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# Viability of a Water Credit Initiative

## Mara River Basin, Kenya-Tanzania

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Integrated Management of Coastal and Freshwater Systems Program



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## EXECUTIVE SUMMARY

### INTRODUCTION

Water management remains the critical factor in the sustenance of economic activities and livelihoods in the Mara River Basin. So far, there has been no framework developed to ensure that provision of water services is in harmony with the ecological requirements of the basin. In order to develop water resources in the Mara Basin, Water Partners International (now Water.Org) has been sub-contracted to conduct up-front testing for viability of a water credit initiative in the Mara Basin. The aim is to lay the groundwork for expansion of the Mara Basin water projects into credit initiatives. The scope of work:

1. Analyzes the MFI Situation in the Mara River Basin.
2. Conducts a viability assessment of Water Credit initiative within the Mara Basin
3. Assesses the institutional capacity of the Water Supply Schemes that will potentially participate in the Water Credit initiative.
4. Proposes possible initiatives that will lead to laying the groundwork for expansion of the Mara Basin project into credit initiatives.

### METHODOLOGY FOR EVALUATION OF WSS LENDING

In our methodological steps, we have surveyed community water groups and households with some form of water and sanitation infrastructure in the two districts and asked them about their willingness to borrow to extend or improve services (most of these were springs requiring protection or raising the water levels for onward transmission to the households). In addition, we have surveyed 14 community water supply schemes in 6 districts (3 of which are in the Mara Basin and other 3 within the Lake Victoria Water Catchment area. Since in most cases it is not possible for individual households to mobilize sufficient capital to invest in water infrastructure, the *Willing To Pay* question was framed around borrowing by individual households towards achieving community-level water infrastructure (boreholes, with sand dams, spring caps). Starting with the Focus Group Discussions with community members, we moved downstream to interview the households. In addition, information on

the operational status of 14 water supply schemes and microcredit institutions in the Mara River Basin was accessed and analysed.

## **EXISTING MICROCREDIT LENDING FOR WATER INFRASTRUCTURE**

A number of microcredit schemes are currently operational in the Mara River Basin. These are implemented by institutions such as K-REP, KWFT, Equity Bank, and Faulu-Kenya. The first three have schemes that are specific to water lending while the later has an asset based lending program that could be used to purchase the water tanks. Because of a concentration of numerous MFI in a small area, there are challenges of multi-loaning. K-REP has encountered defaulting rates of up to 50%. The water tank loans have not been particularly popular among the households or groups. For example, out of about 700 loans in a year, only 5 loans have been taken for water tanks. Most loans are taken for agricultural and businesses purposes.

## **FINDINGS ON EXISTING WATER INFRASTRUCTURE**

### *Household Demographics*

The survey targeted 500 respondents, 250 from each of the two districts. However, a sample size of 156 from Bomet district and 159 from Narok South (making a total of 315) was realised. Focus Group Discussions involved over 128 participants from across the two districts. The FGD participants were a mix of community leaders, committee members and ordinary community members. The original proposal of 500 households was drawn against a budget of approx \$34,000 USD, while the approved budget was \$20,000USD. In total, there were 443 interviews. Most families interviewed consisted of six members or less. The biggest household was composed of 13 members.

### *Current Water Supply and Water Uses*

The main sources of water varied across and within the districts. Households in Bomet district relied mostly on rivers or ponds (56%) and Community wells (36%). Households in Narok district, however, relied heavily on spring water - with 95% drawing their water from the spring and 30% accessing either rivers or ponds. Some of the springs had benefitted

through interventions by the local WRUA and NGOs such as WWF for Nature, East African Regional Office. The water infrastructures were mostly managed by Community Water and Sanitation Committees.

### *Institutions for Water Resource Management*

The distribution of roles in the Water Resources Management is lined out in the National Water Resources Management Strategy (NWMS). In the above institutional arrangement, the most active in the Mara Basin are the WRUAs, WARMA, Ministry of Water and Irrigation. The other institutions are the Water Line, and Tenwek Community Human Development (TCHD).

### *Management of Existing WATSAN Infrastructure*

Institutional and management failures are not a strange phenomenon in water and sanitation sector. All of the community water management groups have been operational for some years; but without formal registration status, it was not possible to decipher problems in water management capacity that could be a constraint in community-water lending. While we found no instances of possible management failures in the operation of water systems, the more realistic experiences have been captured in the existing 14 community water supply schemes in six districts.

## **HOUSEHOLD INCOME, ASSETS AND EXPENDITURES**

### *Household Incomes*

Most respondents (66%) reported having a monthly income in the range of kshs 2500-10,000. Majority are concentrated in the monthly income range of kshs 2500-5000. Nearly half the respondents from Narok South had average monthly income of less than 5,000 shillings whereas in Bomet district, just a quarter had an average income less than 5,000 shillings. Respondents in Bomet district had higher incomes at all levels than their counterparts in Narok South.



***Assets Ownership***

Most of the respondents owned a parcel of land, while the majority (57%) had holdings of 0.5-5 acres. About 34% of respondents had holdings of 5-10 acres. About 97% of the respondents do own cows – most them own between 2-6 cows; about 84% do own chicken (39% of these have 10 than 10), 71% own donkeys.

***Monthly Expenditures***

Food expenses formed the major part of expenditure. 42.5% of households spend between 500-2,500 shillings, and another 48.3% spend between 2,501-5,000 shillings. Expenditure on phone also seemed to be high, with the largest share of households (40.6%) spending between 500-2,500 shillings per month. Transportation also formed a major cost as 66.0% of households spend between 500-2500 shillings per month on transport. Most respondents spend less than 500 shillings per month on water.

***Household Welfare Levels***

Respondents were asked if ever, in the last one year, they have gone without the following essentials in life. Overall, 29% of the respondents report that they have gone without enough food to eat either several or many times. About 49% report that they have gone without enough clean water for home use several or many times. About 43% of the respondents indicate that they have gone without medicine or medical treatment. 11% have gone without enough food to eat, about 45% have gone without cash income, and finally about 42% have gone without school fees.

**SAVINGS AND LENDING VIABILITY*****Savings and Borrowing Behaviour***

About half (55%) of the respondents were in savings groups. In Bomet, 57.4% participate in groups while in Narok South, 47.5% of their respondents belong to a savings group. Most of the respondents are either in ROSCAs (Merry Go Round) (52-57%) or have subscribed to Kenya Women Finance Trust (17-28%). Respondents were asked if in the past two years (2007 and 2008) they would have liked to borrow more than what they have borrowed. Most respondents do not favour upfront fees charged by the MFI. About 24% would have liked

to borrow 50,000, about 16% would have liked to borrow 20,000, and about 15% would have liked to borrow 100,000 shillings. Overall, over 50% of the respondents would have liked to borrow between kshs 50,000-100,000. Interviews with KWFT, K-REP and Faulu-Kenya suggest that there is a serious problem of multi-loaning in these communities, leading to high defaulting rates among households with multiple loans. K-REP reported having incurred defaulting rates of up to 50%, leading to downscaling of their activities the region.

### *Social Capital*

Respondents were asked that if they suddenly needed to borrow a small amount of money or other material support (enough to take care of expenses for their household for one week), are there persons beyond their immediate households and close relatives to whom they could turn? In their responses, about 60% of the people definitely had a place to turn to within the community and about 25% could probably get a place elsewhere; while 10% were not sure.

## **WILLINGNESS TO PAY FOR IMPROVED WATER INFRASTRUCTURE**

### *Community Loans for Water Infrastructure*

The majority of the respondents (85%) indicate that they would approve of a loan to support improvements in community water infrastructure. The most desired reason for improvement is continuity in supply across different seasons within close proximity. However, a smaller number indicated that they would take a loan under own name for purposes of water improvements. Gender factors appear to strongly influence whether individuals would take a loan under own name. Most female respondents indicated that they would have to consult their spouses.

### *Maximum Willingness to Pay for Water Infrastructure Improvements*

The Maximum Willingness to Pay for Water Improvements varies across the villages in Bomet and Narok South District. The Bid levels tend to be higher in Bomet than Narok South. There are variations within each district. In Bomet, the bid is highest for Mogango while in Narok South it is highest for Kutete. These WTP bids appear realistic and are plausible given the levels of monthly income from farming reported. Furthermore, the bid

levels are in harmony with household expenditures reported. Overall most households would be willing to pay between Kshs 200-300 per month towards water payments to support both loan repayments and ongoing O&M of water infrastructure.

## **EXPERIENCE WITH WATER SUPPLY INFRASTRUCTURE**

The following important insights emerge in the performance of existing water supply infrastructure:

- Most these water schemes are characterised by substantial Un-accounted For Water (UFW), ranging between 20-98%.
- The collection rates for water payments vary within the range of 14-75%. These figures suggest that the loan repayments can sometimes be uncertain because of unreliable payments.
- Most of the water schemes are not metered due to the additional capital requirements for doing so.
- Political pressure appears to exert strong influences in the performance of the water infrastructure, with community members taking advantage of the instability to refuse paying for water services.
- A level of impunity among water users/communities remains a major challenge, with episodes of vandalism of infrastructure and illegal connections encountered.
- The final water tariffs implemented by the water companies are regulated by the Water Services Regulatory Board (WASREB).

It is unlikely that any microcredit scheme would avoid dealing with the above issues when such a process is initiated with community water projects.

## **CONCLUSION**

In view of the foregoing analysis, levels of monthly WTP bids by various respondents, and considering the incomes and assets that the households have, it would be viable to execute some type of microcredit lending for water projects in different schemes. Most of the water improvements required by the communities are not sophisticated in nature. If we assume

that there are about 1000 households in a village, repayment of kshs 200/hh for a year should raise approximately Kshs  $12 \times 200 \times 1000 = 2,400,000$ . In three years this figure could translate to about Kshs 7,200,000. If we assume an interest rate of about 15 percent, then most of the villages could comfortably be viable for loans ranging between Kshs 5-10 million. It should be remembered that this amount is similar to the schemes currently run by K-REP.

The key factor for a Micro Finance Institution (MFI) interested in the water sector financing in Bomet and Narok South is probably less in determining where there is demand and where is not, but rather in designing a strong institutional process that will weed out the bad lending situations within the community. This is a natural outgrowth of the “demand-led” process for rural water supply that the World Bank has advocated for the past decade. The rules for participation should be set properly so that there is no incentive for the water users to shirk, market the financing program and rules to the communities widely, and let communities decide for themselves whether to participate under those rules.

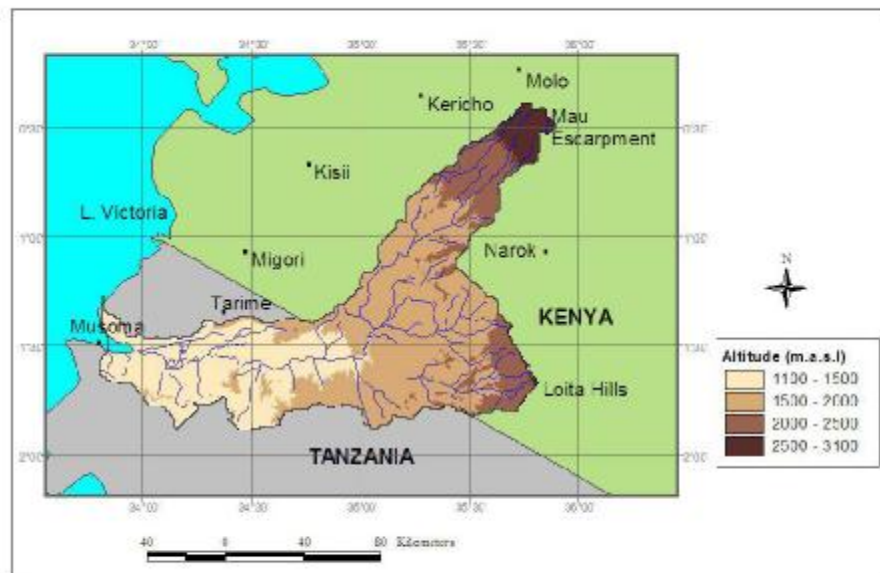
Such Micro Credit Schemes should be conscious of a number of other factors:

- The existence of other NGO interventions, supporting water infrastructure development at very subsidized rates.
- The performance of current water schemes, which seems to reflect high levels of impunity - demonstrated by illegal connections, vandalism and sometimes refusal by consumers to pay, and political tenability.
- The continued regulation of the water tariffs by WASREB.
- The existence of numerous Micro Lending Institutions trying to market similar products.

## 1.0 INTRODUCTION

### 1.1 Background

The Mara River is an international river, shared between Kenya and Tanzania. The size of the Mara River Basin is about 13,750 km<sup>2</sup>, of which about 65% (8,941 km<sup>2</sup>) is located in Kenya and 35% (4809 km<sup>2</sup>) in Tanzania (Figure 1). The Mara River runs through the Maasai Mara Game Reserve on the Kenyan side and the Serengeti National Park on the Tanzanian side—the latter being a World Heritage Site and a Biosphere Reserve. These sites, therefore, have global as well as national conservation and economic significance. The 395 km long Mara River drains into Lake Victoria, which consequently forms part of the upper catchments of the Nile basin. The Basin is located roughly between longitudes 33°47' E and 35°47' E and latitudes 0°38' and 1°52' S. The catchment area covers Musoma, Tarime, Serengeti districts in Tanzania and Narok, Transmara and Bomet districts in Kenya (about 60 % of the basin is in Narok District).



*Figure 1 Location of the Mara River Basin in Kenya and Tanzania (Mati., et al 2005)*

Mara River originates from the Napuiyapui swamp in the Mau Escarpment in the highlands of Kenya, altitudes range from 2,932 m at its source to 1,134 m on Lake Victoria. The main perennial tributaries are the Amala and the Nyangores, which drain from the western Mau escarpment. Other prominent tributaries include the Talek River, which starts from the Loita

plains and joins the Mara in the Maasai Mara Game Reserve, the Engare Engito originating from the Ilmotyookoit ridges and the Sand River, which is the last main tributary, joining the Mara at the Kenya-Tanzania border in the Serengeti plains. The Mara then flows through Mosirori Swamp, finally draining through the Mara bay into Lake Victoria at Musoma in Tanzania. Rainfall varies with altitude in the basin. Mean annual rainfall ranges from 1,000-1,750 mm in the Mau Escarpment, 900 -1,000 mm in the middle rangelands to 700–850 mm in the lower Loita Hills and around Musoma. Rainfall seasons are bi-modal, falling between April and September, and again between November-December.

The Mara-Serengeti Ecosystem contains the most diverse combination of grazing mammals in the world, holding 400,000 wildlife and livestock. The Mara River is critical to the unique annual wildebeest migration and for balancing the ecosystem. The Mara-Serengeti ecosystem is a world-famous wildlife sanctuary of great economic international importance, supporting a thriving tourism industry.

## **1.2 Problem Statement**

Despite the diversity in spatial extent and land use, the dominant social-economic activity to the majority of the population remains farming. About 62% of the households are smallholder farmers, with livestock rearing being a second dominant activity, yet agriculture occupies about 28% of the available arable land (Aboud *et al.*, 2002). Tourism and wildlife are important economic activities. At the heart of the Mara Basin lie the Maasai Mara Game Reserve on the Kenyan side and the Serengeti National park on the Tanzanian side. Nomadic pastoralists surround this area and tourism provides important additional income for local communities.

Water management remains the critical factor in the sustenance of economic activities and livelihoods in the Mara River Basin. So far, there has been no framework developed to ensure that provision of water services is in harmony with the ecological requirements of the basin.

The 2002 Water Act ushered in important institutional changes in the Kenyan water sector (Marcus and Onjala 2008). The overall effect was one of decentralizing management

activities in the sector to move more responsibility and decision-making power to local communities. Since most of the provisions were not enacted until 2005, however, the full impact of the reforms is not yet clear. The Act created seven regional water services boards. The Lake Victoria South Water Services Board was the relevant board for the two districts we visited for this report. Each of these seven boards is regulated by the national Water Services and Regulatory Board (a division of the Ministry of Water), which has the authority to set base water tariff structures and the responsibility for reporting the overall financial and operational performance.

To operate a water system in Kenya, a private company or community-based organization must apply to their regional board for a Service Provision Agreement. This agreement details expectations for service as well as the tariff structures, which are generally based on the structure set at the national level. Importantly, any changes to the agreed tariff structure must be approved in advance by the regional board, and must be justified. This type of public oversight of utility pricing is positive in principle, but seems to be functioning poorly now in Kenya. Although this regulation does not pose additional risks for WaterCredit, it does set the limit on the viability of water projects upon the Credit could be applied. According to the most recent report from the national Water Services Regulatory Board WASREB 2008, 15 of the 25 water service providers<sup>2</sup> could not meet operations and maintenance costs and are “likely to get into severe financial problems if performance is not improved and/or tariffs are not adjusted.” On the revenue side, both service providers and regulators seem to be facing stiff resistance to raising water tariffs and installing more meters on existing connections<sup>3</sup>. On the operational side, average “unaccounted for water” (water lost through leaks or illegal connections) among the 25 service providers was 45%, with some as high as 82% (Gatamathi) and 92% (Embe). Certainly this could be highly problematic for WaterCredit.

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<sup>2</sup> According the report, there were 12 “small” providers serving between 1000-4,999 connections, 8 “medium” providers (5k – 9.9k connection), 3 “large” providers (10k – 34.9k connection), and 2 “very large” providers (>35K connections; Nairobi and Mombasa).

<sup>3</sup> “*Rising unga and power costs are not enough, wait for your next water bill*”. The Daily Nation, December 4, 2008.

The Act also created a Water Services Trust Fund to finance the extension of water services to poor communities. Ownership of raw water supply remains with the state (in contrast to riparian or first-in-use water rights), and water users are required to pay a fee to the national Water Resources Management Authority based on the volume extracted.

### 1.3 Objectives

In order to develop water resources in the Mara Basin, Water Partners International (now Water Org) has been sub-contracted to conduct up-front testing for viability of a water credit initiative in the Mara basin. The aim is to lay the groundwork for expansion of the Mara Basin water projects into credit initiatives. The scope of works will include:

1. Conducting a viability assessment of Water Credit initiative within the Mara Basin
2. Assessing the institutional capacity of the WRUAs that will potentially participate in the Water Credit initiative.
3. Proposing possible initiatives that will lead to laying the groundwork for expansion of the Mara Basin project into credit initiatives.

The primary research question posed is: Are households willing to borrow to improve their access to environmentally-sustainable water services in the Mara Basin (Narok and Bomet Districts)? In some villages, the decision to improve water services through microfinance credit may be an individual's, a household's, or a group decision. In all villages, however, questions on the willingness to borrow finance in order to improve their water services, and issues of the ability of the WSS beneficiaries to manage water institutions and be able to repay loans is important. There could be many underlying issues that will affect the ability of the households and communities to borrow for the improvement of water services.

More significantly, our evaluative study has attempted to shed light on the following questions:

- Is access to finance the main constraint to improving water and sanitation conditions in the Mara Basin?
- What are some of the other major constraints (such as institutional) that water systems are facing?



- What types of “innovative financing” seem to be promising for the Mara Basin WS&S, and what can we learn about experiences in other countries?
- How good is the evidence to support the use of expanding microfinance for water and sanitation improvements in the Mara Basin?

#### **1.4 Existing Evidence on Microfinance in WS&S**

The best and most comprehensive source on past experiences with microfinance in the WS&S sector is Meera Mehta’s (2008) report for the Gates Foundation on microfinance in the WS&S sector<sup>4</sup>. Annex 3 of the report provides a one-page description of each of 25 applications of microfinance or innovative financing in the WS&S sector, including the institutional set-ups, the loan terms, targeted groups, and external support. Examples are highlighted below (Cook and Onjala, 2009):

- Experiences with microfinance differ geographically. Most of the experiences documented in microfinance have been household retail loans in South Asia. Error! Reference source not found. lists only two documented retail loan programs for WS&S in Africa. There are relatively fewer documented programs targeted at SMEs (or CBOs), although four of six of these have been in Africa.
- Overall, both retail and SME lending programs have been fairly successful. Many projects are “scaling up”. There have been cases where retail lending has failed (i.e. loan defaults): In Lesotho and some early programs in the Gramalaya (India) program, revolving fund programs have generally been less successful.
- However, NGOs and water programs have few incentives to publicize failures. There are very few studies published in peer-reviewed outlets; most are in the grey literature as consulting reports or background papers (see Error! Reference source not found.). Looking around case study approaches makes it difficult to assess what conditions on the group led to more or less success.
- Evidence of MFIs scaling up on their own is better evidence that the business model is sound (K-Rep in Kenya, BRI in Indonesia, etc), though these also rely on some form of external assistance.

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<sup>4</sup> The report is available at:  
<http://www.gatesfoundation.org/learning/Documents/assessing-microfinance-wsh-2008.pdf>

## 2.0 METHODOLOGY FOR EVALUATION OF WSS LENDING

The question of evaluating the demand for improved water and sanitation services in Kenya is not new; what is perhaps new is the structure of financing. It may therefore be more important to design a good set of institutional rules (or a “deal structure”) for potential credit applicants and let them self-select into the program, rather than attempt to generalize about the total aggregate size of demand for improved WSS services. The latter – if done well - requires detailed knowledge of where households, communities, or WRUAs are starting from in the service matrix as well as what improvements can be put on offer through microcredit.

### 2.1 Lending to Individuals via Groups

In evaluating lending approaches, we generally follow Mehta’s 2008 categorization of microfinance activities in the WS&S sector. The first category of loans is “retail” loans to households. These can be provided as individual loans or through a group lending approach pioneered by Grameen Bank in Bangladesh. Group lending approaches typically require no collateral because each borrower in the group guarantees the loans of the others. Group *savings* approaches leverage the accumulated savings of a group and do not require external funding: each member is required to contribute some amount of savings on a regular basis, and one member borrows money from the groups’ savings pool. As this loan is repaid, another member can use the groups’ savings. These are known as Rotating Savings and Credit Associations (ROSCAs), or colloquially known in Kenya as “merry-go-rounds”.

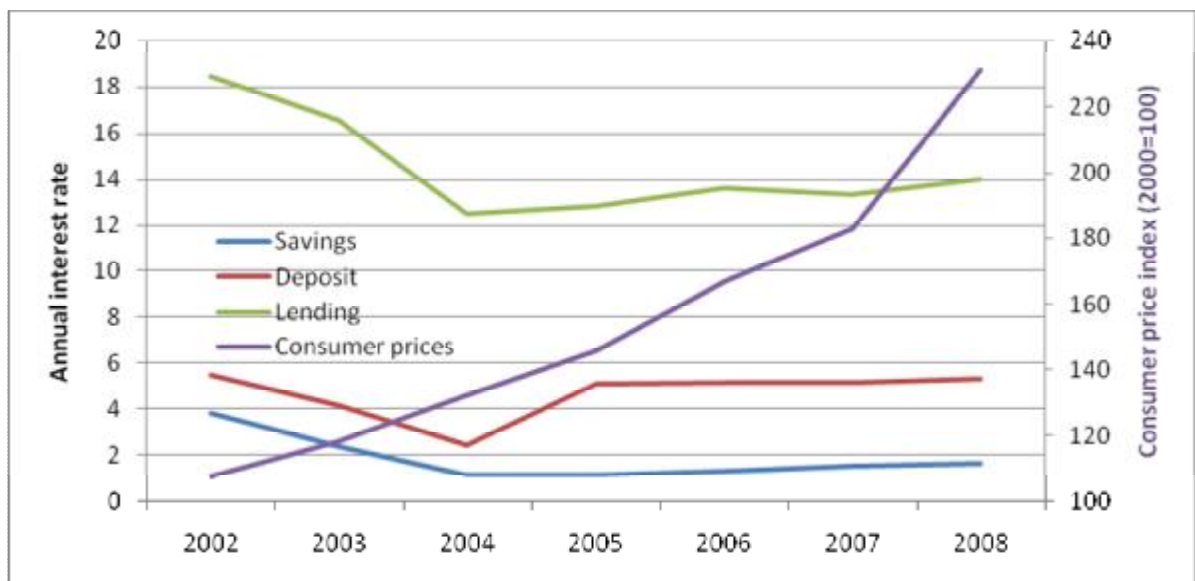
The group-lending approach is most commonly targeted to women’s groups. These “retail” loans have typically been used for income-generating activities like purchasing equipment for a business, buying animals, etc., although we find several people in Kenya who borrow the money to pay for school fees or for home repairs.

In the Water Services and Sanitation sector, these retail loans have been used to purchase rainwater storage tanks, build latrines or toilets, or pay for connections to an existing piped water or sewer network. Retail loans have provided by deposit-taking commercial or government banks and microfinance institutions (MFIs) as well as non-depository MFIs such as Kenya Women Finance Trust (KWFT) and K-REP.

### **Microfinance sector**

According to data from the Mixmarket website (mixmarket.org)<sup>5</sup>, there are currently 18 incorporated microfinance institutions in Kenya with a total loan portfolio of US\$745M and 1.2M active borrowers. Of these, seven are non-profit NGOs, seven are non-bank financial institutions, three are banks, and one is a cooperative/credit union. The three largest MFIs are banks or are in the process of applying for depository licenses. The largest MFI listed by MixMarket is by far Equity Bank, with 619,000 active borrowers and US\$523M in their total portfolio, followed by Kenyan Women's Finance Trust (total portfolio US\$85M) and K-Rep Bank (total portfolio US\$81M). There are 32 microfinance funds investing in the Kenya microfinance sector (12 based in the U.S., 11 based in the Netherlands, two based in France, and two based in Switzerland). According to data from the Central Bank of Kenya<sup>6</sup>, average interest rates at commercial banks were 4.86% on deposits, 1.7% on savings, and 14.8% on loans. After falling somewhat in 2002-2004, interest rates have been fairly steady since 2004 (Figure 1), despite overall annual inflation in consumer prices of 27% (as of March 2009).

**Figure 1.** Commercial interest rates for savings, deposits and loans, and consumer price inflation, in Kenya, 2002-2008.



*Source:* International Monetary Fund: Int'l Financial Statistics, accessed April 2009.

<sup>5</sup> Accessed April 2009

<sup>6</sup> <http://www.centralbank.go.ke/>, accessed April 2009

## 2.2 Lending to Communities/Small Enterprises

The second category of lending in Water Services and Sanitation to be evaluated is loans to “small enterprises” for water supply. These “small enterprises” would include water vendors, who might borrow money to purchase water tanker trucks or carts, water kiosks, etc in the Mara Basin. This definition would also include lending to communities to expand, improve, or maintain their existing water supply systems. We have limited our definition of communities here to rural systems, small towns, and urban slums. Loans would be typically used for boreholes, spring protection projects, pumps, storage tanks, piped distribution networks, etc. - as discussed in Focus Group Meetings in different communities. Lending to communities could include loans to small private water supply companies set up in Kenya under the 2002 water reforms. We have also included in this definition of lending to public water agencies of rural systems or small towns, often called “community-based organizations”, or CBOs.

## 2.3 Loans for Water Services and Sanitation Improvements

In our methodological steps we have surveyed community water groups and households with some form of water and sanitation infrastructure in the two districts and asked them about their willingness to borrow to extend or improve services (most of these were springs requiring protection or raising the water levels for onward transmission to the households). Since in most cases it is not possible for individual households to mobilize sufficient capital to invest in water infrastructure, the *Willing To Pay* question was framed around borrowing for community-level infrastructure (boreholes, with sand dams, spring caps). Starting with the Focus Group Discussions, we moved downstream to interview the households. The idea was to be able to match community-level characteristics that are associated with high willingness-to-borrow to get some sense of areas with potentially high demand.

A community’s or a household’s willingness to pay or borrow to improve the water supply or sanitation situation could be strongly dependent on their *status quo* condition as well the improvement being offered.

**Figure 3. Service Matrix for Improvements in Household/Community Water Supply and Sanitation**

	Unimproved water source (e.g. pond, river)	Unimproved water source with household-level water treatment	Improved water source <u>outside</u> the home (e.g. handpump, public tap)	Improved source delivered to household through water vendors	Improved water <u>inside</u> the home (private water connection or yard tap)
No improved sanitation					
On-site sanitation (e.g. VIP latrine, pour flush toilet)					
Water-sealed toilet + Neighborhood wastewater collection (e.g. small-bore or conventional sewers)					
Water-sealed toilet + neighborhood wastewater collection + wastewater treatment					

Reliability of existing service is also a key consideration

Higher degrees of neighbourhood or town-level coordination required

*Source: Cook and Onjala, 2009*

We have relied primarily on focus group discussions and surveys to collect views of households and different stakeholders. Focus Group Discussions (FGDs) have been organized by the Consultant to synthesize information from CBOs, WRUAs, NGOs, etc. The household surveys were administered by enumerators that were trained and approached the households shortly after conducting the main FGDs. The two instruments asked about current water sources and patterns of water use, experience with micro-finance borrowing, opinions about village-level water management, social trust, and various socio-economic questions.

The core of the survey was a choice experiment, one type of “stated preference” method used widely in environmental economics to assess demand for a good or service not currently available in the marketplace. The experiment would ask each respondent to choose between their status quo water situation and two new improved alternatives, both of which would involve borrowing money to cover capital costs (*see survey questions*).

