIED	

ENUMERATAOR	SUPERVISOR	KEYED BY
☐☐	☐☐	☐☐
NAME _____	NAME _____	NAME _____

SECTION 1: HOUSEHOLD DEMOGRAPHICS

1.1 Now we would like to get information about members who usually live in your household. *(Start with name of the household head and remember to include the respondent).*

Serial No.(1)	Name (2)	Sex (3)	Age (Completed yrs) (4)	Relationship to head of HH (5)	Occupation (6)	Marital Status (7)	Education Level (8)	Religion (9)
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
14								
15								

1.2 Indicate the serial number of the respondent from the above table

Codes for **HOUSEHOLD DEMOGRAPHICS**

(3) Sex: 1- MALE 2 – FEMALE

(5) Relationship to Head of Household:

01 Head of Household
02 Wife/husband/partner
03 Son or daughter
04 Son-in-law or daughter-in-law
05 Grandchild
06 Parent
07 Parent-in-law
08 Brother or sister
09 Co-wife
10 Other relative
11 Adopted
12 Non relative

(6) Occupation:

1. Subsistence/mixed farmer
2. Pastoralist
3. Employed (formal)
4. Employed (informal)
5. Business (include: commercial, livestock and crop production)
6. Domestic worker
7. Home maker/House wife
8. Student
9. N/A
10. Don't Know
11. Others (specify)

(7) Marital status:

1. Married
2. Single
3. Divorced
4. Separated
5. Widowed
6. N/A
7. Don't Know
8. Other

(8) Educational Level:

1. Nursery, kindergarten
2. Primary
3. Post-primary, vocational
4. Secondary, A-level
5. College (middle level)
6. University
7. Child – not yet gone to school
8. Adult education (Gumbaru)
9. None
10. Don't Know

(9) Religion:

1. Catholic
2. Protestant
3. Other Christian
4. Hindu
5. Traditional
6. No religion
7. Muslim
8. Others (specify)

SECTION 2: HOUSEHOLD CHARACTERISTICS, ASSETS, ENERGY AND EXPENDITURE

HOUSEHOLD CHARACTERISTICS			
Question	**Code**	**Response**	**Comments/Notes**
2.1 What is the main floor material of the main dwelling house?	Natural Floor 1. Earth/Sand/Mud 2. Dung 3. Other natural/traditional material Rudimentary Floor 4. Course Wood Planks 5. Palm/Bamboo 6. Other rudimentary material Finished Floor 7. Polished Wood 8. Vinyl or Asphalt Strips 9. Ceramic Tiles 10. Cement 11. Carpet Others 12. Other (specify).....		Indicate the correct number in the box
2.1 What is the main roof material of the main dwelling house?	Natural/traditional materials 1. Grass/thatch/makuti 2. Discarded recycled materials/ plastic 3. Other natural or traditional materials Rudimentary informal materials 4. Coarse wooden planks 5. Plain tin sheets 6. Other rudimentary material Formal commercial building materials 7. Corrugated iron sheets (mabati) 8. Asbestos sheets 9. Concrete 10. Tiles 11. Finished wood (T & G) Others 12. Other (specify).....		Indicate the correct number in the box
2.1 What is the main wall material of the main dwelling house?	Natural/traditional materials 1. Mud and wattle 2. Discarded recycled materials 3. Grass/thatch/bamboo/makuti 4. Other natural or traditional materials- Rudimentary informal materials 5. Coarse wooden planks 6. Tin sheets 7. Corrugated Iron Sheets 8. Stones and mud 9. Stones and cement 10. Other rudimentary material Formal commercial building materials 11. Cut stone blocks 12. Cement blocks 13. Clay bricks 14. Concrete 15. Finished wood 16. Mabati (heavy gauge) 17. Other commercial building material Others 18. Other: (specify).....		Indicate the correct number in the box
2.4 What is the number of living rooms in the main dwelling house?			

ASSETS			
2.5 Does your household have the following? (Read each item aloud and record response before proceeding to the next item).	1. Electricity---------- 2. Radio---------- 3. Television---------- 4. Refrigerator---------- 5. Bicycle---------- 6. Motorcycle/scooter---------- 7. Car/track---------- 8. Gas cooker---------- 9. Solar energy---------- 10. Telephone (Mobile/fixed) ---------- 11. Computer---------- 12. Sofa Sets---------- 13. Wall unit---------- 14. Plastic chairs---------- 15. Generator/Water Pump----------	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO
ENERGY			
2.6 What type of fuel does your household <u>mainly</u> use for cooking?	1. Electricity 2. LPG /Natural gas 3. Biogas 4. Kerosene 5. Charcoal 6. Firewood/Straw 7. Others (specify).....	☐	
2.7 What type of energy does your household <u>mainly</u> use for lighting?	1. Electricity 2. LPG/Natural Gas 3. Biogas 4. Paraffin(Kerosene) 5. Firewood/straw 6. Solar 7. Other (specify) _____	☐	
2.8 Which of the following cooking devices does your household use? Read out the names of the devices and probe if they have other devices.	1. Fireless cookers---------- 2. Maendeleo liners/jikos---------- 3. Kenya Ceramic jikos---------- 4. Improved fire place---------- 5. Tea cosy ---------- 6. Paraffin Stove---------- 7. Biogas---------- 8. LPG---------- 9. Solar---------- 10. Electric Cooker----------	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A

HOUSEHOLD EXPENDITURE		
2.9 *Key Household Expenditures:* List various key expenditures (see a-h below) that the household may possibly have, and ask the respondent to estimate the amount for each type that the household or any of its members may have made during the recall period.	1. Yes, had expenditure of this type 2. No, did not have	
a) Rent for this dwelling per month	1 2 |___|___|___|___|___|___|	*Please circle the correct response (1 or 2) and if YES, ask the respondent to estimate the amount (Kshs) for each type of the expenditure.*
b) Total school expenses paid for all children last 12 months (include schoolfees, textbooks, uniforms etc)	1 2 |___|___|___|___|___|___|	
c) Expenditure on food consumded during a normal month	1 2 |___|___|___|___|___|___|	
d) Expenditure on health care during the last 3 months	1 2 |___|___|___|___|___|___|	
e) Expenditure on energy during a normal month (charcoal, wood, Paraffin., electricity etc)	1 2 |___|___|___|___|___|___|	
f) Expenditure on water during a normal month	1 2 |___|___|___|___|___|___|	
g) Expenditure on clothing last year/ 12 months	1 2 |___|___|___|___|___|___|	
h) Transport last month	1 2 |___|___|___|___|___|___|	
i) Airtime last month	1 2 |___|___|___|___|___|___|	
j) Payments for domestic servants last month	1 2 |___|___|___|___|___|___|	
k) Other household expenditures (Specify)	1 2 |___|___|___|___|___|___|	
Transfers , investments, loan repayments and savings:	1. Yes, had transaction of this type 2. No, did not have	*Please circle the correct response (1 or 2) and if YES, ask the respondent to estimate the amount (Kshs) for each type of the expenditure.*
l) Loan repayment to bank, sacco, credit union, microfinance institution, groups, shylocks last year	1 2 |___|___|___|___|___|___|	
m) Savings deposit made to sacco, bank or microfinance institution last year	1 2 |__|___|___|__|___|___|	
n) Savings deposits made to merry-go-rounds and groups last year	1 2 |___|___|___|___|___|___|	
p) Transfer payments made to relatives and friends last year (e.g schoolfees paid for relatives, friends, money sent to parents etc)	1 2 |___|___|__|___|__|___|	
q) Money lent to friends, relatives etc last year	1 2 |___|___|__|___|__|___|	
r) Investment in business: purchase of equipment used in manufacturing or of commodities for resale last year	1 2 |___|___|__|___|__|___|	
s) Purchase of land, construction or property last year	1 2 |___|___|__|___|__|___|	
t) Contributions to Harambees, projects or any other fundraisings last year	1 2 |___|___|__|___|__|___|	

