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# The Status Fishing Communities in Buikwe District Uganda



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## Executive Summary

The study is a survey to establish the status of fishing communities in Buikwe district, concentrating on the shore line between Namaziina and Bugungu capturing the prevailing conditions in the fishing communities. Sub-counties Ngogwe, Ssi-Bukunja, Najja, Nyenga and Njeru were surveyed. The objective of the study is to assess the availability and reliability of fisheries data in the district, identify the trends in the development of the fishery; evaluate the state of human capital, infrastructure and development projects in fishing communities. Lastly geo-spatial data maps were developed for the same data.

To provide background information, desktop reviews were done for reports and published statistics at DFR, NaFIRRI, Makerere University, MFPED, UBOS, DWD and Buikwe Local Government. Interviews and focus group discussions were held with all the leadership committees on all the landing sites and district fisheries office.

The report covers the economy of Buikwe, the contribution of the fishery to Buikwe and current state of the fishery.

The district runs a 25Bn UGX budget with a per capita allocation of 23.8USD. District budgetary priorities are mostly education and health. The combined fisheries and aquaculture sector gets 0.05% of the annual budget. The fish landings in the district are estimated at a beach value of 45Bn UGX.

Availability of reliable about the fishery is a challenge and the district development plan is yet to develop a comprehensive fisheries development strategy compared to other sectors.

The district has 52 landing sites compressed into 28 BMUs. The main species of commercial importance are Nile perch, tilapia and Mukene. There is a general quantity and quality decline trend for harvests.

An estimated 70,000 individuals are directly dependant on the fishery whose population structure is 87% below 50 years of age.

Accessibility, Sanitation, Hygiene, Health and Education are the five major challenges facing the fishing communities. Relatively good handling practices are found in Ssenyi, Nkombwe, Kiyindi and Kikondo.

Water borne diseases are exacerbated by the rains and toilet coverage in the communities is 23%. HIV poses a major challenge especially in the hard to access landing sites where access to health care and ARVs is none existent. At 28.8%, HIV prevalence is three times higher than the national average. Infant mortality is at 94 per 10,000. Transport is mostly by motorcycle and boat and both modes have no safety measures.

Several projects by Buikwe LG, FAO, and MAAIF have provided fish handling infrastructural support at landing site level to Kiyindi, Nkombwe, Ssenyi, and Kikondo. Social services and health services have been done at a sub-county level by World vision, USEP, Red Cross and AusAID.

The role of women is mostly in sun drying mukene (90%) and smoking fish (87%) and agriculture (80%). Environmental restoration initiatives have been conducted in Kiyindi and Ssenyi through planting trees.

## Acronyms

ARVs	Anti-Retroviral Drugs
ASDHI	African Social Development and Health Initiative
ANNPCAN	African Network for the Prevention and Protection against Child Abuse and Neglect
AusAID	Australian International Development Agency
CBHC	Community Based Health Care
DANIDA	Danish International Development Agency
DFR	Department for Fisheries Resources
EU	European Union
FAO	Food and Agricultural Organization of the UN
FDG	Focus Group Discussion
GoU	Government of Uganda
LC	Local Council
LVFO	Lake Victoria Fisheries Organization
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
NAADS	National Agricultural Advisory Services
NAFIRRI	National Fisheries Resources Research Institute
NARO	National Agricultural Research Organization
OVC	Orphans and Vulnerable Children
UBoS	Uganda Bureau of Statistics
UNDP	United Nations Development Program
USEP	Uganda Association for Social Economic Progress
VCT	Voluntary Counseling and Testing
VSLA	Village Savings and Loan Scheme

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## **1. Introduction**

### **1.1. Background**

Buikwe district seceded from Mukono District in July 2009 to form an independent district. Although Buikwe is about 39km east of Mukono district headquarters, it has lagged behind in development of social services and infrastructure.

The vision of Buikwe district is “to have improved quality of life for the people by reducing poverty levels” and particularly the guiding theme for 2012 to 2015 is to focus on growth, employment and social economic transformation that will lead to prosperity(Buikwe LG 2012).

The Ministry of Finance, Planning and Economic Development (MoFPED) of the government of Uganda and the Government of Iceland using its international development arm ICEIDA, through its Country Strategic Program 2013-2016, will partner in two critical areas that will improve livelihoods and therefore accelerate the realization of the above theme.

The two strategic areas for intervention are;

- i. Fisheries
- ii. Social Infrastructure

These two areas will invariably be developed with emphasis on environmental sustainability and gender balancing. The development strategy therefore targets fishing communities in the area of implementation.

### **1.2. Objectives of the study**

In view of the above, a situation analysis is conducted to understand the prevailing conditions in Buikwe district in particular in relation to the fishing communities. The results of this study are to inform the implementation and monitoring designs in the two focal areas above. This is will provide a benchmark for achieved impacts of future interventions.

The study had the following objectives

- i. Evaluate availability and reliability of relevant data and statistics
- ii. Identify trends in development of the fishery in the past five years (species, gear, catches and prices)
- iii. Evaluate the current state of social infrastructure, physical infrastructure and development activities in the fishing communities

### **1.3. Location and geography of the study area**

The district borders Lake Victoria with a shoreline estimated at about 160 km. The area is enclosed between Longitude 32.847286 and 33.279393; Latitude 0.048324 and 0.461566. The terrain is undulating with Ssi-Bukunja sub-county having the slopes of about 60% and forming the most bays. These flatten out as one proceeds to shores along the Nile in Nyenga and Njeru Sub counties. Inland the elevations are about 1300 and these drop to 760m above sea level by the shoreline.





*Rocky steep slopes in Ssi and Ngogwe. Picture taken in Kasaali*



*An example of a flat shore line in Butembe, Nyenga*

The soils are ferralitic and ferrisols. The types include Sango catena (Najja, Ssi-Bukunja, and Ngogwe) and Kyebe catena (Nyenga and Njeru) where the study was conducted.

The district experiences an annual rainfall of 11,000mm with peaks in March - May and September – November. The temperatures are between 16 and 28°C annually.

Vegetation is forest patched with savannah in Ngogwe and Ssi-Bukunja. Savannah cover is the common type in Najja, Nyenga and Njeru.

The district has a population of 407,100 and a male to female ratio of 1:1 (Buikwe LG 2012). The population density stands at 256 people per km<sup>2</sup> higher than the central Uganda average of 175.7 people per km<sup>2</sup>. The population growth rate estimate stands at 2.6% lower than the national average of 3.3%.

#### **1.4. Administrative structure**

Buikwe District with a size of 4,974 km<sup>2</sup> comprises of the following Local Governments and Administrative Units: 1 County – Buikwe; 8 Sub Counties – Kawolo, Najjembe, Nyenga, Wakisi, Buikwe, Najja, Ngogwe and Ssi-Bukunja; 4 Town Councils – Lugazi, Njeru, Nkokonjeru and Buikwe and It is comprised of 64 Parishes and 464 Villages (LC 1).

The District Council is the highest political authority in the district, with 25 members under the headship of the District Chairperson. It has a technical team headed by the Chief Administrative Officer (CAO), distributed in 11 directorates and departments. Each of the departments has a head and under every directorate, there are a number of Sections (Buikwe LG 2012).

## **2. Methodology**

The study is a cross sectional investigation and was carried out between May and June 2013. The data was collected from the sub-counties of Ngogwe, Najja, Ssi-Bukunja, Nyenga and Njeru that border the lake and consist of all the fishing communities on Lake Victoria in Buikwe district. Investigations centered on key informants in the area including; district leadership, local council members, BMUs leadership, local health personnel, local security personnel, fish mongers, fish traders, boat makers and repairers, and transporters.

On the consent of the district to conduct the survey, a total of 53 focus group discussions were conducted and were all inclusive for individuals found in the particular area. Local leadership was also consulted before any interviews were conducted in the area. Individual interviews were also conducted with women representatives, health personnel and fish mongers. Document reviews, online maps and direct observation were used for triangulation. The following sources of information were consulted; UBoS, DWD, NaFIRRI, Makerere University, Google maps, Fish base and News articles.

Data collected included, location settings using a Garmin GPS, photos where the leadership agreed to taking of the pictures of activities and landing site, and questionnaires. Questionnaire testing was done in Kiyindi and corrected before being used on the other landing sites.

Data was entered in excel for analysis and results for quantitative data presented as frequencies, percentages and charts, while ranks and geospatial maps were used for both qualitative and quantitative data.

## **3. Results and Discussions**

### **3.1. Data and Information availability**

The team did not find any specific information document for the development of the fisheries in Buikwe district. The district official data document is the five year development plan (Buikwe LG 2012). It has the basic information of the current status of the district development priority areas. The document lacks information in regard to the fishery of the district and plans for development given the limited budget for fish production related activities. However, the district leadership has development priorities in the order of sanitation and hygiene, clean water, quality assurance, education and health.

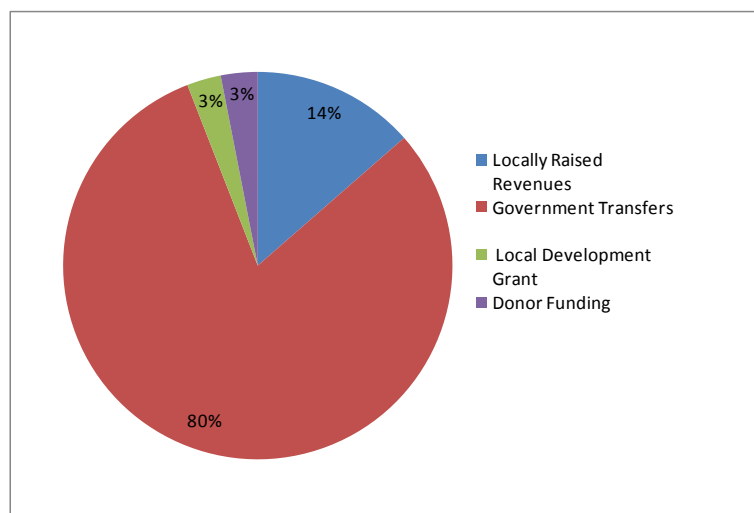
Similarly information found at district headquarters of Mukono did not include the status of the fishery even before 2009 when Buikwe seceded. Information received from BMU offices at gazetted landing sites indicated that fisheries related data is submitted to MAAIF. However, data available at the MAAIF is only on export volumes of Nile Perch, and is not segregated by district. An apparently reliable Data capture tool within the surveyed sites would be the fish transport permit. However permit books are submitted to the sub-county for archiving once they are used up, but it was not possible during this survey to get access these.

The fisheries office in Buikwe lacked data capture and storage tools i.e. a computer and relevant software would be expected in this regard but is not available.

Information about sanitation, environment and gender related activities are aggregated by sub-county and no disaggregated records per fishing communities or LCs bordering the lake.

### 3.2. Economy of Buikwe District

The district runs an annual budget of 25 billion UGX with a budget allocation per capita of 23.8USD. Major funding is from central government while donor funding accounts for about 3% as shown figure1 below. In comparison, the central government runs a 9,630 billion UGX budget with per capita allocation of 113USD (MFPED 2013).



**Figure 1: Main budget funds sources for the district (Buikwe LG 2013)**

The district prioritizes education and health as shown below (table 1)

**Table 1: Budget prioritization between government of Uganda (left) and Buikwe District (right) (MFPED 2013)**

Sector	Uganda Gov't % Allocation (Total 4296.7Bn UGX)	Buikwe Local Gov't % Allocation (Total 25.2Bn UGX)
Agriculture	2.5	6.9
Physical Planning	0.1	0.9
Natural Resources	2.7	0.7
Works and Transport	29.9	8.4
ICT	0.3	0.0
Tourism, Trade and Industry	0.2	0.0
Education	9.9	45.7
Health	9.6	14.4
Water and Environment	4.3	2.6
Social Development	1.1	2.0
Security	18.5	0.0
Justice, Law and Order	7.6	3.9
Public Sector Management	8.5	0.0
Accountability	4.0	0.5
Finance	0.0	7.1
Legislature	0.3	0.0
Public Administration	0.6	6.9
Total	100.0	100.0

Urbanization is high along Kampala-Jinja highway but this far from any of the fishing villages. Agriculture as a major source of employment in the district (80%) and livelihoods has been hit by both economic natural setbacks; mostly price slumps for vanilla, coffee and crop diseases, respectively.

The district relies on revenue from the big industries like sugar and tea plantations, power generation, steel, breweries, foam and textile.

Plantation labor is dominated by migrants from West Nile (Lugbara). The employment in the fisheries sector in Buikwe district comprised mainly of migrants from the east. It is seldom the case for laborers to switch jobs but retire and return to their home districts.