In the focus group meeting which were fairly large in some locations, the communities were asked to enumerate their water needs and rank the most important solutions they wished to

have in order to alleviate their water problems. The community members in the meeting were allowed to consult freely in order to understand the financial implications of each decision. The communities were also made aware that each solution they agreed upon would be financed by mobilising finances among themselves and each household would be expected to pay towards the project.

In the household interviews, similar questions as above were raised but in asking for new water choices, WTP questions were constructed around the decision made by the community in the Focus Group Discussions. For the example, the households were asked if they had attended the meeting, the decision made during the meeting and how much they would be willing to pay to fulfil that commitment. Other questions asked were in relation to household characteristics, completing budget card detailing monthly expenditures etc.

#### **2.4 Management Capacity for Water and Microfinance Infrastructure**

It is likely that many water systems in Kenya are crippled both by a lack of financing and by poor management; innovative financing will not eliminate the latter constraint (Cook and Onjala, 2009). This does not mean that improved financing cannot help, but lenders should extend loans with an eye towards the types of management failures common in the WSS sector. This might be most easily accomplished by partnership MFIs or banks with WSS NGOs who are experienced in the region and know the pitfalls to avoid. To the extent that the areas with the worst access to improved services are also the areas with the worst management/corruption problems, it also means that lenders and donors should approach microfinance with “open eyes”: Those most in need, and may therefore give the highest Willingness To Pay bids, may be difficult to reach effectively. In order to understand the depth of institutional and management capacity, this study interrogated the management systems in the existing water and sanitation schemes and the microfinance schemes.

##### ***Water Management Institutions***

In addition to the above, we have conducted an evaluation of the existing water infrastructure in order to understand the extent to which loans advanced to the community/individuals would be viable for WSS. This assessment included the existence of

Water and Sanitation (Watsan) Committee, levels of participation, efficacy of the management structure, and other characteristics.

### **2.5 Evaluating Social Capital among Households/Communities in the Mara River Basin**

Evaluating social capital has been important in order to understand the differences in characteristics between people living in the same neighbourhood. Examples include differences in wealth, income, social status, ethnic or linguistic background/race/tribe. There can also be differences in religious or political beliefs, or there can be differences due to age or sex. Household and community perceptions of how divided the village is could be a reflection of these differences. If suddenly an individual or a household needed to borrow a small amount of money or other material support (enough to take care of expenses for your household for one week), are there people beyond your immediate household and close relatives to whom they could turn etc what would be the repayment terms. This question was posed in both Focus Group Meetings and Household surveys.

### **2.6 Productive and Non-Productive Users of Water**

An important distinction between water users in the Mara Basin is the extent of productive use and non-productive use of water. Water needs in rural areas are not just for consumptive use such as a bucket to wash, clean and cook at home after a hard day in the fields; the supply may be required to for productive goals to support income generation. Water can also assigned for productive activities like for irrigated agriculture (to produce vegetables etc) and livestock keeping or even to augment business purposes. Other entrepreneurs in the village might be engaged in income generating activities such as making bricks, hotel management, or brewing beer. These activities bring in economic gains needed by the households. The importance of this distinction is that the behaviour of water users in the Mara Basin, their demand for credit, and perceptions of institutional requirements are all informed by these structures which will form the basis of our analysis.

### **2.7 Sampling Frame**

A quasi experimental design was adopted to capture inform across potential beneficiaries of Microfinance for WSS. Both villages that currently enjoy a reasonable level of WSS and

those with little or no service provision have been included. Attempts were also made to balance between productive and non productive uses of water in the Mara Basin. The study aimed to cover at least 250 households in each district. Given the resource constraints (time, transport, and budget) the study covered a total of only 315 households and 128 respondents through focus group meetings. In total, the number of interviews was 443.

1) Narok South District:

- a. Villages that have been served by Water and Sanitation programs in the past.
- b. Villages not served by any programs and with low levels of water and sanitation service provision.
- c. The community projects covered included: Kutete, Koitamogol, and Olchoro.

Narok District is situated in the southwestern side of the country and lies in the southern part of Rift Valley province. It borders the Republic of Tanzania to the south, Trans Mara District to the west, Bomet and Nakuru Districts to the north and Kajiado District to the east. It lies between Latitudes 0o 50o and 2o 05o south and Longitudes 35° 58° and 36° 0° east. The district occupies a total area of 15,087.8 km<sup>2</sup> and is divided into eight administrative divisions. The district covers a total area of 15,087.8 km<sup>2</sup>.

The district has a varying topography with altitude ranging from 3,098 meters above sea level in the highlands to 1,000 meters above sea level in the lowlands. The highlands, which consist of the upper Mau, Olokuto, and Mulot Divisions, have a high potential for wheat, barley, maize, beans and potatoes. This is because of fertile soils and reliable rainfall ranging from 1200mm - 1800 mm per annum; and temperatures ranging from 10° to 15° centigrade.

Large-scale farmers growing wheat, barley and maize inhabit the areas. Zero grazing is also practiced. The lowlands cover Ololulunga, Mara, Loita and Osupuku Divisions, which have high potential for livestock rearing. Altitude ranges from 1400 - 1800 meters above sea level. The area has poor quality soils and the rains are unreliable. The maasai people who practice nomadic pastoralism and small-scale subsistence agriculture inhabit the area. The temperature ranges from 5°C in July to 28°C in November to February.



The major rivers in the district are Ewaso Nyiro and its tributaries, Siapei and Narok. These rivers drain southwards into Tanzania. The Ewaso Nyiro River is a permanent river due to the heavy rainfall in the district during the months of March - June and the short rains start from June - September.

2) Bomet District:

- a. Villages that have been served by Water and Sanitation programs in the past.
- b. Villages not served by any programs and with low levels of water and sanitation service provision.
- c. The communities covered included: Mulot, Mogango and Chemaner

Bomet District is one of the eighteen districts in the Rift Valley Province. It lies between 0° 29' and 1° 03' south of the Equator and between longitudes 35° 05 and 0° 35' east. The district is bordered by Narok South to the east and southeast, Buret District to the north Nyamira to the west, and Trans Mara to the southwest. The mean monthly temperature is 18 degrees C, and the coldest months are July and August. The cool condition favors dairy, tea, coffee, maize and pyrethrum farming. The main rivers in the district are River Kipsonoi, River Nyangores, River Amalo and River Kiptiget/Tebenik.

Following the Focus Group Discussions in the above communities and using a transect approach, households were randomly selected within those villages for in-depth interviews. The data collection instrument is appended.

### **2.8. Description of fieldwork**

Fieldwork for the study occurred in September 2009, consisting of several activities. During the one month of fieldwork we conducted a series of key informant interviews, community meetings and household interviews in six communities in two districts. The districts were not chosen at random as they comprise the key areas in the Mara Basin. The community meetings covered over 120 participants.

### 3.0 WATER RESOURCES MANAGEMENT INSTITUTIONS IN THE MARA BASIN

The Water Act 2002 created new institutions in order to separate the functions that were previously undertaken by the Ministry of Water and Irrigation. The distribution of roles in the Water Resources Management is lined out in the National Water Resources Management Strategy (NWMS) as follows:

*Table 1: The roles and responsibilities of the new water sector institutions*

Body	Role
Ministry of Water and Irrigation (MWI)	<ul style="list-style-type: none"> <li>• Development of legislation, policy and strategy formulation, sector coordination and guidance, and monitoring and evaluation.</li> <li>• Overall sector investments planning and resource mobilization.</li> </ul>
Water Services Trust Fund (WSTF)	<ul style="list-style-type: none"> <li>• Financing provision of water and sanitation to disadvantaged groups (pro-poor) as water poverty fund.</li> </ul>
Water Appeal Board (WAB)	<ul style="list-style-type: none"> <li>• Arbitration of water related disputes and conflicts between institutions and organizations.</li> </ul>
Water Services Regulatory Board (WSREB)	<ul style="list-style-type: none"> <li>• Regulation and monitoring of service provision (Water Services Boards and Providers).</li> <li>• Issuing of licenses to Water Services Boards.</li> <li>• Setting standards for provision of water services.</li> <li>• Developing guidelines (water tariffs etc).</li> </ul>
Water Service Boards (WSB)	<ul style="list-style-type: none"> <li>• Efficient and economical provision of water services.</li> <li>• Developing water and sewer facilities, investment planning and implementation.</li> <li>• Rehabilitation and replacement of infrastructure.</li> <li>• Applying regulations on water services and tariffs</li> <li>• Procuring and leasing water and sewerage facilities</li> <li>• Contracting water service providers (WSPs)</li> </ul>
Water Service Providers	<ul style="list-style-type: none"> <li>• Provision of water and sanitation services, ensuring good customer relation and sensitization, adequate maintenance of assets and reaching a performance level set by regulation.</li> </ul>
Water Resources Management Authority	<ul style="list-style-type: none"> <li>• To plan, regulate and manage water resources</li> <li>• Planning, management, protection and conservation of water resources</li> <li>• Planning, allocation, apportionment, assessment and monitoring of water resources</li> <li>• Issuance of water permits</li> <li>• Water rights and enforcement of permit conditions</li> <li>• Regulation of conservation and abstraction structures</li> <li>• Catchment and water quality management</li> <li>• Regulation and control of water use</li> <li>• Coordination of the IWRM Plan</li> </ul>

Catchment Area Advisory Committees	Regional body set up to advise WRMA on the management of water resources
Water Resource Users Associations	<ul style="list-style-type: none"> <li>• Local body set up by water users to enable communities and water users to participate in water resource management</li> <li>• Involvement in decision making process to identify and register water user</li> <li>• Collaboration in water allocation and catchments management</li> <li>• Assisting in water monitoring and information gathering</li> <li>• Conflict resolution and co-operative management of water resources</li> </ul>
National Water Conservation and Pipeline Corporation	Development and management of state assets for bulk water supply

*Source: Ministry of Water and Irrigation. The National Water Resources Management Strategy (NWRMS) (2007-2009).*

In the above institutional arrangement, the most active in the Mara Basin are the WRUAs, WARMA, and the Ministry of Water and Irrigation. The other institutions are Water Line and Tenwek Community Human Development (TCHD).

Water Line: is an NGO based in Washington, DC, serving 12 countries. Started in 1996, the primary interest is alleviation of poverty caused by water related problems. The NGO assists communities and schools put up water tanks, rainwater harvesting. They provide 75% grants towards the water projects while the communities raise 25%. The grant is limited to kshs 200,000 per project in Bomet, Kericho, Transmara and Sotik districts. They also finance spring protection.

Tenwek Community Human Development (TCHD) collaborates with communities in providing water and sanitation in the lower zones of the Mara Basin. Funded by Samaritan's Purse and Water Line, they focus on school management programs and protect water springs. They raise 70%, while the community is expected to raise 30% of funding before they receive financial support. So far 60 schools have been funded to build masonry water tanks of 25,000 litres each.

## 4.0 MICRO CREDIT LENDING INSTITUTIONS IN THE MARA BASIN

### 4.1 *Kenya Women Finance Trust (KWFT)*

The Kenya Women Finance Trust (KWFT) provides loans for the purchase of KENTANK brand of water tanks. The loan beneficiaries are provided with the water tanks after signing of the loan agreements.

### 4.2 *K-Rep*

K-Rep Bank has developed a product to support in the financing of the Community based water projects in Kenya. Under this facility the eligible community Water projects (CWP) which meet the K-Rep bank and Water Services Boards and the following terms and conditions apply:

- Open an account with K-Rep Bank.
- Register with Ministry of Culture and Social Services as a Self Help Group, has applied for full legal registered or has actually attained full legal registration. Full legal registration is obtained either through registration under the Societies Act, Trust Deed or Companies Act.
- Approval of the area Water Services Board.
- Willing to undergo an interview with the Project Development Fund Manager and K-Rep Bank upon request.
- Demonstrate an ability to manage a community based water system, maintain financial data, design a system of revenue collections and have a basic understanding of the water supply technology being considered.
- The community should agree to submit their application for a loan to finance their infrastructure to K-Rep Bank.
- The community must agree to share costs of the project development consultant (at least 20% of the total contract cost or any amount above the fixed fee subsidy).
- About 20% of the eligible project cost is to be contributed by the community and deposited with K-Rep bank and K-rep Bank finances 80% of the total projects cost.

- The loan facility is repayable over a maximum period of 60 months with a grace up-to a maximum of 12 months (grace period is granted to allow for construction period, however interest on the disbursed amounts are due immediately but capitalised)
- Interest rates of 17% per annum (on a reducing balance) are charged.
- Collateral including cash deposits, debentures and other forms of collateral are required.

Investments financed under the above programme includes: development or rehabilitation of small piped water systems; development of water sources such as boreholes, springs or rivers; construction of water purification and storage facilities; installation of metering, billing, technical and financial management systems to improve the efficiency of water supply services. The key features of the *Maji ni Maisha* Loan are:

- The amount ranges from kshs 5-10 million.
- There is a one-time loan appraisal fee of 1.5% payable on disbursement of funds.
- There is infrastructure subsidy of 40% available for successful projects.

In addition to funding community based water projects, K-Rep Bank in conjunction with Kentainers Limited is provided loans ranging between kshs 5,000-160,000 for the purchase of the KENTANK brand of water tanks and sanitation products.

#### ***4.3 Faulu-Kenya***

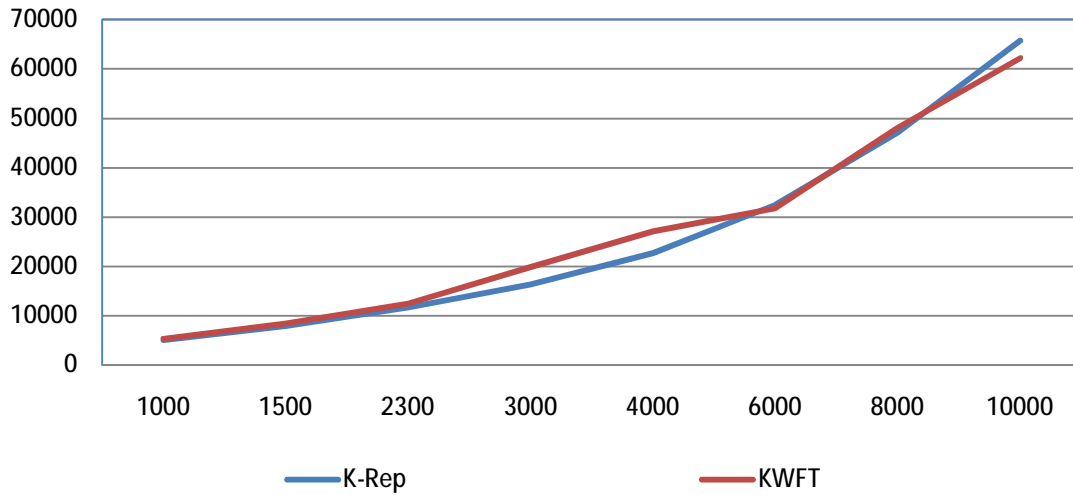
Faulu-Kenya also provides loans for water tanks under the asset loans. Third party cheques are issued to the retailers of water tanks.

#### ***4.4 Summary***

Experience with the loans for water tanks appears to be mixed with little evidence of success. In the case of Faulu-Kenya, only 5 out of about 700 clients in year have applied for water tank loans. Most households obtain loans for business, farming, and school fees. Asset financing such as loans for water tanks are not popular among households in the Mara Basin.

In Figure 4 below, we compare the loan charges by KWFT and K-Rep for water tanks of the same capacity (horizontal axis). K-Rep has reported very high repayment default rates of up to 50% in the same region while KWFT has very low default rates of less than 10%.

**Figure 4: KWFT and K-Rep Charges on Loans for Water Tanks**



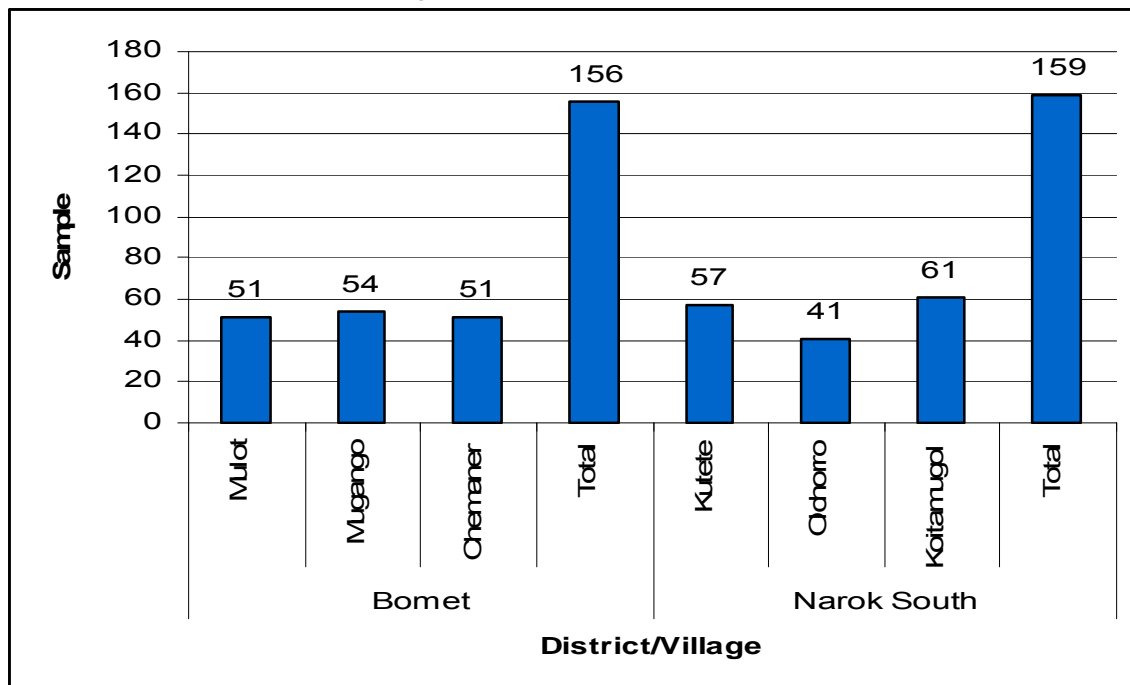
## 5. FINDINGS ON EXISTING WATER INFRASTRUCTURE

### 5.0 Household Demographics

#### 5.0.1 Sample size distribution

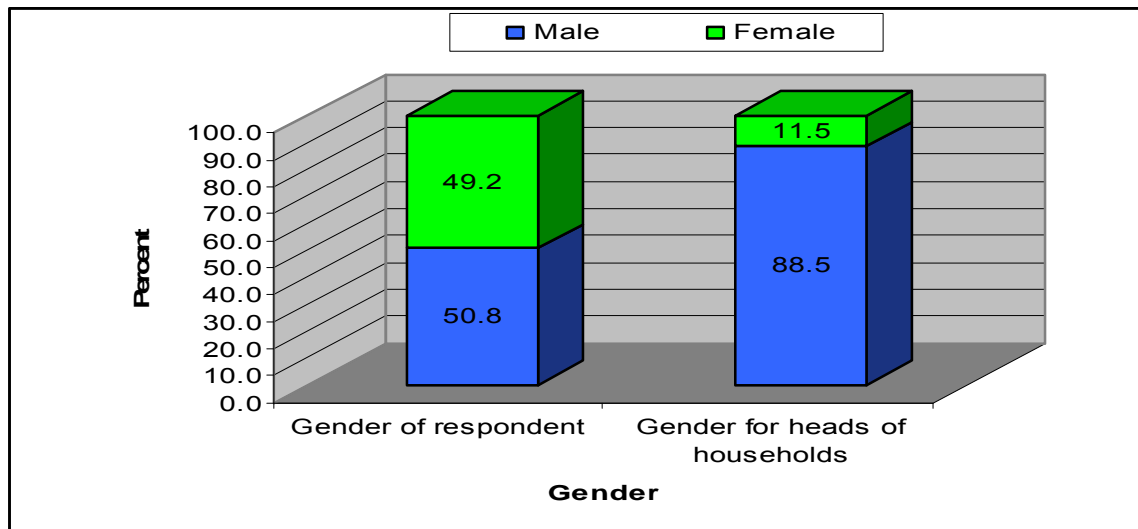
The study was carried out in six villages in two districts. Each district had three villages thus villages in Bomet district were Mulet, Mugango, and Chemaner and villages in Narok South district were Kutete, Olchorro and Koitamugul. The survey targeted 500 respondents, 250 from each of the two districts. However, a sample size of 156 from Bomet district and 159 from Narok South making a total of 315 was realised. Figure 5 below gives the distribution of respondents in the villages forming the two districts.

*Figure 5: Sample size distribution*



The survey targeted only heads of households or their spouses. Of those interviewed 55.2% were heads of households and 44.1% were spouses to heads of households. The respondents were well distributed in terms of gender with 50.8% being male and 49.2% being female. For the respondents who were heads of households, 88.5% were male and 1.5% was female.

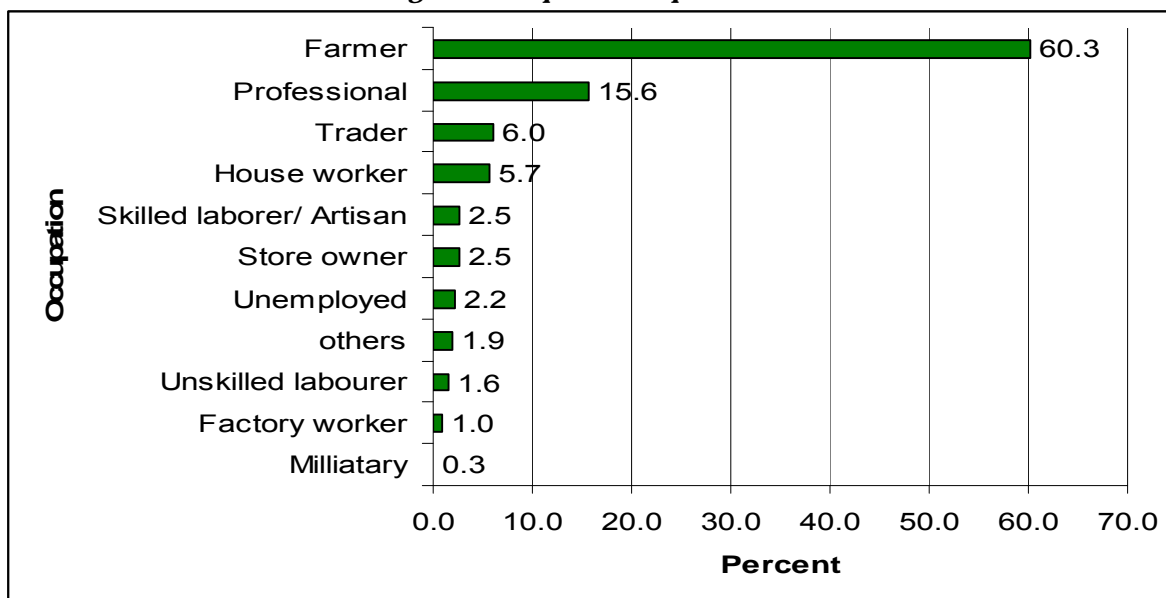
**Figure 6: Gender of respondents interviewed**



**5.0.2 Occupation of Respondents**

The main occupation for majority respondents was farming with 60.3% being farmers followed by 15.6% who were professionals and trading taking the third place with 6.0% being involved in some form of business as the main occupation.

**Figure 7: Occupation of respondents**

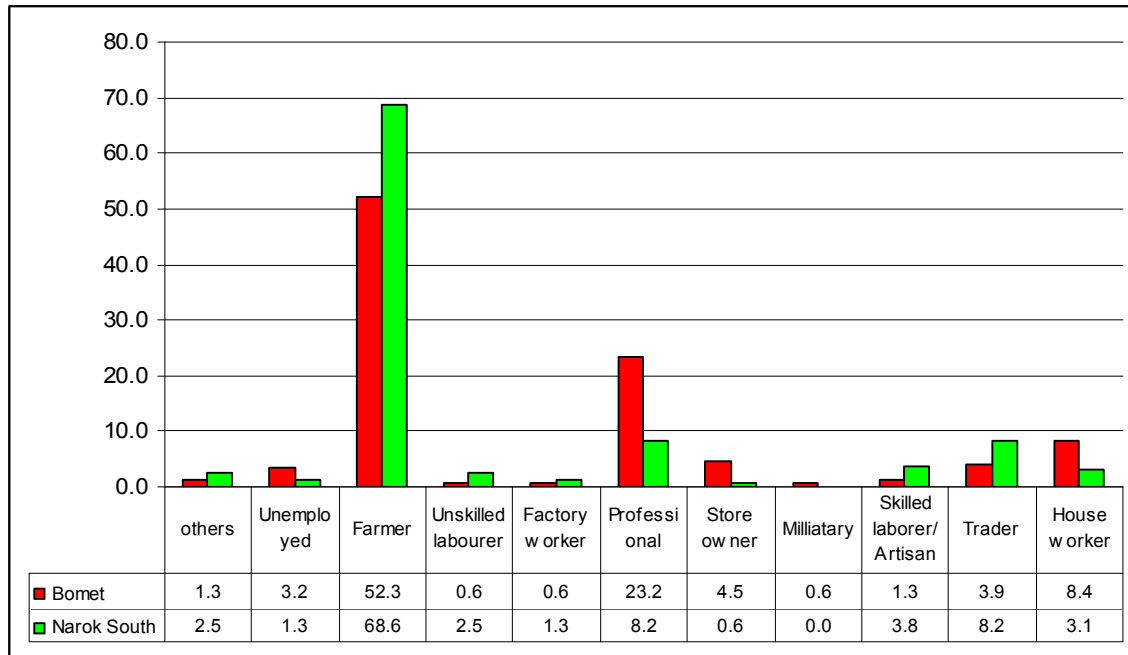


In general, the above distribution of respondents by occupation reflects the pattern of occupation for the entire district. As can be seen in Figure 8, Narok South district had more



farmers than Bomet whereas Bomet had more professionals. Trading was minimal; compared among the districts, Narok South had more traders.

*Figure 8: Distribution of occupations by District*

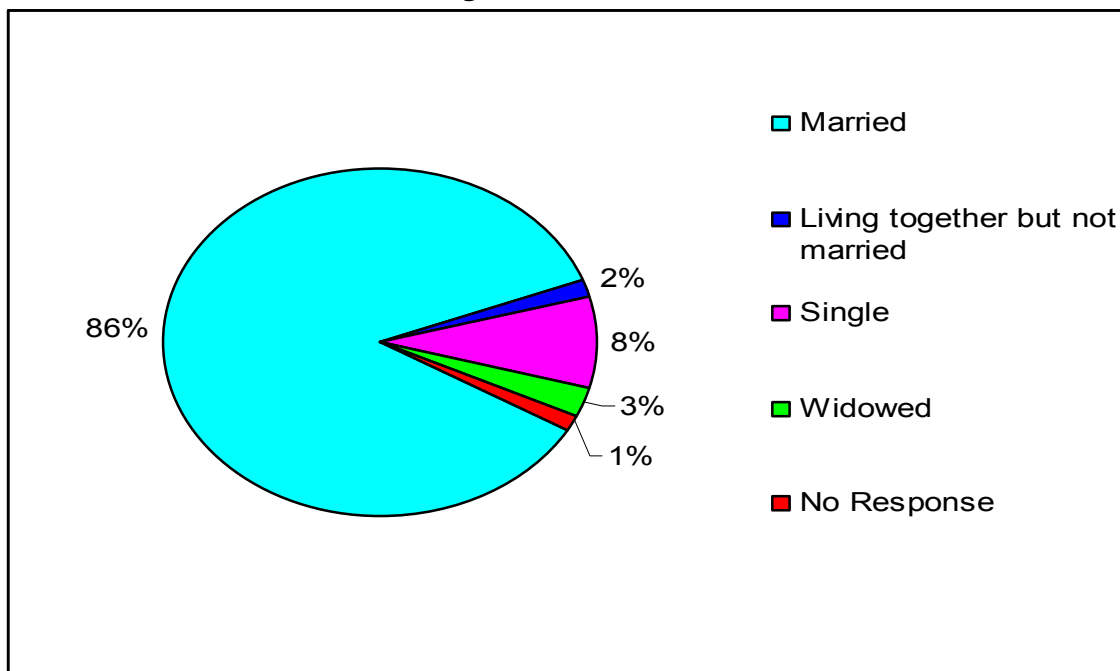


For the farmers, 88.4% sold part of their produce with maize being the main crop sold followed by tea.

### 5.0.3 Marital Status

Of the total respondents interviewed, 86% were married and 8% were single whereas 3% were widowed and 2% were just living together. This means that about 91% of the respondents had some form of marriage. For respondents who were heads of households 81.0% were married and 13.2% were single. The distribution of respondents by marital status is shown in Figure 9 below.