SECTION 3: WATER, SANITATION AND HYGIENE

WATER				
	(A.) RAINY SEASON		(B.) DRY SEASON	
3.1 What is the main source of DRINKING water for members of your household during [rainy/dry] season? Indicate only one answer in the box provided	1. Piped into dwelling 2. Piped into yard/plot 3. Public tap/ water kiosk 4. Borehole 5. Protected well (concrete top) 6. Unprotected well (no concrete top) 7. Protected spring 8. Unprotected spring 9. Lake 10. Pond 11. Dam 12. Pan	13. Rainwater 14. Stream/River 15. Burrow pit (dug into river/stream bed) 16. Tanker –truck/ vendor 17. Reservoir/Tank water 18. Other (Specify)_____ Q3.1A [ ]	1. Piped into dwelling 2. Piped into yard/ plot 3. Public tap/ water kiosk 4. Borehole 5. Protected well (concrete top) 6. Unprotected well (no concrete top) 7. Protected spring 8. Unprotected spring 9. Lake 10. Pond 11. Dam 12. Pan	1. Rainwater 2. Stream/River 3. Burrow pit (dug into river/stream bed) 4. Tanker –truck/ vendor 5. Reservoir/Tank water 6. Other (Specify)_____ Q3.1B [ ]
3.2 Who mainly funded the construction of this source of water? If Response is 1 or 2 to SKIP to Q3.4	1. Household 2. Landlord 3. Government 4. CKDAP 5. NGO 6. Group 7. Faith based organisation 8. Community 9. N/A 10. Others Q3.2A [ ]		1. Household 2. Landlord 3. Government 4. CKDAP 5. NGO 6. Group 7. Faith based organisation 8. Community 9. N/A 10. Others Q3.2B [ ]	
3.3 What is the name group or institution?	_____		_____	
3.4 What is the distance (in km) from your household to this water facility? (Convert all the responses into kilometres).	1. 0 – 1.0 km 2. 1.1 – 2.0 km 3. 2.1 - 3.0 km 4. 3.1- 4.0 km 5. 4.1 – 5.0 km 6. 5.0 km and above Q3.4A [ ]		1. 0 – 1.0 km 2. 1.1 – 2.0 km 3. 2.1 - 3.0 km 4. 3.1- 4.0 km 5. 4.1 – 5.0 km 6. 5.0 km and above 3.4B [ ]	
3.5 How long does it take to go to the water facility, get water, and come back (in hours)? (Convert all the responses into hours).	1. 0 – 0.5 hours 2. 0.6 – 1.0 hours 3. 1.1 – 1.5 hours 4. 1.6 – 2.0 hours 5. 2.1 – 2.5 hours 6. 2.6 – 3.0 hours 7. 3.1 – 3.5 hours 8. 3.6 – 4.0 hours 9. 4 hours and above 3.5A [ ]		1. 0 – 0.5 hours 2. 0.6 – 1.0 hours 3. 1.1 – 1.5 hours 4. 1.6 – 2.0 hours 5. 2.1 – 2.5 hours 6. 2.6 – 3.0 hours 7. 3.1 – 3.5 hours 8. 3.6 – 4.0 hours 9. 4 hours and above 3.5B [ ]	
3.5a Have you been saving time now compared to previously before this water source? If No, SKIP to 3..6	[ ]		[ ]	1. YES 2. NO

SECTION 3: WATER, SANITATION AND HYGIENE *(Continued)*

3.5b If yes in 3.5a, How have you been utilizing the saved time?	1. Farmwork 2. Business 3. Participate in group meeting 4. House keeping 5. Other Specify.....	☐
3.61 Do you usually treat water for drinking from this water facility during [rainy/dry] season? If [3] to both 3.6A and 3.6B, SKIP to Q3.8	1. Always 2. Sometimes 3. Never ☐ 3.6A.	1. Always 2. Sometimes 3. Never ☐ 3.6B.
3.7 Which water treatment methods do you use? (Do not read options but allow respondent give you answers). If chemical treatment is mentioned, ask which chemical type and write answer in provided space.	1. Boiling ..... 2. Chemical treatment: (a) Water Guard (b) Aluminum Sulphate (c) Chlorine (d) Other (Specify .....) 3. Filtration ..... 4. Other (Specify) _____	☐ 1. YES 2. NO ☐ ☐ ☐ ☐ ☐ ☐

3.8 What are the uses of water in your household? (Ask respondent to list all possible uses of water and record responses. If some of the listed common options are not mentioned, confirm by probing).	**Domestic Uses**	1. YES 2. NO or N/A If 2, SKIP to next line	3.9 How many Litres of water do you use in the household per day? (Record approximate number in litres)
	1.Washing clothes _____	☐	☐
	2. Washing dishes _____	☐	☐
	3. Cooking _____	☐	☐
	4. Drinking _____	☐	☐
	5. Bathing _____	☐	☐
	6. Others *(Specify)* _____	☐	☐
	Livestock Uses		
	7. Watering livestock_____	☐	☐
	8. Others (Specify) _____	☐	☐
	Other Uses		
	9. Micro-Irrigation _____	☐	☐
	10. Irrigation _____	☐	☐
	11. Others (Specify) _____	☐	☐
3.10 Is the water that you get during RAINY SEASON enough for all uses mentioned in 3.8?	1. YES 2. NO	☐	

SECTION 3: WATER, SANITATION AND HYGIENE *(Continued)*

3.11 Is the water that you get during DRY SEASON enough for all uses mentioned in 3.8?	1. YES 2. NO	☐	
3.12 Which are the common water borne/wash diseases do people suffer in this locality? (Do not read out option. Ask respondent to name all the possible diseases and record the answers)	1. Diarrhea _____ 2. Typhoid _____ 3. Bilharzia _____ 4. Bacillery/Dysentery/Shigellosis _____ 5. Amoebiasis _____ 6. Cholera _____ 7. Skin diseases _____ 8. Other (Specify) _____	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A
3.15 Is any member of the household a member of any water user groups?	1. YES 2. NO	☐	If No, SKIP to 3.15
3.14 If YES, please give the name of the water user group	_____		

SANITATION AND HYGIENE			
3.15 What kind of toilet facility does your household mainly use? (If household has more than one toilet facility, probe for the one used most of the time)	1. Flush / pour flush 2. Flush to piped sewer system 3. Flush to septic tank 4. Flush to pit (latrine) 5. Flush to somewhere else 6. Flush to unknown place/not sure where 7. Ventilated Improved Pit latrine 8. Pit latrine with slab 9. Pit latrine without slab/open pit 10. Composting toilet 11. Bucket 12. Hanging toilet/hanging latrine 13. No facilities or bush or field 14. Flying toilets 15. Other (specify) _____	☐	Record only one response in the box provided
3.16 Is this facility located within your dwelling, or yard or compound?	1. Yes, in dwelling/yard/compound 2. No, outside dwelling/yard/ compound	☐	Record only one response in the box provided
3.17 How often is the facility cleaned?	1. Once a day 2. More than once a day 3. Once a week 4. More than once a week 5. Never cleaned 6. Other (Specify).....	☐	Record only one response in the box provided
3.18 Which hand washing equipment is located within the toilet facility?	1. Tap 2. Leaky Tin 3. Basin 4. None 5. Other (specify.....)	☐ ☐ ☐ ☐ ☐	1. YES 2. NO

SECTION 3: WATER, SANITATION AND HYGIENE *(Continued)*

3.18a What other sanitation facilities does your household have now compared to before the CKDAP?	1. Dish Rack 2. Hanging Line 3. Mosquito nets 4. Compost pit 5. Other Specify		
3.19 Do children under 5 years use this sanitation facility?	1. Yes 2. No 3. Some children use, while others don't 4. N/A, (HH has no children under 5 yrs)		Record only one response in the box provided If 1 or 4, SKIP to 4.1
3.20 What happens with the stool of young children (0-5 years) when they do not use the latrine or toilet facility? (Multiple response possible)	1. Thrown into toilet or latrine 2. Thrown outside the yard 3. Buried in the yard 4. Not disposed off/left on the ground 5. Children go to bushes 6. Other (specify)		1. YES 2. NO or N/A