**Table 2: Comparisons among demographic indicators of Buikwe district in relation to Kampala and Uganda**

Parameter	Buikwe	Kampala	Uganda
Population density (pp/km <sup>2</sup> )	81.8	9,424.6	137.1
Population growth rate (%)	2.6	5.6	3.3
Average household size	4.2		
Toilet coverage (%)	67.4		
Safe water coverage (%)	53.6		
Hand washing coverage (%)	21.9		
Male to female ratio	1		1

### 3.3. Economic Importance of fisheries to Buikwe District

Fishing is the main source of employment in the 52 fishing communities in the district. The estimated number of individuals directly depending on the resource is approximately 70,000 with the highest populations in Kiyindi, Ssenyi, Kikondo and Nkombwe.

The Buikwe fishery is estimated at a minimum landing/ beach value of 45 Billion UGX (table 3) which is approximately 180% of the whole district 2013 budget. It is important to note that the value of other species, illegal fish catches and legal sales that do not pass through the main collection centers of Kiyindi, Ssenyi, Kikondo or Katosi could not be estimated but this volume is considered not substantial.

**Table 3: Economic value of landings in Buikwe District**

Specie	Est. Annual Catch ('000 Kg)	Main Exit Points for Estimation	Average Landing Price UGX/Kg	Total Landing Value (Million UGX)
Mukene	4,631	Kiyindi, Ssenyi, Kikondo, Nkombwe	750	3,473
Tilapia	4,433	Kiyindi, Ssenyi, Katosi, Kikondo	3,250	4,407
Nile perch	6,000	Kiyindi and Ssenyi	4,500	27,000
		<b>Total</b>		<b>44,880</b>

*Data Source: Raw data: It should also be noted that some landings from Buvuma District pass through the district.*

### 3.4. Prioritization of the fisheries in the district

Fisheries development in the district faces a challenge due to lack of a clear development agenda in the five year (2011-2015) development plan (Buikwe LG 2012). The plan indicates a commitment to

- Maintaining fish quality standards at Nkombwe, Kiyindi, Ssenyi and the lake
- Patrols and enforcement of regulations
- Establishing fish farming demonstrations
- Trainings for collection and analysis of market information

The planned budget for the above activities is 13million UGX, 7 million of which is for capture fisheries development and 6 million for aquaculture.

On social service and welfare delivery, development projects that will work in fishing communities for 2012/13 fiscal year have allocated a total budget of 728 million to HIV, gender, environment, water and sanitation (Appendix VI). These projects will not operate in Ssi-Bukunja and Ngogwe sub-counties.

Substantial infrastructure developments relating to fisheries have already been done in Ssenyi, Kiyindi, Nkombwe, Busaana, Kikondo, Nakasolo and Buyoka (7) out of the 52 sites (Appendix VII). Only Kiyindi, Ssenyi, Kikondo and Nkombwe have benefited in fish handling related infrastructure.

### 3.5. Landing sites

Buikwe is only bordered with Lake Victoria on its way to the Nile. Five sub-counties and 20 parishes border the lake in the district. There are 52 fishing communities between the border with Mukono district and Owen-falls dam giving an average of one fishing community for every three kilometers of shoreline.

BMUs use a threshold of seven boats for a place to be categorized as a landing site. Some landing sites are gazetted. A gazetted landing site is one where the basic facilities of handling and transportation are in place. This criterion has only been used for sites that handle Nile perch for export. Only Kiyindi and Ssenyi are gazetted landing sites while plans to gazette Nkombwe and Nansagazi have not materialized yet, but construction of the necessary basic infrastructure has been initiated. The rest of the landing sites (48) have minor infrastructure and most handling facilities are privately owned initiatives. These include Mukene drying racks in Nkobwe and Nalyazi and fish handling Bandas in Buwagajjo and Bugoba. The distribution of landing sites by parish in Buikwe district is shown in Appendix III.

#### 3.5.1. Beach Management Units (BMU)

A BMU is the functional unit for management of the fishing activities for a given landing site(s) by law. The 52 landing sites in Buikwe are compressed into 28 BMUs so as to form functional landing sites from small ones in close proximity (table 4).

**Table 4: Beach management units per Sub-county**

Sub county	No of BMUs
Nyenga	8
Najja	4
Ngogwe	6
Ssi-Bukunja	9
Njeru	1
<b>Total</b>	<b>28</b>

### 3.5.2. Fishing seasons

The seasons for fishing are categorized along three major lines i.e. the lunar cycle, the rainfall patterns and species. The lunar cycle is mostly for fishers that use nets in fishing since the fish is able to notice and avoid nets during the moonlight. Rainfall seasons, (March to May and Sept to Nov) are related to increases in water levels and surges in water boundaries. During this period, catches are low as fish is known to be breeding. High catches are reported in the drier period of Jan to March and June to Aug. Hooks and long line fishers report no particular seasonal differences in catches. It is also stated that during the catch season for *Synodontis* (Nkolongo) (May to July), catches of other species are low. *Synodontis* is known to cause mortalities of other species.

### 3.5.3. Fish species, diversity and abundance

The species landed in Buikwe are categorized in order of abundance and commercial importance (table 5).

**Table 5: Species diversity and importance**

Specie	Local name	Abundance	Importance
Nile perch ( <i>Lates niloticus</i> )	Mpuuta/ Gur	High	Commercial
Mukene ( <i>Rastrineobola argentea</i> )	Mukene/ Muziri	High	Commercial
<i>Synodontis</i> ( <i>Synodontis</i> sp)	Nkolongo/ Lungu/ Okwoki	High (May to July)	Commercial
Tilapia ( <i>Oreochromis</i> sp) <i>Tilapia zilli</i>	Ngege/ Oro/ Ozogoro	High	Domestic consumption and Surplus sale
Catfish ( <i>Clarias</i> sp)	Mmale/ Nyai	Low	Commercial
Lungfish ( <i>Protopterus aethiopicus</i> )	Mmamba	Low	Commercial
<i>Bagrus</i> ( <i>Bagrus docmac</i> )	Ssemutundu/ Ombara	Low	Commercial
<i>Barbus altinialis</i>	Kisinja/ Lara	Low	Domestic consumption and surplus sale
<i>Haplochromis</i> sp	Enkejje/ Opok	Low/ Mukene by- catch	Commercial mostly as bait for Nile perch
<i>Labeo victorianus</i>	Ningu/ Onduka	Low	Commercial
<i>Momyrus kannume</i>	Kasulu/ Kobya	Low	Domestic consumption and surplus sale

### 3.5.4. Fish Sizes

Fish of all size categories is landed in the district. The destination market for the landed fish is highly dependent on the size. Under-size fish was not observed or reported in Kiyindi, Ssenyi, Nkombwe and Kikondo but observed on all other landing sites.

**Table 6: Fish landings by size category in Buikwe**

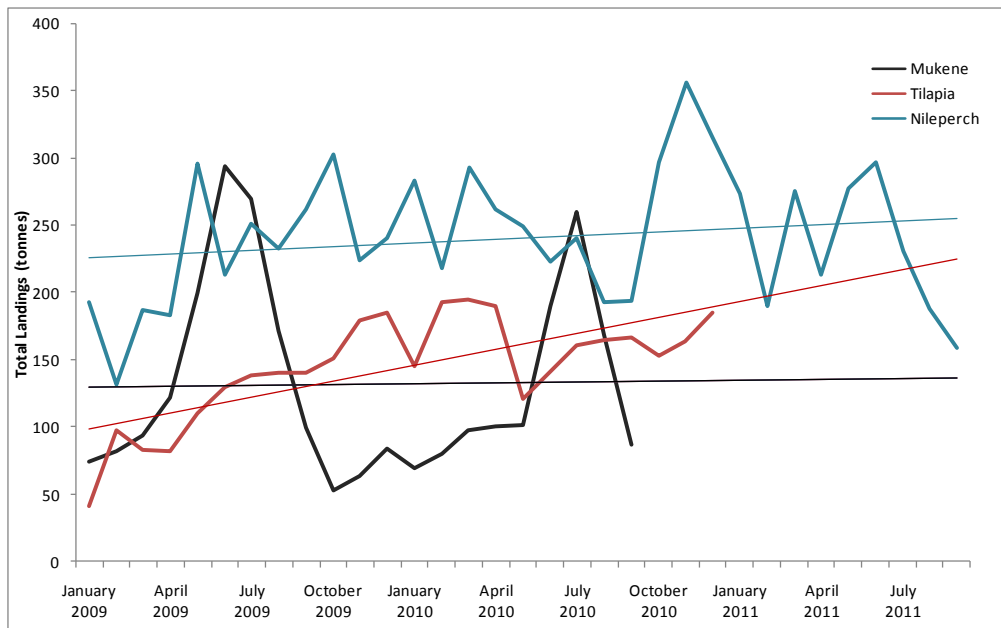
	Export and Regional market (Legal size)	Uganda Market
Nile perch	Above 6" body depth	All sizes (3" and above)
Tilapia	Above 4.5" body depth	All size (2" and above)
Mukene	1.5" total length	1.5" total length
Others	Variable	Variable

*No season variation in individual size of fish is reported.*

### 3.5.5. Trends in landings

Generally, landed volumes of Mukene have remained constant over time. Tilapia landings are increasing while Nileperch landings are fractuating over time with a slight increase trend. Commercial Landings estimates in tons per year are 4,631, 4,433 and 6000 for Mukene, Tilapia and Nileperch, respectively.

Available Data from Kiyindi and Ssenyi is used to illustrate the catch trends for Tilapia, Mukene and Nile perch between 2009 and 2011 (figure 3).



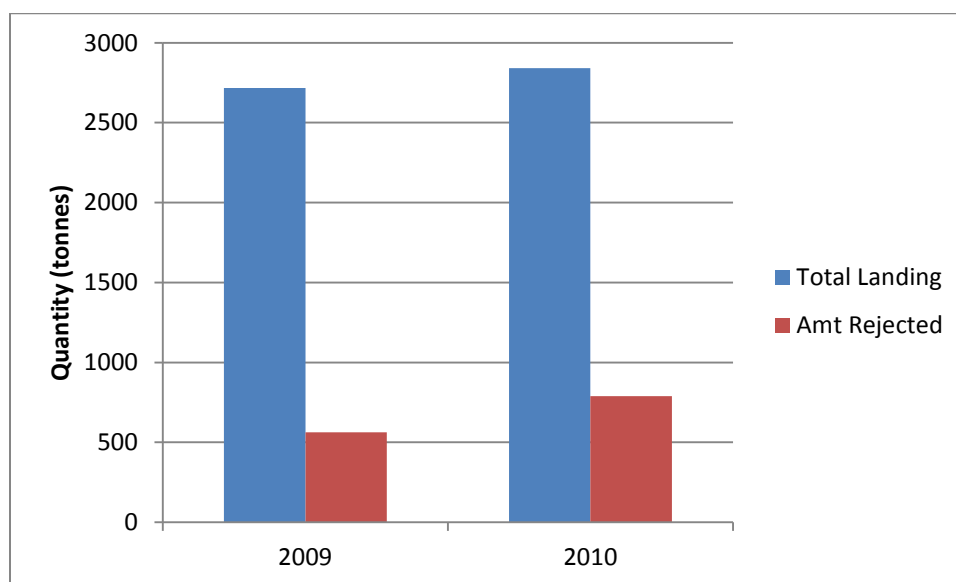
**Figure 2: Trends on the landings through Kiyindi and Ssenyi as major exit routes for all catches from Buikwe district.**

Annual catch deviations are about 53% for Mukene, 20% for Nile perch and 21% for tilapia.

**Table 7: Statistics of landings (tons) at Kiyindi and Ssenyi**

Statistic	Mukene		Tilapia		Nile perch (Kiyindi)		Nile perch (Ssenyi)	
	2009	2010	2009	2010	2009	2010	2010	2011
<b>Mean</b>	134.4	128.6	123.1	164.6	226.3	238.5	282.6	233.9
<b>Max</b>	294.2	260.0	184.5	194.5	302.4	310.0	402.6	296.7
<b>Min</b>	53.3	70.0	41.4	120.7	131.7	162.0	187.6	158.8
<b>S.D</b>	81.4	63.9	41.9	22.9	49.0	49.0	71.7	49.1

About 23% of the landed Nile perch catch is rejected by processing factories annually due to poor quality (figure 4).



**Figure 3: Proportion of rejected Nile perch at Kiyindi between 2009 and 2010**

### 3.6. Gear

#### 3.6.1. Boats

Boats operating in Buikwe waters can be grouped under three categories depending on the length of the boat and the radius of reach offshore (table 8).

**Table 8: Boat categorization**

Boat (common names)	Dimensions (ft)	Number of operators	Radius offshore (km)	Target specie
Canoes (Dug out)	1-13	1 or 2	1-2	Nile perch, Tilapia
Unmotorised (Parachute, Ssesse pointed at both ends)	18-24	4	1-5	Mukene, Nile perch, Tilapia
Motorized (Ssesse flat at one end)	25-32	2 or 3	5 and above	Nile perch



Boats are constructed and repaired on 13 landing sites (Kikondo, Kiyindi, Malubya, Muyubwe, Nalumuli, Nansagazi, Buweera, Kizize, Kaazi, Nkombwe, Ssenyi, Kwasi, and Namusenyu).

