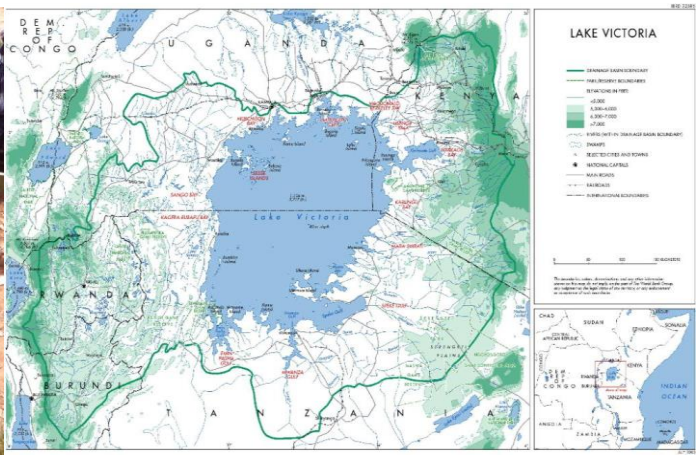
REPUBLIC OF UGANDA

Office of the Auditor General

VALUE FOR MONEY AUDIT REPORT ON MANAGEMENT OF FISHERIES ON LAKE VICTORIA



Prepared by

The Office of the Auditor General

KAMPALA

March 2012

TABLE OF CONTENTS

List of Tables

List of Photos

List of Charts

LIST OF ABBREVIATIONS

AFROSAI-E	African Organization of Supreme Audit Institutions (English speaking)
AG	Auditor General
GOU	Government of Uganda
INTOSAI	International Organization of Supreme Audit Institutions
MOFPED	Ministry of Finance, Planning and Economic Development
OAG	Office of the Auditor General
PDU	Procurement and Disposal Unit
BMU	Beach Management Unit
LVFO	Lake Victoria Fisheries Organization
IUU	Illegal Unreported and Unregulated fishing
GDP	Gross Domestic Product
SFM	Sustainable Fisheries Management
KCCA	Kampala Capital City Authority
VFM	Value for Money
EAC	East African Community
STDs	Sexually Transmitted Diseases
NGOs	Non-Governmental Organisations
NEMA	National Environmental Management Authority

EXECUTIVE SUMMARY

INTRODUCTION

Uganda's total surface area covered by water is 18%. The major lakes include Victoria, Albert, Kyoga, George and Edward. There are also over 160 minor lakes and many rivers, floodplains and swamps all of which are critical fish breeding and nursery grounds.

Fisheries resources are among the most significant natural endowments in Uganda not only because of their magnitude and diversity, but also because they represent a major source of protein in the diet of most Ugandans, in addition to employment and income for over one million people. Lake Victoria is the world's second largest freshwater lake and the largest in Africa, with a total catchment of 250,000

MOTIVATION

For the past 30 years Lake Victoria has been under considerable environmental pressure from a variety of interlinked human activities, including over-fishing, destructive fishing practices, pollution from human and industrial activities, siltation from the erosion of deforested watersheds and enhanced urban runoff with high sediment loads and large volumes of waste products. The cumulative impacts of these activities are now clearly in evidence and have resulted in the drastic decline of fish stock in the lake.

SCOPE OF THE AUDIT

This study covered 138 landing sites in all the thirteen Districts in Uganda surrounding Lake Victoria and the Kampala Capital City Authority (KCCA) which also borders the lake. Random sampling method was used to select the landing sites within the surrounding Districts and KCCA. The Districts which surround the lake are: Mukono, Buikwe, Buvuma, Namayingo, Mayuge, Mpigi, Masaka, Rakai, Kalangala, Wakiso, Jinja, Bugiri, Busia and KCCA. The study analysis covered three financial years from July 2008/09 to June 20010/11 but field data is based on observations in the 138 landing sites (Appendix 2) done in the month of December 2011 and January 2012