SECTION 4: PRIMARY HEALTHCARE

4.1 Where do household members mainly go for treatment when they are sick?	1. Dispensaries 2. Health centers 3. Private hospitals/clinics 4. Government hospitals 5. Community Pharmacies 6. Traditional healers 7. Others (Specify) _____		Record only one response in the box provided
4.2 What is the distance traveled by members of your household to the nearest health facility?	1. Less than 5km 2. Between 5 - 10 km 3. More than 10km		Record only one response in the box provided
4.3 Have there been any births in this household during the last five years?	1. Yes 2. No		If NO skip to 4.6
4.4 Where did the last birth take place?	1. At home 2. Health facility 3. Other (specify.....)		
4.5 Who assisted in the delivery?	1. Traditional Birth Attendant 2. Health worker 3. Relative 4. Self 5. Other (specify.....)		
HEALTH GROUPS			
4.6 Is any member of your household a member of any of these health groups?	1. Community Health Workers _____ 2. Traditional Birth Attendants _____ 3. Village Health Committees _____ 4. Health Facilities Management Committees __ 5. People living with HIV/AIDS _____ 6. Any other (specify).....		1. YES 2. NO or N/A
HEALTH GROUPS			
4.7 Have you ever heard of an illness called AIDS?	1. Yes 2. No		If 2, SKIP to 4.15

SECTION 4: PRIMARY HEALTHCARE *(Continued)*

4.8 If yes, do you know how it is transmitted? (Do not read out the options. Let respondent give you all options she/ he knows).	1. Unprotected sex _____ 2. Blood transfusion _____ 3. Breastfeeding _____ 4. Mother to child during birth _____ 5. Using unsterilized instruments _____ 6. Others (specify) _____		
4.9 Is there anything a person can do to avoid getting AIDS?	1. Yes 2. No 3. Do not know		If 2 or 3, SKIP to 4.11
4.10 If yes, what can a person do to avoid getting AIDS? (Do not read out the options. Let respondent give you all options she/he knows).	1. Abstain from sex _____ 2. Use condoms _____ 3. Limit sex to one partner/remain faithful to one partner _____ 4. Limit number of sex partners _____ 5. Avoid sex with prostitutes _____ 6. Avoid blood transfusion _____ 7. Do not use unsterilized instruments _____ 8. Others (specify) _____		1. YES 2. NO or N/A
4.11 Do you personally know of someone who has HIV/AIDS or someone who died of AIDS?	1. Yes 2. No		
4.12 Do you personally know of someone who has HIV/AIDS or someone who died of AIDS within the Sub Location?	1. Yes 2. No		
4.13 If one wanted to know his/her HIV status, where do you think he/she can be tested?	1. Health facilities (e.g Hospitals, health centres, dispensaries, etc) _____ 2. VCT _____ 3. Other (specify) _____		1. YES 2. NO or N/A If VCT is mentioned, record 1(YES) in 4.14 and SKIP to 4.15
4.14 Have you ever heard of a Voluntary Counseling and Testing (VCT) Centres?	1. Yes 2. No		If 2, SKIP to 4.17
4.15 If YES, mention (point out) where these VCT centres are located	1. In health facilities within sub-location _____ 2. At shopping centres (within sub-location ___ 3. Outside sub-location _____ 4. Other places (specify) _____ 5. Do not know _____		
4.16 What is the distance, in km from your households to the nearest VCT?	1. Less than 5km 2. Between 5 - 10 km 3. More than 10km 4. Do not know		
4.17 Do you know what is a HOME BASED CARE (HBC) service in relation to AIDS patients?	1. Yes 2. No		If 2, SKIP to 4.19
4.18 At present, are there any households in this village that are members of any Home Based Care team?	1. Yes 2. No 3. Do not know		

PREVALENCE OF COMMON DISEASES

Using household members listed in household demographic table (in page 2) ask the respondent if any of the members has suffered from the following diseases and put (1) where a member of household has suffered from a disease and (2) where not. If a household member has suffered from a disease not listed here, specify it in the provided column.

4.19 In the last ***two months***, has the [NAME] ever suffered these (or symptoms of these) diseases?																
S.No.	Measles	T.B	Malaria	Mening itis	Chicken Pox	Typhoid	Amoeb-iasis	Tracho-ma	Common Cold	Pneum-onia	Scabies	Ring Worms	Diabetes	Ashma	Headache	Others (Specify)
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																

DEATHS IN THE HOUSEHOLD				
4.20 In the last 24 months has any household member died? Yes. . . . . 1 No . . . . . 2 If 2 , Skip to NEXT SECTION Serial	4.21 Sex of person who died MALE 1 FEMALE 2	4.22 Age of the person at the time of his/her death OVER 97 YEARS 97 DON'T KNOW 98 NOT STATED 99	4.23 Cause of Death Malaria 01 Pneumonia 02 AIDS 03 Tetanus 04 Tuberculosis 05 Malnutrition 06 Anaemia 07 Childbirth/Pregnancy 08 Sudden Death 09 Asthma 10 Cancer 11 Urinary Obstruction 12 Poisoning 13 Suicide 14 Accident 15 Measles 16 Diabetes 17 Menegitis 18 Typhoid 19 High Blood Pressure 20 Heart Attack 21 Stroke 22 Old Age 23 Unknown 24 Other (Specify) 25	4.24 Where did [NAME] die ? Home 1 Health facility 2 Other 3
		YEARS		
01		_____		
02		_____		
03		_____		
04		_____		
05		_____		
06		_____		
07		_____		
08		_____		
09		_____		
10		_____		

SECTION 5: AGRICULTURE, LIVESTOCK PRODUCTION AND FOOD SECURITY

FOOD SECURITY			
5.1 HUNGRY SEASON (5.1a) Last year, did your household experience a hungry season? ..... The hungry season means the number of months a household does not have enough food because their own stores are depleted.	1. Yes 2. No		Indicate in the box the number that relates to an appropriate answer. If 2, SKIP to 5.2 – ***General Agriculture.***
(5.1b) During what month did the hungry season begin?	Month that hungry Season began 1,2,3,4,5,6,7,8,9,10,11,12,99		Code 99, if household found a continuous hungry season.
(5.1c) During what month did the hungry season end?	Month that hungry Season began 1,2,3,4,5,6,7,8,9,10,11,12,99		Code 99, if household had a continuous hungry season past December. If 99, SKIP to 5.1g.
(5.1d) Last year, did your household experience a second hungry season?	1. Yes 2. No 3. N/A		If 2 (No), SKIP to 5.1g.
(5.1e) During what month did the second hungry season begin?	Month that second hungry season began..... 1,2,3,4,5,6,7,8,9,10,11,12		
(5.1f) During what month did the second hungry season end?	Month that second hungry Season ended..... 1,2,3,4,5,6,7,8,9,10,11,12, 99		Code 99, if household had a continuous hungry season past December.
(5.1g) Where did your household get food from during these hungry seasons?	1. Government relief _____ 2. Faith Based Organizations _____ 3. NGOs _____ 4. Relatives and friends _____ 5. Selling of household assets _____ 6. Other (Specify).....		1. YES 2. NO or N/A
GENERAL AGRICULTURE			
5.2 Does your household operate any farmland? (Operating means cultivating or rearing livestock on either owned, leased, hired land etc)	1. Yes 2. No		1. YES 2. NO If 2, SKIP to 5.10
5.3 If YES, what is the ownership status of the farmland?	1. Owned by household _____ 2. Leased _____ 3. Family land _____ 4. Other (Specify).....		1. YES 2. NO If Owned is NOT mentioned SKIP to 5.5

SECTION 5: AGRICULTURE, LIVESTOCK PRODUCTION AND FOOD SECURITY *(Continued)*

5.4 If Owned by household, What is the total size of the land (in acres)?	1. Less than 1 acre 2. More than 1 acre but less than 3 acres 3. More than 3 acres but less than 5 acres 4. More than 5 acres 5. Do not know 6. Other (Specify)_____	☐	
5.5 What does your household use to till (cultivate) most of your farmland?	1. Hand tool (hoe/jembe) 2. Animal-drawn (oxen) plough 3. Tractor-drawn plough 4. Power tiller 5. Herbicides 6. Other (Specify)_____	☐	
5.6 What soil and water conservation structures does the household have on the farm? [Multiple responses possible]	1. Trash lines _____ 2. Stone lines _____ 3. Fanya juu _____ 4. Grass strips _____ 5. Cut-off drains _____ 6. Bench terrace _____ 7. Semi circular bunds _____ 8. Contour farming _____ 9. Pitting _____ 10. Basins/ 9 seeds in hole _____ 11. Road runoff harvesting _____ 12. Others (Specify .....) 13. None _____	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A If None skip to 5.8
5.7 What proportion of land is under conservation measures?	1. Between 0 – 25% 2. Above 25% to 50% 3. Above 50% to 75% 4. Above 75%	☐	
5.8 What water harvesting technologies do you practice in the land?	1. Retention Ditches _____ 2. Water pans _____ 3. Cut-off-drains _____ 4. Small dams _____ 5. Waterholes _____ 6. Irrigation canals _____ 7. Roof catchments (water tanks) _____ 8. Others (Specify).....	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A
5.9 What pattern of planting do you use?	1. Along the contours _____ 2. Across contours _____ 3. Mixture (Along and Across contours) __ 4. Others (Specify) _____	☐ ☐ ☐ ☐	1. YES 2. NO or N/A