Available data on boat census gives 8600 fishing boats in Mukono accounting for about 36.4% of the fishing fleet on Lake Victoria (Muhoozi & Mbabazi 2012). After secession of two districts in 2010, this figure is currently distributed among Buikwe (35%), Buvuma (30%) and Mukono (45%) (*pers comm* Kiyindi BMU). This gives about 3100 boats for Buikwe.

### 3.6.2. Hooks and Nets

Hooks as a type of gear are used by the low income fishers as capital requirements for entry into Nile perch fishing are below those for nets. Hooks and long lines are mostly used in Najja and Ngogwe sub counties. The use of fishing lines requires availability of bait which is usually *Haplochromis* and *Clarias carsonii*. Bait is captured from near shore and delivered live in buckets for use on boats. The same boat operators can have two shifts one for fishing bait and one for fishing the target specie or else the bait is bought. Hooks are divided into different size categories depending on the target species with the largest (targeting Nile perch). However, large hooks are seldom 1% (figure 5) (LVFO 2013).

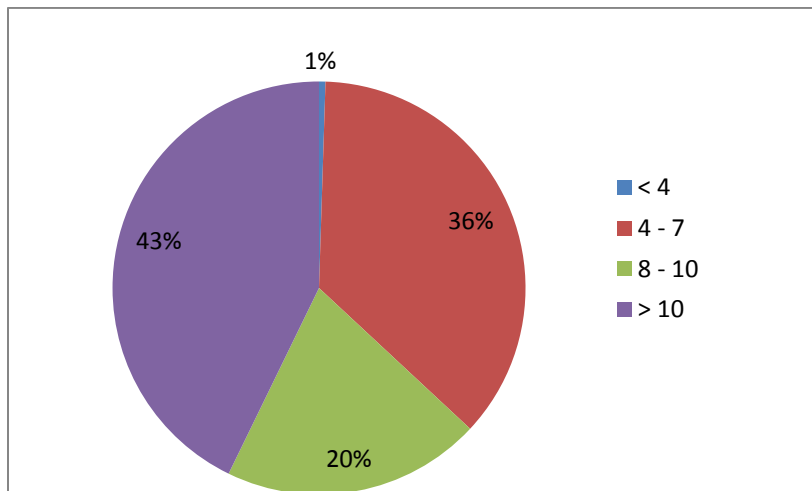


Figure 4: Hook size distribution in 2012 Source: (LVFO 2013)

Nets sizes range from mukene (<0.2"); tilapia using 4 to 5" and Nile perch using 6" mesh size. Also existing in Nyenga and Ssi-Bukunja sub-counties are Beach seines of 0.5 to 1" mesh size that operate inshore illegally. Nets used are nylon single twine and monofilaments categorized as illegal. Average catch rates per day for different boat types and gear are shown in table 9.

Table 9: The average catch rates per fishing trip vis-à-vis type of gear used

Period	Specie	Catch Gear	Paddled boat kg/boat/day	Motorized boat kg/boat/day
March 2010	Nile perch	Nets	9.2	26.6
May 2011	Nile perch	Nets	7.2	21.6

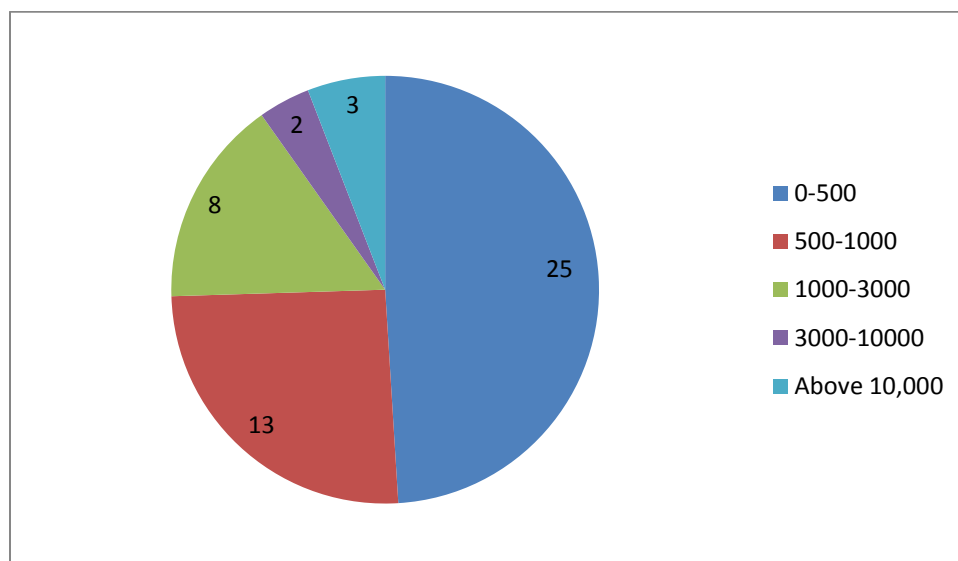
March 2010	Nile perch	Long line	23.1	35.0
May 2011	Nile perch	Long line	19.2	33.5
March 2010	Nile perch	Beach Seine	25.9	
May 2011	Nile perch	Beach Seine	44.5	
March 2010	Tilapia	Nets	8.7	
May 2011	Tilapia	Nets	6.5	
March 2010	Mukene	Lampala nets	47.5	
May 2011	Mukene	Lampala nets	130.4	

Source: (Muhoozi & Mbabazi 2012)

### 3.7. Outlook on the fishing communities

#### 3.7.1. Population

There is an estimated population of about 70,000 persons in fishing communities along the 156 km of shore line in Buikwe. Estimates involved people that directly benefit from the landing and those in the local council close to the landing site. Highest densities are in Kiyindi, Ssenyi and Nkombwe are the communities with over 10,000 residents each (figure 6). The chart below shows the number of landing sites in each population estimate category. Sub county population statistics are presented in Appendix IV.



**Figure 5:** Population distribution of landing sites

In terms of settlement patterns; out of the 52 landing sites, 10 fishing communities reported migratory residents following fishing seasons (Kafuba, Nambula, Nabbale, Golomolo, Buweera, Kabo, Nakalemu, Gamba, Kifua, and Lugu). Other landing sites had permanently set up communities. Most migratory communities have a clustered settlement pattern (camps).

The Christianity is dominant (70%) followed by Islam (21%) and other religions.

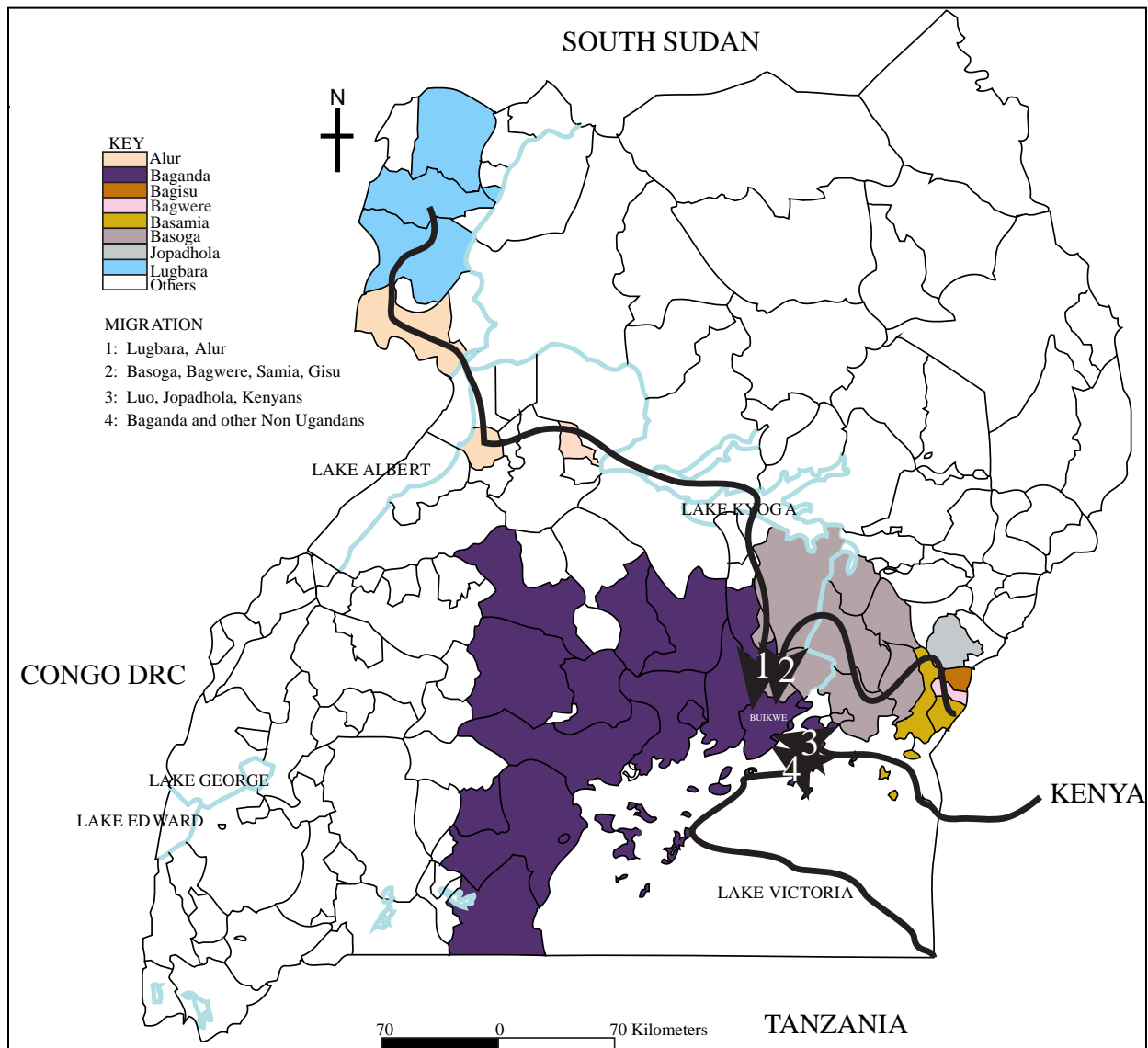
THE STATUS OF FISHING COMMUNITIES IN BUIKWE DISTRICT, UGANDA

Major tribes in the communities are categorized by Sub-county as shown in table 10 in descending order.

**Table 10: Major tribes in fishing communities by sub-counties**

Sub county	Tribes
Njeru	Basoga, Bagwere, Baganda
Nyenga	Basoga, Baganda, Bagwere, Samia
Najja	Baganda, Basoga, Luo, Kenyans
Ngogwe	Baganda, Alur, Kenyans, Luo
Ssi-Bukunja	Baganda, Luo, Basoga

The major migratory people involved are the Luo and Bagwere (figure 7).



**Figure 6: Fisher folk migration to Buikwe district (data source: UBoS census data and field interviews)**

The average number of children in a family for the fishing communities is five children per female and about eight children per male due to polygamous culture and migratory behavior of fishermen.

Through estimates obtained from the BMUs, the age structure of fishing communities in Buikwe is shown in table 11.

**Table 11: Age structure of fishing communities**

Age group (years)	Percentage composition
1-15	27
15-50	60
50 and above	13

The communities have a high middle age population with 60% of people falling in the category of 15-50 years.

### **3.7.2. Main economic activities**

Ninety four percent (94%) of the landing sites are involved in fishing as the main activity. Among second level activities are agriculture (67%), trade (57%) and transport (16%).

### **3.7.3. Accessibility**

The District has 394 km of motorable road and 350 km of village community roads mostly used by motorcycles (Buikwe LG 2012). Only five landing sites have driving accessibility in both wet and dry seasons on murrum (Kiyindi, Ssenyi, Nkombwe, Kikondo, and Busaana). About 70% of the community roads are in a poor status and access to fishing communities is a challenge. This has been cited to prohibit access to good markets and social services. Fishing communities in sub counties of Ssi-Bukunja and Ngogwe are the most affected in terms of accessibility.

### **3.7.4. Fish Handling and Hygiene**

Relatively good handling is recorded on nine (9) of the landing sites (17%) which are specializing in Nile perch and Mukene. The handling of fish is mostly governed by the destination market. All fish destined for export and sale in high end domestic markets is handled in a way that ensures high quality. Hygienic handling procedures for Nile perch are well laid down in Ssenyi and Kiyindi. The two fish collection centers strive to maintain fish high quality as a requirement from fish exporters. Use of white coats, handling slabs, sheds, ice and tubs are well established on the two sites. Nile perch transport boats and motorcycles use containers/baskets that have ice till the time of sale to factory suppliers. Clean chlorinated water, washrooms and toilets are also available in the area. The quality assurance infrastructure has been partly developed with donor funding (Appendix VII) as means of upstream food safety and risk management.

To ensure hygiene, cooler boxes with ice are used for Nile perch and tilapia while shade net drying racks are used for Mukene.