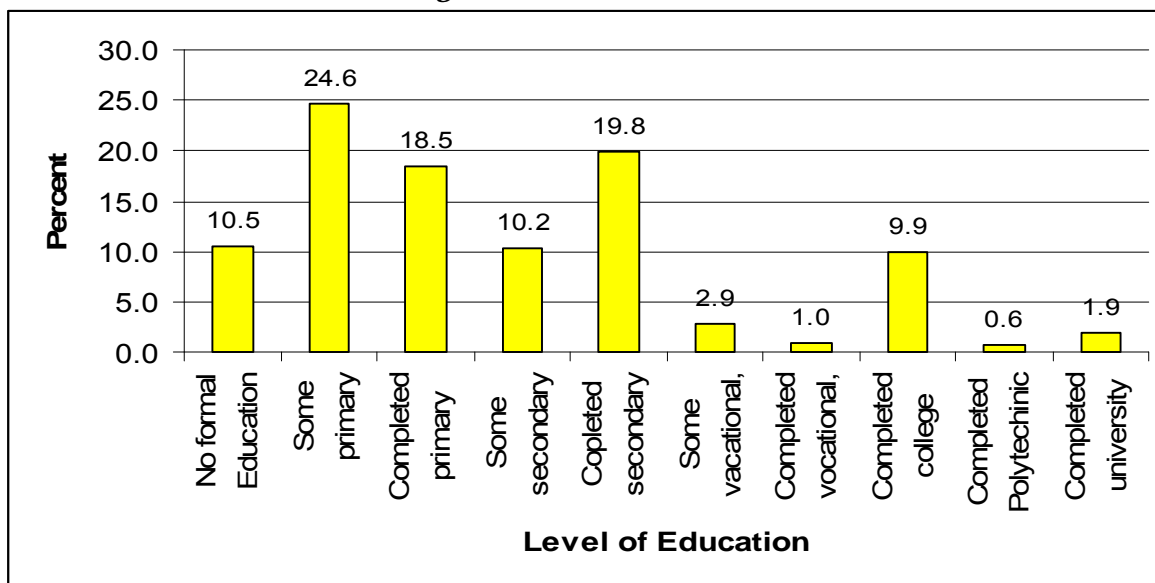
**Figure 9: Marital Status**



**5.0.4 Level of Education**

The distribution of education is shown in Figure 10 below. Respondents with some primary education were 24.6%. Those who had completed secondary school were 19.8% followed by those who had completed primary education at 18.5%.

**Figure 10: Level of Education**



In terms of the distribution by level of education, Villages in Narok South District had the lowest levels of education - with over half not attaining grade eight of education. In Bomet District, 19.4% had attained grade eight whereas 24.5% had completed grade four. Table 2 below shows the distribution of education at the village level.

*Table 2: Education levels at the village*

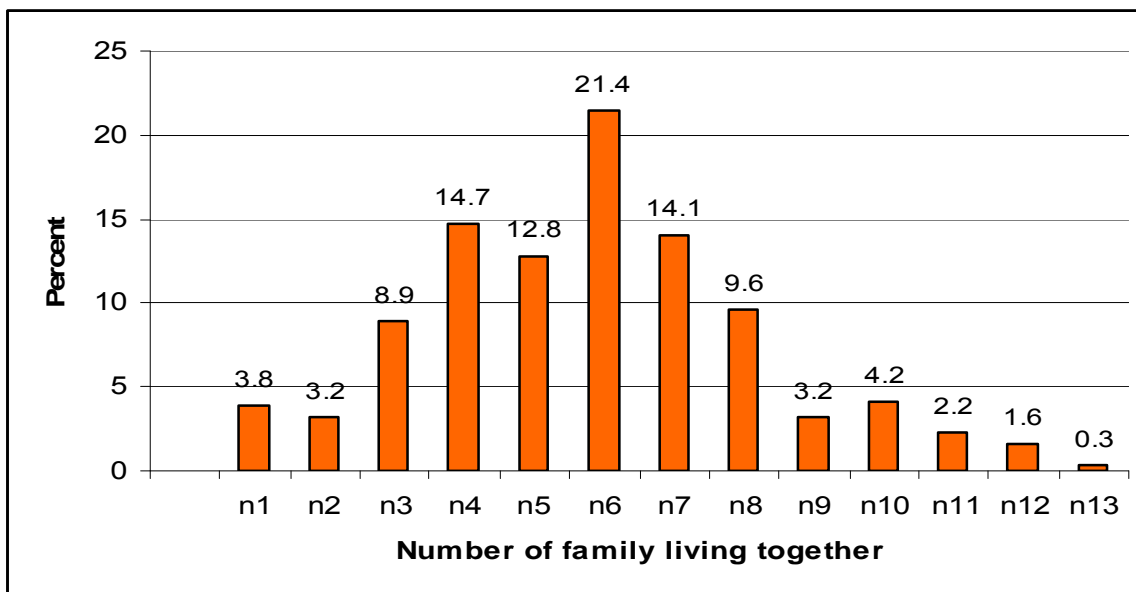
Completed	Bomet District			Narok South District			Total
	<i>Mulot</i>	<i>Muga-ngo</i>	<i>Chenaner</i>	<i>Kutete</i>	<i>Oldhorro</i>	<i>Koita-mugol</i>	
No formal Education	10.0	3.7	3.9	26.3	9.8	8.3	10.5
Some primary school	26.0	11.1	11.8	38.6	34.1	26.7	24.6
Primary school (grade 8)	22.0	9.3	27.5	10.5	34.1	13.3	18.5
Secondary school	8.0	11.1	11.8	5.3	7.3	16.7	10.2
Secondary school (grade 12)	20.0	27.8	25.5	10.5	12.2	21.7	19.8
Vocational, technical or college	4.0	5.6	3.9	0.0	0.0	3.3	2.9
Vocational, technical or college	0.0	1.9	0.0	0.0	0.0	3.3	1.0
College education	10.0	20.4	11.8	8.8	2.4	5.0	9.9
Polytechnic education	0.0	0.0	2.0	0.0	0.0	1.7	0.6
University degree	0.0	9.3	2.0	0.0	0.0	0.0	1.9
Count	50	54	51	57	41	60	313

For the spouses to heads of households, the distribution of the level of education was equally the same, with Narok South having high levels of basic education dropout than Bomet district.

#### 5.0.5 Family Size

Most families were composed of six members (21.4%). The biggest household was composed of 13 members with the smallest being composed of only one member.

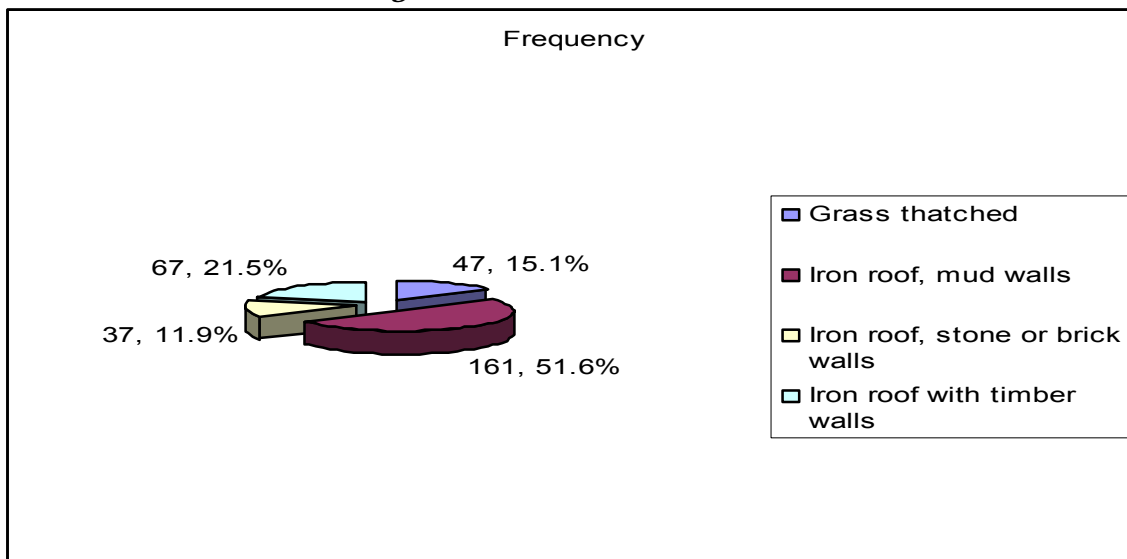
**Figure 11: Family Size**



**5.0.6 Condition of roof and walls**

The majority of the respondents (52%) had iron roofed houses with mud walls. This was followed by iron roofed with timber and mud walls (22%). About 12% had iron roofed with stone or brick walls while only 15% had grass thatched houses. This distribution might suggest that most the people in the study areas might be well housed compared to other parts of Kenya.

**Figure 12: Condition of roof and walls**

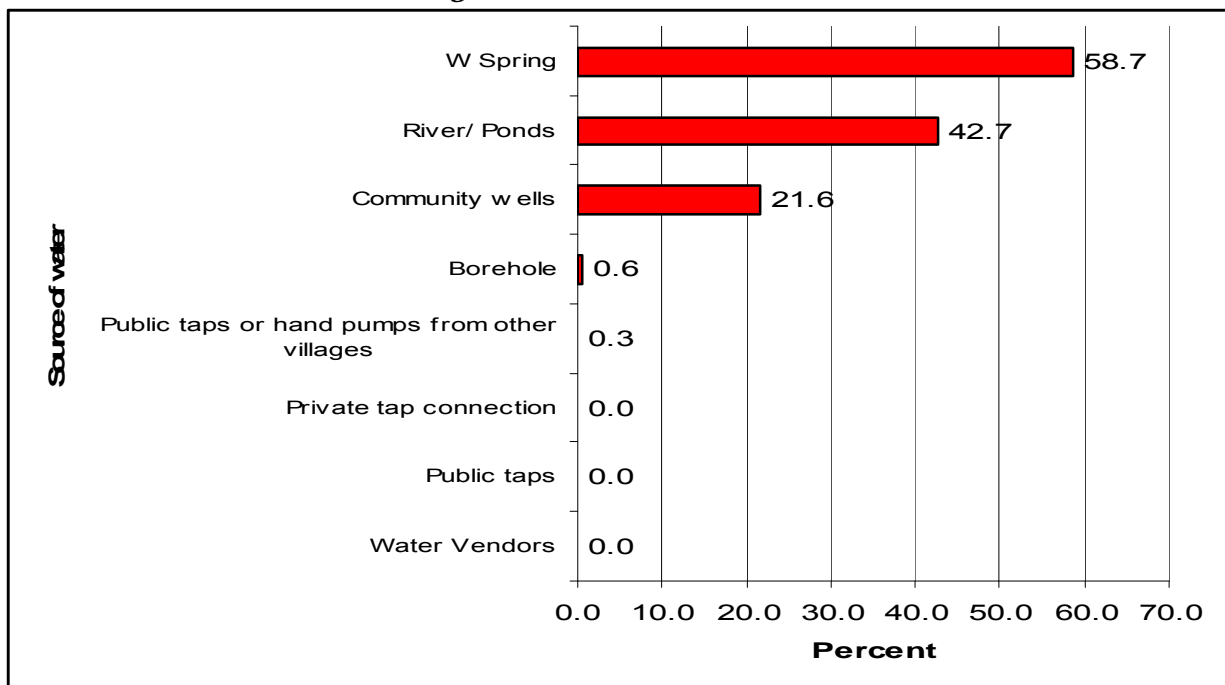


## 5.1 Current Water Supply and Water Uses

### 5.1.1 Water Sources and Accessibility

There are various water sources existing in the two districts. The most used water source for majority people is the unprotected spring water (59%) followed by water from either a river or a pond (43%). About 22% of the population obtains their water from unprotected shallow wells. However there were no public taps or people sourcing water from vendors or from public taps.

*Figure 13: Sources of water*

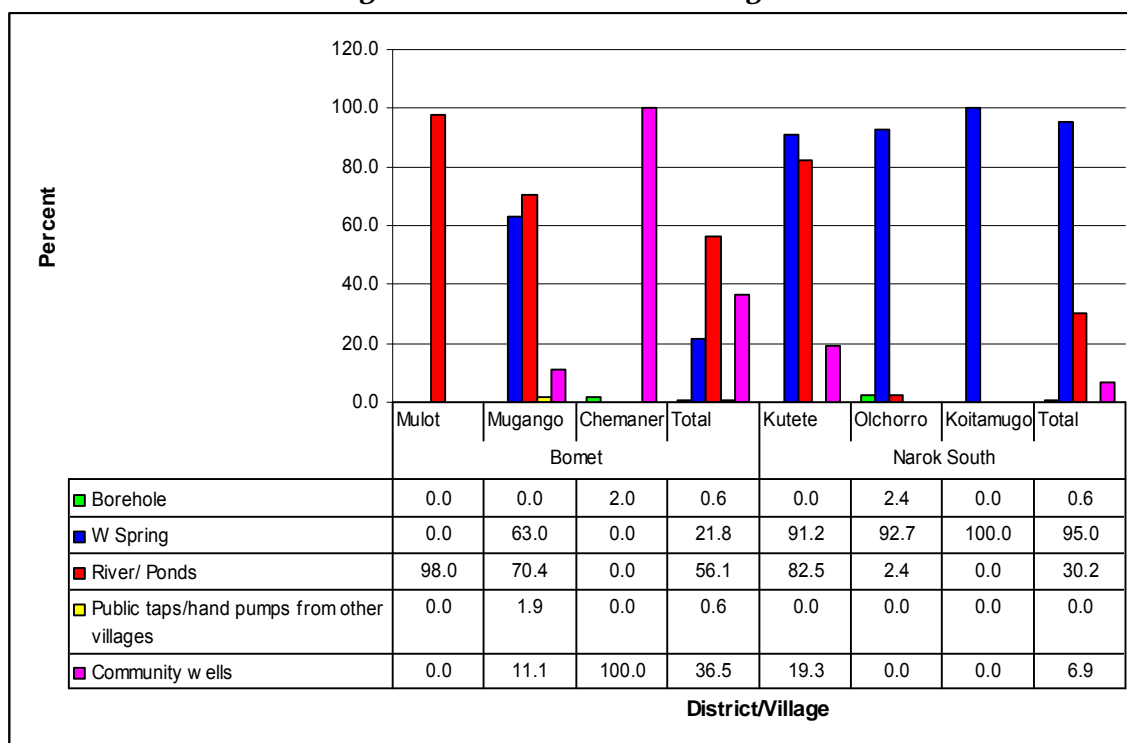


Main sources of water varied across and within the districts. Figure 14 below gives the distribution of main sources of water in the two districts and the distribution of these sources within the district. Bomet district relied mostly on rivers or ponds (56.1%) and Community wells (35.5%). Narok district however, relied heavily on spring water with 95.0% drawing their water from the spring and 30.2% accessing either rivers or ponds.

In Bomet district, Mulot village relied nearly 100.0% on either rivers or ponds; Mugango village had two main sources namely water springs and rivers/ponds (63.0% and 70.4% respectively) and Chemaner village relied a 100.0% on community wells. In Narok south district, springs were well distributed with all villages having access of over 90.0% with

Koitamugol depending 100% on spring water. The use of rivers/ponds were minimal in Narok South with only Olchorro village having 2.4% their residents get their water from this source. The use of borehole was minimal in both the districts both having less than 1.0% access.

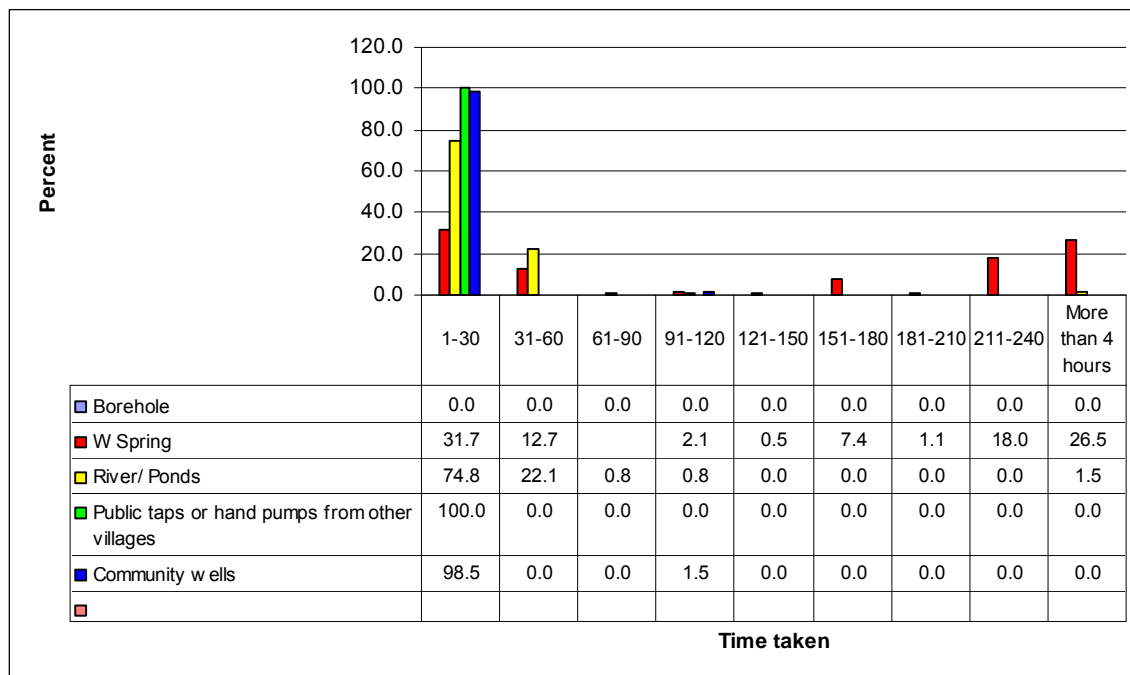
*Figure 14: Sources of water at the village level*



### 5.1.2 Time taken to fetch water

Time taken to fetch water varied based on the different sources. Nearly half the people who had access to spring water spent less than one hour to get their water. On the other hand about 25% of the people who get spring water spend more than four hours to get water. This may be due to over reliance on spring water by communities who live far from other sources of water. It is also possible that the spring water become more dependable during dry season when other sources are not available. For those who get water from the river/pond, 74.8% spent up to half an hour to get the water with 22.1% spending half an hour to one hour (one way trip). For community wells, nearly a 100.0% spent up to half an hour to get water. This indicates that people who source water from the rivers/ponds and community wells spend less hours to get water.

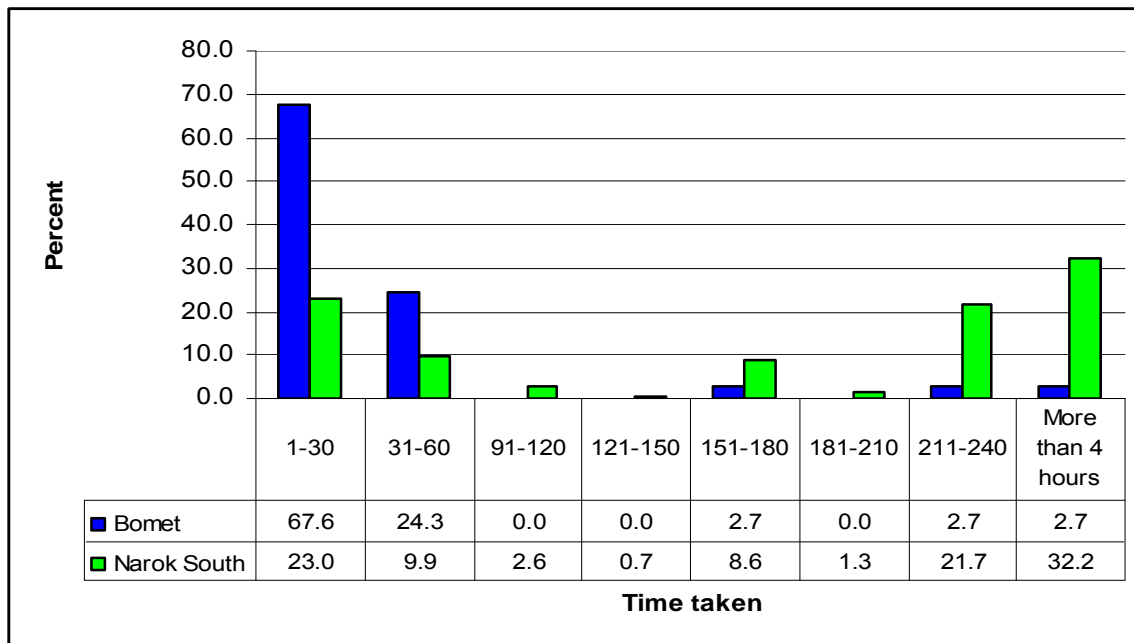
**Figure 15: Time taken to fetch water**



**5.1.3 Distribution of Time taken to fetch spring water by District**

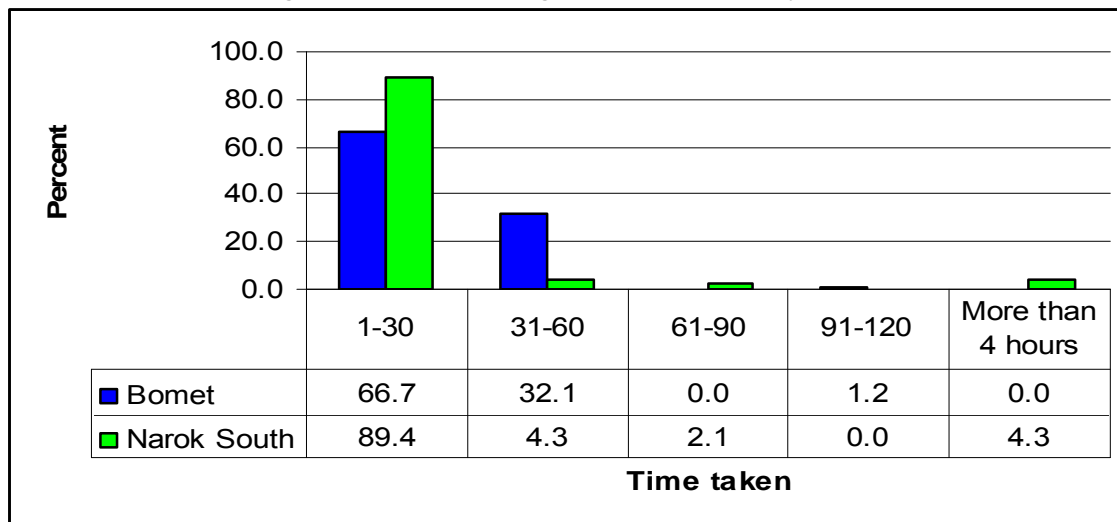
Some households spend a lot of time to fetch spring water thus it becomes necessary to locate where these people are. Figure 16 below shows the time taken for different people in the two districts to fetch water. The results indicate that even though people in Narok South use entirely spring water, they spend a lot of time to source the product than their fellow counterparts in Bomet district who use the same. In fact in Narok South more people (32.2%) spent more than four hours getting water. This percentage is higher than those spending less than half an hour to source the product. In Bomet district however, those who used spring water take less than half an hour to get water. This may suggest that the water situation is more acute in Narok South than it is in Bomet.

**Figure 16: Time taken to get spring water by District**



Despite the above observations, the time taken to fetch water from either a pond or a river is the same in both the districts. A majority took less than one hour to get the water in both the districts.

**Figure 17: Time taken to get River/Pond water by District**





### 5.1.4 Water quality, Safety and Reliability

The reliability of water varied by source, with mostly spring water and rivers/ponds having good to excellent pressure. Community wells were mostly good or fair.

**Table 3: Reliability in terms of Pressure**

	excellent	good	fair	Poor	varies
W Spring	29.7	33.0	8.1	26.5	2.7
River/ Ponds	38.7	19.7	10.9	27.0	3.6
Public taps or hand pumps from other villages	0.0	0.0	0.0	100.0	0.0
Community wells	28.4	38.8	23.9	9.0	0.0

The taste of water also varied across the divide. Most respondent thought that borehole water was excellent. Over 75% of those who use spring water referred thought it was good or excellent. Water from the rivers was however termed as fair or poor (57%). Those who use community wells however termed the water as good in taste.

**Table 4: Taste of water from different Sources**

	Excellent	Good	Fair	Poor	Varies
Borehole	100.0	0.0	0.0	0.0	0.0
W Spring	35.5	55.4	5.4	2.7	1.1
River/ Ponds	9.6	29.6	16.3	40.7	3.7
Public taps or hand pumps from other villages	100.0	0.0	0.0	0.0	0.0
Community wells	4.4	63.2	8.8	14.7	8.8

Spring water was termed as clear whereas water from the rivers was either clear or brown.

Nearly three quarters of those sourcing their water from the community well found the water to be clear with a few terming it either cloudy or brown.

**Table 5: Colour of Water from different Sources**

	Clear	Cloudy	Brown	Other
Borehole	100.0	0.0	0.0	0.0
W Spring	96.9	1.0	1.5	0.5
River/ Ponds	44.3	9.2	46.6	0.0
Public taps or hand pumps from other villages	0.0	100.0	0.0	0.0
Community wells	70.6	14.7	13.2	1.5

For the smell, those using spring water termed the water as good whereas those who had rivers/ponds found the water to either be good or poor. Otherwise community wells were termed as good by the majority with a few terming the source as either having a bad smell or a smell that varies.

**Table 6: Smell of water from various sources**

	Good	Poor	Varies
Borehole	100.0	0.0	0.0
W Spring	94.7	1.6	3.7
River/ Ponds	45.8	39.7	14.5
Public taps or hand pumps from other villages	100.0	0.0	0.0
Community wells	67.6	13.2	19.1

Spring water was again found to be safe (86.1%) with only 9.1% respondents not being sure of its safety. Majority of people (67.4%) who use either river or pond water termed the water as unsafe with 29.5% finding the water to be ok. For those who use community well, their opinion varied with 42.6% terming the water as safe with a near equal number of 39.7% terming it as unsafe whereas also a good percentage (17.6%), as opposed to other sources, not being sure of the safety of wells.

**Table 7: Safety of Water from different Sources**

	Safe	Unsafe	Not sure
Borehole	0.0	0.0	0.0
W Spring	86.1	4.3	9.1
River/ Ponds	29.5	67.4	3.0
Public taps or hand pumps from other villages	100.0	0.0	0.0
Community wells	42.6	39.7	17.6

Generally in terms of quality, safety and reliability, spring water is therefore of good quality based on the views of people who use the sources. Community wells were also found to be of good quality based on the different opinions of those who use them. Even though rivers/ponds were reliable, it had lower quality compared to other sources. The results show that despite spending a lot of time to get the commodity, people in Narok South had good quality water compared to their counterparts in Bomet district who spent fewer hours to access the commodity but had low quality water.

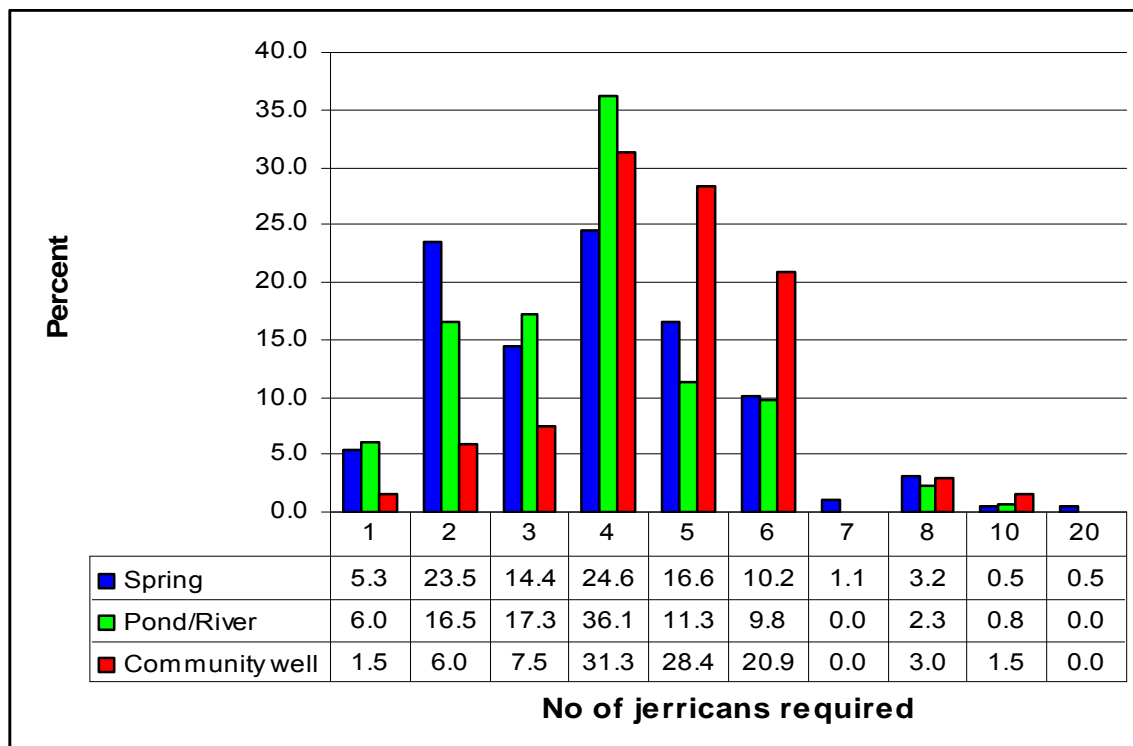
#### 5.1.5 Payments for Use of Water

For those who pay to fetch water, there were various modes of payment they were given to choose. These included pay as you fetch, flat fee per month, fees based on household size, and no charge. Out of these, there were only two options that came out - people either paid as they fetched or the fee was based on household size as provided in the table below (figures outside the parentheses represents number). Most people who got their water from the spring paid depending on the household size. Also people who got water from community wells paid a fee based on household size. Respondents did not answer the amount of fee they pay for the use of water. From Table 8 below, 165 using springs reported having made payments, only 2 respondents reported making such payments for river/ponds, and 61 households paid for community wells.