SECTION 5: AGRICULTURE, LIVESTOCK PRODUCTION AND FOOD SECURITY *(Continued)*

5.10 At present, do you have a tree nursery?	1. Yes 2. No	☐	
5.11 Over the past 12 months, have you ever received agricultural (Crop/livestock) extension services?	1. Yes 2. No	☐	If 2, SKIP to 5.14
5.12 If yes, what kind of services?	1. Advice on best crop production _____ 2. Advice on best livestock production ___ 3. Practical demonstration of new methods 4. Vaccination and treatment _____ 5. Farm planning _____ 6. Agro forestry _____ 7. Advice on soil and water conservation _ 8. Others (Specify).....	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
5.13 Please give me the names of these service providers (organisation) (Write down the names of the mentioned service providers).	1._____ 2._____ 3._____ 4._____ 5._____	☐ ☐ ☐ ☐ ☐	
5.14 Has any member of your household attended any of these agricultural activities in the last 12 months? (Read out all the options given)	1. Agricultural shows ---------- 2. Field days---------- 3. Farm exhibitions---------- 4. Farming competitions---------- 5. Demonstrations----------	☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A If any household member has NEVER attended any of the activities, SKIP to 5.17
5.15 What farming method did you (they) learn? If any household member learned at least one of the farming methods, Ask the following question	1. Zero grazing ---------- 2. Grafting---------- 3. Bee keeping---------- 4. Brooding chicken---------- 5. Others (Specify).....	☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A
5.16 Did you adopt this farming method?	1. Zero grazing---------- 2. Grafting---------- 3. Bee keeping---------- 4. Brooding chicken---------- 5. Others.....		1. YES 2. NO or N/A
5.17 Has your farm been used by any agricultural research organization (e.g KARI, ICRAF etc) or any agricultural organization for field trials /research technology trials in the past 12 months?	1. YES 2. NO	☐	If 2, SKIP to 5.19

SECTION 5: AGRICULTURE, LIVESTOCK PRODUCTION AND FOOD SECURITY *(Continued)*

5.18 If YES, What is the name of the Agricultural Organization?	.....		
5.19 What are the value addition activities in your sub-location?	1. Fruit processing ---------- 2. Sorting and Grading---------- 3. Packaging---------- 4. Milk Processing---------- 5. Promotions---------- 6. Cereal Processing---------- 7. Other----------	☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A

CROP PRODUCTION CONTINUED...

5.20		5.21	5.22			5.23	5.24		5.25	5.26	UNIT CODES 1 = KILOGRAM 2 = DEBE-20KG 3 = GUNIA-50 KG 4 = GUNIA-90KG 5 = GOROGORO (2KG) 6 = JERRY CAN 7 = NUMBER 8 = BUNCH 9 = PACK/PACKET 10 = BUNDLE 11 = OTHER (Specify) UNITS FOR Q5.22 1. = Acre 2. = Stoles 3. = Stems 4. = No. of Trees 5 = other(specify)
CROP CODE	[CROP]	Has your household produced [CROP] during the past 12 months? YES = 1 NO = 2	How many acres of [CROP] land did you cultivate? Number	Unit	Was it Intercropped with other crop? 1 = YES 2 = NO	How was the [CROP] mainly used? 1 = CASH 2 = CONSUMPTION 3 = ANIMAL FEEDS 4 = OTHER (SPECIFY)	What is the production level (yield) of the [CROP]? QUANTITY	UNIT	How did you store the [CROP] after harvesting? 1 = On compound, in residence 2 = On compound, in food store 3 = At friend's home 4 = At relative's home 5 = Public store 6 = Direct consumption from shamba 6 = Other (Specify)	(If crop was mainly for cash) Who mainly marketed the produce? 1 = Self 2 = Produce Board eg. NCPB, Coffee Board 3 = SACCOs 4 = Group 5 = Private companies 6 = Others (Specify)	
13	French beans										
14	Groundnuts										
15	Chickpeas and Cowpeas										
16	Pigeon peas										
17	Papaws										
18	Mangoes										
19	Kales (Sukuma Wiki)										
20	Tomatoes										
21	Onions										
22	Spinach										
23	Cabbage										
24	Pumpkin										
25	Other (Specify)										

5.27 When you have surplus in your harvest, what do you usually do with it?	1. Sell 2. Feed to livestock 3. Donate to the needy 4. Other Specify)_____	☐ ☐ ☐ ☐	1. YES 2. NO If S***ELL is NOT mentioned*** SKIP to 5.30
5.28 If the surplus is sold, what is the selling price of FOLLOWING CROPS?	1.Maize (per 90kg bag)---------- |___|___|___|___| 2.Beans (per 90kg bag) ---------- |___|___|___|___| 3.Potatoes (per 90kg bag)---------- |___|___|___|___| 4.Kales (Sukuma wiki) per bag---------- |___|___|___|___|		If DON'T KNOW or N/A write 9999
5.29 What are the uses of incomes so earned from selling your crops?	1. Meeting household expenditure---------- 2. Paying school fees---------- 3. Paying medical expenses---------- 4. Paying loans and advances---------- 5. Buying assets---------- 6. Buying clothing 7. Investing in banks, SACCOs etc---------- 8. Buying other food stuffs (Specify)..... 9. Investment in stocks/shares 10. Other (Specify).....	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	1. YES 2. NO or N/A
5.30 In your households' consumption, which among the following do you prefer? (Read out the foods listed and allow the respondent to give his/her household's preference, add other consumptions and their preference if necessary)	1. Maize..... 2. Beans..... 3. Sorghum..... 4. Sweet potatoes..... 5. Irish potatoes..... 6. Cassava..... 7. Banana..... 8. Millet..... 9. Pigeon peas 10. Others (Specify).....	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Indicate in the boxes, Nos. 1, 2, 3, ... in the order of preferences.

	5.31 Does your household use any of the following farm inputs in crop production?	5.32 Where do you mainly get them? 1. Shops around the area 2. Shops from major town 3. Government agencies e.g AFC 4. Marketing societies 5. SACCOS 6. Others (specify)
	1. YES 2. NO	
1. Fertilizers.		
2. Farm Yard Manure.....		
3. Pesticides.		
4. Hybrid seeds.....		

LIVESTOCK PRODUCTION

5.33		5.34	5.35	5.36	5.37	5.38			5.39	5.40	5.41	
LIVESTOCK CODE		Has your household reared [LIVESTOCK] during the past 12 months?	How many of [LIVESTOCK] do you have now? *FOR Bees: Indicate the number of bee hives	What is the type of [LIVESTOCK] breed? **FOR CODES: See bottom of the table	What is the main product from [LIVESTOCK]? 1 = Milk 2 = Meat 3 = Wool 4 = Honey 5 = Hide 6 = Eggs 7 = Manure 8 = Commercial 9 = Other (Specify)	What is the yield of each of the [LIVESTOCK] in the last 12 months			What type of management systems do you use for rearing [LIVESTOCK]? 1 = Zero grazing 2 = Open grazing/free range 3 = Fodder production 4 = Semi-Intensive 5 = Kenya Top Bar Hive 6 = Langstroth Bee hives 7 = Log Bee hives 8 = Other (Specify)	What type of breeding programme do you use for rearing [LIVESTOCK]? 1 = A.I (Artificial insemination) 2 = Sheep upgrading 3 = Dairy goats upgrading 4 = Cockerel Exchange 5 = Traditional 6 = Other (Specify)	How do you mainly market livestock products? 1 = Self 2 = Government Agencies e.g KMC 3 = SACCOs 4 = Private companies 5 = Others, (Specify)	
	[LIVESTOCK]	1 = YES 2 = NO				QUANTITY	PERIOD ***See codes below	UNIT				
01	Dairy Cattle		_____									
02	Beef cattle		_____									
03	Sheep		_____									
04	Goats		_____									
05	Dairy goats		_____									
06	Chicken (layers)		_____									
07	Chicken (broilers)		_____									
09	Chicken (Kienyeji)		_____									
10	Rabbits		_____									
11	Bees		_____									
12	Other.....		_____									