*Nile perch in a tub with ice at Nalyazi*



*Mukene drying racks at Kikondo (support from FAO)*

Handling of tilapia and other species is still a challenge as many of the fish is dumped on the ground and/or handled on unclean tables. The reason for poor handling is the lack of incentive to it. Fishers could not relate any additional revenue from the practice. However, knowledge of proper handling of fish is available on all BMUs. It should also be noted that increased losses from smoking fish (rejects) and rejection of fresh fish by traders is prompting villages like Nalyazi and Kigugo, Kaazi and to invest in locally made wooden boxes lined with metal sheets to hold ice and keep fish in a relatively high quality condition to sustain the market. The number of landing sites where ice is used is 27 representing 52% of the fishing communities. Ice is delivered by traders from Kiyindi, Katosi, Ssenyi, and Jinja and landing sites in containers. The price of ice ranges from 130 to 250 UGX per kg, the discrepancy mostly determined by the distance from the main delivery centers. Ice is mainly used for tilapia and Nile perch targeted at the export or high end domestic market.



*Nile perch on bare ground*



*Mukene drying on bare ground*

Generally Mukene handling is unhygienic characterized by drying on bare ground. This habit has been incentivized by the animal feed industry but increased quality awareness and consumption by humans is changing the trend in Kikondo, Nalyazi and Nkombwe.

### 3.8. Fisheries business

#### 3.8.1. Business entry requirements in fishing villages

It is imperative that any new entrant in fish related business follows the steps below to gain access to all landing sites.

- Introduction letter from previous locality
- Introduction of business intent to the LC and BMU
- Application for business (fishing and/or trading) license through the BMU to MAAIF.
- Acquisition on necessary legal gear or transport methods.

#### 3.8.2. Records

Only Kiyindi and Ssenyi BMUs have verifiable records of data. Generally, traders keep records. It has been found that the records kept on 69.2% of the landing sites are by fish traders and none from fishermen that can be verified. The trading records observed are poorly kept on loose sheets and not consistent. Summary data is displayed on charts in BMUs offices.

#### 3.8.3. Financial management

Financial management in fishing communities is a major challenge. Due to lack of a saving and investment culture, money is spent as it comes in. The main activity for the outflow of money from the fishing communities given by number of communities, are; entertainment and gambling (31), business (9), domestic consumption (8), and agriculture (1).

#### 3.8.4. License/ Permit

Permits are issued by MAAIF on a basis of boat, engine size and target specie (table 12).

**Table 12: Permits for fish related business in Buikwe**

Position in Chain	Actor	Quantity	Annual Fee (UGX)
Fishing	Fishing boat	Open	30,000
Trading	Monger individual	Less than 1 tons	50,000
	Medium monger	1-5 tons	250,000
	Association	1-5 tons	250,000
	Trader	5-10 tons	500,000
	Trader	Above 10 tons	750,000
Transport	Bicycle and Motorcycle	1,000Shs paid per trip	
Processing	Artisan	Open	250,000
	Commercial	Open	3,000,000

#### 3.8.5. Fisheries related training

Kiyindi, Ssenyi and Kikondo are sites that host fisheries related trainings for BMUs. Trainings especially from the local government are free but lack of proper communication channels on the schedule (Appendix I), has resulted in 57% of the fishing communities having no access.

### 3.8.6. Business Relationships

Due to lack of capital, fishermen (barias) are usually on contracts from gear owners (Boat and nets) who pay them a commission for supply loyalty. They in turn provide a steady source of employment and income to the barias. There are no formal contracts between the barias and gear owners and all business is based on trust.

Increasing piracy has been cited as a cause for many fishermen failing to invest their proceeds into obtaining legal gear. In turn strict rules and regulations, harsh enforcement team from the district is reported to accelerate failure to save and thus continued illegal fishing.

### 3.9. Transport

Boats specialized for transportation of people and goods are recorded at Kaazi, Kiyindi, Kikondo and Ssenyi. Travels connecting all islands and small landing sites to Ssenyi and Kiyindi on the mainland are available at a fee. A ferry service is also available at Kiyindi. Inaccessible fishing communities mostly in bays use the motorized fishing boats for people transportation. Safety of transport boats is a major challenge as all observed boats do not have life jackets and passengers cite lack of training on safety.

Land transportation for fish is by motorcycles and bicycles on 46 landing sites. Similarly, the same mobility mode is used by people. Usage of pickup trucks is recorded in Ssenyi, Kiyindi, Kikondo and Nkombwe for smoked fish and sun dried mukene. These pickup trucks transport people seated on the fish. Transport of fish bales in mini buses is illegal but takes place early in the morning and late evening.

### 3.10. Fish Supply chains

The supply chain of fish in Buikwe involves three major collecting centers and direct trade to Jinja. It involves fish catch by the fishers delivering to the boat owner, usually a trader, who sells off at Kiyindi, Ssenyi, and Katosi or directly to the factories in Jinja as illustrated below (figure 8). Tilapia, mukene, undersize and reject quality Nile perch is then sold to the local markets in east, central and northern Uganda.

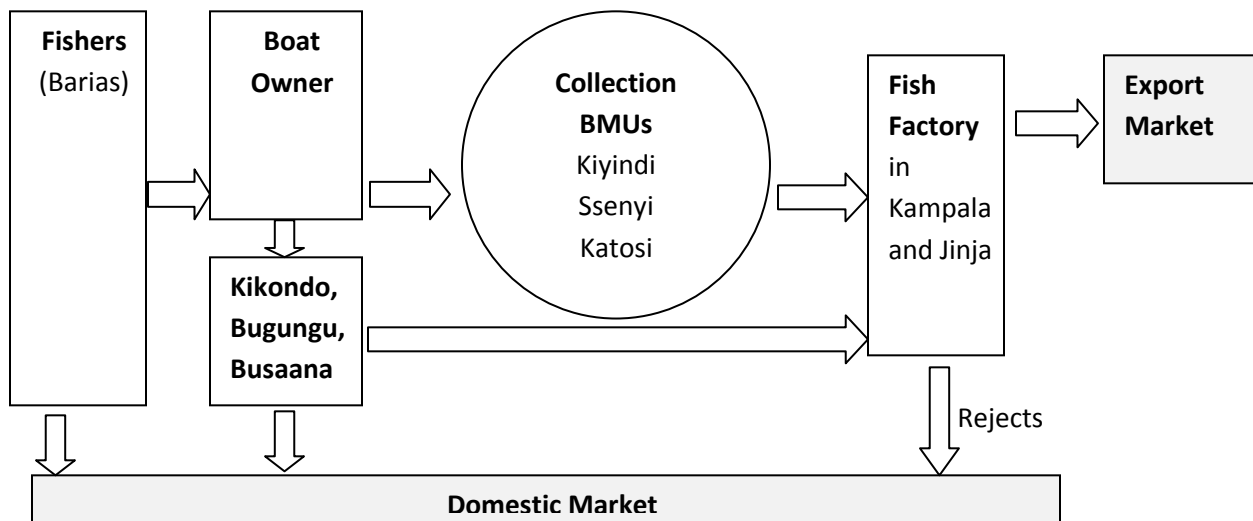


Figure 7: The flow of fish products in Buikwe district

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Transportation of fish is done in boats and trucks built with ice containers at the collection centers.



*Loading ice into a fish collection boat at Kiyindi landing site*

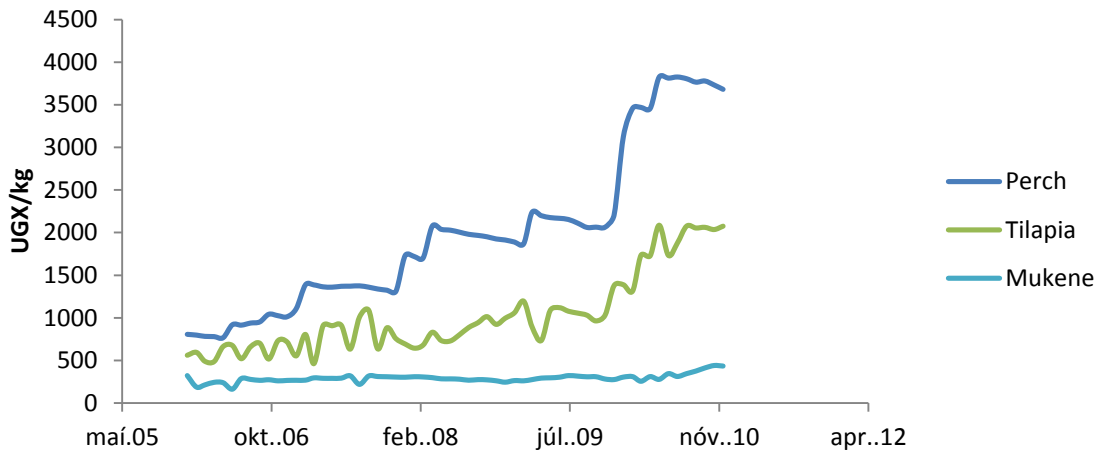


*Cooler trucks waiting for Nile perch landings at Ssenyi landing site*



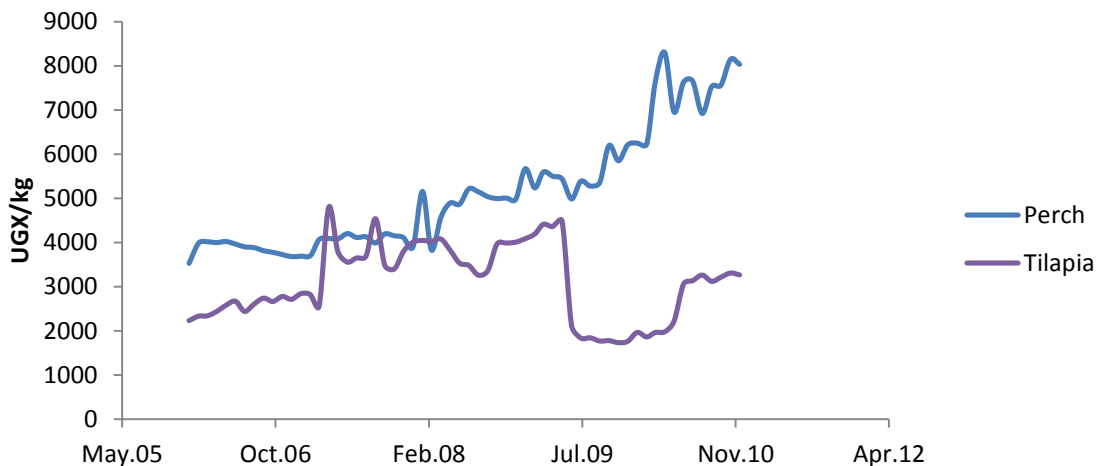
### 3.10.1. Price Developments along the supply chain

The price of fish has been increasing and diverging by species as shown below. Nile perch fetches the highest price at landing sites and mukene has been stable in price over the years (figure 9).



**Figure 8:** Real landing prices (deflated), January 2006 to December 2010

Similarly the price at the retail end has been increasing for Nile perch but little value is registered for tilapia in real price terms (figure 10).



**Figure 9:** Real retail price, whole un-gutted, January 2006 to December 2010

The absolute margin over the five years for Nile perch and Tilapia are generally similar at about 2000UGX in the time series (table 13).

**Table 13:** Price summary statistics for time series, mean value UGX/kg

Specie	Landing site	Retail
Perch	1979.59	5132.01
Tilapia	1026.02	3095.91
Mukene	292.211	-

### **3.11. Value chains**

#### **3.11.1. Main Products**

Sixty five (65%) percent of the landing sites deal in both Nile perch and Tilapia while on 35%, Mukene is the main product.