*Table 8: Modes of water payments*

	Pay as you fetch	Fee based on household size
W Spring	1 (0.6%)	165 (99.4%)
River/ Ponds	1 (33.3%)	2 (66.7%)
Public taps or hand pumps from other villages	2 (100%)	
Community wells	1 (1.6%)	61 (96.8%)

Otherwise the daily water requirements for households varied with majority requiring between two to six 20 litre jerricans per day. The figure below gives the distribution of water requirement per household per day from various sources. The majority of households interviewed required four jerricans of water (about 80 litres) per day.

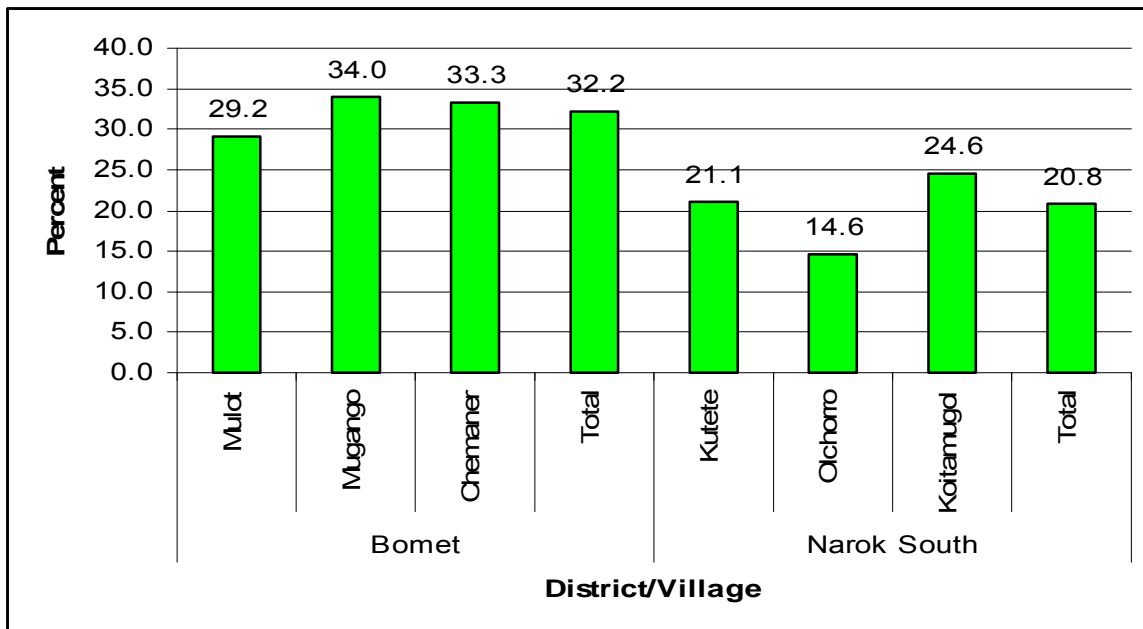
**Figure 18: Number of jerricans required per day per household**

There are various domestic water use requirements such as drinking, washing, bathing and cooking. Asked about usage of water from different sources, respondents indicate that they use the water obtained from a single source for all their main domestic needs.

#### 5.1.6 Water Storage and Sanitation

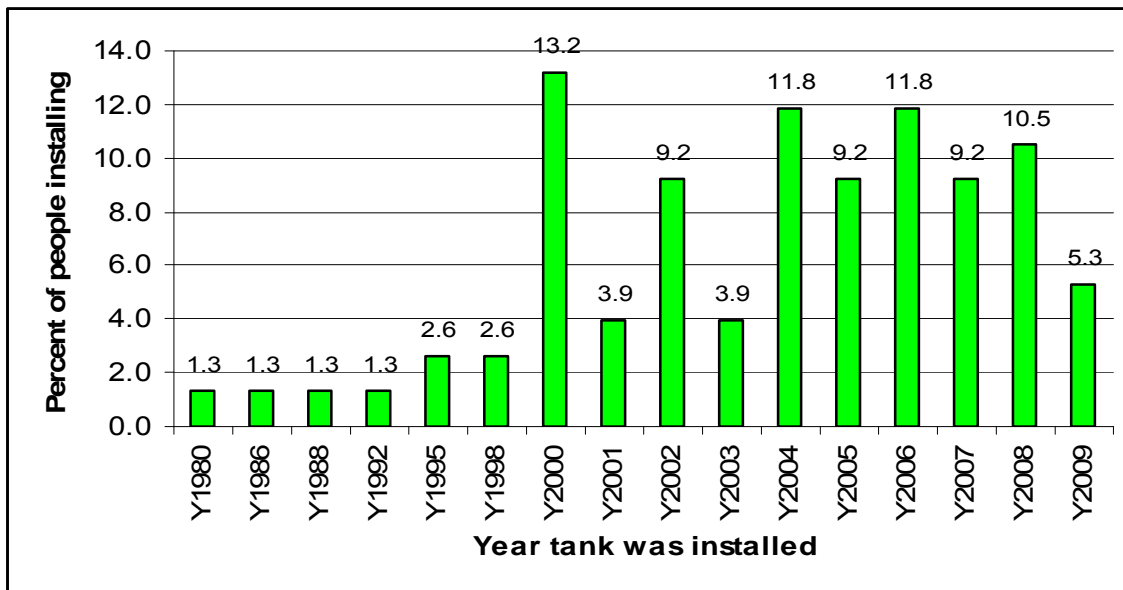
The survey also asked respondents if they have invested in rain water storage. There were more rain water tanks in Bomet district (32.2%) than in Narok South District (20.8%). In both cases, the majority of the respondents have not invested in water storage tanks. It should be remembered that Bomet district had the highest number of respondents fetching water from rivers and also spending less time to draw it. Equally the district also has the highest number of rain water tanks. This may be as a result of quality concerns judging from the fact that river/pond water had poor quality compared to spring water. In Narok South District, Koitamugol village (which had a high dependency on spring water) has the highest percentage of people with rain water tanks (24.6%) compared to other villages. This might be explained by the difficulty in accessing spring water as seen from the long hours taken in getting spring water.

**Figure 2: Ownership of rain water storage tank**



As seen in Figure 20, most of the water tanks were installed between the year 2000 and 2009.

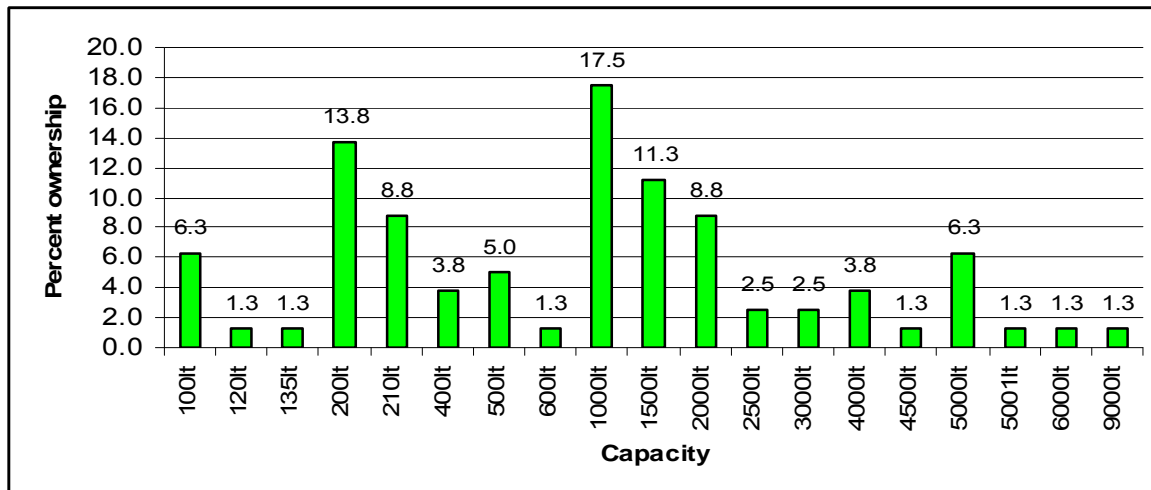
**Figure 3: Year of Installation of water storage tanks**



The distribution of the storage capacity of the tanks varied with majority having between 200 litre tanks to 2000 litre tanks. The 1000 litre tank was the most common (17.5%). In

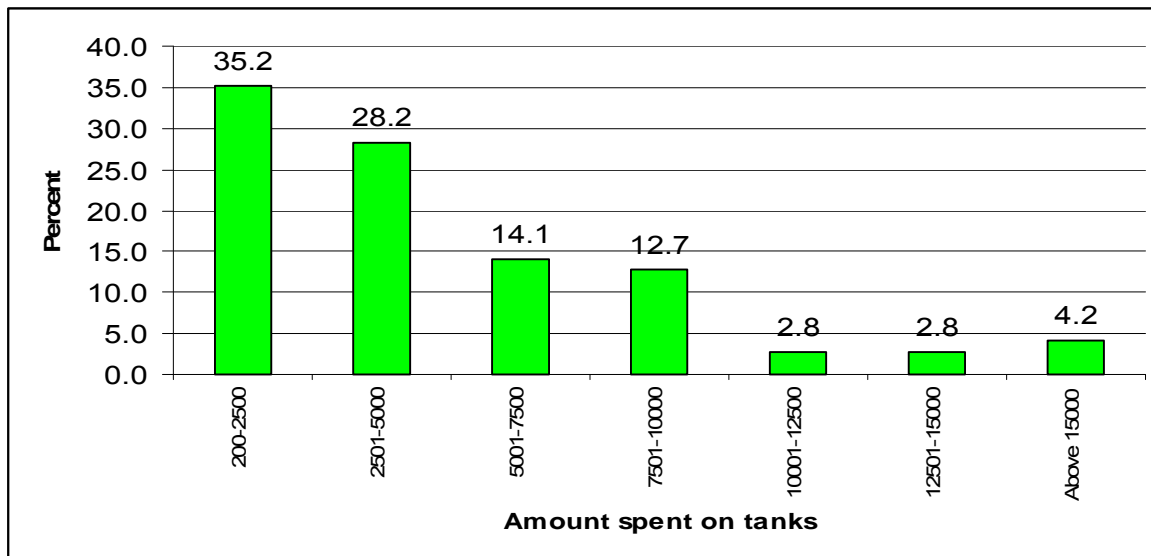
occasions where the household had a storage tank, the water was used preserved for drinking purpose only.

**Figure 4: Sizes of rain water storage tanks**



As shown in Figure 22, the amounts spent on rain water tanks diminished with the cost of water tanks. Fewer people spent more than KShs 10,000 on rain water tanks otherwise majority spent up to KShs 5,000 on rain water tanks.

**Figure 22: Amounts spent on rain water tanks**

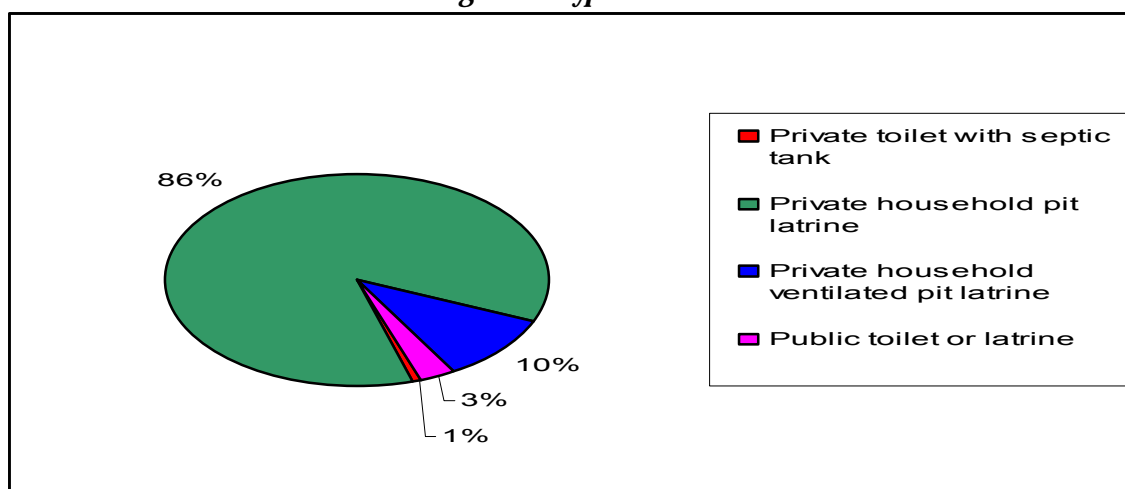


The vast majority (96.0%) did not have to borrow these amounts to install the tanks. Only about 4.0% indicated having borrowed to install the tanks. Most people have borrowed but without any intention of installing a water tank.

### 5.1.7 Sanitation Services/Practices

Most people (86%) used private household latrines which were not ventilated. 10% however had ventilated household latrines. About 4% indicated having no latrines.

*Figure 23: Type of latrine*



Despite majority sourcing their water from the river which they regarded as unsafe, nearly half the population do not treat the water they use. About 52% of the respondents indicated that they do not treat their water while the rest did (see Table 9 below).

*Table 9: Whether treated water*

	Frequency	Percent
Yes	138	44.5
No	162	52.3
For some household member but not for others	10	3.2
Total	310	100

For those who treat water, 73.0% do filter, 42.6% boil whereas 14.2% do add chemical to water. Please note that the percentages add to more than 100% because of multiple responses i.e. there were those who treat in more than one way.

### 5.1.8 Group Membership

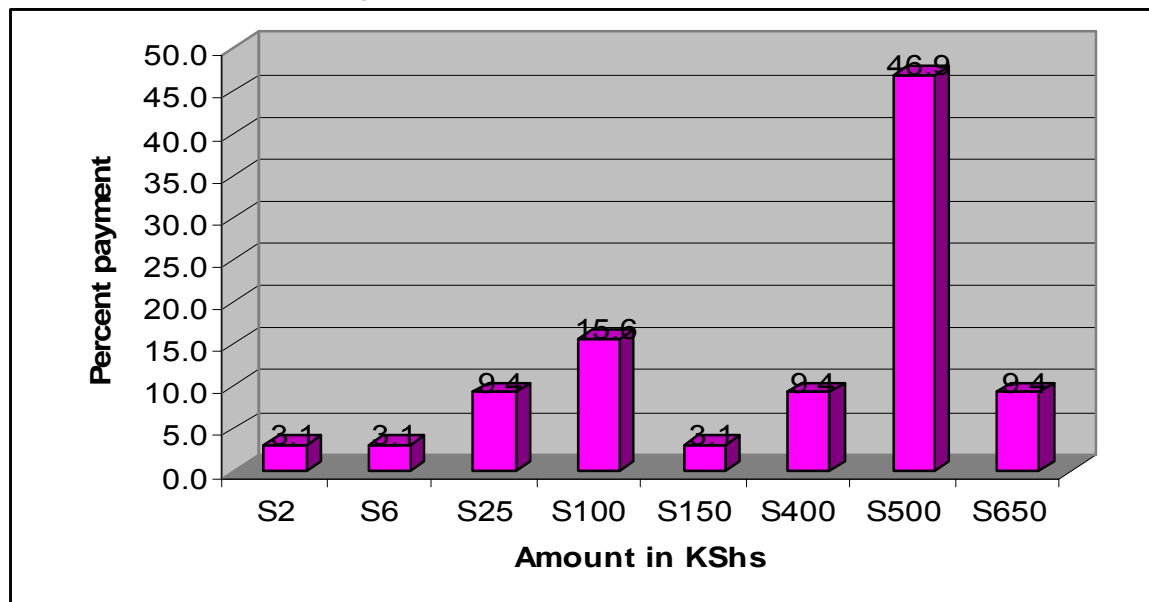
Only two community water groups were mentioned by the respondents in Aoonet and Mulot. Aoonet was mentioned by 33 respondents representing 10.5% and Mulot was mentioned by 4 people representing only 1.3% of the respondents. The remaining 278

respondents representing 88.3% did not respond to the question of their membership to any community water group.

Regarding membership fees, only 9.8% of respondents had paid a fee. About 5% responded not having paid and 85% did not respond to this question. The payments of the fees might have something to do with the registration status the community water group and the lack of capacity and structures to enforce the regulations.

For those who had paid some membership fee, 46.9% had paid membership fee of KShs 500 followed by 16% who had paid KShs 100 and 9.4% for both KShs 400 and KShs 650.

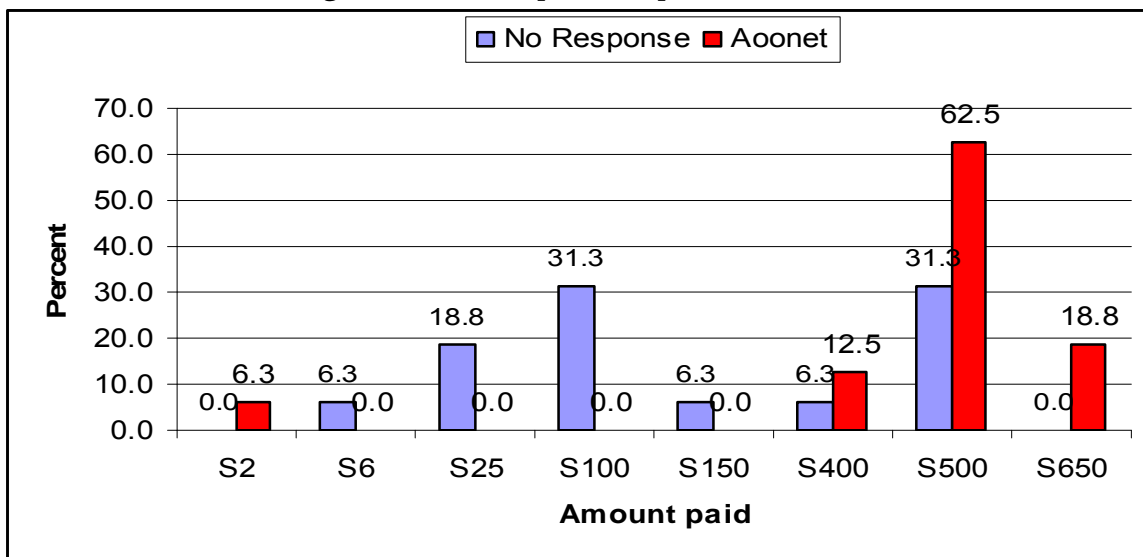
*Figure 24: Amounts paid as membership fees*



To check whether payment was pegged to groups, a cross tabulation between group and payment was done. It revealed that even those who did not mention any group had paid at least some membership fee. For those who did not respond to the question of group, 31.3% had paid KShs 100 and KShs 500.



**Figure 25: Membership fee/Group cross tabulation**

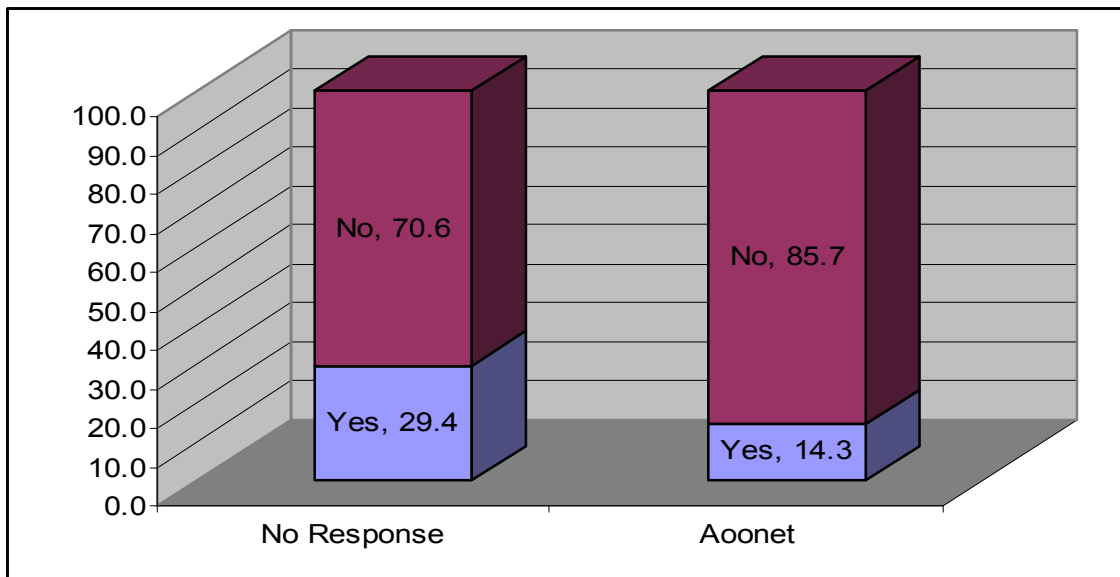


**5.1.9 Committee Membership**

About 45 respondents indicated that they were committee members. 20% indicated that a member of their household was also a committee member.

Out of the nine who mentioned belonging to any committee, 4 (44.4%) were from Aoonet whereas 5 (55.6%) respondents who did not mention any group also mentioned belonging to some committee.

**Figure 26: Committee membership/Group Cross tabulation**



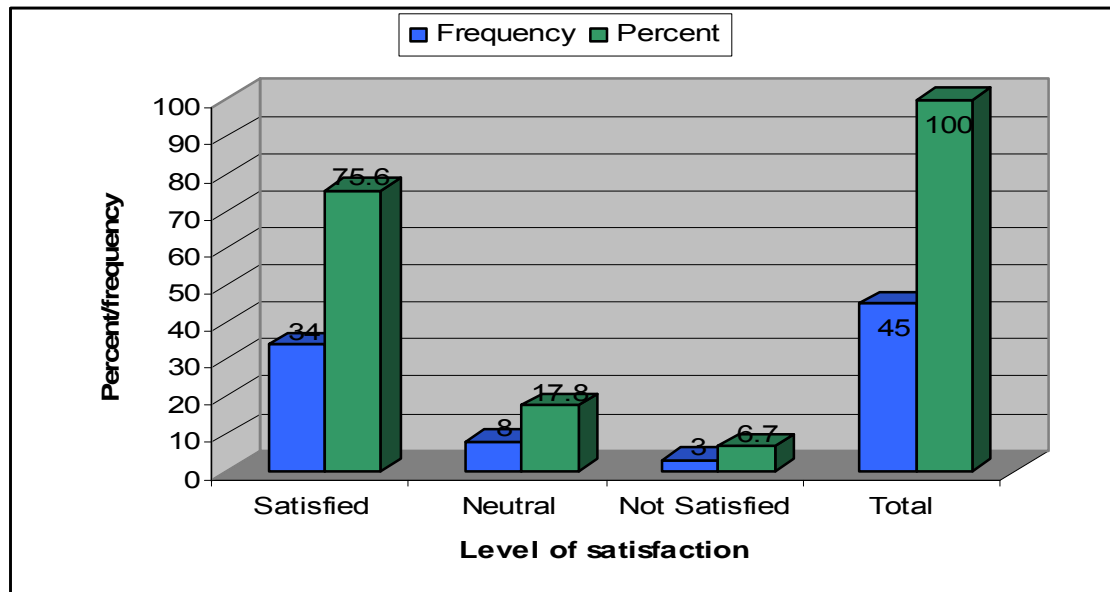
Respondents were asked whether they know what happens or what is discussed in the committee meeting. Only 45 people responded to this question. Of those who responded, 30% knew what happens sometimes whereas 38% knew what happens most of the time and 32% did not know what happens totally.

Out of the thirty people who had some knowledge of committee proceedings, 40.0% had attended the meeting only once in the past one year. 36.7% had attended from two to four meetings, and 13.3% had not attended any meeting.

#### 5.1.10 Levels of Satisfaction

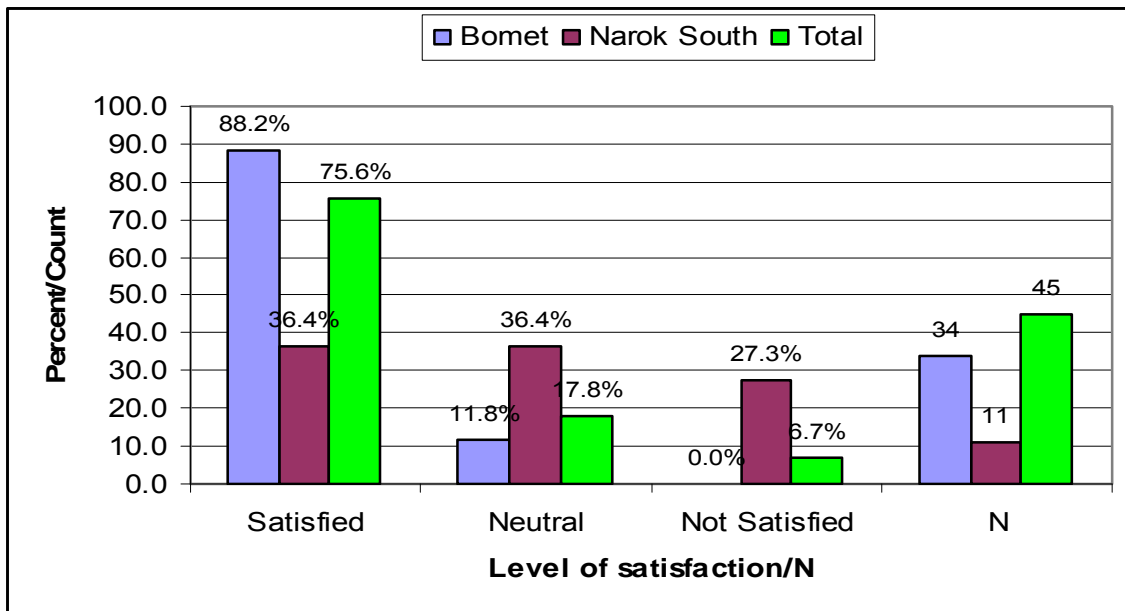
Respondents were asked whether they were satisfied with the maintenance of water services. A total of 45 people responded to this question with 34% being satisfied, 8% neutral and 3% not satisfied.

*Figure 5: Satisfaction with the maintenance and repair of water services*



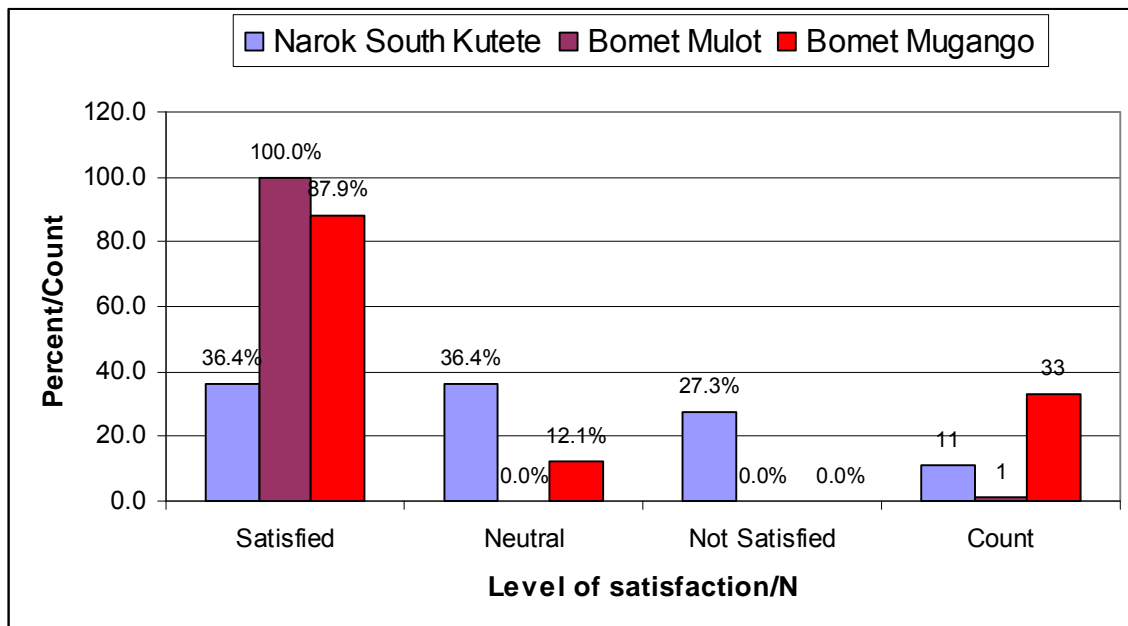
Out of the 45 who responded to the level of satisfaction, 34 were from Bomet and 11 from Narok South. People from Bomet had a higher satisfaction (88.2%) than in Narok South (36.4%). Otherwise more people in Narok South were dissatisfied (27.3%) with the management of existing water resources whereas none from Bomet was dissatisfied with water resource management.