UNIT CODES for Q5.38
1 = KILOGRAM
2 = WHEELBARROW
3 = LITRE
4 = CRATES
5 = JERRY CAN
6 = NUMBER
7 = OTHER (Specify)

****CODES**

CATTLE
01 = Friesian
02 = Jersey
03 = Guernsey
04 = Aryshire
05 = Zebu
06 = Cross breed

SHEEP/GOAT
07 = Merino
08 = German alpine
09 = Dorper

RABBITS
10 = Chinchilla
11 = New Zealand white
12 = Local rabbits

CHICKEN
13 = Red Rhode island
14 = Local breeds
15 = White Sussex
16 = Ken-brow
17 = Other (specify)

*****PERIOD CODE**
01 = Per day
02 = Per week
03 = Per lactating period
04 = Per year

	5.42 Does your household use any of the following farm inputs/services in livestock rearing?	5.43 Where do you mainly get them?
		1. Shops around the area *2. Shops from major town* *3. Government agencies e.g. AFC* *4. Marketing societies* *5. SACCOS* *6. Government Veterinary officers* *7. Private veterinary officers* 8. *Others (Specify)*
	1. YES 2. NO 3. N/A *If 2, SKIP to next item*	
1. Animal feeds----------		
2. Drugs----------		
3. Artificial Insemination ----------		
4. Animal treatment….		
5. Other (Specify)		

	5.44 During the last 12 months, was any of your animal's vaccinated (e.g. by government veterinary officials etc)?	5.45 If YES How many times?
	1. YES 2. NO 3. N/A *If 2, SKIP to next item*	Number
1. Cattle----------		
2. Sheep ----------		
3. Goats ----------		
4. Poultry ----------		
5. Rabbits ----------		
6. Other ----------		

	5.46. Are you practicing any of the following routine animal husbandry? *1-Yes* *2-No* *3-N/A*					
	1. Cattle	2.Sheep	3. Goats	4. Poultry	5. Rabbits	6. Other (specify …….)
1. Tattooing/Ear notching/ tagging						
2. De-worming						
3. weaning						
4. Hoof trimming						
5. Castration						
6. Docking (trimming tail)						
7. Culling (sale unproductive age)						

5.47 What technique do you use to control pests (e.g. ticks) from your livestock?	1. Spraying----------		1. YES 2. NO or N/A
	2. Using communal Dips----------		
	3. Physical plucking of ticks----------		
	4. Using traditional herbs----------		
	5. Other (Specify) ……		

SECTION 6: INCOME GENERATING OPPORTUNITIES

	6.1 Does *your household* own (undertake) any of the following income generating activity? *(Read out the options and add others if necessary)*	6.2 Is *any member of your household* engaged in any of this income generating activity?	6.3 Is any member of household engag any of this income generating activity *full time basis*?
	1. YES 2. NO *If 2, SKIP to next item*	1. YES 2. NO	1. YES 2. NO
1. Buying and selling cereals-----			
2. Shop----------			
3. Animal trading----------			
4. Horticulture farming----------			
5. Manufacturing/processing-----			
6. Buying and selling of fruits/vegetables----------			
7. Other (specify……			

6.4 Where does your household keep their savings (cash)?			
	1. Kept in the house----------		1. YES 2. NO or N/A
	2. Bank savings----------		
	3. Mobile phone banking (Zap, M-Pesa, orange Money)		
	4. Merry-go-round----------		
	5. keeping with trusted relative/neighbor/shopkeeper--------		
	6. Other *(Specify)*_____		

HOUSEHOLD FOOD EXPENDITURE (To be used for Q.2.9c).

Item	Amount During Normal Month
Maize Meal	
Flour	
Other grains ground or whole	
Milk	
Other dairy products	
Eggs	
Bread	
Cooking Oil, Lard, Margarine	
Sukuma Wiki	
Tomatoes	
Onions	
Other vegetables	
Plantains/Matoke	
Bananas	
Other Fruits	
Fish	
Meat	
Sugar	
Salt	
Tea, coffee	
Other food items	
Beer, soda	
Other drinks	
Purchased meals	
TOTAL FOOD LAST MONTH	

Annex II

GROUP INTERVIEW QUESTIONNAIRE

Output 4: Improved technical and management capacity of the community to Implement and manag projects

PART A: IDENTIFICATION

Complete the following section before starting the interview:

A1. Sub-location **(FDA)**: Name:_____ CODE |__|__|__|

A2. Location: Name:_____CODE |__|__|__|

A3. Division: Name:_____CODE |__|__|__|

A4. District: Name:_____CODE |__|__|__|

Complete the following section before starting the interview:

A5. Date: (dd/mm/yy) |__|__|/|__|__|/|__|__|__|__|

A6. Field Officer Name and ID: _____ ID: |__|__|__|

A7. Time start meeting: (24 hr clock) |__|__|:|__|__|

A8. Time meeting ends |__|__|:|__|__|

To be completed at the time of data entry:

A9. Data Entry Person name: _____ID: |__|__|__|

A10. Comments on data entry:

PART B: GROUP INFORMATION

B1. What is the Name of the group _____

B2. What is the type of group? [___]

(1) Cooperative Societies
(2) Trade/Business Associations

(3) Sports Association/Club
(4) Cultural Association
(5) Professional Association
(6) Faith Based Organizations (FBOs)
(7) Community Groups
    A. Women Group
    B. Men Group
    C. Self Help Groups [___]
    D. Youth Groups
    E. Other (Specify)
(8) Community Based Organizations (CBOs)

B3. When was the group formed |__|__|/|__|__|__|__| (month/year)

B4. Has the group been registered? [__] 1=YES 2=NO ***(If No, skip to B7)***

B5. If YES, when was it registered |__|__|/|__|__|__|__| (month/year)

B6. If *YES*, by which authority?

1. Ministry of Gender, Culture and Social Services
2. NGO council
3. Other _____(Specify)

B7. Is your group affiliated to any other organization? [__] 1=YES 2=NO ***(If No, skip to B9)***

B8. If YES, specify which organization?

1. _____
2. _____
3. _____

B9. What is the membership of the group by gender

Men_____, Women_____ Total_____

B10. Provide me with details of all committee members of the group as follows:

Committee member ID	B6a. Position	B6b. Surname	B6c. First Name	B6d. Highest level of education 1-Primary 2-Secondary 3-College 4-University 5-Adult Literacy 6-None 7-Other	B6e. Sex 1=Male, 2=Female
1	Chair Person				
2	Vice Chair Person				
3	Secretary				
4	Treasurer				
5	Asst. Secretary				
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

B11. Which activities is the group registered to do? ***(Applicable only if B4 is Yes)***

1 _____

2 _____

3 _____

4 _____

5 _____

B12. Which activities is the group currently engaged in?

1 _____
2 _____
3 _____
4 _____
5 _____
6 _____
7 _____
8 _____
9 _____
10 _____

B13. Has your group received any form of training during the last 2 years?

B13a. Received any training? 1=Yes 2=No 3=N/A	B13b. Name of the sponsors *(Probe for the number of training and list sponsors for each)*	B13c. Duration of training		B13d. Major Area of training *(If space not enough, indicate in separate paper)*	B13e. How was training later Utilized. *(e.g project was started)*	B13f. List an benefits that have accrue from the training?
		Number	Unit (1 = days and 2 = months)			

B14. What are the group's sources of funds?

(Tick all that applies)

|__| Contributions from members
|__| Assistance from donors
|__| Government Grants

|__| CDF
|__| LATIF
|__| CKDAP
|__| Poverty Eradication Commission

|__| Other ……(Specify)

B15. Over the last 12months, has your group received any form of assistance? |___|
1-Yes 2 – No

B16. If YES, Please give me the details as follows:

Serial	B12a. Name of Donor	B12b. Type of Donor *1-Individual 2-Organization 3-Goverment*	B12c. Nature of assistance (Indicate all applicable) *1-Materials 2-Funds 3-Manpower 5-Training 4-Other*	Value (Kshs)	B12d. Date of last assistance **Dd/mm/yy**	B12e. How assistance wa used
1						
2						
3						
4						

B17. What are the major problems/challenges facing the group?
1 _____
2 _____
3 _____
4 _____
5 _____

B18. What Information, Education and Communication (IEC) materials are available in the group (AES, PHC, WD/TS etc)?
1 _____
2 _____
3 _____
4 _____
5 _____
6 _____
7 _____
8 _____

B19. Do you have a central premise/office of operation? [1]Yes [2]No |___|

B20. If YES, Please provide me with the following information about your premise/office of operation?