#### **3.11.2. Processing (Preservation and Value addition)**

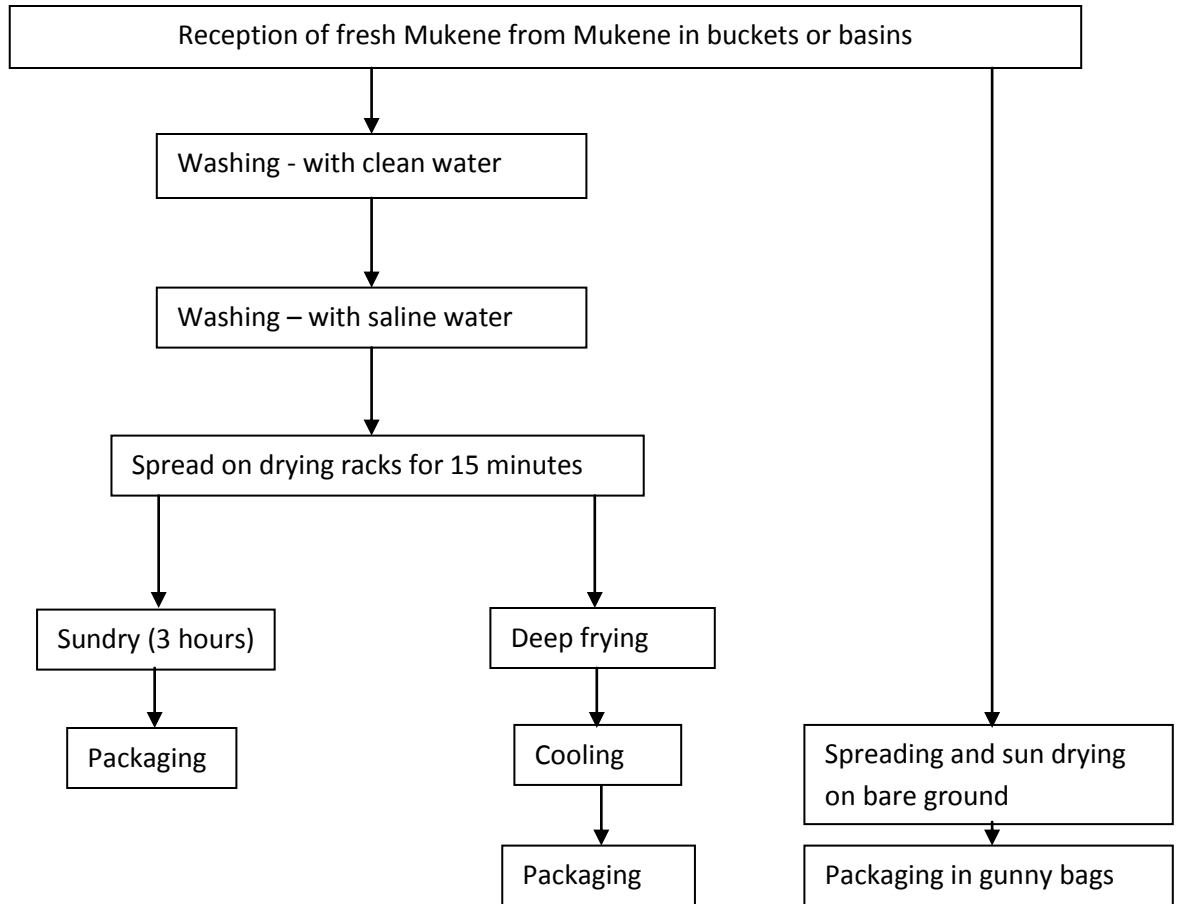
Generally, processing is only done for preservation but not value addition. The main processing method are smoking and drying and fish is smoked in 53 percent of the communities visited. The methods of processing in order of volume are sun drying for Mukene (36%), smoking (35%) deep frying (7%) and salting (2%) for Tilapia and Nile perch.

Mukene is processed by women on all the 18 landing sites dealing in this product. It is dried on bare ground or Mukene nets on grass. Only four landing sites had drying racks (Nalyazi, Nkombwe, Kiyindi and Kikondo) in addition. It is, however, noted that there has been an increase in rejection and value loss of Mukene dried on bare ground. This has encouraged most processors (women) into taking up or working towards methods of drying Mukene on raised nets to improve proceeds.

The drying ratio of Mukene by weight is 5:1 kg wet to dry. Volume by volume, the ratio is found to be 1:1.3 wet to dry. This is cited as the major reason for selling Mukene by volume and not weight.

Due to the capital intensive nature of fish trade, women are hired for offloading and drying Mukene and are paid in-kind where for each 7 volumes of dry Mukene, the processor paid 1 volume. The following chart details the process of Mukene processing and product differentiation.

**Chart 1: Flow chart Mukene processing**

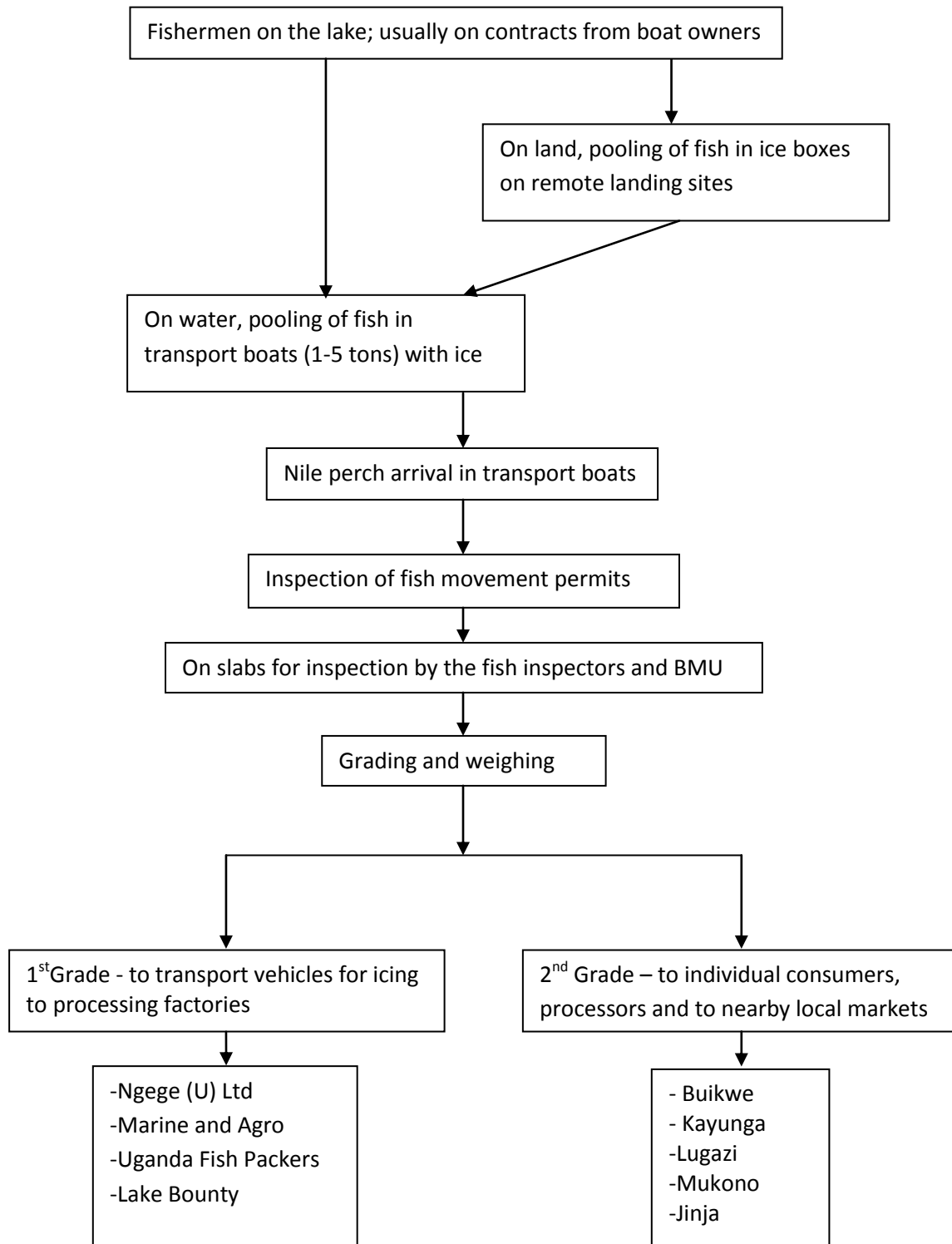


*A woman dries Mukene on a rack in Nalyazi*



*Offloading Mukene by women in Ssenyi*

**Chart II: Flow chart for production of Nile perch in Buikwe during the study**



### **3.11.3. Quality requirements in the chain**

Quality requirements of fish are set by fish traders for all landing site except Kiyindi and Ssenyi where government regulations on quality are followed.

Artisanal processors (women) did not have quality standards for the fish they purchase as most of the fish processed are rejects from fresh fish trade. The main processing method for tilapia and Nile perch is smoking.

The main source of fuel used for smoking fish is wood. In Najja and Nyenga, the wood is mainly procured from Buvuma Islands while in Ssi-Bukunja and Ngogwe, nearby forests are used posing an environmental challenge.

### **3.11.4. Packaging of products**

Specialized packaging and branding for Mukene; fried, powder and chips is found in Kikondo and Kiyindi using heat sealed plastic in packs of 50 to 100g. The initiative was jumpstarted by FAO in collaboration with MAAIF in 2011(Lukuunya 2013). The products developed are then delivered directly to major supermarkets (URN 2012).

Sacks, boxes, baskets and polythene bags are used on 42, 23, 13 and 6 landing sites respectively;

### **3.11.5. Information flow in the fish supply chain**

Much as the information relating to handling is available on BMUs, the English media in which the information is conveyed acts as barrier for the fishers to read and understand. Thirty one (37) fishing communities could not access information on markets and relied on motorcycle traders to dictate the price. Cell phones are the main tool used in price and quality information gathering. Fishermen did not know their product's destinations. The last link they inquire prices from is Kiyindi, Ssenyi and Katosi. Traders could only explain the product flow up to the processing plants in Jinja. So there is an information barrier at each node in the chain.

## **3.12. Health**

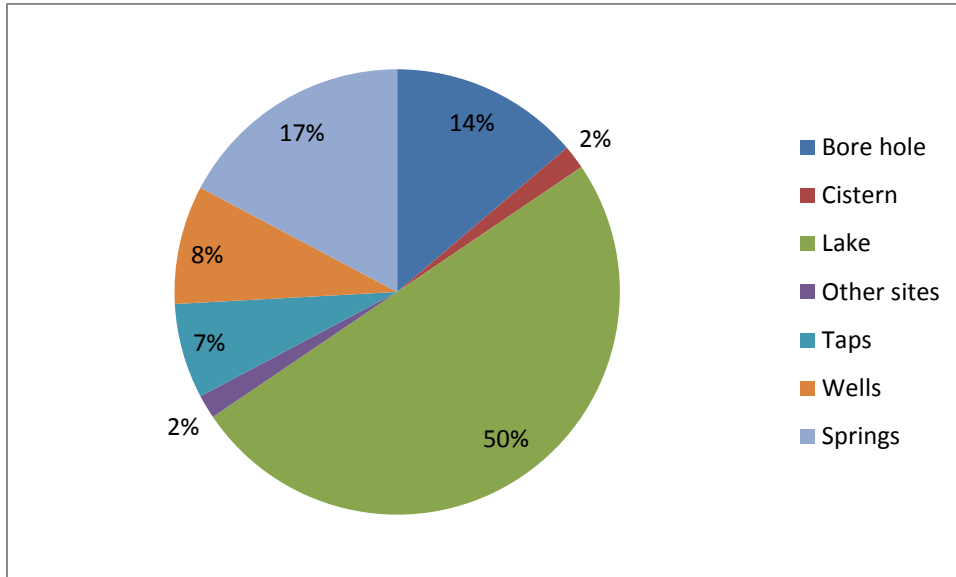
Ssenyi among the fishing communities is well equipped with sanitation infrastructure. The hygienic conditions of 46 fishing communities are poor with incidences open defecation, no hand washing and use of lake water for domestic consumption.

Sanitation and hygiene infrastructure in schools is a challenge. A survey by USEP reported that out of the 40 schools sampled only 8 had adequate water facilities within the recommended 0.5 kilometers and all of them are boarding schools. The district being constrained financially, allocated one twin latrine for the whole district in the financial year 2011-2012 (Kabala Kiwumulo 2012).

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Water supply was initiated in the 2010/11 financial year and is recorded at 3960 cubic meters to all small towns in the district(NWSC 2010). Ssi-Bukunja as a sub-county lacks potable water.

The chart below shows the major sources of water for the fishing communities (figure 11).



**Figure 10:** *Water sources used by fishing communities*

A 2012 mapping of all water points in Buikwe district by the directorate of water resources in the Ministry of Environment shows most fishing communities (shoreline) without potable water sources (figure 12).