**Figure 28: District Water Management Satisfaction levels**



At the village level, only Kutete (Narok South), Mulot and Mugango from Bomet responded to the question on satisfaction levels. The results are as shown in the graph below. About 36% of respondents in Kutete appeared satisfied, compared to 100% in Mulot and 88% in Mugango.

**Figure 29: Satisfaction of water maintenance at the village level**



#### 5.1.11 Trust of Water Committee Members

The question on trustworthiness of committee members was answered by only 44 respondents. The rest did not divulge their views, which is rather surprising. Out of the responses, 86.4% said they were trustworthy and only 6.8% saying they were somehow trustworthy. Otherwise 8.0% did not know or were not sure.

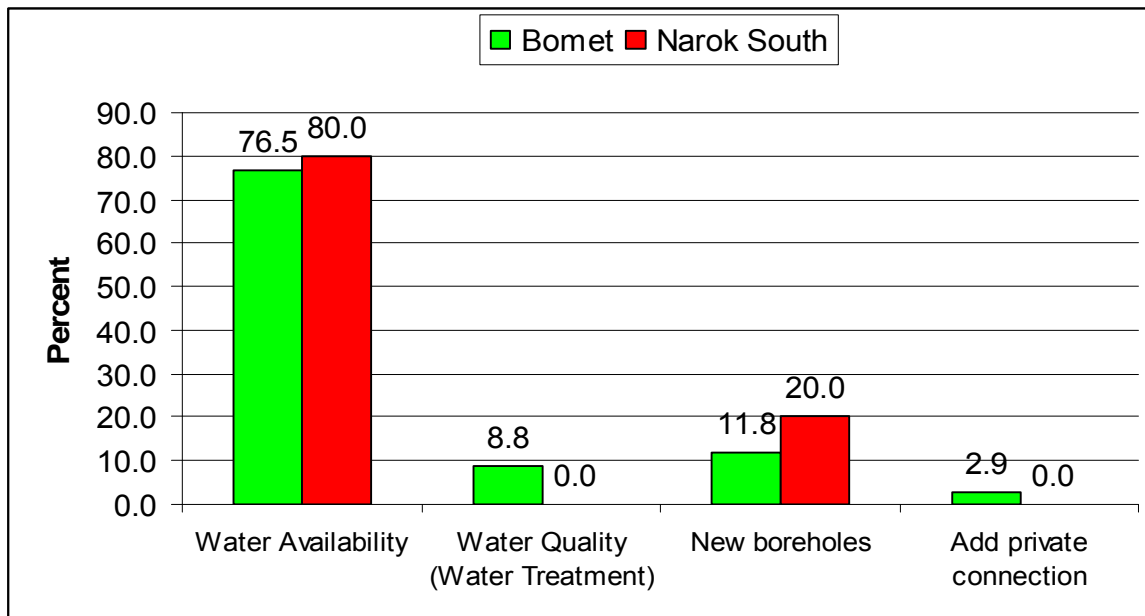
Regarding the management of committees, 80% were satisfied and 18% were neutral leaving only 2% not being satisfied with the way the committee is managed.

#### 5.1.12 Immediate Areas for Water Improvements

The most important improvement to the water system was improving the water availability (77.3%) followed by new boreholes (13.6%), water quality (6.8%) and finally addition of private connections (2.3%).

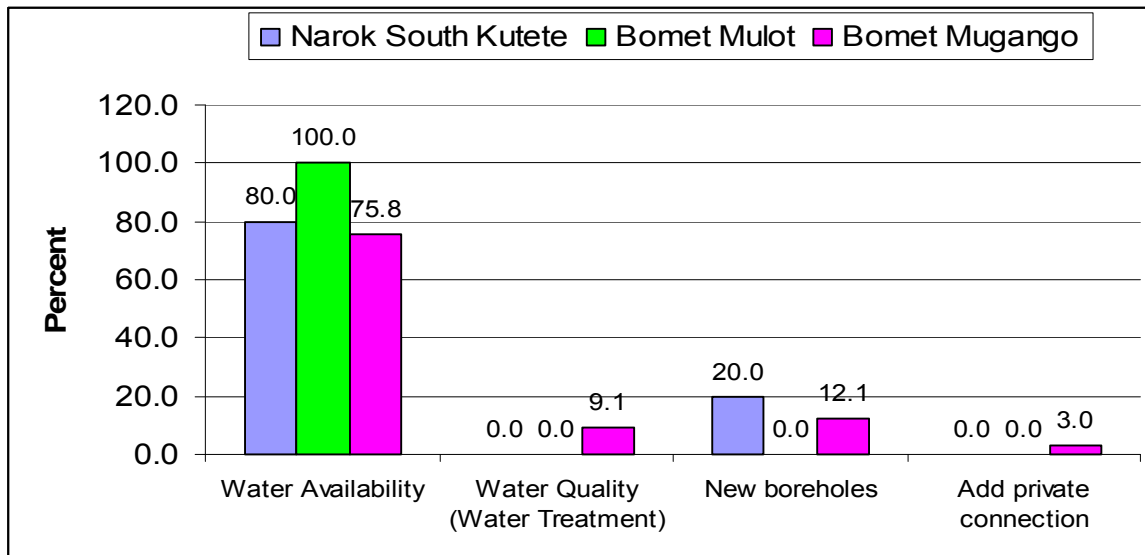
Water availability (continuous availability of water across different seasons) seemed to be an issue in the two districts with most respondents indicating that there should be the most important improvement. Water quality was, however, a concern only in Bomet district. This is based on the fact that they draw most water from the rivers or ponds and at the same time complained of the relatively poor quality of water. Respondents in Narok South also wanted more boreholes as compared to their counterparts in Bomet. Only about 3% of the respondents in Bomet indicated that a private connection would be the most important improvement.

**Figure 6: Most Important Improvement Required**



At the village level, only Kutete from Narok South had problems with water availability whereas in Bomet district these seemed to be the problems of Mulot and Mugango.

**Figure 31 Most important Improvement at the village level**



**5.1.13 Contribution towards Maintenance or Repair of the system**

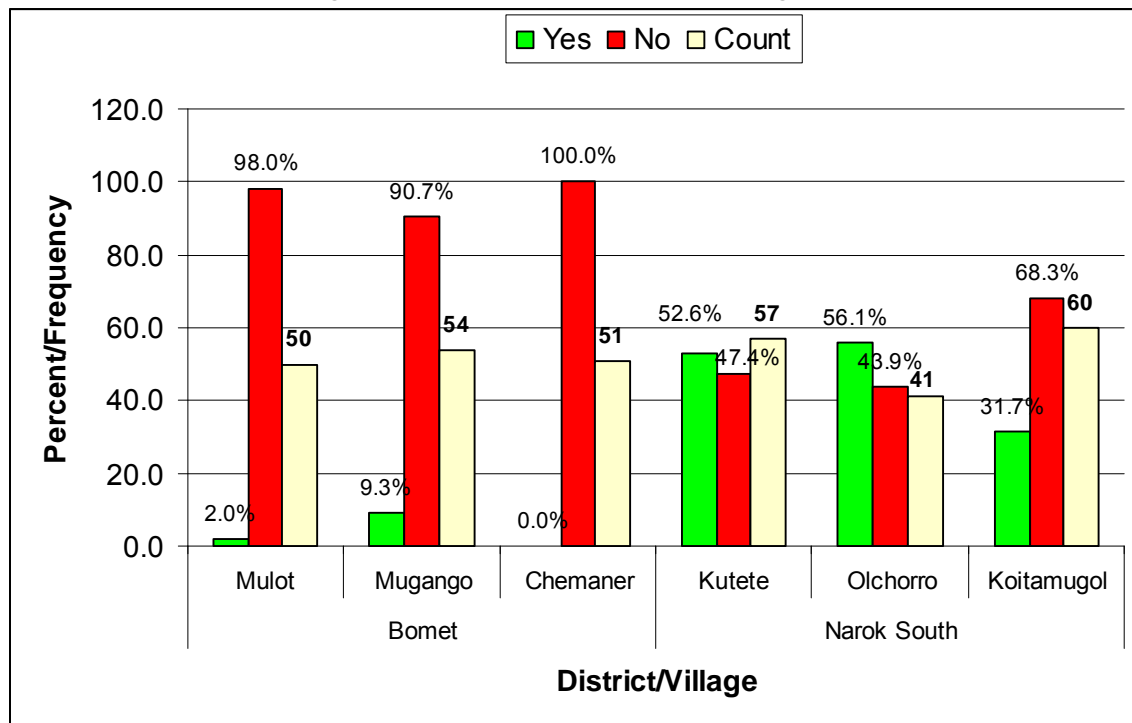
Respondents were asked whether they have ever contributed anything towards repair of the system. Only 39 respondents responded to this question and out of that, only two (5%) had contributed something and the remaining 37 (95%) had not contributed anything. This

might imply that the majority of the respondents have never contributed towards maintenance of water infrastructure in their communities. It might also imply that the majority of the households have the potential of engaging or perpetuating illegal access to community water resources.

#### 5.1.14 Attendance of Community meeting

Respondents were also asked whether they had attended the Focus Group Discussions meeting to discuss water improvements. Only 78 people (25%) had attended the meeting while 235 (75%) had not attended.

**Figure 32: Committee attendance at the village level**



## 6. HOUSEHOLD INCOME, ASSETS AND EXPENDITURES

### 6.0. Household Incomes

Regular incomes are important for sustaining repayments for loans or other financial obligations incurred by households. Most respondents (66%) reported having a monthly income in the range of kshs 2500-10,000. Many are concentrated in the monthly income range of kshs 2500-5000. The income distribution for the two districts combined is reported in the table below.

*Table 10: Average monthly income*

	Frequency	Percent
500-2500	25	8.0
2501-5000	105	33.8
5001-7500	46	14.8
7501-10000	53	17.0
10001-12500	9	2.9
12501-15000	25	8.0
15001-17500	3	1.0
17501-20000	13	4.2
Above 20001	32	10.3
Total	311	100

In the table below, we examine the distribution of incomes in the two districts. Nearly half the respondents from Narok South had average monthly income of less than 5,000 shillings whereas in Bomet district, just a quarter had an average income less than 5,000 shillings. Respondents in Bomet district had higher incomes at all levels than their counterparts in Narok South.

*Table 11: Average monthly income; District Analysis*

	Bomet	Narok South	Total
500-2500	5.9	10.1	8.0
2501-5000	20.3	46.8	33.8
5001-7500	16.3	13.3	14.8
7501-10000	21.6	12.7	17.0
10001-12500	3.3	2.5	2.9
12501-15000	10.5	5.7	8.0
15001-17500	2.0	0.0	1.0
17501-20000	5.9	2.5	4.2
Above 20001	14.4	6.3	10.3
Count	153	158	311

At the community levels majority low income respondents are in Mulot village in Bomet district whereas in Narok South, the low incomes respondents are mostly in Kutete and Olchorro. The highest monthly income earners of above kshs 20,000 are found in Mugango (24%), followed by Kutete (10.7%) and Chemaner (10%) of the respondents.

**Table 12: Average monthly income: Village level Analysis**

Kshs	Bomet District			Narok South District			Total
	Mulot	Mugango	Chemaner	Kutete	Olchorro	Koitamugol	
500-2500	12.2	3.7	2.0	7.1	9.8	13.1	8.0
2501-5000	36.7	13.0	12.0	50.0	58.5	36.1	33.8
5001-7500	10.2	13.0	26.0	12.5	12.2	14.8	14.8
7501-10000	14.3	18.5	32.0	14.3	9.8	13.1	17.0
10001-12500	2.0	3.7	4.0	1.8	0.0	4.9	2.9
12501-15000	8.2	16.7	6.0	3.6	4.9	8.2	8.0
15001-17500	4.1	0.0	2.0	0.0	0.0	0.0	1.0
17501-20000	4.1	7.4	6.0	0.0	2.4	4.9	4.2
Above 20001	8.2	24.1	10.0	10.7	2.4	4.9	10.3
Count	49	54	50	56	41	61	311

Most of the respondents (78%) did not reveal their sources of income. This indecision may be explained by the eclectic or irregular nature of some household incomes, with different household members declining to associate their incomes with any source. For those who revealed, farming (19%) was indicated as the main source.

Very few respondents (1%) reported having received remittance from members of the family leaving elsewhere.

Respondents were asked about variation of their incomes in the last two years. Incomes of respondents have not varied much over the last two years. About 18.2% reported that their incomes had varied a lot, whereas 44% did not experience much variation. This shows that their incomes have been stable in the last few years.

**Table 13: Income Variation**

	Frequency	Percent
Very	116	38.3
Somewhat	132	43.6
A lot	55	18.2
Total	303	100



### 6.1. Ownership of Assets

Ownership of family assets reflects the wealth status of a household and may be very important in hedging against the risks associated with loans. Majority (89.1%) owned at least a radio, about 20% owned a TV, about 3% owned a motorcycle, about 5% owned a vehicle.

*Table 14: Asset ownership Percentages*

Number/Quantity	0	1	2	3	4	5	6
Radio	7.3	89.1	3.2	0.3	0.0	0.0	0.0
Sofa	44.4	26.2	18.8	9.6	0.6	0.0	0.3
Bicycle	75.1	24.9	0.0	0.0	0.0	0.0	0.0
Television	79.6	19.2	0.6	0.0	0.0	0.0	0.6
Motorcycle	97.1	2.9	0.0	0.0	0.0	0.0	0.0
Automobile	94.9	4.8	0.3	0.0	0.0	0.0	0.0

Most of the respondents owned a parcel of land. The majority (57%) had holdings of 0.5-5 acres. About 34% of respondents had holdings of 5-10 acres.

*Table 15: Land Ownership*

	Frequency	Percent
0.5-5	178	56.7
5.1-10	107	34.1
10.1-15	21	6.7
15.1-20	5	1.6
25.1-30	1	0.3
Above 30 acres	2	0.6
Total	314	100

The structure of land holdings was the same for both Narok South and Bomet, as seen in the table below.

*Table 16: Land ownership: District analysis*

	Bomet	Narok South	Total
0.5-5	62.6	50.9	56.7
5.1-10	30.3	37.7	34.1
10.1-15	6.5	6.9	6.7
15.1-20	0.0	3.1	1.6
25.1-30	0.0	0.6	0.3
Above 30 acres	0.6	0.6	0.6
Count	155	159	314

At the community level, Mulot village in Bomet district had the highest percentage of people with land below 5 acres. In Koitamugol, the holdings are equally distributed between 0.5-5 acres and 5.1-10 acres. This might suggest that the highest holdings are found in Koitamugol.

**Table 1: Land ownership; Village Analysis**

Acres	Mulot	Mugango	Chemamer	Kutete	Olchorro	Koitamugol	Total
0.5-5	84.0	50.0	54.9	56.1	58.5	41.0	56.7
5.1-10	10.0	42.6	37.3	35.1	34.1	42.6	34.1
10.1-15	6.0	7.4	5.9	7.0	0.0	11.5	6.7
15.1-20	0.0	0.0	0.0	1.8	2.4	4.9	1.6
25.1-30	0.0	0.0	0.0	0.0	2.4	0.0	0.3
Above 30 acre	0.0	0.0	2.0	0.0	2.4	0.0	0.6
Count	50	54	51	57	41	61	314

Only a portion of the land was put under farming – about 81% of the respondents farm less than five acres. Earlier information showed that only 57% of the respondents had land below five acres. This shows that even those with over five acres farmed only a portion of their land.

**Table 2: Size of land farmed**

Acres	Frequency	Percent
0.5-5	253	81.4
5.1-10	55	17.7
10.1-15	2	0.6
Above 30 acre	1	0.3
Total	311	100

Narok South had relatively bigger sizes of land than Bomet districts. This might explain why larger proportions (20%) of the land size 5-10 acres were under farming compared to Bomet's 16%.

**Table 3: Size of land farmed; district level**

Acres	Bomet	Narok South	Total
0.5-5	83.7	79.1	81.4
5.1-10	15.7	19.6	17.7
10.1-15	0.0	1.3	0.6
Above 30 acre	0.7	0.0	0.3
Count	153	158	311

The distribution of land parcels under farming in different villages is shown in table below. Comparatively, koitamugol has larger cultivated farm sizes, followed by Chemaner, Mugango and Kutete.

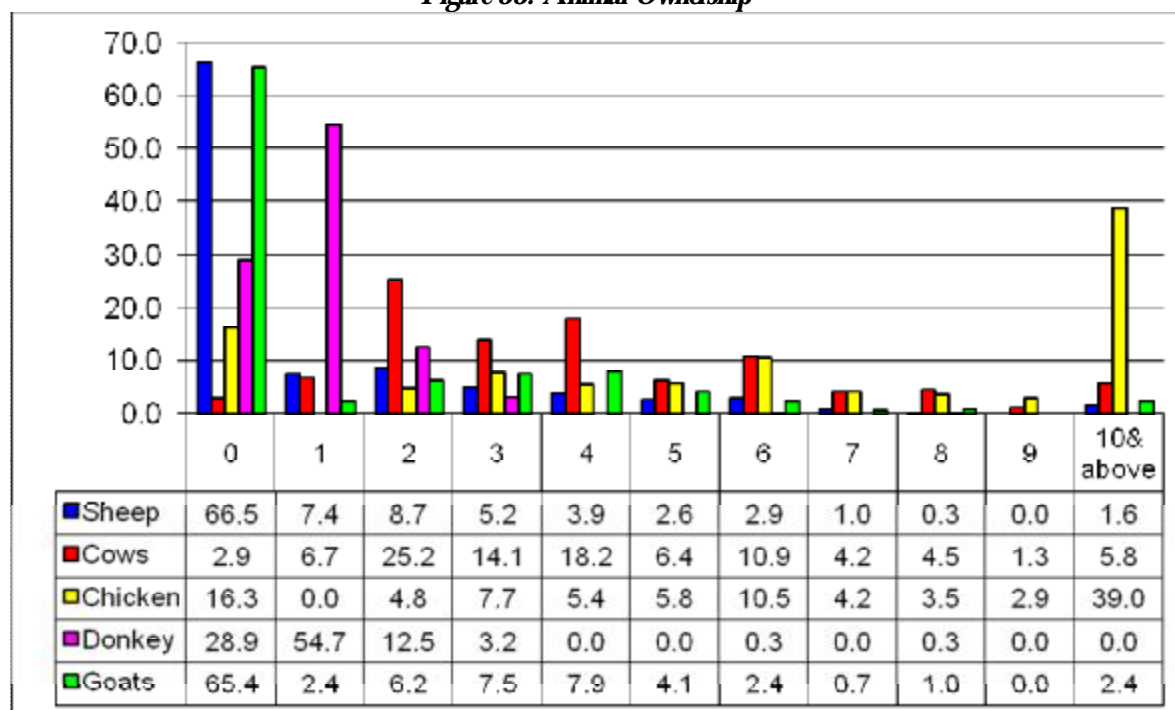
*Table 4: Size of land farmed; Village analysis*

	Bomet			Narok South			
Acres	Mulot	Mugango	Chemaner	Kutete	Olchorro	Koitamugol	Total
0.5-5	91.8	81.1	78.4	85.7	85.4	68.9	81.4
5.1-10	6.1	18.9	21.6	14.3	14.6	27.9	17.7
10.1-15	0.0	0.0	0.0	0.0	0.0	3.3	0.6
Above 30 acre	2.0	0.0	0.0	0.0	0.0	0.0	0.3
Count	49	53	51	56	41	61	311

None of the respondents has electricity connection from Kenya Power and Lighting Company. However 9% of the respondents had private generators.

The distribution of livestock ownership is provided below. About 97% of the respondents do own cows – most them own between 2-6 cows; about 84% do own chicken (39% of these have 10 than 10), 71% own donkeys.

*Figure 33: Animal Ownership*



## 6.2. Monthly Expenditures

Households may not be forthright in divulging their sources of income, however details of monthly expenditure could be useful in revealing lifestyles and thereby income levels enjoyed by households. The pattern of expenditures is also important in showing that latitude available for households to cut down non-essential spending in times of financial crisis. Such information is very important for microcredit decisions. Food formed the major part of expenditure with 42.5% spending between 500-2500 and another 48.3% spending between 2501-5,000 shillings. Expenditure on phone also seemed to be high with majority (40.6%) spending between 500-2500 per month. Transportation also formed a major cost with 66.0% spending between 500-2500 shillings per month on transport. Most respondents spend less than kshs 500 on water.

*Table 5: Monthly Expenditure on various items*

	Below 500	500- 2500	2501- 5000	5001- 7500	7501- 10000	10001- 12500	12501- 15000	15001- 17500	17501- 20000	Above 20001
Food	1.6	42.5	48.3	6.0	1.0	0.3	0.0	0.0	0.0	0.3
Water	99.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phone	55.9	40.6	2.9	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Housing	99.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation	29.2	66.0	3.8	0.3	0.0	0.3	0.0	0.0	0.0	0.0
Health	57.5	41.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquor	96.8	2.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Education	24.4	59.4	12.1	1.6	1.9	0.3	0.0	0.0	0.0	0.0
Church	79.4	20.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	0.0	12.9	30.6	23.5	17.1	6.8	2.9	2.3	2.3	1.6

Total expenditure was then analysed at the district and village level. Nearly half the people in Narok spend less than 5,000 shillings per month which conforms to responses given for monthly income.

**Table 6: Total expenditure; District Analysis**

Kshs	Bomet	Narok South	Total
500-2500	9.9	15.7	12.9
2501-5000	25.8	35.2	30.6
5001-7500	23.2	23.9	23.5
7501-10000	21.2	13.2	17.1
10001-12500	7.3	6.3	6.8
12501-15000	4.0	1.9	2.9
15001-17500	3.3	1.3	2.3
17501-20000	3.3	1.3	2.3
Above 20001	2.0	1.3	1.6
Count	151	159	310

At the village level, villages in Narok South spent less than their counterpart villages in Bomet district. This finding is also in conformity with the reported incomes which are higher in Bomet.

**Table 7: Total Expenditure; Village Analysis**

	Mulot	Mugango	Chemaner	Kutete	Olchorro	Koitamugol	Total
500-2500	18.8	11.1	0.0	19.3	19.5	9.8	12.9
2501-5000	33.3	22.2	22.4	36.8	36.6	32.8	30.6
5001-7500	16.7	20.4	32.7	19.3	26.8	26.2	23.5
7501-10000	12.5	20.4	30.6	14.0	12.2	13.1	17.1
10001-12500	6.3	5.6	10.2	1.8	2.4	13.1	6.8
12501-15000	8.3	1.9	2.0	3.5	0.0	1.6	2.9
15001-17500	0.0	9.3	0.0	0.0	0.0	3.3	2.3
17501-20000	4.2	3.7	2.0	1.8	2.4	0.0	2.3
Above 20001	0.0	5.6	0.0	3.5	0.0	0.0	1.6
Count	48	54	49	57	41	61	310

### 6.3. Household Welfare Levels

Household welfare levels indicators are important in reflecting the extent of economic vulnerability of households in the last one year. Respondents were asked if ever, in the last one year, they have gone without the following essentials in life. Overall, 29% of the respondents report that they have gone without enough food to eat either several or many times. About 49% report that they have gone without enough clean water for home use several or many times. About 43% of the respondents indicate that they have gone without medicine or medical treatment; about 11% have gone without enough food to eat; about 45% have gone without a cash income; and finally, about 42% have gone without school fees. These findings suggest that clean water, medicine and cash income are some of the most serious constraints in the study area.

*Table 24: Basic needs*

	Never	Just once of twice	Several times	Many times	Always	No children /No Access
Enough food to eat	49.4	21.5	17.9	11.2	0.0	0.0
Enough clean water for home use?	23.1	28.2	30.4	18.3	0.0	0.0
Medicine or medical treatment?	26.3	31.1	34.0	8.7	0.0	0.0
Enough fuel to cook your food	47.1	41.6	11.0	0.3	0.0	0.0
Gone without a cash income	14.5	40.5	29.9	14.8	0.3	0.0
Gone without school fees	12.9	35.0	30.9	11.9	0.0	9.3

Respondents were also asked about their future prospects, most of them are optimistic about the future. About 52% expect some improvements in incomes.

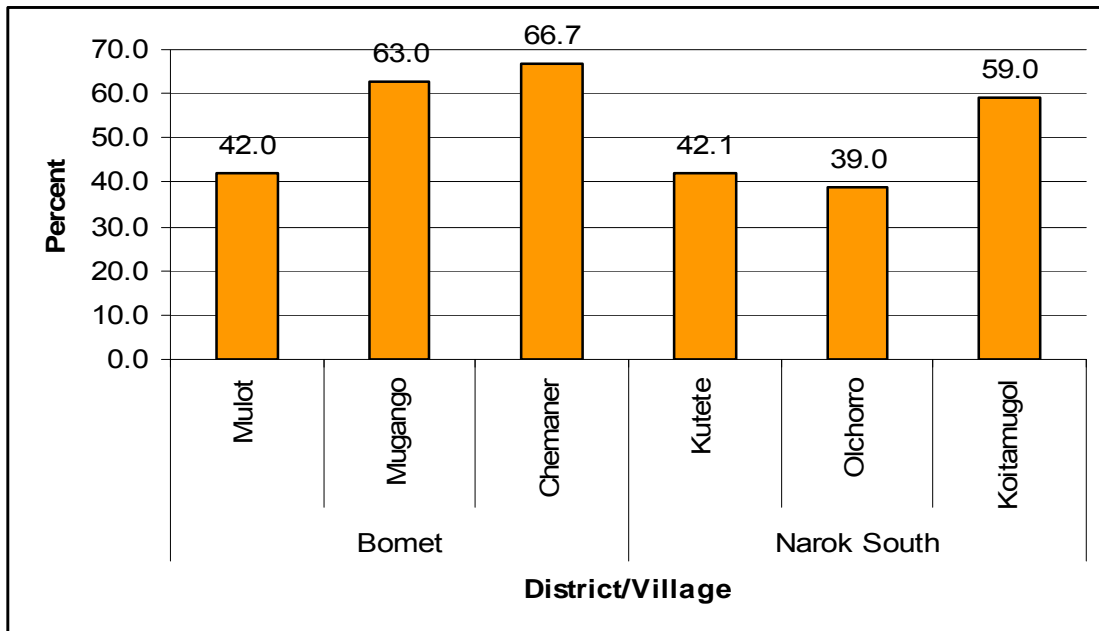
*Table 8: Improvement of income*

	Frequency	Percent
Improve a lot	45	14.5
Improve a little	149	47.9
Stay the same	65	20.9
Decline somewhat	40	12.9
Get much worse	12	3.9
Total	311	100

## 6.4 Savings and Borrowing Behaviour

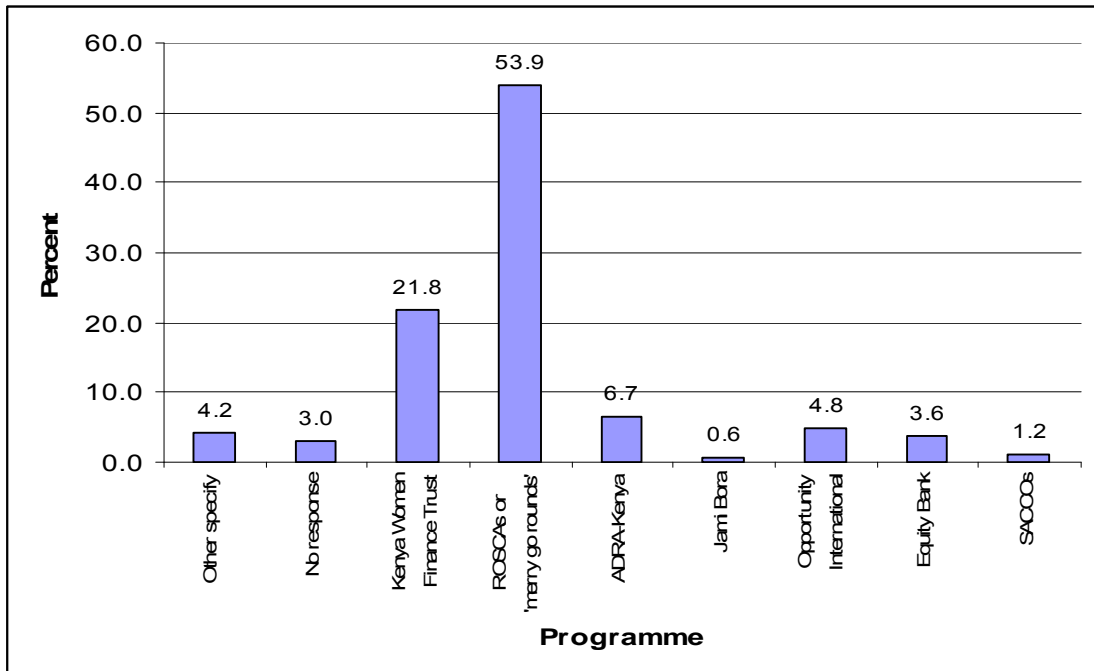
About half (55%) of the respondents were in savings groups with Bomet having 57.4% and Narok South 47.5% of their respondents belonging to a savings group. The chart below gives the distribution of savings group membership among the villages. Chemaner and Mugango villages in Bomet District had the highest memberships.