B16a. Occupational status 1 – Owned 2 – Rented 3 – Donated 4 - Other	B16b. Location 1-Within sub-Location 2-Outside Sub-Location	B16c. Wall 1. Iron sheet, 2.Tiles, 3.Grass thatched/makuti, 4. Tin, 5. Mud, dung 6..Stone, 7.Plastered 8.Wooden, 9.Polythene. 10.Bricks 11.Other	B16d. Floor 1.Tiles, 2. Mud, dung 3.Cement, 4.Wooden 5.Other	B16e. Roof 1. Iron sheet, 2.Tiles, 3.Grass thatched/makuti, 4. Tin, 5. Mud, dung 6.Concrete 7.Wooden, 8.Polythene. 9.Other
☐	☐	☐	☐	☐

B21. Do you employ any other staff apart from members? |___|

[ ]Yes [ ]No

B22. If YES, give the following details

Serial	B18a. Name	B18b. Position/ title of the job	B18c. Gender 1-Male 2-Female	B18d. Education status 1-Primary 2-Secondary 3-College 4-University 5-None 6-Other	B18e. Main duties
1					
2					
3					
4					

B23. What main types of records you keep?

	1. YES, 2. NO	
(1) Minutes	|__|	|__|
(2) Cash book	|__|	|__|
(3) Store ledger	|__|	|__|
(4) Assets Inventory	|__|	|__|
(5) Members Register	|__|	|__|
(6) Diary	|__|	|__|
(7) Visitor's book	|__|	|__|
(8) Correspondence file	|__|	|__|

(9) Petty cash voucher |__| |__|

(10) Group constitution |__| |__|

(11) Others (Specify)_____

B24. How do you keep records pertaining to information and activities of the group?

[ ] Files

[ ] Using ordinary books

[ ] Using computers

[ ] Other _____(Specify)

B25. Where are these records stored?

[ ] Kept by officials of the group in their own residences

[ ] Kept by members of the group in their own offices

[ ] In the office

[ ] Other _____(Specify)

B26. Where do you save money belonging to the group?

1. Kept by official(s) of the group |__|
2. SACCO |__|
3. FOSA |__|
4. Micro-Credit Institution |__|
5. Bank |__|
6. Other _____(Specify)

B27. During the year, did the group have any outstanding loan from these institutions?

Institution	B24a. Had any loan 1-Yes 2-No	B24b. Amount of Loan	B24c. Date when loan was given	B24d. Interest rate (%)	B24e. Curr outstandinç Amount
Bank					
SACCO					
FOSA					
Micro-Credit Institution					
Individuals					
Other…….					

B28. If YES, how many members had loans through the groups?_____

B29. Which kind of meetings do you hold?

(1) Annual General Meeting |__|
(2) Special General Meetings |__|
(3) Monthly Meetings |__|
(4) Quarterly Meetings |__|
(5) Management Committee Meetings |__|
(6) Weekly meetings |__|
(7) Fortnight Meetings |__|

B30. When was last meeting of the above types of meetings held?

[If exact date is not remembered, record approximate date(month/year)]

(1) Annual General Meeting |__|__|/|__|__|/|__|__|(dd/mm/yy)
(2) Special General Meetings |__|__|/|__|__|/|__|__|(dd/mm/yy)
(3) Monthly Meetings |__|__|/|__|__|/|__|__|(dd/mm/yy)
(4) Quarterly Meetings |__|__|/|__|__|/|__|__|(dd/mm/yy)
(5) Management Committee Meetings |__|__|/|__|__|/|__|__|(dd/mm/yy)

B31. How many committee members attended the very last of these meetings? (Number) |_____|

[Use names from member roster for following questions.]

1. Was the Chair present? (1=Yes, 2=No) |___|
2. Was the Vice Chair present? (1=Yes, 2=No) |___|
3. Was the Secretary present? (1=Yes, 2=No) |___|
4. Was the Treasurer present? (1=Yes, 2=No) |___|
5. Was the Assistant Secretary present? (1=Yes, 2=No) |___|
6. Was Member 7 present? (1=Yes, 2=No) |___|
7. Was Member 8 present? (1=Yes, 2=No) |___|
8. Was Member 9 present? (1=Yes, 2=No) |___|
9. Was Member 10 present? (1=Yes, 2=No) |___|
10. Was Member 11 present? (1=Yes, 2=No) |___|
11. Was Member 12 present? (1=Yes, 2=No) |___|
12. Was Member 13 present? (1=Yes, 2=No) |___|
13. Was Member 14 present? (1=Yes, 2=No) |___|
14. Was Member 15 present? (1=Yes, 2=No) |___|
15. Was Member 16 present? (1=Yes, 2=No) |___|
16. Was Member 17 present? (1=Yes, 2=No) |___|
17. Was Member 18 present? (1=Yes, 2=No) |___|
18. Was Member 19 present? (1=Yes, 2=No) |___|
19. Was Member 20 present? (1=Yes, 2=No) |___|

B32. What issues were discussed at the meeting?

[Do not prompt with the list. Only mark whether or not the issue was mentioned by the committee, with 1=Yes, 2=No.]

1. Community contribution |_____|
2. Maintenance of group facilities |_____|
3. Animals in spring |_____|
4. Building of new structures etc., |_____|
5. New members |_____|
6. Elections of committee/board _____|
7. Other: _____ |_____|
8. Other: _____ |_____|

B33. When was the other meeting before the most recent one? |__|__|/|__|__|/|__|__|(dd/mm/yy)

[If exact date is not remembered, record approximate date (month/year) here: _____]

B34. How many committee members attended that meeting? |_____|

B35. How many members of the group came? (Not committee members) |_____|

B36. According to the group constitution, what is the term of office bearers?

(1) One year |__|
(2) Two years |__|
(3) Three Years |__|
(4) Others (Specify) _____

B37. When were the current office bearers elected into the office? |__|__|/|__|__|/|__|__|(dd/mm/yy)

Annex III

FOCUS GROUP DISCUSSION GUIDE FOR CKDAP SURVEY

Introduction

My name is ..... and with me is ..... from the Ministry of Planning, National Development and Vision 2030. We are here to talk about the project that has been in this community for the past 9 years. We will like to hear from you what changes this project has brought and if there are any lessons that can be learnt from its implementations. This will be an open discussion and will be happy to hear your views which are important for future planning. It is therefore important that you all participate freely in the discussion. There is no right or wrong answers. You do not have to respond to all the questions and you can leave the discussion at any time. The discussion will be for about an hour. As part of the exercise we request that we tape the discussion so as to capture correctly all the ideas. The tapes will not be used for any other purpose other than assist us to write out the notes.

Would you like to participate in the discussion? Yes /No

HEALTH

1. Increased access to facility-based health care services
   - What types of health facilities are available in this area? (hospitals, dispensaries, health centers, private)
   - Is the community involved in running these facilities?
   - What are some of the challenges faced in accessing these health facilities?
   - What are your perceptions about services offered by available health facilities? (probe for affordability, quality)
   - Where do you take young children when they fall sick? Why?
   - Where do you take young children for immunization? Why?
   - Where do people in this community go for HIV test? Why?
   - Where do expectant mothers go for delivery? Why? (probe for facility, home deliveries and TBAs)
   - What are the most common diseases among (a) adults and (b) children in this community? What are the perceived causes? As a community what actions do you take to help reduce the number of (a) adults and (b) children who fall sick or die of the diseases? (behavior change in adopting preventive practices)

   OR

   In your opinion, what actions should be taken to help reduce the number of (a) adults and (b) children who fall sick or die of the diseases?

2. Increased access to community-based health care services
   - Are CHWs available in this community? If yes, what type of services do they provide? (probe for home-based care for HIV/AIDS/TB, growth monitoring, nutrition messages, treatment of common diseases, reproductive health, hygiene, sanitation)
   - What are your perceptions of services offered by CHWs? How are they compensated for their time?
   - In your opinion what are some of the challenges faced by CHWs in providing services to the community?
   - What types of community health groups are available in your community? How were they formed? In your opinion, how useful are they to the community?