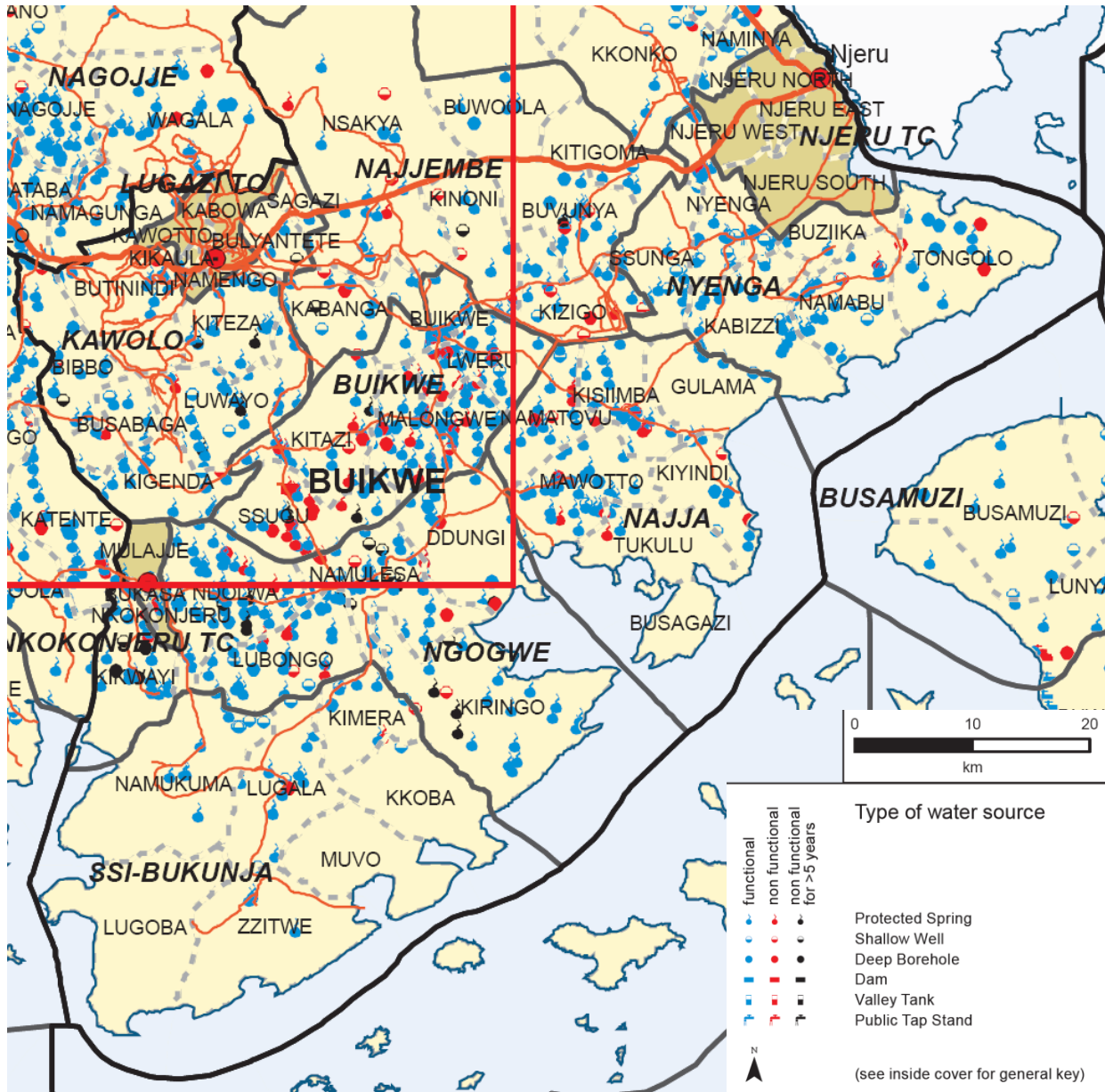
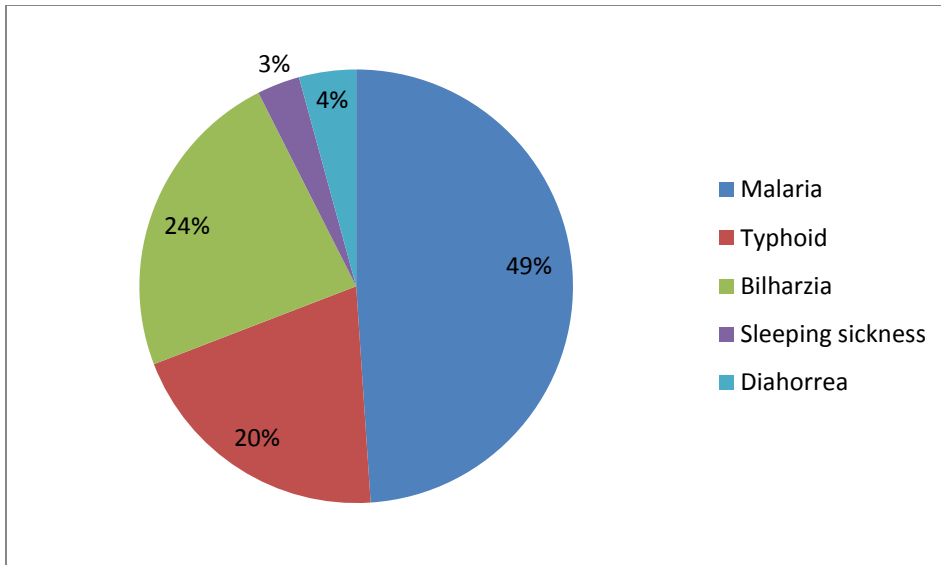


Figure 11: Map of Buikwe showing water points distribution: Source (DWD)

Latrine (toilets) coverage in Buikwe by households stands at 90% (2012 Statistical abstracts). The figure at the landing sites is 23.3%. Reasons for lack of toilet facilities include; rocky substrate making it difficult to dig pits (40%), sandy shore substrate (45%) leaving to pit undercuts leading to collapses, lack of land ownership to construct a toilet (15%).

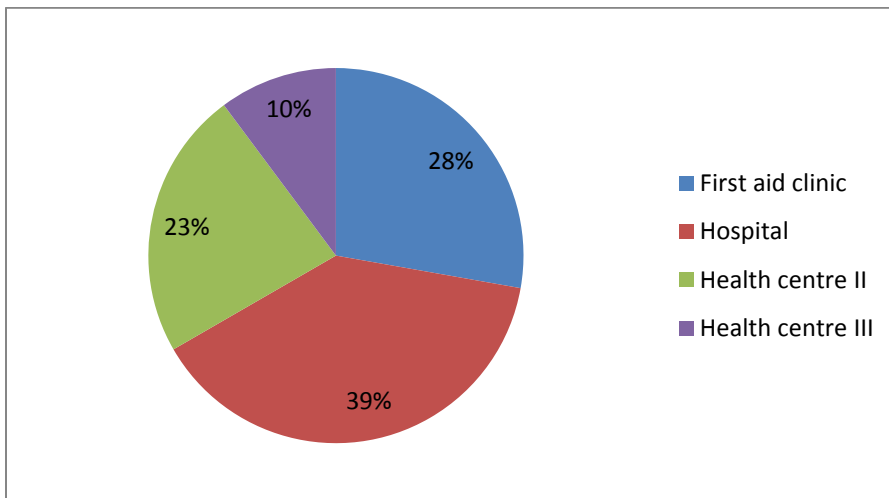
In light of the above, the diseases that most affect the communities are mostly water borne. They are illustrated below in terms of prevalence (figure 13).



**Figure 12:** Disease prevalence in fishing communities

Within 5km distance, only 18 fishing communities could access a health facility when in need of treatment. The rest of the fishing communities have to travel over 5 km to access treatment antenatal care and child immunization.

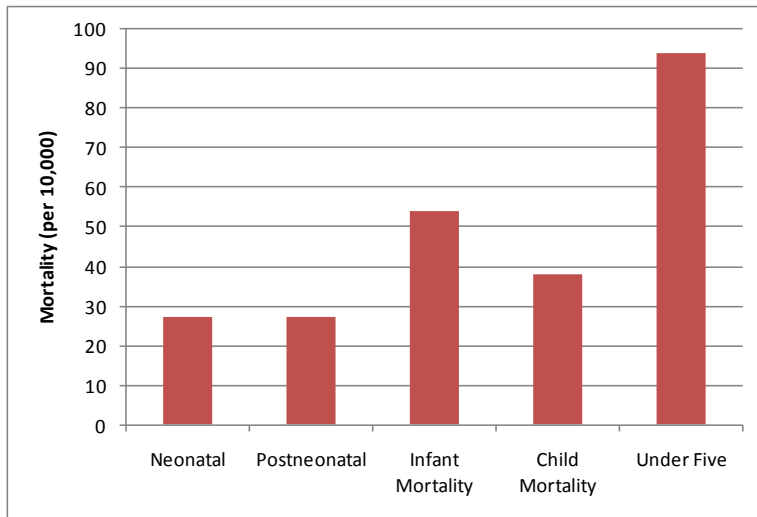
Due to lack of close health facilities and given the fact that most ailments are in women and children, many of the fishing communities preferred sending the patients to Nkokonjeru, Ssi-Bukunja, and Nyenga hospitals which also provide free health care. Malaria is commonly treated in first aid clinics and drug shops within the landing site. Health performance in terms of mothers getting medication for malaria stand at 37% compared to Kampala’s 59% while deliveries in health facilities are at 76% compared to Kampala’s 94%(WHO 2013). Sleeping sickness and Bilharzia are treated in government facilities mainly.



**Figure 13:** Health facility where fishing communities are assisted

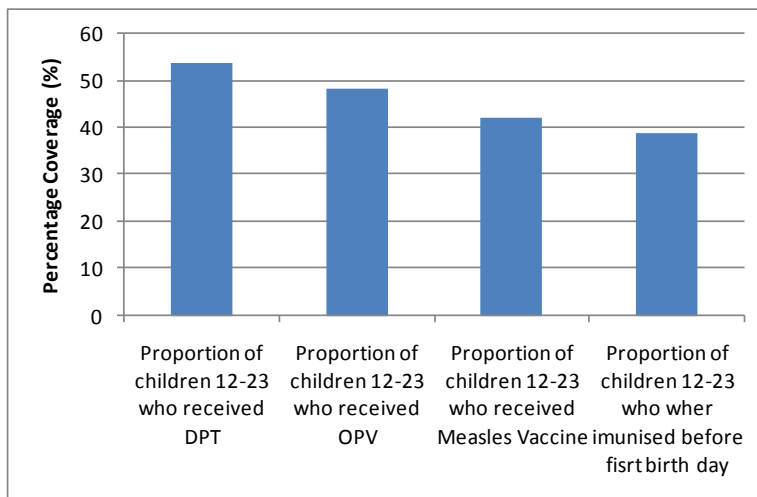


Under five mortalities are at 94 per 10,000 compared to 90 for Uganda (UNICEF 2013).



**Figure 14: Infant mortalities in Buikwe Source: (Wandera 2012)**

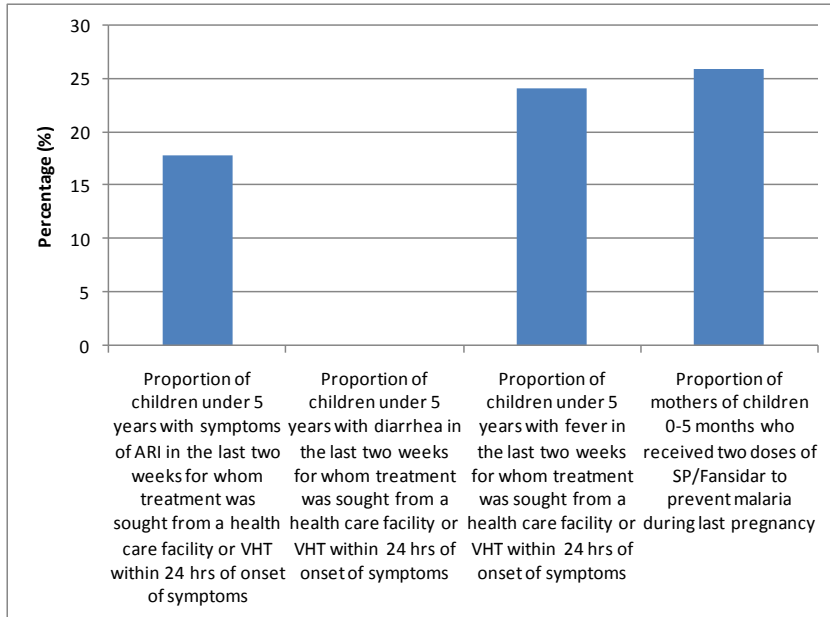
The number of infants immunized before the first birthday is 38.4% (figure 16)



**Figure 15: Immunisation for infants Source: (Wandera 2012)**

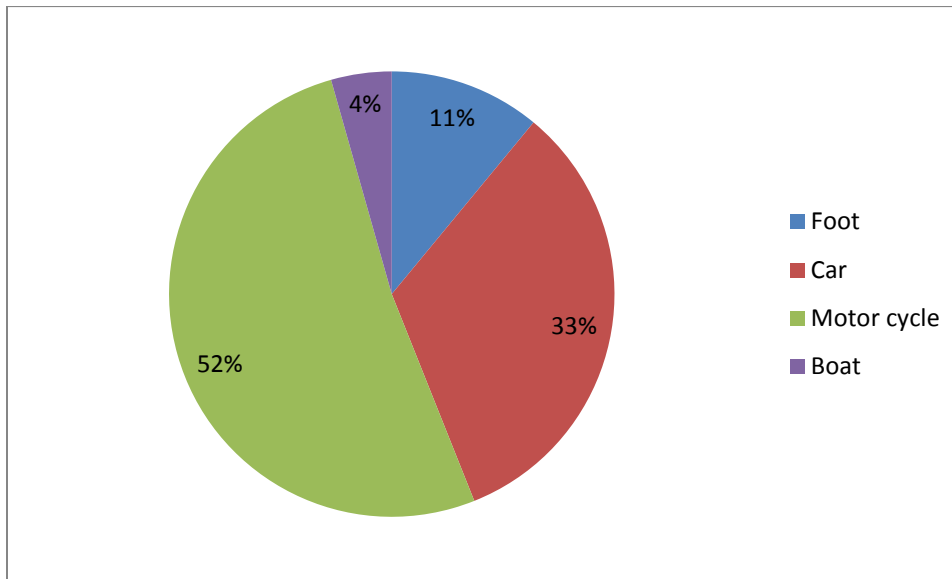
Infants (<5) are affected mostly by Pneumonia (36.8%), Malaria (34.7%) and Diarrhea (20%). Health care seeking behavior for mother and infants is less than 30%. No treatment is sought for diarrhea while 1 out of 4 pregnant mothers sought medication for malaria (figure 17).