*Figure 7: Membership to savings groups*



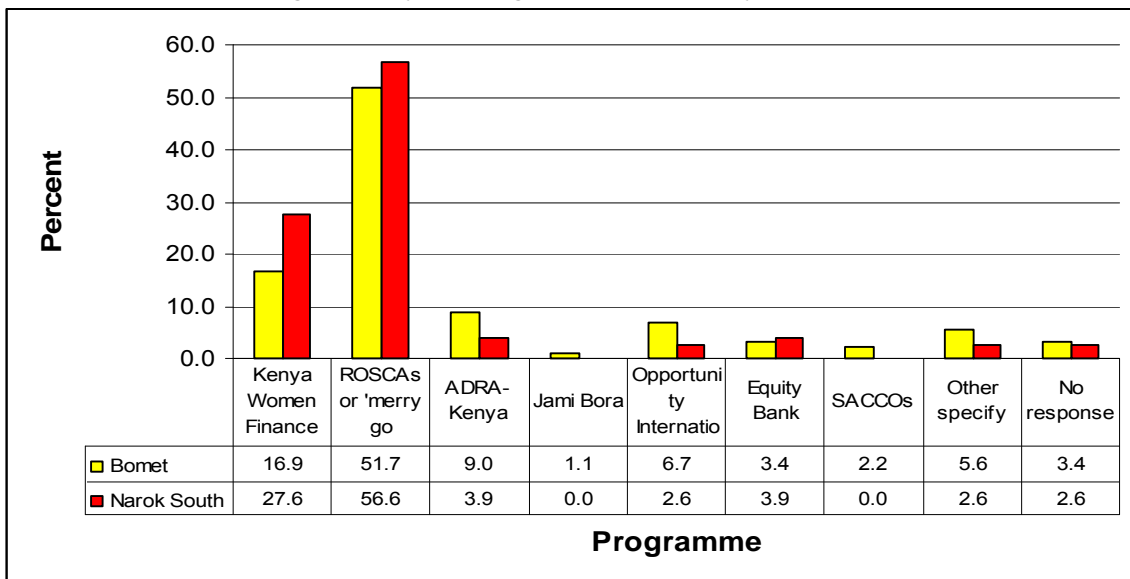
On different programmes members were involved in, majority were members of merry go rounds (53.9%). This was followed by Kenya Women Finance Trust (21.8%). The KWFT has its offices in Bomet township, with the loan products discussed in a different section.

**Figure 8: Type of Lending Programme**



The figure below shows the distribution of the savings programmes in the two districts. Most of the respondents are either in the ROSCAs (Merry Go Round) (52-57%) or have subscribed to Kenya Women Finance Trust (17-28%). This shows that a large percentage of the villagers in the two districts are not simply aware of the opportunities for but are also participating in savings groups.

**Figure 36: Type of Programme; District analysis**





KWFT was used mostly in Koitamugol village in Narok South District (44.4%), followed by Mulot, Olchoro, and Mugango. ADRA-Kenya was present in Mulot (14%) where Opportunity International were also present (9.5%).

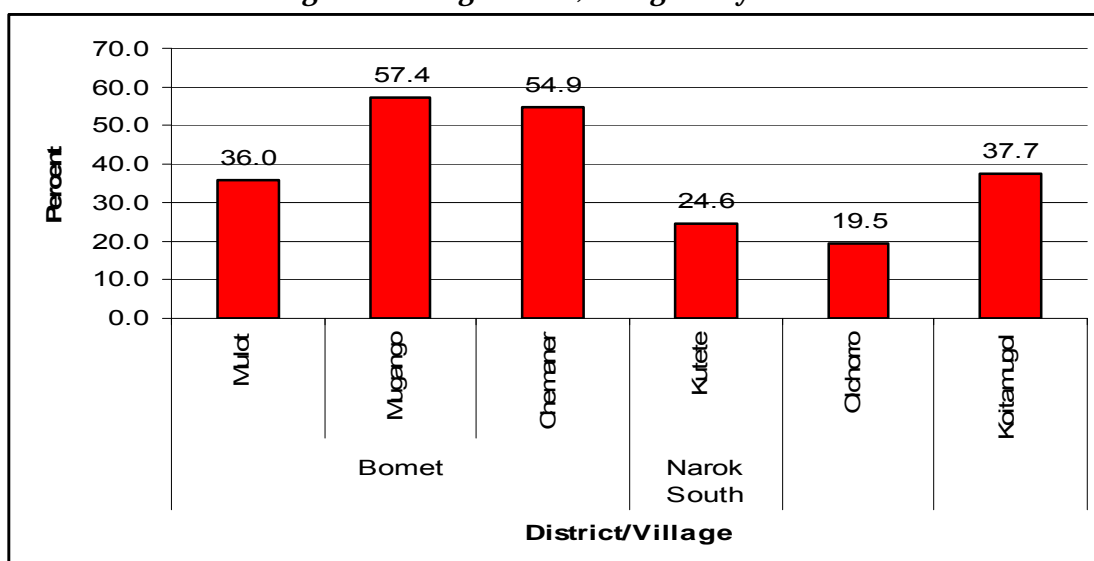
*Table 26: Programme type; Village Analysis*

	Bomet			Narok South		
	Mulot	Mugango	Chemamer	Kutete	Olchorro	Koitamugol
Kenya Women Finance Trust	19.0	17.6	14.7	8.3	18.8	44.4
ROSCAs or 'merry go rounds'	47.6	58.8	47.1	70.8	75.0	38.9
ADRA-Kenya	14.3	5.9	8.8	4.2	6.3	2.8
Jami Bora	4.8	0.0	0.0	0.0	0.0	0.0
Opportunity International	9.5	2.9	8.8	8.3	0.0	0.0
Equity Bank	0.0	2.9	5.9	4.2	0.0	5.6
SACCOs	0.0	0.0	5.9	0.0	0.0	0.0
Other specify	0.0	8.8	5.9	0.0	0.0	5.6

Nearly half of respondents from Bomet had a savings account. The percent of people with savings account were much lower in Narok district (28.3%).

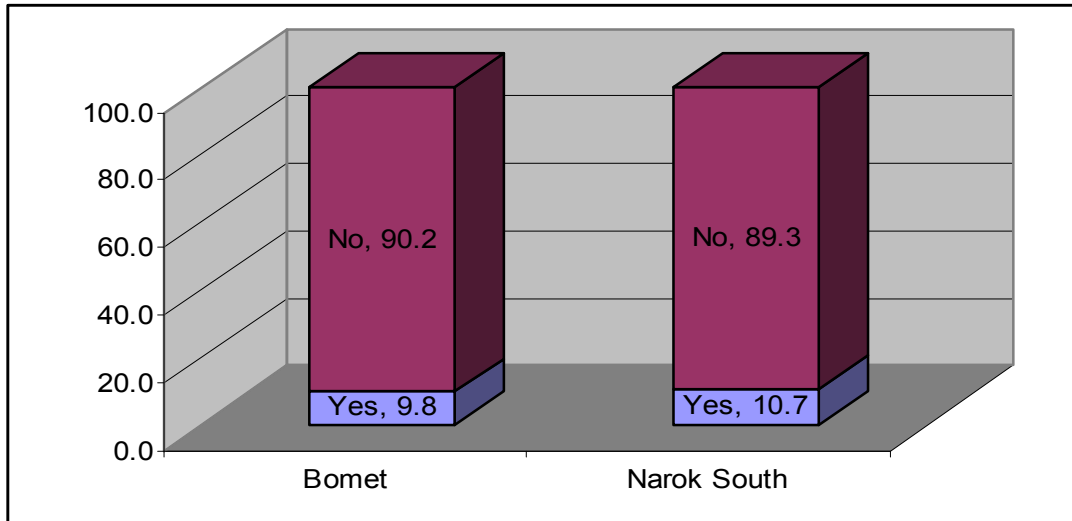
The figure below gives the distribution of the use of savings account at the village level. Mugango and Chemamer had the highest use whereas in Narok South, Koitamugol had the highest number of people using savings account.

*Figure 37: Savings Account; Village Analysis*

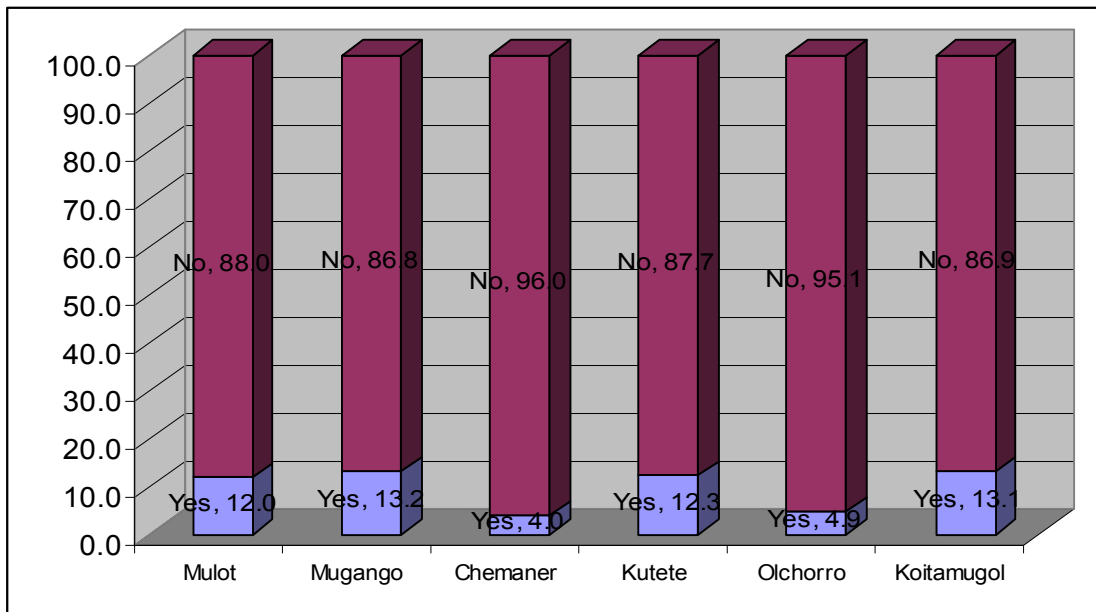


Respondents were asked whether in the past one year, they have taken a loan of over 10,000 Shillings. 10.0% (32 people) answered yes whereas 90.0% (280 people) answered no. The distributions of past loans at the district and village levels are provided in the figures below.

**Figure 9: District level past loan situation**

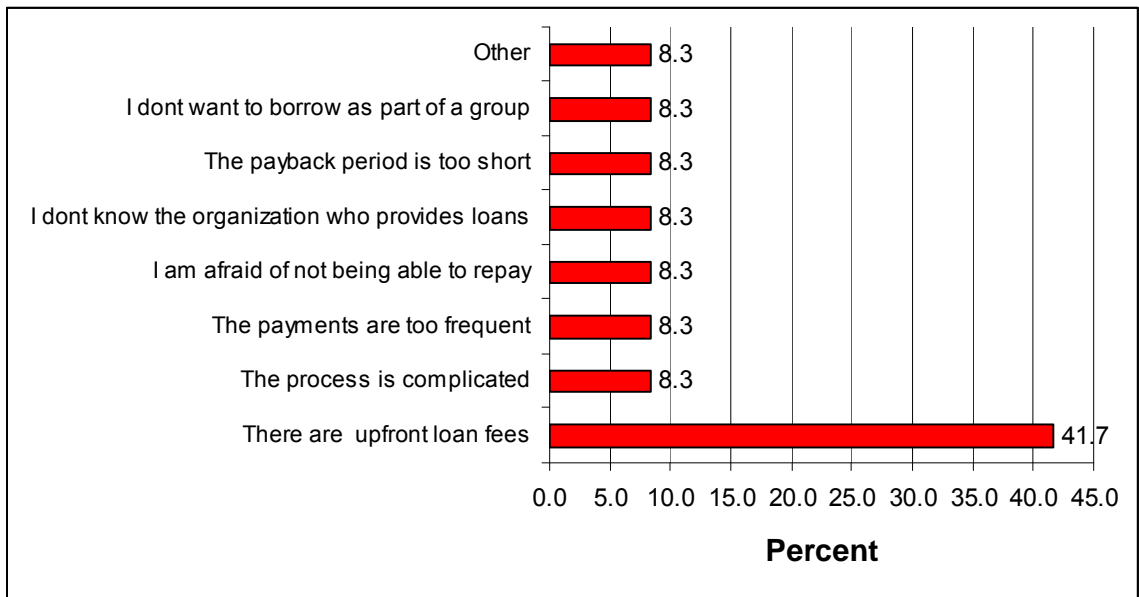


**Figure 10: Village level past loan situation**



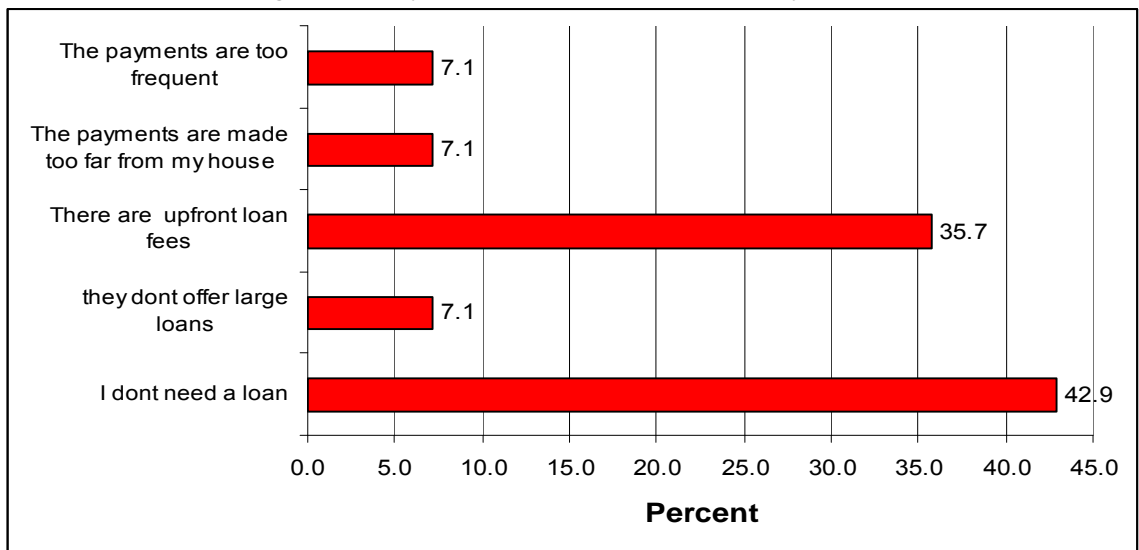
Respondents were asked if in the past two years (2007 and 2008) they would you have liked to borrow more than what they have borrowed. Of the respondents who did not wish to borrow more, the reasons cited appear in Figure 39. Many respondents (42%) do not favour upfront fees charged by the MFI.

**Figure 11: Reasons for not borrowing**



Respondents were also asked if during the past two years (2007 and 2008) they would have liked to borrow more than what you have borrowed. While most of them (43%) indicated that they don't require loans, a number of them expressed reservations (36%) about the upfront fees.

**Figure 11: Why did not want to borrow more money**



Respondents were then asked if they would take a loan under their own names versus group name. About 36.0% wanted this service and the remaining 64.0% were not keen on this. It

does appear that gender considerations were important when deciding on taken a loan under own name, with most women declining to take loans under own name.

**Table 27: Loans under own names**

Kshs	Frequency		Total	Percent
	Male	Female		
Yes	73	34	107	36.0
No	80	110	190	64.0
<b>Total</b>			<b>297</b>	<b>100</b>

The distribution at the district and village levels are given in the following tables

**Table 28: Loans under own names; District level**

Kshs	Bomet	Narok South	Total
Yes	35.1	36.9	36.0
No	64.9	63.1	64.0
N	148	149	297

**Table 29: Loans under own names; Village analysis**

	Bomet			Narok South			Total
	Mulot	Mugango	Chemarer	Kutete	Olchorro	Koitamugol	
Yes	17.4	47.2	38.8	35.8	41.7	35.0	36.0
No	82.6	52.8	61.2	64.2	58.3	65.0	64.0
Count	46	53	49	53	36	60	297

The table below gives the percentages of how much they would have liked to borrow. About 24% would have liked to borrow 50,000; about 16% would have liked to borrow 20,000 and about 15% would have liked to borrow 100,000 shillings. Overall, over 50% of the respondents would have liked to borrow between kshs50,000-100,000.

**Table 30; Amount people would like to borrow**

Kshs	Frequency	Percent
5000	2	1.9
10000	5	4.8
15000	3	2.9
20000	17	16.2
25000	1	1.0
30000	11	10.5
35000	1	1.0
40000	4	3.8
45000	3	2.9

50000	25	23.8
60000	3	2.9
70000	2	1.9
100000	16	15.2
150000	2	1.9
200000	5	4.8
250000	1	1.0
300000	3	2.9
400000	1	1.0
<b>Total</b>	<b>105</b>	<b>100</b>

The following table gives the distributions at the district and village levels.

*Table 31 Amount people willing to borrow: District Analysis*

Kshs	Bomet	Narok South	Total
5000	2.0	1.8	1.9
10000	6.0	3.6	4.8
15000	2.0	3.6	2.9
20000	22.0	10.9	16.2
25000	0.0	1.8	1.0
30000	8.0	12.7	10.5
35000	0.0	1.8	1.0
40000	6.0	1.8	3.8
45000	0.0	5.5	2.9
50000	24.0	23.6	23.8
60000	2.0	3.6	2.9
70000	0.0	3.6	1.9
100000	16.0	14.5	15.2
150000	2.0	1.8	1.9
200000	0.0	9.1	4.8
250000	2.0	0.0	1.0
300000	6.0	0.0	2.9
400000	2.0	0.0	1.0
<b>Count</b>	<b>50</b>	<b>55</b>	<b>105</b>

At the village level, in Narok South, Olchorro village had the highest percentage of those who would like to borrow 50,000 shillings and Koitamugul also had the highest percentage of those who would like to borrow 100,000 shillings (23.8%)

**Table 9: Amount people willing to borrow; Village Analysis**

Kshs	Bomet			Narok South			Total
	Mulot	Mugango	Chemamer	Kutete	Olchorro	Koitamugol	
5000	0.0	4.0	0.0	5.3	0.0	0.0	1.9
10000	12.5	8.0	0.0	5.3	6.7	0.0	4.8
15000	0.0	4.0	0.0	10.5	0.0	0.0	2.9
20000	25.0	20.0	23.5	10.5	13.3	9.5	16.2
25000	0.0	0.0	0.0	0.0	0.0	4.8	1.0
30000	25.0	0.0	11.8	21.1	6.7	9.5	10.5
35000	0.0	0.0	0.0	0.0	6.7	0.0	1.0
40000	0.0	4.0	11.8	0.0	6.7	0.0	3.8
45000	0.0	0.0	0.0	5.3	13.3	0.0	2.9
50000	25.0	32.0	11.8	21.1	33.3	19.0	23.8
60000	0.0	0.0	5.9	0.0	6.7	4.8	2.9
70000	0.0	0.0	0.0	0.0	6.7	4.8	1.9
100000	12.5	16.0	17.6	15.8	0.0	23.8	15.2
150000	0.0	4.0	0.0	0.0	0.0	4.8	1.9
200000	0.0	0.0	0.0	5.3	0.0	19.0	4.8
250000	0.0	0.0	5.9	0.0	0.0	0.0	1.0
300000	0.0	8.0	5.9	0.0	0.0	0.0	2.9
400000	0.0	0.0	5.9	0.0	0.0	0.0	1.0
Count	8.0	25.0	17.0	19.0	15.0	21.0	105.0

Most people would like to use their loans on either agriculture (48%) or business (45%). The distribution of the uses of loans was uniform across the two districts, Bomet and Narok South, with preference for agricultural and business usage.

**Table 10: Use of loans, District Analysis**

	Bomet	Narok South	Total
Other, specify	2.0	0.0	1.0
Agricultural	49.0	46.2	47.6
Livestock	0.0	5.8	2.9
Business/Service/Handicrafts	43.1	46.2	44.7
House repairs	2.0	0.0	1.0
Wedding/funerals	2.0	0.0	1.0
Children's education	0.0	1.9	1.0
Water tank	2.0	0.0	1.0
Count	51	52	103

Also the usage of borrowed finances was uniformly across all the communities- agriculture and business.

**Table 34: Use of loans: Village analysis**  
**Bomet District**                                **Narok South District**

	Mulot	Mugango	Chemaner	Kutete	Olchorro	Koitamugol	Total
Other, specify	0.0	0.0	5.6	0.0	0.0	0.0	1.0
Agricultural	12.5	52.0	61.1	50.0	53.3	36.8	47.6
Livestock	0.0	0.0	0.0	5.6	6.7	5.3	2.9
Business, Service, Handicrafts	62.5	48.0	27.8	44.4	33.3	57.9	44.7
House repairs	12.5	0.0	0.0	0.0	0.0	0.0	1.0
Wedding/funerals	0.0	0.0	5.6	0.0	0.0	0.0	1.0
Children's education	0.0	0.0	0.0	0.0	6.7	0.0	1.0
Water tank	12.5	0.0	0.0	0.0	0.0	0.0	1.0
Count	8	25	18	18	15	19	103

Respondents were asked where they would apply for the loan. Respondents indicated ADRA (23%) followed by KWFT (17%), K-Rep (10%) and Money Lenders (13%).<sup>7</sup>

**Table 35: Where would apply for the loan**

	Frequency	Percent
Others, specify	30	32.6
Kenya Women Finance Trust	16	17.4
K-Rep	10	10.9
ADRA-Kenya	21	22.8
Jami bora	2	2.2
Friend	1	1.1
Moneylender	12	13.0
Total	92	100

It is interesting to note that while most respondents in Bomet would borrow money from moneylenders, those in Narok-South would obtain it from ADRA-Kenya.

<sup>7</sup> Note that answer of “money lenders” may indicate lack of awareness of how interest rates are calculated, existence/benefits of MFIs, etc. There could be a role for community education in this regard.

**Table 36: Where would apply for the loan; District Analysis**

	Bomet	Narok South	Total
Others, specify	31.0	34.0	32.6
Kenya Women Finance Trust	16.7	18.0	17.4
K-Rep	9.5	12.0	10.9
ADRA-Kenya	11.9	32.0	22.8
Jami bora	2.4	2.0	2.2
Friend	0.0	2.0	1.1
Moneylender	28.6	0.0	13.0
Count	42	50	92

The decision on where to borrow the loans from does not change much at the community levels, with the dominant sources of loans being ADRA, KWFT and Money lenders.

**Table 37: Where would apply for; Village analysis**

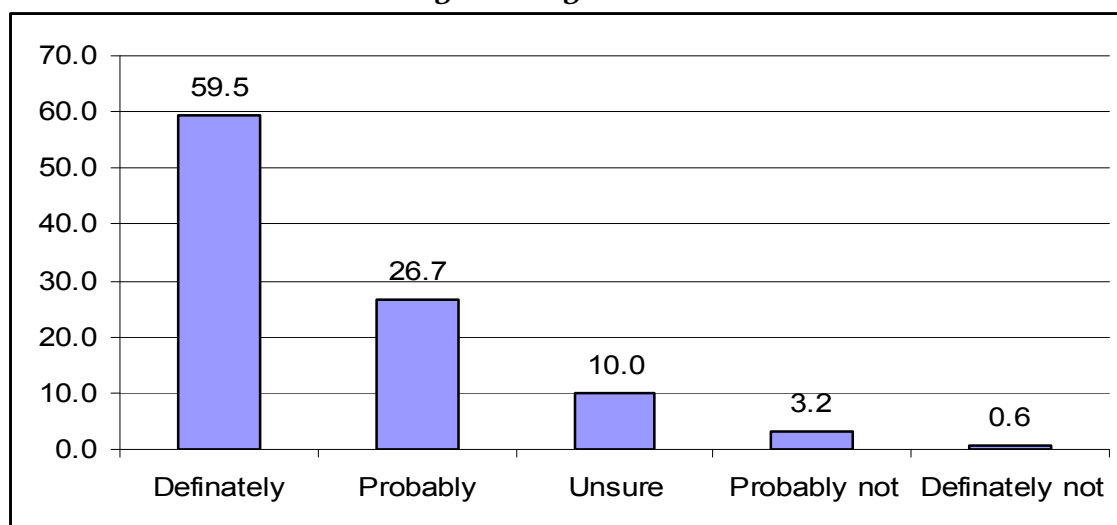
	Bomet			Narok South			Total
	<i>Mulot</i>	<i>Mugangop</i>	<i>Chemarer</i>	<i>Kutete</i>	<i>Olchorro</i>	<i>Koitamugol</i>	
Others, specify	20.0	30.8	36.4	44.4	36.4	23.8	32.6
Kenya Women Finance Trust	0.0	23.1	9.1	5.6	0.0	38.1	17.4
K-Rep	20.0	11.5	0.0	27.8	0.0	4.8	10.9
ADRA-Kenya	60.0	0.0	18.2	16.7	54.5	33.3	22.8
Jami bora	0.0	3.8	0.0	0.0	9.1	0.0	2.2
Friend	0.0	0.0	0.0	5.6	0.0	0.0	1.1
Moneylender	0.0	30.8	36.4	0.0	0.0	0.0	13.0
Count	5	26	11	18	11	21	92



#### 6.4. Social Capital

Social capital can be very important in the sustenance of community development projects such as water, where the community members have to rely on one to ensure proper management of the infrastructure and resource. Respondents were asked that if they suddenly needed to borrow a small amount of money or other material support (enough to take care of expenses for their household for one week), are there persons beyond their immediate households and close relatives to whom they could turn? In their responses, about 60% of the people definitely had a place to turn to and 25% could probably get another place while 10% were not sure.

*Figure 42: Degree of assistance*



Respondents were asked various issues concerning social capital as provided in the table below. Their opinion varied as shown, but most important is that most people trusted their neighbours and were always willing to help in case of need.