FOOD SECURITY

Crop and Livestock Production

- What types of food crops and cash crops are grown in this community? (including fruits)
- Since the year 2000, has there been any change in the methods you use for (1) Soil and water conservation? (2) Water harvesting technologies? Irrigation? (3) Planting?
  Who brought about this change (source)? How have these changes increased food production and household income? How has this improved your living standard? (Probe for changes in diet, health, income)
- After harvesting, how is the produce handled? What do you do when you have food surplus? When do you usually sale your food? Are you engaged in farming as a business? Who buys your farm produce? Do you sell fresh produce or store? How do you preserve the produce? Or value addition activities.
- In the year 2009, did this community experience any hungry season? How did members of the community cope during

this season? Where did you get your food from? (Probe for Government, FBOs, NGOs, relatives, purchase etc)

- What kinds of livestock are reared in this community? What modern methods and technology are used to increase animal production? (Probe for breeding, feeding, rearing methods) Who brought about these changes (source)? How has this increased livestock production? How has this improved your living standard? (Probe for change in diet, nutrition, health, income)
- What kinds of agriculture and livestock extension services are available to your community? Who are the main providers of these services? What are your perceptions about their services?
- What are the main sources of energy in this community? Which are the most commonly used sources of energy and why? What modern technologies are used to save energy? (probe for solar energy, fireless cooker, maendeleo jikos, biogas, rocket stove etc) How do these technologies help to save energy? Who brought about this technology? How has this improved your living conditions? Why are some technologies popular than others?
- Have farming activities in this community evolved into business ventures? Where do you get you farm inputs? Are these inputs affordable?
- Do any of the technologies used for crop and livestock production have any negative effects? How sustainable are these technologies?

WATER

- What are the main sources of water in this community? (Probe for type and by season i.e. wet and dry season?) Which sources are most preferred by the community? Why are the sources preferred? Do community members have to pay to access water? If so, how much?
- What steps have been taken by the community to ensure adequate and safe drinking water is available? OR, what action can be taken to improve access to safe drinking water?
- What are the common water-borne diseases in this community? What actions have been taken by the community to prevent these diseases? OR What actions can the community take to prevent these diseases?
- What methods are used by the community to make water safe?
- Is the community involved in the management of water systems? If yes, what is the level of community involvement? Do we have operation and maintenance of water sources? What activities are involved?

INCOME GENERATING OPPORTUNITIES

- What type of income generating activities (IGAs)/groups are available in this community?
- Why were these IGAs started?
- What challenges do the IGAs have?
- How has the scope of IGAs changed over time? What are the reasons for change?
- Have these IGAs improved the living standards of the community?
- Do the IGA groups receive training? In which areas and by whom?

COMMUNITY EMPOWERMENT

- Are there NGOs, CBOs, FBOs and self-help groups in this community? What activities do they undertake? In your opinion what are the impacts of these activities? (Probe for social, physical infrastructure, economic)
- Who supports their activities? (Probe for development partners, donors, government, FBOs) How are they supported?
- Do these organizations receive training? Do they offer training to members of the community? Who are trained? What type of training? What are your perceptions about the training?

Annex IV
IN-DEPTH INTERVIEW GUIDE

Introduction

My name is .....and with me is..... from the Ministry of Planning, National Development and Vision 2030. We are here to talk about the project that has been in this community for the past 9 years. We will like to hear from you what changes this project has brought and if there are any lessons that can be learnt from its implementations. This will be an open discussion and will be happy to hear your views which are important for future planning. It is therefore important that you all participate freely in the discussion. There is no right or wrong answers. You do not have to respond to all the questions and you can leave the discussion at any time. The discussion will be for about an hour. As part of the exercise we request that we tape the discussion so as to capture correctly all the ideas. The tapes will not be used for any other purpose other than assist us to write out the notes.

Would you like to participate in the discussion? Yes /No

(If the respondent agrees to continue with the interview, record the following information in your notes; name of respondent, organization and position held, sub-location, location, division, district, date, and time (start and end)

1. What are your roles and responsibilities? OR What is the scope of your work?

2. What is your opinion about the CKDAP? What is the impact or effect of this project to the community? (probe for positive and negative effects if any in terms of health and disease, food security, nutrition, income, new technologies, and community capacity)

3. How is the community involved in this project? (probe for management, resource mobilization, activities etc)

4. Has this project addressed gender relations in the community? How or why do you say so?

5. Who are the stakeholders in sector? How do they support you? (probe for funding, training, community mobilization etc) Do you network with other individuals/organizations that have a stake in this sector?

6. Do you receive any supervision? By whom and what kind of supervision?

7. What are the challenges you face in undertaking your duties? How can these challenges be addressed?

Annex V

PROJECT COORDINATION AND MANAGEMENT QUESTIONNAIRE

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Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP) Project Management and Coordination Questionnaire (January 2011)

PCC MEMBERS

Has the PCC member of Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP), Has the organ been relevant to the implementation of CKDAP?

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.....

Which are the main decisions that have been made by the committee that have led to improved project performance?

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What have been the main challenges in the course of executing your role as an institution?

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International Fund for Agricultural Development

Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP)
Project Management and Coordination Questionnaire (January 2011)

PMU MEMBERS

Has the PMU been relevant to the implementation of CKDAP?

.....

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Which are the main decisions that have been made by the committee that have led to improved project performance?

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What have been the main challenges in executing your role as an institution?

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Republic of Kenya

International Fund for Agricultural Development

Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP) Project Management and Coordination Questionnaire (January 2011)

DPCC MEMBERS

Has the DPCC been relevant to the implementation of CKDAP?

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Which are the main decisions that have been made by the committee that have led to improved project performance?

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What have been the main challenges in executing your role as an institution?

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Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP) Project Management and Coordination Questionnaire (January 2011)

DPCU, DPIT members

Which participatory planning and monitoring structures are in place?

.....

.....

How active is each of them (frequency of meetings?

.....

.....

Has implementation benefited from their existence? How?

.....

.....

How do you rate the implementation integration level? Give reason for your ration

.....

.....

Has there been collaboration with other organisations?

.....

.....

If yes which are they and which have been the areas of collaboration?

.....

.....

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.....

Which have been the main challenges in the Planning, implementation and monitoring of project activities?

.....

.....

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Central Kenya Dry Area Smallholder and Community Services Development Project (CKDAP)
Project Management and Coordination Questionnaire (January 2011)

FOCAL DEVELOPMENT AREA COMMITTEE

How has your community been involved in the planning of projects supported by CKDAP?

.....
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.....

What has been the role of your committee in the planning and monitoring of CKDAP activities?

.....
.....
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.....

Which are the main challenges in executing your role?

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.....

What is the future of your FDAC after 31th December 2010 (when the project completes)?

.....
.....
.....
.....
.....

How do you think the projects implemented in your area will be sustained?

.....

Annex VI

SURVEY PARTICIPANTS

Management & Coordination – Quntitative Component
• Saitoti Torome • P. Samoei • J. Musyimi