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**Figure 16:** *Treatment seeking for Pneumonia and Malaria*

To access the health facilities, majority of the communities use motorcycles (boda boda) as a mode of transport as shown below (figure 18).



**Figure 17:** *Transport to health facilities*

### 3.13. HIV /AIDS

HIV/AIDS incidences and socio-behavioral risk patterns in fishing communities in the fishing communities studied are reported to be three times higher than the national average; 7.8% : 28.8%, respectively. (MoH 2011, AIC-Uganda 2012).

HIV prevalence in the fishing communities is higher in women than men at 33.9% and 23.9%, respectively. (Asiki et al 2011). This prevalence is associated with; increasing age, occupation (highest in fishermen), and relationship to household head, self-reported genital sores and knowledge of an HIV infected partner. The settlement pattern is also associated with prevalence. Fishing communities in camps have HIV prevalence in excess of 70% (Basudde 2012). The fishing communities in camps are found in Ssi-Bukunja, Ngogwe and Nyenga sub-counties.

The key drivers for infections and prevalence are alcohol consumption, having multiple sexual partners, sex with non-regular partner and engagement in transactional sex at fish landing sites (Tumwesigye et al 2012). Others include; migration, fishing at night and redundancy during the day leading to sexual vulnerability, culture perceptions at landing sites where women are considered inferior to men.

Free condoms were availed to communities through Red Cross. During the survey, the communities had no access to testing, counseling and ARVs. The most affected fishing communities are Mabanga, Nalyazi, Muyubwe, Nalumuli, Kaazi, Kasaali and Nanso. HIV related services are sought from Kawolo Hospital and Jinja Hospital but these communities are blocked by poor roads. This is because ARV distribution requires accreditation of health centres (HC) up to HC IIIs yet the closest facilities (<10km) to fishing communities are HC IIs

HIV risk reduction programs for fishing communities should address alcohol consumption before sexual contact, getting health facilities in these communities for medical checkups, counseling regularly, sensitization on HIV/AIDS and improvement of access to savings and credit facilities and empower women in fishing communities (Basudde 2012).

### 3.14. Education

According to the Ministry of Education and Sports (MoES), the primary net school intake rate in the district is 61% and secondary school is 28%. Student-classroom ratio stands at 36 and teacher-student ratio at 17(UBoS 2012). The ratios are low mostly due to absenteeism, distance and disease for example drop-out rates the girl child is 67 % largely due to poor sanitation and hygiene related conditions.

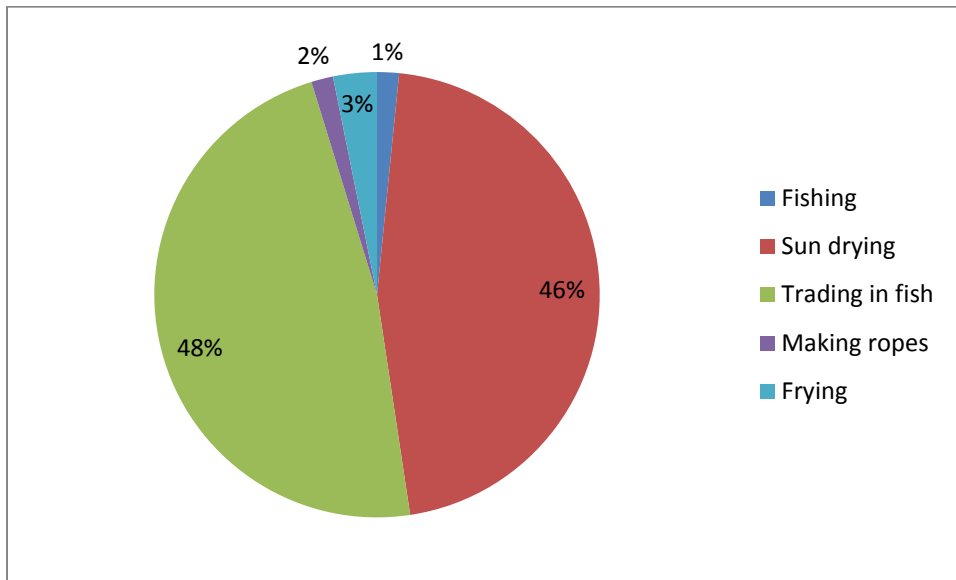
Performance in schools is very low (for example, in 2010 out of 5,024 PLE pupils only 35 passed in grade one) citing similar reasons as above (Kabala Kiwumulo 2012).

Primary schools in the fishing communities lack basic infrastructure and materials for teaching. Seventeen (17) landing sites acknowledged pupils studying under trees while a similar number reported their pupils attending district built school schools with complete structures.

Access to secondary education and vocation training on the landing sites is low. Two (2) out of the 52 landing sites had a secondary school within 5 kilometers radius.

### 3.15. Women in the communities

Subsistence agriculture is the major role for women in Buikwe district. In fishing communities, women have been mostly involved in the processing and trading of fish (figure 19).



**Figure 18:** Economic activities for women in fishing communities

In terms of income levels women involved in trading have the highest incomes followed by those operating restaurants and lastly agriculture.

Girl child education is not prioritized and teenage pregnancies are reported. The education level attained by most before dropping out (76%) is recorded as Primary five. Fishermen prefer paying fees for boys than girls as the later usually end up in early marriages.

Land ownership is another aspect that excludes women in the fishing communities visited. The lack of land for cultivation coupled with no capital has pushed most female into promiscuity for money from fishermen on every landing. This is escalating the HIV infection rates in the communities due to lack of preventive measures and training (*pers comm* Nalyazi BMU).

Maternity facilities for women are reportedly found at Health Centre IIIs and Hospitals usually entailing movement of over 10kms to access services.

Due to low education levels and marginalization, Involvement of women in leadership has been minimal. However after the introduction of BMUs whose mandate partly has gender involvement, an average of 2 female representatives are found in each of the 28 BMUs. They, however, cite lack of voice support due to low numbers on committees.

Female headed families stand at 26% mostly due to absence of husbands who migrate from site to site.

**3.16. Other women economic activities**

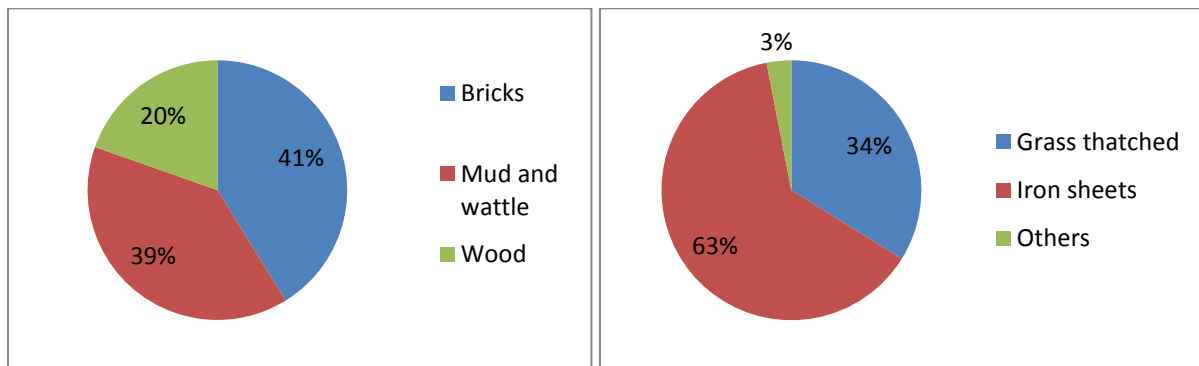
Crop farming in Nyenga and Njeru involves Sugar cane and Rice. In Ssi-Bukunja, Najja and Ngogwe; plantains, rice, millet and tomatoes are the major crops grown. Females also engage in free range goats and poultry farming

Trading in fish is done by female groups of women whose objective is to pool resources for increased capital and then share proceeds. Trading in Mukene is mostly done by females from North and Eastern Uganda while processing is done by those from central. These groups also provide loans to individuals and catering services for hire to communities (Appendix V). Restaurants are run by females but usually the owner is male.

Due to lack of income generating activities for women in the visited fishing communities, they are driven into prostitution as a source of livelihood. It is common that men spend earnings on alcohol and sex while the women engage in food vending and commercial sex (Tumwesigye et al 2012).

**3.17. Infrastructure**

The type of building materials chosen for homes in the communities is mostly determined by land ownership and migratory behavior of the fishers. Temporary structures are made out of mud and wattle where soils are good; and wood where the land is rock and sandy. These temporary structures are grass thatched. Permanent structures however, are mostly built out of Bricks and roofed with Iron sheets. The proportions of communities within the respective building material category are given in the figure 20.



**Figure 19: Building materials in fishing communities**

### 3.17.1. Communication and internet coverage

The Uganda communications commission has set up five school ICT labs. Two are found in Nyenga and Nkokonjeru close to the study area. These are Nyenga SS in Kigudu which is solar powered and St. Peter SS Nkokonjeru which is grid powered. In terms of health, one ICT project is being run in Kawolo hospital (UCC 2013). Internet services and telecom infrastructure in the district are a proprietary of Uganda telecom.

Within the fishing communities the widest mobile telecommunications coverage is by Airtel and MTN (figure 21).

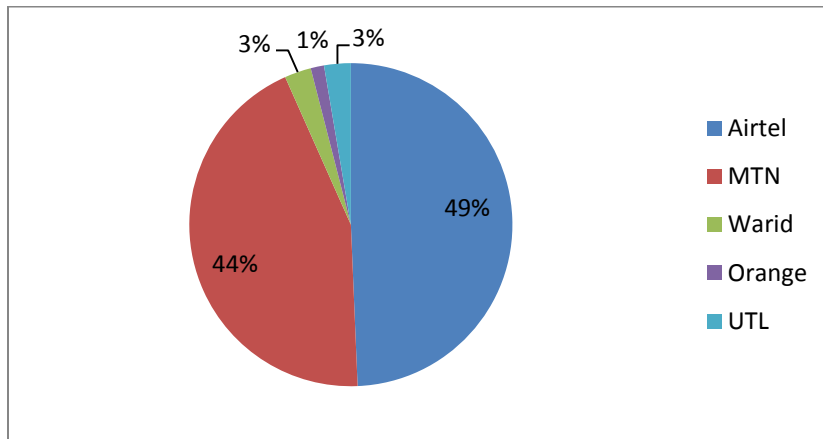


Figure 20: Communication networks in fishing communities

### 3.17.2. Power

Only Kiyindi landing site is connected to the national grid in Buikwe district. Five (5) landing sites use generators as the major source of power. Use of solar energy is recorded on 33 landing sites and its use is greatly in cell phone charging and entertainment. Ten (10) landing site did not have a source of power.

The infrastructure inventory of the landing sites is shown in Appendix II.

#### 4. Conclusion

In summary the following is the situation in Buikwe fishing communities in relation to the objectives set.

Buikwe fishery is economic value is almost twice the annual budget in 2013. There is no reliable data and data capture methods and tools for the fishery of Buikwe. Fisheries development priorities face a constrained budget in the District development goals for the years 2011-2015. Najja, Njeru and Nyenga sub-counties have advanced physical infrastructures and have benefited from most fisheries development interventions. Relatively good handling facilities are in Kiyindi and Ssenyi. Poor fish quality related losses are high coupled with declining catches are leading to reduced income. There are fish supplies and marketing chains established although lack information flow between fishing communities and collection centers is observed.

The major fish related role of women in the fishing communities is in trade and sun drying and while there involvement in leadership is minimal. Women lack land ownership and female headed homes are at 26%. To earn a living, the women in the surveyed communities are involved in food vending and transactional sex.

Waterborne diseases like diarrhea, dysentery and Bilharzia are the biggest health challenge. Malaria is the major overall illness for the communities. Sanitation and hygiene related diseases are found on all landing sites mainly as a result of lack of potable water and toilets.

HIV/AIDs prevalence is three times higher (27%) than the national average. The key driver for HIV increase is alcohol consumption and transactional unprotected sex. There was no access to Anti-Retroviral drugs by the time of the survey.