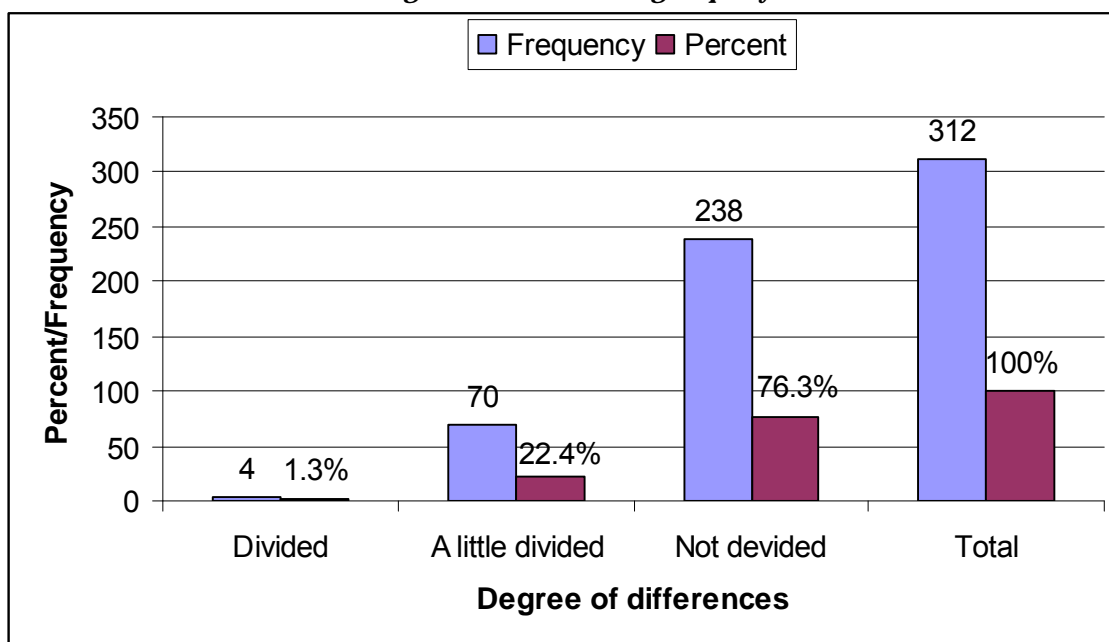
*Table 38: Responses on Social Capital Questions*

	<i>Yes, agree</i>	<i>Somewhat agree</i>	<i>No, disagree</i>
Do you agree or disagree that most people in this village are willing to help you if you need it.	81.2	18.2	0.6
Do you agree or disagree that in this village, one has to be alert of someone is likely to take advantage of you.	4.8	36.3	58.8
I trust provincial administration (chief, district officers etc	72.4	18.9	8.7
I trust elected local government officials (councillors, MP).	51.9	37.5	10.6

I trust my neighbours.	89.7	9.9	0.3
I trust people in the neighbouring village	47.4	39.0	13.3

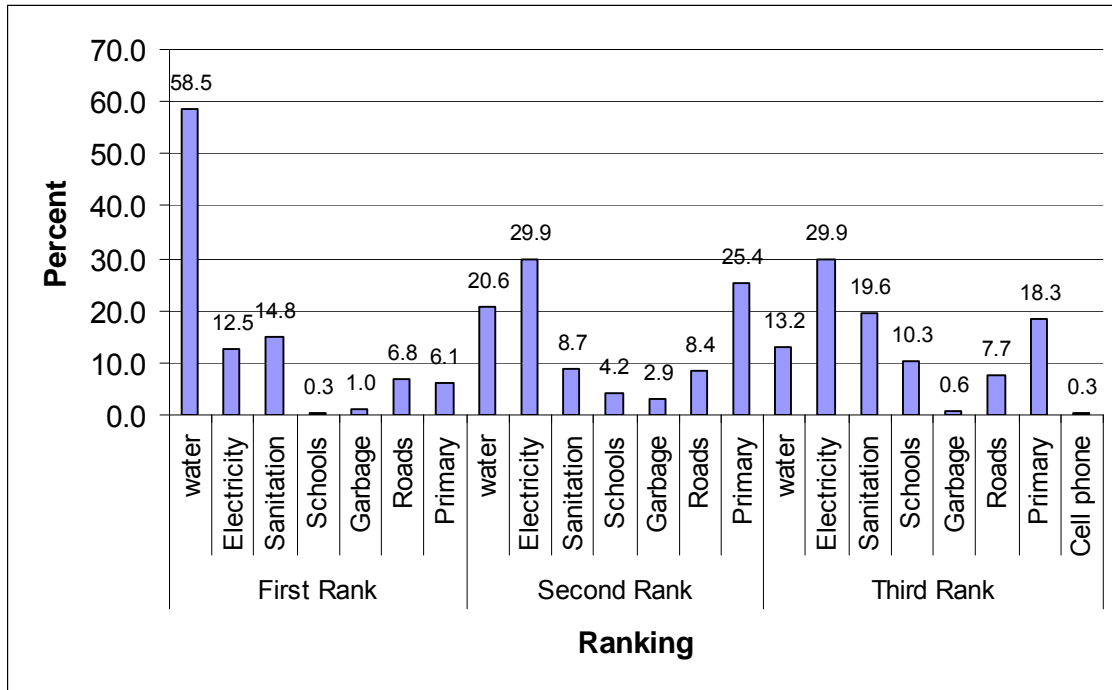
Respondents were also asked how divided their village/community was. We posed the following question: “There are often differences in characteristics between people living in the same neighbourhood, e.g. differences in wealth, income, social status, ethnic background/race/tribe. How divided do you think your village is?” The following table gives the responses received: 76.3% indicated no division in the neighbourhood. 22.4% however indicated that there are some cases of division. This indicates that the community is homogenous and that factors affecting them can be common.

*Figure 43: Level of Village disparity*



Respondents were finally asked to rank the infrastructure they would like the government to consider most. Water was ranked by the majority as the most crucial issue to be handled first, followed by sanitation and the provision of electricity. However, some people did not have problems with water as such and ranked it the second (20.6%) and even the third (13.2%) choice.

**Figure 12: Ranking of Infrastructure as Respondent's Priorities**



## **7. HOUSEHOLDS WILLINGNESS TO PAY FOR IMPROVEMENTS IN WATER INFRASTRUCTURE**

### **7.0. Community Loans for Water Infrastructure**

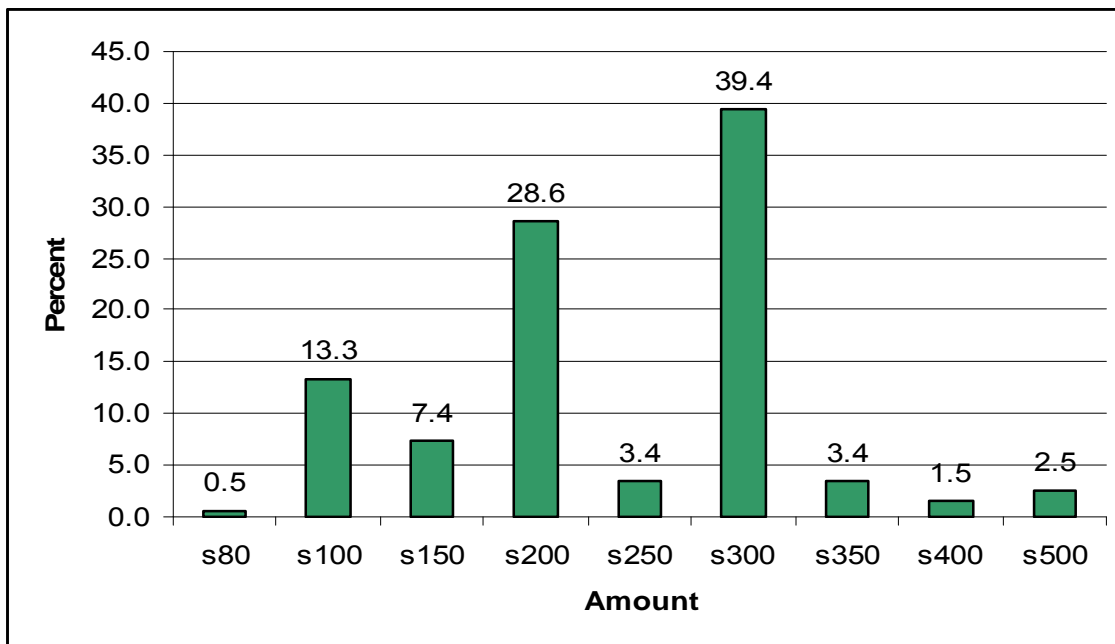
Asked on how they would vote if the committee is to take a loan on behalf of the households to improve the water system, 215 responded with either a yes or no. Out of those who responded, about 14% said they would not vote for the loan but an overwhelming 86% said they would vote for the loan.

There were several reasons given as per to the way respondents would vote the way they had chosen. For those who said no, majority cited lack of affordability. Otherwise some said that is a decision they have to discuss with their spouses. Majority of those who voted yes also cited need for targeting private connection and accessibility to safe clean water. About 22% of 169 respondents said they would have to seek their spouses' opinion whereas the remaining 78% would go ahead and make independent decision.

### **7.1. Maximum Willingness to Pay for Water Improvements**

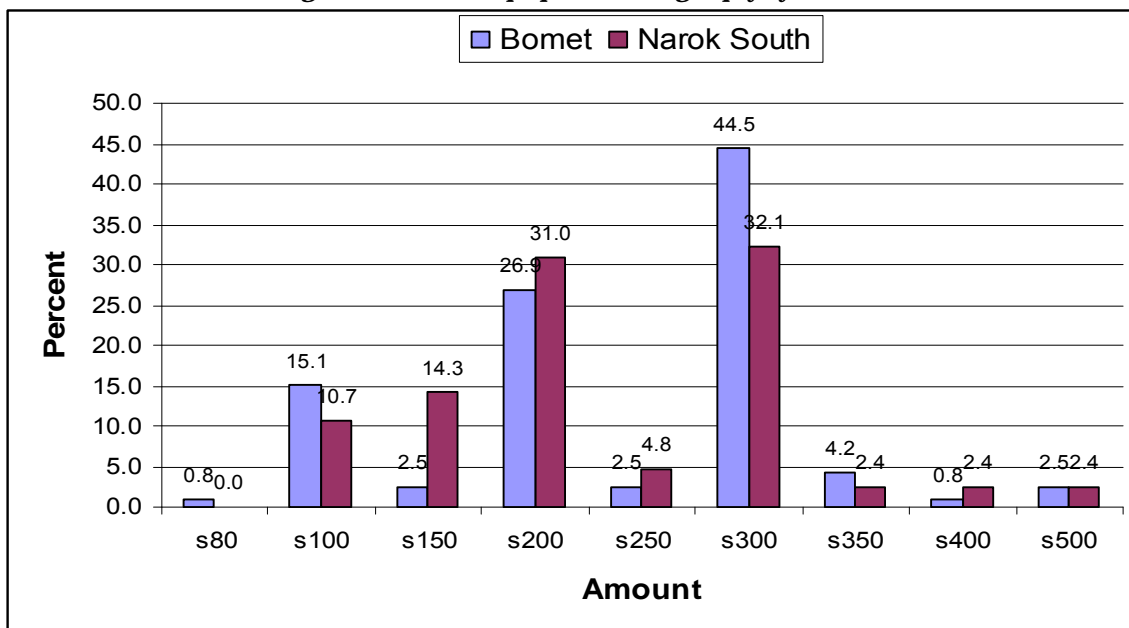
Figure 45 below gives the amounts different respondents were willing to pay per month. About 39% were willing to pay Kshs 300 per month. This was followed by the second largest group of those who were willing to pay Kshs 200 per month (29%). Very few were willing to part with over Kshs 400 per month.

**Figure 45: WTP Bids for Loan to Improve Water Services**



More respondents in Bomet district were willing to pay Kshs 300 monthly than their counterparts in Narok South. Otherwise most respondents were willing to pay Kshs 200 in Narok South than in Bomet. In general the bid levels are higher in Bomet than in Narok South. The distribution of WTP bids are given in the figure below.

**Figure 46: Amounts people are willing to pay by district**



At the village level, Mugango village in Bomet district had the highest bids as more respondents were willing to pay Kshs 300 or higher per month than any other village. In Narok South, Kutete had the highest bids which were nevertheless lower than Mugango.

*Table 39: Village analysis on monthly willingness to pay*

Bid Level	Bomet (%)			Narok South (%)			Total
	Mulot	Mugango	Chemamer	Kutete	Olchorro	Koitamugol	
Kshs80	0.0	2.3	0.0	0.0	0.0	0.0	0.5
Kshs100	20.9	9.3	15.2	17.6	9.1	5.1	13.3
Kshs150	4.7	0.0	3.0	8.8	27.3	15.4	7.4
Kshs200	32.6	18.6	30.3	14.7	45.5	41.0	28.6
Kshs250	2.3	0.0	6.1	5.9	0.0	5.1	3.4
Kshs300	32.6	62.8	36.4	44.1	0.0	30.8	39.4
Kshs350	2.3	2.3	9.1	0.0	9.1	2.6	3.4
Kshs400	2.3	0.0	0.0	5.9	0.0	0.0	1.5
Kshs500	2.3	4.7	0.0	2.9	9.1	0.0	2.5
Total respondents	43	43	33	34	11	39	203

## 8. INSTITUTIONAL ASSESSMENT OF EXISTING WATER SUPPLY INFRASTRUCTURE

### 8.0. The Experience of existing Water Supply Schemes

#### ***Bomet District***

- a) ***Bomet Water Supply:*** Bomet Water Supply Serve the town of Bomet and its environs. The source of Bomet Water Supply is River Nyangores, a tributary of the Mara River. A concrete weir is constructed across the river and water is extracted through a pipe into a sump from where the low lift pumps are operated.

#### ***Institutional Challenges***

- Mismatch of Tank sizes, flow rates and pumping rates on High lift pumps, Main storage Tank, Clear Water Storage Tanks, Capacity of Treatment plant causes overflow at clear water tanks
  - There is partnership with community members to implement the rationing Programme. The community members turn on water at 3-4am then compensated by unmetered standpipe/Kiosk.
  - There is Stand Pipe/Tap at the Treatment works where Major consumers, schools and Commercial enterprises collect water in bulk.
  - There is lack of political goodwill from the community, hence, vandalism, 34% of the water is UFW.
- b) ***Chepalungu Water Supply:*** Chepalungu Water Supply is a rural water supply with its source on Nyangores River. It serves 8 Sub-locations namely: - Kongasis, Segemik, Kapsirich, Nyatembe, Chebanying, Kimaya, Yoywana and Stima. There is no raw Water Master Meter to measure Water abstraction. The Community is supplied with raw water from Nyangores River.

#### ***Institutional Challenges***

- Lack of bulk meters, need to upgrade to treated water.
- Bursts and Leakages are common.
- Soil Erosion has exposed sections at road crossings which burst frequently.

- There are mainly Flat Rate Connections and require upgrading to metered.
- c) ***Sigor Water Supply:*** The source of Sigor Water Supply is river Nyangores. The system offer full water treatment manned by one staff – pump attendant assisted by other members of staff. The low lift pump at the intake has a capacity of 15m<sup>3</sup>/hr while the high lift pump has a capacity of 75m<sup>3</sup>/hr. There are no master meters but production is 5hrs per day i.e. 11,000m<sup>3</sup>/month.

### ***Institutional Challenges***

- Incompetency of staff, the scheme manager has very little idea in filling the operation chart. No volumetric test has been carried out because the pump attendant has no idea of carrying it out. However, the consultant carried out a test and the capacity of the pump (H/L) was found to be = 45m<sup>3</sup>/hr.
- There are no bulk meters to determine acute production. However, volumetric test can be used to establish the pumps capacities so that production can be estimated accurately.
- When there are no chemicals raw water is pumped free of charge. This implies increase in operation cost with low revenue earned.
- Illegal Connections: The scheme Manager is not aware of all the connections. There is also no proper records on all the available records, there are a total of 301 registered connections with only 126 being active. But the production is up to 8,000m<sup>3</sup>/month. There are taps at staff houses in the treatment area which are not metered.
- Frequency bursts are high as a result of the age of the infrastructure.

### ***Bureti District***

- a) ***Litein Water Supply:*** Litein Water Supply is located in Bureti District in Rift Valley Province currently under Lake Victoria South Water Services Board and it is 30 km to the south of Kericho Town. The existing scheme was constructed in 1979/80 and covers an area 460km<sup>2</sup> of agriculturally high potential land with Litein, Kapkatet and Sotik as the major commercial centers. The water supply system is a pumping type designed for



12,000m<sup>3</sup>/ day capacity to meet the 2008 water demand of 24,000 persons. Raw water is pumped to the treatment works where full conventional treatment involving chemical dosing, sedimentation, filtration and disinfection. There is no raw water Master Meter hence raw water abstraction is not known. Low lift pumps are old with reduced efficiency. There is clear water Master Meter that is functional.

***Institutional Challenges***

- There is unmetered Bulk Supply to Sotik Water Supply
- Rampant illegal connections;/ cut-off connections in ledger BUT Re-connected illegally on the ground. An inside job by ungraded casual workers).
- Flat rate. Average assessment Connections
- Leakages/(Backwash Tank and Sluice Valve leaks)

***Sotik District***

- a) ***Sotik Water Supply:*** Sotik Water supply is located in Bureti district of Rift Valley province and is one of the supplies in Lake Victoria South Water services Board. It is basically an urban water supply serving Sotik Town and its environs. The water supply was established in the 1930s with the water being abstracted from River Kipsonoi. Water is also supplied to Sotik from Litein Water supply. The existing water supply is primarily a pumping system.

***Institutional Challenges***

- Production of raw water is not known.
- About 50 connections on the Rising Main are supplied with unknown quantity of raw water.
- Bulk supply from Litein Water Supply is not known.
- Unmonitored usages (Community and staff allowed to draw water from the treatment plants)
- Clear water flow treatment works is not Known (Volumetric test indicate a flow of 6m<sup>3</sup>/hr as opposed to recorded 18m<sup>3</sup>/hr).

***Kericho District***

- a) ***Sosiot Water Supply:*** Sosiot Water Supply is a rural water supply that serves Belgut Constituency. The source of Sosiot Water Supply is the River Cheboseron. Raw water is pumped to the community for domestic use.

***Institutional Challenges***

- Production is not known and Previous Master Meter readings are used
  - Tank Over flow - the community close inlet to Tank Serving urban to let water flow into tank serving Rural leading to overflow throughout the night.
  - Wastage at Domestic consumer Points where taps are left open at night during pumping.
- b) ***Kipsitet Water Supply:*** Kipsitet Water Supply is a gravity water supply serving the Kipsitet trading Center and the rural areas of Kipsitet sub- location, Soin location of Soin Division. The source of Kipsitet Water supply is a spring from the Nandi Hills. There is no Master Meter. The yield of the spring is also not known. Quantity of water abstracted is as well not known. The water Source is inadequate to meet the Current Water Demand hence the rationing programme.

***Institutional Challenges***

- Lack of Bulk Meters i.e. Water Production is not known.
  - Flat rates i.e. all 185 connections are not metered.
  - Pipes are shallowly laid and hence open to mechanical damage by those who are not served.
  - The delivery pipe is shut –down in the night to allow downstream flow to serve communities not connected to the system and who vandalize the intake for the same.
- c) ***Bargeywet Water Supply:*** Bargeywet Water Supply is a gravity water supply serving the rural area of Kiptigumo location and the trading center of Kaitui. Area of coverage includes the Sombija, Kapkanyeloi and Bargeyweit. There are two intake weirs constructed on river Chebalawa that serves the same area (Kiptigumo Location). The upstream weir no.

1 constructed in Tuyabe area is a community managed gravity water scheme constructed by the community with its main distribution to Bargeywet and Kapkenyeloi areas. This water supply covers a larger coverage area. The downstream weir no.2 was constructed by the Ministry at Katuini area and managed by the Ministry of Water and Irrigation on behalf of Chemosit water and sanitation Company Ltd.

***Institutional Challenges***

This water supply covers a limited coverage area of Kaitui trading center and Kapkanyeloi area. The land owner where the weir No.2 is constructed maintains the source (weir) on his own accord.

- d) ***Sigowet Water Supply:*** The source of Sigowet Water Supply is a protected spring. There is one pump at the intake of capacity 5.7m<sup>3</sup>/hr. There is no treatment performed on the water but the quality is generally fine.

***Institutional Challenges***

- There is no master meter to determine the exact production. The pump attendant (watchman/casual) keeps no record on pumping hours.
- The bursts are however minor but are as a result of the roads on the GI pipes. There are leakages (continuous) on the gate valves.
- The consumer meters are read between 18<sup>th</sup> and 20<sup>th</sup> of every month. There is no consistency in reading the meters as the meter reader starts from whichever direction he wishes.

***Kipkelion District***

- a) ***Fort Ternan Water Supply:*** Fort Ternan Water Supply is a gravity water supply that serves Fort Ternan trading Center and its environs. The source of Fort Ternan Water supply is a spring protected and piped through to consumers. The yield is estimated to be 10,800m<sup>3</sup>/ month.

***Institutional Challenges***

- Lack of Bulk Meters i.e. Water Production is not known (Confirm the 10800m<sup>3</sup>/month yield of the spring.
- There are numerous bursts on the distribution in Fort Ternan Trading Centre, partly attributed to vandalism.

b) ***Kipkelion Water Supply:*** Kipkelion Water Supply is an urban water supply situated in Kipkelion. The source of the supply is river Kipchorian. Pumping is by diesel engine though an electric motor has been put in place. There is a clear water master meter.

***Institutional Challenges***

- There are taps at the residential areas of the staff that serve even part of the community around. These taps are not metered and therefore no records on water used.
- There are leakages along the rising main as well as the distribution lines.

c) ***Londiani Water Supply:*** Londiani water supply serves residents of Londiani division. The water supply is divided into three Zones namely Lelsot / DFO, Town Zone and Engineers / Huruma. The source of Londiani water supply is a dam (River Masaita). The project was constructed in 1928 by the Italians. The weir constructed has been damaged over the years and gunny bags filled with sand have been used to form the weir. The dam is desilted once a year. There is no clear water master meter. Water production is based on pump capacity irrespective of pump efficiency and treatment losses. The low lift pump takes 7 hours to fill a 225m<sup>3</sup> tank. Booster pump for the 20m<sup>3</sup> Hospital Tank located 500m outside Hospital also have consumers connected on the line.

***Institutional Challenges***

- Lack of Bulk Meters (clear water production is not known)
- Unmonitored Usages, (Taps at the and Divisional water are not metered nor monitored)

- Lack of goodwill from residence that open section valves closed to control line during repairs of bursts and leakages
- There are wastages at consumer taps during rationing time. Taps left open and runs to waste when water flow resumes
- Illegal connections are rampant.

d) *Chesinende Water Supply*: Chesinende Water Supply is a rural water supply situated at Chesinende. The source of supply is river Chesinende and the supply is fully gravity. There is no treatment i.e. raw water supply. The water is used for drinking though it requires treatment. There are no master meters and therefore production based on the billing i.e. consumer billed x meter reading.

#### *Institutional Challenges*

- Total active connections are 170 of which 32 are metered and 138 are flat rate as i.e. approx 82%. The initial metered connections were 42 but 10 meters were stolen during the post election violence. Flat rates are charged at kshs 200/- for up to a consumption of 10m<sup>3</sup>. However a number of major consumers also pay 200/- when they consume more than 10m<sup>3</sup>.
- The major consumers on flat rate include; Chesinende Secondary School; Chesinende Primary School; Chepseon Secondary school; Chepseon Youth Polytechnic; Hill View Academy.
- There are several illegal connections around the intake area. These people argue that the water is theirs and they have a right to own it. Attempts to disconnect them have led to vandalization of the system at the intake.
- There are no proper maintenance of the distribution system and therefore many leakages.
- No billing has been done since January 2008 because of the post election skirmishes. In addition, the consumers around the intake are not willing to pay due to socio-political reasons.

***Konoin District***

- a) ***Chebangang Water Supply***: Chebangang water supply is located in Kimulot division Bureti district. The existing scheme was constructed in 1983 and completed in 1984, with the design capacity of 44m<sup>3</sup>/hr (1, 056m<sup>3</sup>/day) and to cover an area of 45km<sup>3</sup> and has currently expanded to 90km<sup>2</sup>. The supply system is primarily a gravity type. The intake of this scheme is 8km inside the thick west Mau Forest in River Kiptiget.

***Institutional Challenges***

- Uncontrollable number of illegal connections: Due to socio-political reasons, the communities have connected themselves and vowed not to pay. They get support from the local politicians who claim that the system should be owned by the community.
- Under billing due to lack of meters i.e. flat rates: There are a total of 582 registered connections with only 116 on record as active connections though they remit no payment.
- However the remaining 466 which are on record as dormant have reconnected themselves and therefore lack meters and therefore would pay flat rates even if payments were to be made.
- The Un-accounted For Water (UFW) is up to 96%.

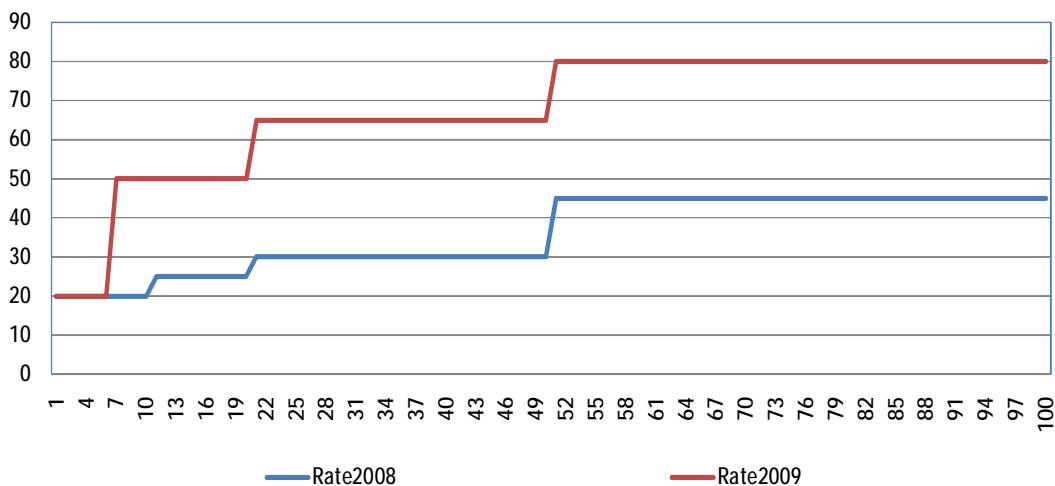
Table 40: Performance of Various Water Supply Schemes as at November, 2009

	<i>Bureti District</i>	<i>Sotik District</i>	<i>Konoin District</i>	<i>Bomet District</i>				<i>Kericho District</i>			<i>Kipkelion District</i>			
<b>Water Supply</b>	<b>Litien</b>	<b>Sotik</b>	<b>Cheben-gang</b>	<b>Bomet</b>	<b>Longisa</b>	<b>Chepalungu</b>	<b>Sigor</b>	<b>Sosiot</b>	<b>Kipsitet</b>	<b>Barge-ywet</b>	<b>Fort Ternan</b>	<b>Kipkelion</b>	<b>Londiani</b>	<b>Chende</b>
<b>Scheme Type</b>	<b>Pumping</b>	<b>Pumping</b>	<b>Gravity</b>	<b>Pumping</b>	<b>Pumping</b>	<b>Pumping</b>	<b>Pumping</b>	<b>Pumping</b>	<b>Gravity</b>	<b>Gravity</b>	<b>Gravity</b>	<b>Pumping</b>	<b>Pumping</b>	<b>Gravity</b>
<b>Water production (M<sup>3</sup>)</b>	195670	5100	30000	9577	600	21229	7193	8220	7776	5443	5100	3441	8100	
<b>Water available for sale (M<sup>3</sup>)</b>	194445	5100	3000	9557	1947	21229	7153	8220	-	-	5900	3243	8100	
<b>Sold (M<sup>3</sup>)</b>	51810	3315	1480	6292	433	10202	4115	4620	5443	3810	3780	2500	6316	
<b>UFW (M<sup>3</sup>)</b>	142635	1795	28530	3265	967	10731	3038	3600	2333	1663	1620	943	1784	
<b>UFW (%)</b>	73	35	98	34	78.8	52	42	44	30	30	32	27	22	
<b>Metered connections</b>	2559	778	NIL	409	18	205	224	205	135	-	NIL	48	22	
<b>Flat Rate</b>	-	-	582	-	-	165	110	165	-	73	83	4	118	
<b>Revenue Billed</b>	2,188,215	575,365	62,130	348,030	16,430	264,590	190,970		71,400	37,200	55,000		143,140	60
<b>Revenue Collection</b>	3,067,053	792,715		260,795	49,370	69,810	73,940	85,335	40,050	13,200	11,000		80,920	8
<b>Collection Rate</b>				74.9		26.6	38.7		56.1	35.5	20.0		56.5	

## 8.1. Water Tariffs and Enforcement

The Water Services Regulatory Board (WASREB) develops guidelines that include water tariffs to be applied in the water services provision in Kenya. All the water services providers are expected to adhere to these tariffs guidelines. In the last one year, the tariffs have been revised to reflect the following structure. The minimum tariff is about kshs20/m<sup>3</sup> where consumers are expected to pay a monthly minimum charge of 6 m<sup>3</sup>. In the previous structure band covered a minimum charge for kshs200 for upto 10m<sup>3</sup> of water monthly. This shows that the minimum quantity has been reduced from 10m<sup>3</sup> to 6m<sup>3</sup>.

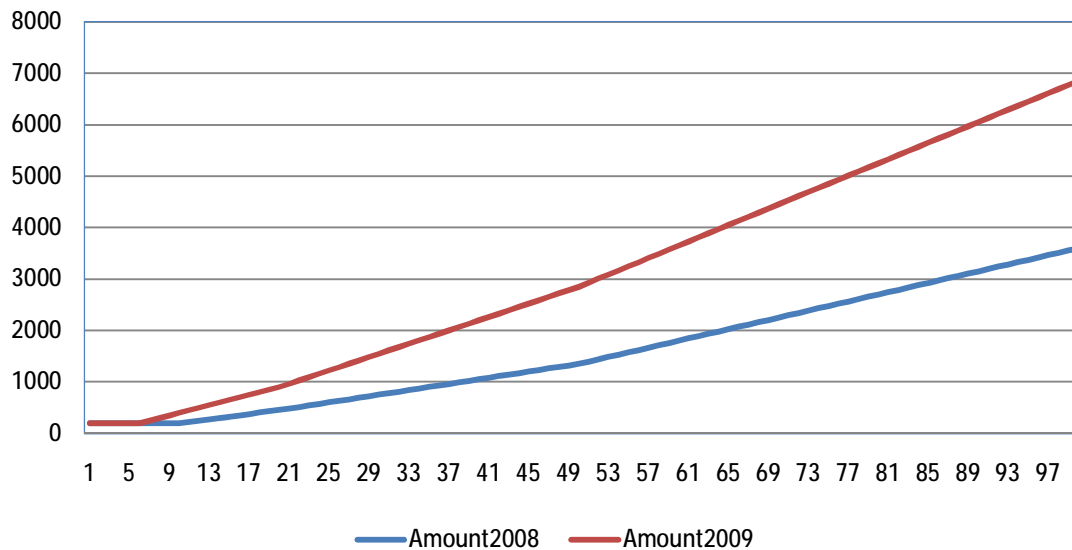
*Figure 47 : Increasing Block Tariff (kshs) in 2008 and 2009*



Under the current rates for 2009, water quantities in excess of 100m<sup>3</sup> but does not exceed 300m<sup>3</sup> the charge is kshs 100 per m<sup>3</sup>. In excess of 300m<sup>3</sup> the charge per m<sup>3</sup> is kshs 130. Where water is sold through a meter at a kiosk the charge per m<sup>3</sup> is kshs 35.