Data Processing Team – Quntitative Component
• Samuel Kipruto • B. D. Obasi

Sampling Team- Quntitative Component
• J. Bore

Analysis– Quntitative Component
• Godfrey K. Ndeng'e • P. M. Mwaniki

Cato– Quntitative Component
George Kamula

Research Assistants – Quntitative Component

S/NO	NAME	S/NO	NAME
1	ABRAHAM KIHIKO CHACHA	27	MICHEAL NGATIA NYAWIRA
2	AGNES WAKARINDI KIBUTU	28	MOSES MBEYA WAWIYE
3	AGNES WAMBUI KAGO	29	NANCY WAMBUI KARIUKI
4	ANNE NJERI WACHIRA	30	NICHOLAS MUTAHI MURIITHI
5	ANNI W. MWANIKI	31	PETER MAINA MACHARIA
6	ANTHONY KABUTU MAINA	32	RAYMOND NGUGI NG'ANG'A
7	BONFACE M. GICHEMI	33	SUSAN WANJA NJERU
8	DENNIS KARIUKI MBUTHIA	34	STEPHEN MAINA MACHARIA
9	EMILY NDUTA MWANGI	35	TERRY GATWIRI BANU
10	FESTUS KIRUGA KAMAU	36	TIMOTHY KAMAU NJOROGE
11	FRANCIS GICHOBA KAMAU	37	WINFRED MWENDE KYALO
12	FRANCIS MWAGO WERU	38	CATHERINE W. WANYORO
13	GEORGE KIAMA MACHARIA	39	MATHEW M. THIAKA
14	GRACE W. MBURU	40	FRANCIS M. GICHUI
15	JACKLINE KERUBO OYUGI	41	EDWARD KANIARU JOSEPH
16	JANE MUTHONI NDANA	42	JAMES N. KIRUKI
17	JOSEPH MUGO KARIUKI	43	ESTHER W. WAMITHI
18	JOSEPH WAWERU NGATIA	44	LUCY W. WACHIRA
19	JOYCE NDINDA KYALO	45	RICHARD T. MURIMI
20	KARIUKI SIMON KAMAU	46	FRANCIS K. WAITHAKA
21	KIMANI NELSON KANJA	47	PETER G. MBUTHIA
22	MAINA PETER KARANU	48	JAMES KAMANDE GICHUHI
23	MARGARET CHEYESH MURPUS	49	JOHN KARIUKI WAIHARO
24	MARY WAKARIMA WANBUGU	50	GEORGE WAITHAKA MUNIU
25	MARTIN K. MUTUKU	51	DAVID K. KAMAU
26	MERCY NYAMBURA	52	FREDRICK MANYEKI

Management & Coordination – Qualitative Component
1. Dr. Paul Kizito
2. Vane Lumumba
3. Fidelis Ndung'u
4. Francis Kundu
5. Irene Muhunzu

Research Assistants – Qualitative Component

1. Miriam Nduta
2. Nancy Muthoni Githitho
3. Batistar Mwangi King'ori
4. Susan Wanjiku Mungai
5. Sebastian K. Muroki
6. Maryanne Mburu
7. Aullerious Ngari Kareithi
8. Jackline Wanjiku Amos
9. Jane Wanjiku Gachari
10. Eston Ngugi Njoroge

Data Processing Team – Qualitative Component

1. Judith Nyanchama
2. Sharon Lidoroh
3. Allan Ijaa
4. Stephen Luchacha

Drivers – Qualitative Component

1. Joshua Lagat
2. Peter Omari
3. Patrick Manyangi

Annex VII

LIST OF GROUPS INTERVIEWED

	Name of Group	Group Type	FDA
1	Riawamboro SHG	Self Help Group	Mariaini
2	Gachuhiro SHG	Self Help Group	Mariaini
3	Mariaini Wabari SHG	Self Help Group	Mariaini
4	Githuri Mariaini Self Help Group	Self Help Group	Mariaini
5	Mwihoko Care SHG	Self Help Group	Mariaini
6	Karuthi B Women Group	Women Group	Mariaini
7	Utheri Wa Kihuruini Women Group	Women Group	Mariaini
8	Karugia Mariani Sigle Mothers Women Group	Women Group	Mariaini
9	Gaturuge Kiang'ombe Women Group	Women Group	Mariaini
10	Ngaburi Water Well Project	Self Help Project	Mariaini
11	Gatongu Self Help Group	Self Help Group	Kagumoini
12	Mutoho Roadside SHG	Self Help Group	Kagumoini
13	Manjuu Wendani SHG	Self Help Group	Kagumoini
14	Thuburia B Riatu SHG	Self Help Group	Kagumoini
15	Kagumoini Undugu Welfare SHG	Self Help Group	Kagumoini
16	Manjuu Holticultural SHG	Self Help Group	Kagumoini
17	Kagumoini Health Care SHG	Self Help Group	Kagumoini
18	Kagurumo Avocado SHG	Self Help Group	Kagumoini
19	Gatura Water Well	Self Help Group	Kagumoini
20	Utheri Wa Galili Women Group	Women Group	Kagumoini
21	Kamamu Women Group	Women Group	Kagumoini
22	Kiamathanju Rural Development Project	Self Help Project	Kagumoini
23	Gitura Manjuu Foot Bridge	Self Help Project	Kagumoini
24	Tukari Amani Youth Group	Youth Group	Kagumoini
25	Ndindiruku Rurii Women Group	Women Group	Ndindiruku
26	Wendani Ndinduruku Women Group	Women Group	Ndindiruku
27	Utisi Women Group	Women Group	Ndindiruku
28	Utheri Wa Githomo Ndindiruku Women Group	Women Group	Ndindiruku
29	Ndindiruku Youth Bicycle Transporters	Youth Group	Ndindiruku
30	Mwicokaniriria Women Grouip	Women Group	Kiumbu-Kianugu
31	Kwarahuka Kumbu Self Help Group	Self Help Group	Kiumbu-Kianugu
32	Furaha Central Self Help Group	Self Help Group	Kiumbu-Kianugu
33	Mikuraini Bee Keepers Group	Self Help Group	Kiumbu-Kianugu
34	Thuci Water SHG	Self Help Project	Mutundu
35	Mutaarani Mwega SHG	Self Help Group	Mutundu
36	Utheri Wa Thuei SHG	Self Help Group	Mutundu
37	Ndethia Goat Buying	Self Help Group	Mutundu
38	Kahuruko Mwihoko SHG	Self Help Group	Mutundu
39	Utheri Wa Kangore Tank Buying SHG	Self Help Group	Mutundu
40	Mataro Youth for Community Care SHG	Youth Group	Mutundu
41	Mutundu Single Mothers SHG	Women Group	Mutundu
42	Mutaratho SHG	Self Help Group	Kariara

43	Kagokoni Mwangaza SHG	Self Help Group	Kariara
44	Kariara Gacagi Water SHG	Self Help Project	Kariara
45	Ndimu S.H.G	Self Help Group	Ndivai
46	Mureki S.H.G	Self Help Group	Ndivai
47	Ngawa Self Help Group	Self Help Group	Ndivai
48	Mbumunya S.H.G	Self Help Group	Ndivai
49	Kiga G6 2000 S.H.G	Self Help Group	Ndivai
50	Kieni Gwiteithia S.H.G	Self Help Group	Ndivai
51	Munyaka Community Health Workers	Self Help Project	Ndivai
52	Ndivai W.G	Women Group	Ndivai
53	Umoja Women Group	Women Group	Ndivai
54	Kahuho Borehole Water Project	Self Help Project	Mbuyu
55	Muthiga Mifugo S.H	Self Help Group	Mbuyu
56	Nyalai Fishermen S.H.G	Self Help Group	Mbuyu
57	Tia Wira S.H. G	Self Help Group	Mbuyu
58	Mbuyu Community Health Workers	Self Help Group	Mbuyu
59	Kanyambu/Ufundi S.H.G	Self Help Group	Mbuyu
60	Kagondo W.G	Women Group	Mbuyu
61	Mwireri Women Group	Women Group	Mbuyu
62	Kahuho W.G.	Women Group	Mbuyu
63	Ndwae Ngutwae	Self Help Group	Ngelelya
64	Mugumo Dairy Goats	Self Help Group	Ngelelya
65	Kyeni Kya Kimukaudo	Self Help Group	Ngelelya
66	Ndeithia Nguteithie	Self Help Group	Ngelelya
67	Kalva Village Elders	Self Help Group	Ngelelya
68	Liika Umanye Women group	Women Group	Ngelelya
69	Kithio women group	Women Group	Ngelelya
70	Ngwatano Gichagi Two	Self Help Project	Ngelelya
71	Ngelelya Community Agri.	Community Based Org.	Ngelelya
72	Ndula Savings Scheme	Self Help Group	Ngoliba
73	Watoto Wenye Nguvu	Self Help Group	Ngoliba
74	Kilimambogo Tumaini	Self Help Group	Ngoliba
75	Al-Fatah Ndula Self help group	Self Help Group	Ngoliba
76	Ngoliba Farmers	Self Help Group	Ngoliba
77	Ngoliba Wendani	Self Help Group	Ngoliba
78	Fourteen Falls Women group	Women Group	Ngoliba
79	Matathia Mwireri women group	Women Group	Ngoliba
80	Mathina ma Atumia women group	Women Group	Ngoliba
81	Magogoni Community Water Project	Self Help Project	Ngoliba
82	Ndula Community Nursery	Self Help Project	Ngoliba

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