Only five landing sites are accessible in both wet and dry seasons (Kiyindi, Ssenyi, Nkombwe, Kikondo, and Busaana). Road transport for fish within and between communities is by motorcycles and pickup trucks. Water transport exists but is twice as expensive as road transport and not safe.

#### 5. Geo-spatial map of the study

The map can be found on the link below and requires a Google account for editing

<https://mapsengine.google.com/map/u/0/viewer?gmp=mpp&mid=zM5kXqIYB4c4.kEkUIQjRyg7k&pli=1>

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## Appendices

**Appendix I: A template of the training schedule for BMUs implemented by Buikwe district**

<b>Topic</b>	<b>Target Group</b>	<b>Course objective</b>	<b>Time</b>
Safe handling of fish during offloading and weighing	Fish handlers	To ensure safety of fish during offloading and weighing	January-December
Hygiene of handling facilities	Fish handlers	To ensure no cross contamination	Every end of the month Jan-Dec
Health and hygiene of fish handlers	Fish handlers	To ensure that safety and quality of fish is maintained	Every 3 months March
Dangers of throwing and dragging of fish in the sand	Fish handlers	To ensure fish is not injured by microbial infection	Every end of the month Jan-Dec
The importance of quick loading of fish in ice	Fish handlers	To ensure that there is no rising temperature which can increase micro organisms' multiplication	Every end of the month Jan-Dec
Importance of regular medical examination of fish handler	Fish handlers	To ensure safety of fish handlers and maintenance of fish quality	Every six months
Record keeping	Fish purchasers	To monitor and ensure that quality of fish is maintained from time to time	Every six months

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**Appendix II: Summary of Infrastructure Inventory on landing sites in Buikwe District.**

<b>Support Infrastructure for fish</b>	<b>Number</b>	<b>Landing sites</b>	<b>Condition</b>
Jetty	1	Kiyindi	Under construction
Fish handling shade	3	Kiyindi, Ssenyi, Nkobwe	Functional
No handling facility	32		
Smoking kilns (choker kilns). Built from mud and metal mesh.	17	Kiyindi, Jimbo, Ssenyi, Koko, Kafuba, Nambula, Gombolola, Kasaali, Mabanga, Nakalemu, Nalyazi, Kaazi, Kabo, Kikondo, Nansagazi, Bugungu, Kizize	Poor
Store	3	Ssenyi, Kikondo, Kiyindi	Good
Racks	4	Nalyazi, Kiyindi, Nkombwe, Kikondo	Fair
Local Transport Boat	1	Kaazi	Fair (no life jackets)
Water tank (10000 liter tanks)	4	Kiyindi, Ssenyi, Nkombwe and Kikondo	Good
<b>Hygiene and Sanitation Infrastructure</b>			
Bathroom	4	Kikondo, Nkombwe, Kiyindi, Ssenyi	Good
Toilet facility access	12	Kiyindi, Buyoka, Ssenyi, Nambula, Kigaya, Namabere, Nkombwe, Busaana, Kikondo, Bugungu, Kwasi, Nalyazi	Communal
No access to toilet facility	35		
Access to Potable Water at a distance	10	Buyoka, Kagumba, Kigaya-Golomolo, Bugoba, Kaleega, Namabere, Kigugo, Muyubwe, Kizize	Not treated
Potable water on site	7	Kiyindi, Buyoka, Ssenyi, Nambula, Nkombwe, Busaana, Kikondo	
<b>Management infrastructure</b>			
Patrol boat	1	Kiyindi	Fair
BMU office	6	Kiyindi, Namusenyu, Namabere, Ssenyi, Kikondo, Busaana	Good
None	39		
BMU store	3	Kiyindi, Ssenyi, Kikondo	Good
<b>Source of water</b>			
Bore hole	8	Kiyindi, Buyoka, Kafuba, Kagumba, Kigaya-gololomolo, Lukonda, Bugoba, Kigugo	Functional

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Cistern	1	Nansagazi	Functional
Lake	29		
Other sites	1	Kwasi	
Taps	4	Kiyindi, Ssenyi, Kikondo, Busaana	Functional
Open water well	5	Kikene, Nanso, Buweera, Muyubwe	Functional
Springs well	9	Kiyindi, Jimbo, Kaleega, Namabere, Nkombwe, Bugungu, Buweera, Nalumuli, Kizize	Functional
Primary schools close (<5km) to the landing site?			
Yes	10	Kiyindi, Ssenyi, Kikondo, Busaana, Kasirye, Jimbo, Kaleega, Namabere, Nkombwe, Bugungu, Buweera, Nalumuli, Kizize	Functional
No	42		
Savings Scheme/ Micro finance Office	3	Kiyindi, Ssenyi, Busaana	

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**Appendix III: Distribution of landing sites by parish in Buikwe district**

Sub-County	Parish	BMU	Landing Site
Ngogwe	Kikwayi	Namaziina	Namaziina
	Kiringo	Kiwulugumya Kiwulugumya Kiwulugumya Nkombwe	Kasirye Malubya Kiwulugumya Nkombwe
	Ddungi	Lukonda Lukonda	Lukonda Nabbale
Najja	Mawotto	Kigaya	Golomolo
	Tukulu	Buyoka Koko Kigaya	Kookola Koko Kigaya-Golomolo
	Busagazi	Namusenyu Buyoka Nambula Nambula Nambula Namusenyu Nambula	Namusenyu Buyoka Kafuba Kafuba West Nambula Gombolola Kagumba
	Kiyindi	Kiyindi Kiyindi Kiyindi	Kiyindi Jimbo Kikene
	Gulama	Kiyindi Kiyindi	Kabugoga Kigali
Ssi-bukunja	Namukuma	Kigugo Buweera	Kigugo Buweera
	Lugoba	Kaazi Kaazi Kaazi Kaazi Nalyazi Nalyazi Muyubwe -	Kayiira Kaazi Kabo Kwasi Nalyazi Nakalemu Muyubwe Kabo Old (Closed)
	Zzitwe	Nalumuli Nalumuli Nalumuli Nalumuli Nansagazi Nansagazi	Nalumuli Gamba Kifua Nakasolo Nansagazi Kasaali
	Kizize	Nansagazi Mabanga Mabanga	Kizize-Kizize Mabanga Kamaali
	Kkoba	Ssenyi Ssenyi Ssenyi	Ssenyi Lugu Buliiba
Nyenga	Kabizzi	Bugoba	Bugoba
	Namabu	Butembe Buwagajjo	Butembe Buwagajjo
	Tongolo	Kaleega Namabere Nanso Nanso Busaana Kikondo	Kaleega Namabere Nanso 1 Nanso 2 Busaana Kikondo
Njeru T/C	Njeru South	Bugungu	Bugungu

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**Appendix IV: Population distribution in sub-counties where fishing communities are found**

Sub County	Household	2010			2011			Growth rate	Male: Female ratio	
		Male	Female	Total	Households	Male	Female			Total
Najja	8,236	18,100	19,900	38,000	8,456	18,600	20,500	39,100	2.89	1.10
Ngogwe	8,042	18,200	19,000	37,200	8,261	18,800	19,400	38,200	2.69	1.03
Njeru	14,283	30,900	32,300	63,200	14,673	31,800	33,100	64,900	2.69	1.04
Nyenga	10,092	23,500	24,200	47,700	10,371	24,200	24,800	49,000	2.73	1.02
Ssi-Bukunja	5,848	12,400	12,300	24,700	5,992	12,700	12,600	25,300	2.43	0.99
<b>Buikwe</b>	<b>92,254</b>	<b>200,200</b>	<b>206,900</b>	<b>407,100</b>	<b>94,741</b>	<b>206,000</b>	<b>212,200</b>	<b>418,200</b>	<b>2.73</b>	<b>1.03</b>

**Appendix V: Women self help groups in Buikwe fishing communities**

Group Name	Activity	Sites where groups are found	Remark
Arua women association	Trade in Mukene	Kiyindi	Trade in 10-20 tons a month
Funga roo	Trade in Mukene	Kiyindi	Trade in 10-20 tons a month
Arua Nkeje women association	Trade in Nkeje	Kiyindi	Trade in 10-20 tons a month
Village Savings and Loan Association (VSLA)	Savings and Loans	Jimbo-2, Kizize, Buliiba, Kookola, Kokko, Najja-Gombolola, Ssenyi	Money borrowed is returned with interest.
Zibula Atudde	Savings and Loans Trainings on financial management Training in vanilla growth	Jimbo- Kikene	
Kamu Kamu Women's Group	Savings and Loans	Jimbo-2	
Agali Awamu	Saving and lending money	Jimbo-2	
Light in the shadow	Savings and Loans Training	Namusenyu	Group is in its infant stages
Name not established	Outside catering	Najja-Golomolo	Not found exactly on site
Basooka Kwavula	Give money to members	Lukonda	Every 10 days group members collect 10,000 US\$ each which they give to one of the members
Ssenyi Good Samaritan	Catering services	Ssenyi	Received support from the government
Bakyaala Twegaite	Savings and Loans	Kaleega	
Malilira	Savings and Loans	Busaana	
Sweetie	Savings and Loans	Busaana	

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Twekembe	Savings and Loans	Busaana	
Pearl Women's Group	Savings and Loans	Kikondwe	
Bakuseka Maja Women's group	Singing	Bugungu	
Nalumuli multi purpose	Collect money and give support to members during times of death Savings & Loans Rear local chicks	Nalumuli	
Upendo group	Savings & Loans Support orphans with interest earned from loans	Nalumuli	Affiliated to born Again church
Muno Mukabi	Collect money and give support to members during times of death	Nalumuli	Under catholic church
Twezimbe	Give money to members	Kiyindi	Each member contributes 10,000

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**Appendix VI: Social services development and financial commitments in the district for the year 2012/13**

Organisation	Thematic Service Area	Operations Sub county	Total Budget
<i>Najjembe Integrated Development Association</i>	Youth Welfare services	Najjembe	82,000,000
	Environmental conservation		
<i>Christian Children's Heritage Center</i>	Early Childhood care and Education	Najjembe	3,000,000
	Orphans and Vulnerable Children (OVC) skills training		
<i>St. Francis Health Care Services</i>	HIV/AIDS care services	Njeru T/C	258,000,000
	OVC Support	Nyenga	
	Elderly Support	Wakisi	
		Najjembe	
<i>Christ the King Health Care Center Bulamagi</i>	HIV/AIDS care services	Wakisi	9,000,000
	OVC Support	Nyenga	
		Njeru T/C	
<i>Uganda Association for Social Economic Progress (USEP)</i>	Hygiene, Water and Sanitation in Schools	Najja	100,000,000
<i>Kyetume CBHC Program</i>	HIV/AIDS care services	Ngogwe	25,025,000
	OVC Support		
	Hygiene, Water and Sanitation		
<i>ANPPCAN Mukono</i>	OVC Support	Njeru T/C	30,000,000
	Gender based violence		
<i>Talents Calls Club</i>	Sustainable Agriculture	Lugazi T/C	6,000,000
	Vocation Skills Development		
<i>Macro-Uganda</i>	HIV/AIDS	Najjembe Najja	108,000,000
	Water and sanitation		
	Reproductive Health		
	Vocation Skills Development		
	Gender based violence		
	OVC Support		
<i>World Vision</i>	Integrated Development Program	Ngogwe Nkokonjeru T/C	198,200,000
	Child Sponsorship		
	HIV/AIDS		
	Water and sanitation		
<b>Total for fishing sub-counties</b>			<b>728,225,000</b>



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**Appendix VII: Previous projects in the fishing communities**

Organization	Activities	Benefiting sites
Australian Agency for International Development- (AusAID) International Needs Australia	Portable water and Primary School	Kiyindi, Jimbo, Kikene
DANIDA, Buikwe LG	Constructed Bore holes and springs	Nakasolo, Buyoka
NAADS	Agricultural Development through trainings, and provision of seeds	Malubya, Lukonda, Kaleega
World Vision	Water sources School Road	Kiwulugumya, Nkombwe Kikondo, Busaana Namaziina, Kigugo, Kaazi
FAO, MAAIF funded by EU	Fishery product development and training	Kikondo, Kiyindi, Ssenyi
Uganda Police	Security	Kiyindi
Lake Victoria Fisheries Organization (LVFO)	Fish stalls	Ssenyi
African Social Development and Health Initiative (ASDHI)	Trained health workers	Ssenyi
GoU, LVFO funded by EU	Constructed slabs/shade, store, fence, water tap	Ssenyi
VEC	Constructed two toilets	Busaana
Local Government	Constructed roads, toilets, provision of mosquito nets	Bugungu, Kiyindi, Nkombwe, Kizize,
Local government	Provision of Bilharzia drugs	All landing sites
Red cross	Provides Condoms/ VCT	Nalyazi, Nakalemu, Kiyindi
UNDP	Constructed Toilets	Ssenyi, Buliiba