Total charges payable for a given level of consumption are given in Figure 48 below. To a large extent these guidelines provide restrictions on the loan recoveries that can be made by microcredit Institutions since limit the amount of monthly loan recoveries.



**Figure 48 Water Charge before 2008 and in 2009 (kshs)**

*Note: horizontal axis represents quantities of water in M<sup>3</sup> while vertical axis represents amounts paid in Kenya shillings.*

## 8.2. Major Cost Components

The cost structure of the surveyed water supply utilities depend on whether the supply is based on gravity or pumping. Electricity costs represent the largest cost in the pumping schemes (taking more than 50% of operational costs), followed by staff salary, chemicals and finally the maintenance costs. A few of the water schemes are gravity fed, with staff salary taking the largest share of the costs. This is followed by operation and maintenance costs. The viability of the water supply schemes are thus influenced by the above supply options. Most of the schemes surveyed in the Mara River Basin rely on pumping.

## 8.3. Cost Recovery

Most of the water supply systems in the Mara River Basin have difficulties covering O+M costs, thus sustainability is far from being achieved. Many of the schemes are faced with lack professional and skilled manpower, and are not operating professionally enough. They are not sufficiently commercially oriented, leading to low performance (low collection, high water losses, etc) and insufficient sustainability of service provision as seen in Table 40.

There is also general lack of maintenance tools, equipment and transport. In addition, the insufficient economies of scale and economically-unviable tariffs hamper sustainability of systems. Many are small-sized systems leading to high production costs and cannot attract and maintain the necessary qualified professionals.

The low cost recovery and performance of the providers is resulting to high water losses, low water quality, erratic water supply, insufficient maintenance and deterioration of the assets and thus further decline in the service levels.

Consumption metering is limited or does not exist across all consumers, promoting illegal connections and water wastage. The un-metered systems also create distortions in consumer charges and loss of revenue. Tariffs guidelines developed by the Water Services Regulatory Board (WASREB) are out of line with the operational costs adding to the financial difficulties of the water supply schemes.

## 9. DESIGNING A WELL-CRAFTED BORROWING “DEAL” IN BOMET AND NAROK SOUTH

Our study has illuminated the passionate levels of demand and the enthusiasm expressed from different communities in Bomet and Narok South Districts. There is a strong expression of demand for water availability improvements. Water quality improvement is only secondary to the needs of these communities. The level of social capital in the communities appears to be quite high as the communities appear to work together to resolve their development problems. As expected trust can be very difficult to attain even where a community appears to function well. This is evident from the response, with most respondents preferring to skip the question.

In view of the foregoing analysis, levels of monthly WTP bids by various respondents, and considering the incomes and assets that the households have, it would be viable to execute some type of micro credit lending for water projects in different schemes. Most of the water improvements required by the communities are not sophisticated in nature. If we assume that there are about 1000 households in a village, repayment of kshs 200/hh for a year should raise approximately  $12 \times 200 \times 1000 = 2,400,000$  ksh. In three years this figure could translate to about kshs 7,200,000. If we assume an interest rate of about 15 percent then most of the villages could comfortably be viable for loans ranging between kshs 5-10 million. It should be remembered that this amount is similar to the schemes currently run by K-REP.

The key factor for a Micro Finance Institution (MFI) interested in the water sector financing in Bomet and Narok South is probably less in determining where there is demand and where is not, but rather in designing a strong institutional process that will weed out the bad lending situations within the community. This is a natural outgrowth of the “demand-led” process for rural water supply that the World Bank has advocated for the past decade. The rules for participation should be set properly so that there is no incentive for the water users to shirk, market the financing program and rules to the communities widely, and let communities decide for themselves whether to participate under those rules.

Another key to this process, however, is in the due diligence step. MFIs or local commercial banks may find the staff cost of performing these analyses very steep, and covering them with origination fees or interest rate spreads could make loans unaffordable.<sup>8</sup> This would imply that subsidies may be more needed for this process (as the World Bank is doing by covering the cost of consultants to villages), and could be a very fruitful contribution for an outside foundation. These costs may also go down over time as MFIs and banks learn more about appraising rural water projects. But there is a conflict here: MFIs may wish to keep their appraisal process confidential and proprietary, which could slow dissemination to other local lenders and slow mobilization of local finance for water supply.

Finally, some areas will still find complete cost recovery too steep<sup>9</sup>, and grant subsidies i.e. from Constituency Development Fund etc can still be paired with loans in order to address affordability concerns. This is another useful contribution that outside donors in the sector could play, though it would ideally be through some coordinated strategy like national challenge accounts or the Global Partnership on Output-Based Aid.

Only two community water groups were mentioned by the respondents. The remaining 278 respondents representing 88.3% did not respond to the question of their membership to any community water group. As WaterPartners has already seen, asking communities to form user associations to help manage new facilities while also taking out and repaying loans places a high burden on the success of these groups.

The following important insights emerge in the performance of existing water supply infrastructure:

- Most these water schemes are characterised by substantial Un-accounted For Water (UFW), ranging between 20-98%.

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<sup>8</sup> MFIs customarily also do not lend to communities or CBOs – they lend to households, small groups, and small-scale entrepreneurs.

<sup>9</sup> Again, these costs do not consider the O&M fees/tariffs needed to keep the systems running after construction.

- The collection rates for water payments vary and are in the range of 14-75%. These figures suggest that the loan repayments for microcredit can sometimes be uncertain because of unreliable payments.
- Most of the water schemes are not metered due to the additional capital requirements for doing so.
- Political pressure appears to exert strong influences in the performance of the water infrastructure, with community members taking advantage of the instability to refuse paying for water services.
- A level of impunity among water users/communities remains a major challenge, with episodes of vandalism of infrastructure and illegal connections encountered.
- The final water tariffs implemented by the water companies are regulated by the Water Services Regulatory Board (WASREB).

It is unlikely that any microcredit scheme would avoid dealing with the above issues when such a process is initiated with community water projects. Such schemes should be conscious of a number of other factors:

- The existence of other NGO interventions, supporting water infrastructure development at very subsidized rates.
- The performance of current water schemes which seems to reflect high levels of impunity, as demonstrated by illegal connections, vandalism and sometimes refusal by consumers to pay, political tenability of such water schemes.
- The continued regulation of the water tariffs by WASREB.
- The existence of numerous Micro Lending Institutions trying to market similar products.

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## Appendices

### WATER CREDIT VIABILITY ASSESSMENT IN THE MARA BASIN

Focus group discussion report for the water credit viability assessment in the Mara Basin

Conducted between 17<sup>th</sup> Sept and 22<sup>nd</sup> Sept 2009

	Name Of Group	Kotamogor	Oljoro Water Management Committee.	Mulot Water Resource Users Association (RUWA)	Kaburuso water project
2.	Registration Status	<ul style="list-style-type: none"> <li>Registration in progress- registration forms presented to the Social Services department in Narok</li> </ul>	<ul style="list-style-type: none"> <li>Group is registered</li> </ul>	<ul style="list-style-type: none"> <li>Registration in progress- Registration forms represented at the Social Services Department in Narok</li> </ul>	<ul style="list-style-type: none"> <li>Members belong to different groups which are registered with the Social Service Office</li> </ul>
3.	Main Water Sources	<ul style="list-style-type: none"> <li>Spring</li> </ul>	<ul style="list-style-type: none"> <li>Amalo River</li> <li>Springs</li> </ul>	<ul style="list-style-type: none"> <li>Amalo River</li> <li>Dams</li> <li>Springs</li> <li>Boreholes</li> </ul>	<ul style="list-style-type: none"> <li>Dams</li> <li>Springs</li> <li>Boreholes</li> </ul>
4.	Desired Water Improvement	<ul style="list-style-type: none"> <li>Protect the spring</li> <li>Drill borehole</li> </ul>	<ul style="list-style-type: none"> <li>Pump water to reach those at far distance.</li> <li>Clean up Amalo river.</li> <li>Separate water points for animals and human beings</li> </ul>	<ul style="list-style-type: none"> <li>Clean river Amalo</li> <li>Protect springs.</li> <li>Tree planting around the Dams and Rivers</li> <li>Fence dams</li> </ul>	<ul style="list-style-type: none"> <li>Protect dams and springs</li> <li>Planting water friendly trees</li> <li>Pipe and pump water out of the dams to reach people at the hills</li> </ul>

	<b>Desired Water Improvement</b>	<b>Kotamogor</b>	<b>Oljoro Water Management committee</b>	<b>Mulot Water Resource Users Association</b>	<b>Kaburuso water project</b>
					<ul style="list-style-type: none"> <li>• Avoid cultivation around water sources – leave 50 meters from the water source.</li> <li>• Plant indigenous trees and fruit trees like Avocado .Avoid blue gum because it takes in a lot of water</li> </ul>
4.	Willingness to pay for improvement	<ul style="list-style-type: none"> <li>• Three members were willing to pay kshs 100 monthly as loan repayment</li> <li>• Four members were willing to pay kshs 200 monthly as loan repayment</li> </ul>	<ul style="list-style-type: none"> <li>• Provide Labour</li> <li>• Registration fees can be used to repay loan</li> <li>• Members are willing to contribute towards loan repayment.</li> <li>• Eighteen members were willing to pay ksh 100 monthly as loan repayment</li> <li>• Thirteen members were willing to contribute ksh 200 monthly as loan repayment</li> </ul>	<ul style="list-style-type: none"> <li>• Need to create awareness on borrowing in micro finance</li> <li>• Community members can pay through merry go round contributions.</li> <li>• Members were willing to contribute ksh 300-500 monthly as loan repayment.</li> </ul>	<ul style="list-style-type: none"> <li>• Community members can provide Labour.</li> <li>• Raise funds through registration fee 200 monthly.</li> <li>• Six members were willing to contribute ksh 100 monthly as loan repayment</li> <li>• The rest were willing to contribute between ksh 200-500 monthly as loan repayment</li> </ul>



	<b>Community Experience In Water Resource Management</b>	<b>Koitomurgo</b>	<b>Oljoro Water management committee</b>	<b>Mulot Water Users Association</b>	<b>Kaburuso Water Project</b>
5.		<ul style="list-style-type: none"> <li>• Village elders have the responsibility to take care of the springs.</li> </ul>	<ul style="list-style-type: none"> <li>• Community members have been involved in desilting.</li> <li>• Community members have bought barbed wire to enclose the spring</li> <li>• Protecting trees around the water source by fining those who graze or cut tree in these areas.</li> <li>• Those who do not contribute towards protecting the water source are made to fetch water last and their livestock barred from watering.</li> </ul>	<ul style="list-style-type: none"> <li>• The group has been creating awareness on the importance of clean water and soil erosion in collaboration with Ministry of Agriculture.</li> <li>• Also involved planting water friendly free trees and discouraging blue gum</li> <li>• Contributing money towards water management activities 20/= per household this is happening in lamayat</li> <li>• They got CDF funds to distil the big dams</li> <li>• Distilling small dams done by community volunteers.</li> </ul>	<ul style="list-style-type: none"> <li>• Community members have volunteered to desilt dams</li> <li>• Each group has by laws that are enforced by fining members who break them e.g.</li> <li>• No community members is allowed to do laundry at the water source</li> <li>• They are encouraged to carry the water to their homesteads</li> <li>• Grazing around water source is also discouraged those who do it are fined to plant trees</li> <li>• Fine for those who do not participate in desilting – 500/=</li> </ul>

	<b>Experience in borrowing</b>	<b>Kotomugor</b>	<b>Oljoro Water management committee</b>	<b>Mulot Water Resource Users Association</b>	<b>Kaburoso Water Project</b>
	<ul style="list-style-type: none"> <li>• In Micro finance</li> <li>• Microfinance institutions known to the group</li> </ul>	<ul style="list-style-type: none"> <li>• Kenya Women finance Trust</li> <li>• FAULU Kenya</li> <li>• K-REP</li> <li>• Faulu Loan 50,000 repayment</li> <li>• 5,000 monthly</li> </ul>	<ul style="list-style-type: none"> <li>• K-REP</li> <li>• Kenya Women Finance Trust</li> <li>• Faulu Kenya</li> <li>• AFC</li> <li>• Jamii Bora</li> <li>• Jamii Bora loan 10,000 repayments 250 weekly.</li> <li>• K-REP school fees loan 10,000 repayment 2,000 far 3 months</li> <li>• Agricultural Finance co-operation– Gives seeds and fertilizers</li> </ul>	<ul style="list-style-type: none"> <li>• Kenya Women Finance trust</li> <li>• Faulu Kenya</li> <li>• Finance Services Association –(FSA)</li> <li>• FSA Loan 10,000 Kshs 1,200 per month</li> <li>• KWFT – 20,000 Repayment 2,000</li> </ul>	<ul style="list-style-type: none"> <li>• Kenya Women Finance Trust</li> <li>• Faulu Kenya</li> <li>• K-Rep</li> <li>• Finance services Association.</li> <li>• Tea SACCO</li> <li>• K-Rep Loan 10,000 Kshs – Repayment 2,000 monthly for 5 months</li> </ul>
	<b>Conflict Resolution</b>	<b>Kotomorgor</b>	<b>Oljoro Water management committee</b>	<b>Mulot Water resource Users Association</b>	<b>Kaburuso water project</b>
		<ul style="list-style-type: none"> <li>• Village elder settle disputes in the community</li> <li>• In small disputes community members are able to talk and resolve among themselves</li> </ul>	<ul style="list-style-type: none"> <li>• Village elders are the first to be involved in conflict resolution.</li> <li>• They hold a meeting with the concerned</li> <li>• In merry go round members</li> <li>• Confiscate ones possessions in case default</li> </ul>	<ul style="list-style-type: none"> <li>• Village elders resolve disputes by talking to the concerned people</li> <li>• Community members assistance other financially in the merry go ground</li> </ul>	<ul style="list-style-type: none"> <li>• Village elders are used to resolve conflict among community members by holding meeting to talk to the concerned parties</li> <li>• In water management defaulters are removed from the group</li> <li>• Group members borrow from group savings when they need financial assistance</li> </ul>

## 2. COMMUNITY WATER SUPPLIES IN BOMET DISTRICT

S/ NO.	NAME/STATUS	SOURCE	CONVEYANCE SYSTEM	PRODUCTION	TYPE OF TREATMENT	COST ESTIMATE KSHS	REMARKS
1.	Mogombet water supply - Operational	Nyangores River - No meter for raw water - Treated water metered	- Raw water gravity main to treatment works - Pumping to the main storage tank with electrical pump set - To consumers by gravity (Metered)	200m <sup>3</sup> /day Beneficiary 5,000 heads 20,000 livestock unit  - Ultimate water demand (2020) 4500m <sup>3</sup> /day current 3000 m <sup>3</sup> /days	Full treatment	20 million	- Require funding for rehabilitation in order to meet the ultimate water demand - Estimates Kshs 120 million
2.	Kapcheluch water supply Partially operational	Nyongores River Raw water, no master meter	- Ditto but prime mover diesel engine	25 beneficiaries 10,000 head 20,000 livestock unit	No treatment work	6 million	Require funds to complete the project Kshs 27 million
3.	Marinyin water supply - Un operational	Simogigo River No master meter	Ditto	Water demand current 200 m <sup>3</sup> / dam ultimate - 3000	No treatment	10 million	Require funds for completion and establishment of a technical team to run the water supply Kshs 15 million
4.	Sogoet water supply - operation	Simongigo River - No master meter	Ditto	Ultimate 60 m <sup>3</sup>	No treatment	3 million	- Require funds for expansion - Establishment of a technical team to manage the water supply
5.	Kaparuso water supply	Dam	Prime mover a motor	50m <sup>3</sup> current water demand ultimate water demand 20	No treatment	6 million	- Completion of project and technical team required for running water supply
6.	Sergutiet Implementation stage A waiting funding	Simogigo	Prime mover motor			13 million	- Conservation of source required and power supply

7.	Segutiet community water project Awaiting funding for implementation	Kipsonoi river	Diesel prime Movers	Ultimate water demand 650 m <sup>3</sup>		14 million	- Project has taken too long since it was designed 1996 - Power supply should be incorporated during implementation Estimates 17 million
8.	Kaptilolwo un operational	Nyongores River	Diesel prime Mover	Ultimate water demand 500	No treatment	15 million	Establish a technical team to run the water supply provision of motor prime moves
9.	Longisa community water project -Awaiting funding implementation	Amalo River	Prime movers motor	Ultimate water demand 5000	Treatment work proposed	73 million	- Implementation in phases since it is a large water supply

### 3. INSTITUTIONAL WATER SUPPLIES IN BOMET

S/ No	Name /Status	Source	Conveyance System	Human Population	Type of Treatment	Remarks
1	Ndaraweta Sec School Operational	Spring tributary of Nyangores river	- Diesel prime mover - Pumping to the main storage tank - Consumer supplied by gravity mains	606	Partial treatment of chlorination	- Full treatment works required - Conservation of source and power supply necessary
2.	Merigi Sec School Operational	Spring tributary of Nyangores river	Ditto	276	Ditto	Ditto
3.	Tenwek Sec. School Operational	Nyangores river	Ditto but prime mover motor	696	Ditto	Ditto
4.	Mulot Sec School	Amalo river	Ditto		Ditto	Ditto improvement on sanitation
5.	Itembe Sec School	Borehole 150 m depth	Prime mover Motors	272	Ditto	Ditto
6.	Longisa district Hospital Operational	Spring tributary of Amalo	- Prime mover are motors - Raw water pump to the treatment works consumer supplied by gravity main	200 beds	Full treatment	- Water supply serves only the hospital - Funds required for expansion to the market
7.	Chebunyo Boys Sec. School W/S	Dam	Diesel Driven	606		
8.	Kongotik Girls Sec School	Spring	Diesel	444		
9.	Kaboson Sec School	Nyangores	Hydrant	426		
10.	Kaboson Pastors School W/S	Nyangores	Hydrant	100		

<b>S/ No</b>	<b>Name /Status</b>	<b>Source</b>	<b>Conveyance System</b>	<b>Human Population</b>	<b>Type of Treatment</b>	<b>Remarks</b>
11.	Kyogong Sec School W/S	Spring	Diesel driven	288		
12.	Mugango Sec School W/S	Spring	Diesel driven	222		
13.	Kapsimbir Sec School	Dam	Electric Driven	264		
14.	Kaporuso Sec. School	Dam	Diesel driven	264		
15.	Longisa Sec. School	Spring	Diesel driven	1080		
16.	Tenwek Hospital	Nyangores	Electric	250		
17	Mogoma Sec. School	Roof catchments		264		
18	Koibeyon Sec. School	Roof catchments		258		
19	Kiplobotwa Sec. School	Roof Catchments	Diesel Driven	174		
20	Kiptobit Sec School	Roof Catchments		174		
21	Motigo Sec School	Roof catchments		240		
22	Chepkitwal Sec. School	Roof catchments		192		
23	Siwot W/S	Spring		948		
24	Olboho Sec. School	Roof catchments		150		
26.	Njerian Sec. School	Roof catchments		78		

Siongioi Division	Water supply to serve ore consumers	Intake roofing and repair of 300 m <sup>3</sup> tank and rehabilitation of the existing distribution lines	Clear water tank and general rehabilitation of existing distribution lines
Ndanai Water Supply Ndanai Division	To rehabilitate and expand the existing old water supply to serve more consumers	Construction of sump extends the distribution lines and repairs the rising main in the plan period	Construct the sump, extend the distribution lines and repair the raising main.
Kapcheluch Water Supply	To educate beneficiaries on the issues of management of water supplies on their part	Complete the pump house, purchase and install pump set in the district in two years, Purchase and lay the pipes in the rest of the plan period	Construction of pump house, bump water and 100 m <sup>3</sup> tank purchase and installation of pump set; and laying of pipes
Kaporuso Water Project Longisa Divison	To educate beneficiaries on the issues of management of water supplies on their part	Repair 100 m <sup>3</sup> masonry tank, construction of the pump house and sump in the four phase of the plan purchase and lay the pipes	Construction of pump house and sump. Purchase and laying of pipes and repair of 100 m <sup>3</sup> masonry tank
Distilling of Dams Chebugon Kipkeigei Singoiiwell Waigeri Kapsimotiwa Gelegele Chepngena Chaboin	To avail the water for domestic and livestock use	Cover the whole community	Involve the community in all the activities

**New Project Proposal: Water Supply**

<b>Project Name Location/Division</b>	<b>Priority Ranking</b>	<b>Objectives</b>	<b>Targets</b>	<b>Description of Activities</b>
Construction of Dams District wide	1	Storage of water for domestic and animal use	Construct 35 dams by 2008	Identify site and involve the community to construct in all the divisions. <b>Justification:</b> There is need for the dams especially.
Langise water Supply Longisa Division.	2	To make water available for domestic use.	Construction to be complete by the end of the plan period,	Construction of the pump house, weir; purchase and install the pump set Construct the treatment plant at intake construction of 100 m <sup>3</sup> storage tank. <b>Justification :</b> There is need for the facility to supply water to the hospital.
Mutarakwo water Supply Mutarakwo Division.	3	To make water accessible to the community	Complete opartionalise the facility by 2008.	Construct treatment plant, weir, storage tanks and pump house ; Purchase and lay pipes and install pump set. <b>Justification ;</b> There is need for the water facility for domestic and livestock consumption.
Sergutiet Water Supply Project Bomet Central Division.	4	To make water available and affordable.	To be operational by 2008	Construction of weir ,Sump, storage tank; Purchase and lay pipes ; Purchase and install Pump sets; Install electronic power. <b>Justification</b> There is need for efficient water facility
<b>Project Name Location/Division</b>	<b>Priority Ranking</b>	<b>Objectives</b>	<b>Targets</b>	<b>Description of Activities</b>
Chesoan Water project Bomet Control Division	5	Make the community manager their	Involve the community contributed by 2003; Start the construct by 2004	Construction of weir, Pump house and storage tank; Purchase and lay the pipes; Purchase and install the pump set. <b>Justification:</b>  The extension of the water facility will ease the problem of water in the area.
Gorgor Water Supply Project Ndanai Division	6	To reduce the distance people travel to fetch water	Involve the community to complete the project by 2008	Construction of pump house, sump and storage tank; Purchase and install pump sets. <b>Justification :</b> This will reduce the distance people travel to



Chebunyo Water Supply Project Siongiroi Division	7	To make clean water available to the community	Involve the community and willing donor to complete the project and operationalise by end of Plan period	fetch water. Construction of pumps house; Purchase and lay pipes; Distil the dam. <b>Justification</b> The water facility will ease the water problems for the inhabitants
Koibeyen Water Supply Project Longisa Division	8	To make water available for domestic and livestock consumption	Involve the community to complete the project by 2008	Construction of weir, sump, pump house and storage tank; Purchase and lay pipes and install pump sets. <b>Justification</b> There is need for the community to run the water facilities on their own
<b>Project Name Location/Division</b>	<b>Priority Ranking</b>	<b>Objectives</b>	<b>Targets</b>	<b>Description of Activities</b>
cheberaa Water Supply Proeject Sigor Division	9	To sustain the water for construction purposes	Involve the community and any willing donor to rehabilitate the project by 2008	Repair of hydram, rising main pipes; Purchase and lay distribution pipes and repair the storage tank; <b>Justification:</b> To sustain the water to be used by the swelling population
Gelegele Ndanai Water Supply Project	10	To involve the community to manage their own water facilities	To be completed by 2008	Purchase the pump sets; Distil the dam; Purchase and lay pipes for distribution; Construct the treatment plant. <b>Justification</b>

<b>Appendix II: Meetings with Individuals</b>	<b>Mulot Community Water Group -18<sup>th</sup> Sept 2009</b>	<b>Koitamugul Group</b>
1.Kennedy Onyango 2.Joseph Korir – Chief/Mulot Location 3.Ms Doris Ombara - WWF 4.Andrew Koech – Irrigation Officer 5.Samwel Lawrence Arap Sigei – DWO Bomet 6.Ms Pamela Onyantha – WRUAs Board Member 7.Johnstone Mutai – Ass. Chief Olchoro 8.Joseph Cheboit – Official Mulot	1. Mr Neheia Kilel 2. Mr. Eerus chebures 3. Mr. Wilson Kilel 4. Mrs Joyce Marindany 5. Mrs Caroline Ngeno	1. Geoffrey mutai 2. Stephen Maritim 3. John Mosonik 4. Chelebelet Sigilai 5. Paul Towett 6. Obot Jane 7. Sang Mosonik 8. Simion Mosonik 9. Janet Chekelat 10. Ruth Mosonik
<b>Focus Group Discussion 17<sup>th</sup> Sept 2009</b>	<b>Mogango Water Project 18<sup>th</sup> Sept 2009</b>	<b>Mulot WRUA Group 18<sup>th</sup> Sept 2009</b>
1. Mr. Nehemiah Kilel 2. Mr. Edwin Chebwa 3. Mr. Richard Maritim 4. Mr. Wilson Kilel 5. Mrs. Joyce Cheruiyot 6. Mr. Samuel Marindanyi 7. Mrs. Caroline Ngeno	1. Nicholas Sigei – Village Elder 2. Samwel K. Koech – Village Elder 3. Paul Korir 4. Philip Musonik 5. Pastor William Kiruri 6. Johana Soi 7. Jonathan Mariridany 8. Paul Kilele	1. Joseph Chebusit 2. Mercy Mutai 3. Violah Jepkoech 4. Jesca Tesso 5. Jennifer sang
<b>Kabursuso Water Project 18<sup>th</sup> Sept 2009</b>	<b>Micro Finance Institutions</b>	<b>Water Sector Institutions</b>
1.Paul Langat 2.Paul Kileges 3.Mr. Rotich Chula 4.Leonard Sigilai 5.Chemtai Betty 6.Selina Tangus 7.Wesley Towett 8.Roda Sigilai 9.Agnes Towett.	1. Ms Norah Chelimo – Faulu-Kenya, Development Finance Officer 2. Mr Kelvin Sang – Kenya Women Finance Trust (KWFT) Unit Accountant. 3. Mr Douglas Makori – K-REP Kericho 4. Mr Stephen Rono – K-REP Kericho	1.Eng. Onesmus Maritim – Chair of the Board, Chemosit Water and Sanitation Company. 2.Mr Ronald Sigeyh – MD – Chemosit Water and Sanitation Company. 3.Mr Richard Marindai – MWI, Bomet 4.Mr David Langat – Water Line – Bomet 5.Mr Richard Chepkwony – Tenwek Community Human Development (TCHD).

**Appendices III: Attendance List for Focus Group Discussions**

<b>Kutete Catchment Management Group (KCMG) – 11/09/2009</b>	<b>Olchoro Community Water Project 17<sup>th</sup> Sept 2009</b>	
1. Richard Techoinet	1. Daniel Kilenges	
2. Thomas Tonui	2. Joel Lemiso Mutai	
3. Joseph Maritim	3. William Tuei Salat	
4. Ezekiel Kilele	4. Samuel Rotich	
5. Philemon Techoinet	5. Isaiah Simatwo	
6. Joseph Tonui	6. Alfred	
7. Philip Tuimissing	7. Patrick Towet	
8. Joel Towett	8. Wilson Tuei	
9. John Kosiom	9. Samwel Mutai	
10. Joseph Macharia Tonui	10. Samion Rotich	
11. Jonathan Cheres	11. Philip Koech	
12. Samwel Mibei	12. Wesley Mutai	
13. Philip Too	13. Philip mutai	
14. Robert Mutai	14. Joseph Fundi	
15. Henry Korgoren	15. Richard Kurgat	
16. Lily Sang	16. Simion Marindany	
17. Ng'wolo met Tangus	17. Samuel Chekwony	
18. Rusi Sitienei	18. Samwel Langat	
19. Rusi Marindany	19. Jonathan Tangus	
20. Agnes Tonui	20. Sitienei Tororyei	
21. Easter Kosiom	21. Wilson Murei	
22. Joice Rotich	22. Geoffrey	
23. Martina Kilele	23. Jonah	
24. Florence Kilele	24. Scoller Tangus	
25. Joice Bore	25. Siro Chepkosiom	
26. Grace Kirinyet	26. Richard Chebuit	
27. Richard Langat	27. David Ngeno	
28. Mutai Alfred	28. Richard Sitenei	
29. Samwel Ronoh	29. David Seronei	
30. Standey Bosibew	30. John Kilach	
31. Thomas Techoinet	31. Karion	
32. Joseph Saiyalee	32. Jeremiah Tuei	
33. Leonard Langat	33. Ali Yaban	
34. Beatrice Langat	34. Daniel Kilach	
35. Ziphora Cheres		
36. Alice Kiringet		
37. Marsella Chepkoitat		
38. Linah Kones		
39. Rusi Kandiyani		
40. Norah Kosiom		
41. Viola Rere		
42. Scola Rere		
43. Alice Chebusit		
44. Stella Rere		
45. Annah Cheres		
46. Esther Mutai		





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