KEY FINDINGS

Implementation of Measures to Combat Illegal, Unregulated and Unreported Fishing

The measures instituted by the state through the key players in fishery: MAAIF, Local Governments and BMUs to combat illegal, un-regulated and unreported fishing are

inadequate. The level of illegality is on increase as evidenced by the fact that there is no significant reduction in the level of illegal practices. The inadequacy of the measures is reflected in the weaknesses in the implementation of registration and licensing of the fishers and fishing vessels, general lack of capacity in terms of financial, equipment, personnel numbers and competence leading to conducting patrols irregularly and with inadequate patrol coverage. There is also inadequate conducting of awareness campaigns and lack of satisfactory information sharing on fisheries activities in the Lake.

Management Measures to Combat Overfishing in Lake Victoria

There is overfishing basically for the three main commercial fish species: Nile perch, Dagaa and Tilapia while other species indicate almost a double increase in biomass with the rest having no established commercial value. The management measures put in place by Uganda through its implementing arms to combat over fishing in Lake Victoria is generally not effective. Uganda carried only 3 catch assessment surveys out of required 12 in three years which amounts to only 25% performance. Only one of the six recommended hydro-acoustic surveys in three years was done while performance on frame survey has been consistent and done after every two years since 2000 jointly by three east African countries coordinated by LVFO. There is glaring lack of control on breeding grounds for juvenile fish. There is no evidence of monitoring and control of operations on Lake Victoria BMUs by MAAIF with only one annual report of department of fisheries accessed for the three years under study representing 33% performance level.

Infrastructure for Post-harvest handling at Landing Sites

The infrastructures at landing sites are largely inadequate. The cold storage facilities at the landing sites are largely not modern and are rudimentary. The sanitary situation remains worse. The ratio of people to toilet stance remains high and may imply others resort to alternative means other than toilets to dispose human waste; a situation that poses health hazard. Clean water supply at landing sites remains a big challenge with 62% not having safe water but instead use the untreated lake water in its rawness. Access roads to landing sites are another challenge to the extent that 51% of the landing sites have seasonal access roads and are in bad state.

KEY RECOMMENDATIONS

Implementation of Measures to Combat Illegal, Un-regulated and Unreported Fishing

- The MAAIF should liaise with districts and BMUs to harmonise the registration and licensing policy and process.
- The MAAIF should facilitate the districts and BMUs to carry out registration and licensing of fishers and vessels since it delegated these duties.
- The MAAIF, districts and BMUs should strengthen their regulatory framework to enable them carry out their enforcement of illegal activities.
- The districts should strengthen the operational capacity of the department of Fisheries to intensify supervision and support to BMUs in order to combat illegal, un-regulated and unreported fishing through prioritising financial support to the department.
- The MAAIF should develop guidelines to streamline, harmonize and coordinate the operation of various parties involved in the patrol to avoid overlaps between patrol parties.
- The MAAIF should strengthen the operational capacity of the districts and BMUs to enable them conduct their monitoring, control and surveillance activities
- The MAAIF and the districts should provide technical support to the BMUs to enable them identify, demarcate and gazette breeding zones.
- The MAAIF and the districts should set parameters for guiding BMUs to identify breeding grounds.
- The MAAIF, district and BMUs should prioritize awareness activities in their plans.

Management Measures to Combat Overfishing in Lake Victoria

- The MAAIF and the districts should enforce recording of fish caught and issuance of fish movement permits by BMUs.
- The MAAIF, districts and BMUs should sensitize the fishers on the importance of daily recording of fish caught.
- The MAAIF should explore possibilities of carrying out joint hydro-acoustic surveys with LVFO and share the results of the surveys with all stakeholders.

Infrastructure for Post-harvest Handling in Lake Victoria

- The MAAIF and Local Governments should provide cooling facilities at the landing sites.
- The MAAIF, District and Sub-County councils should prioritize the provision of safe water to the landing sites.
- The MAAIF, District and BMUs should prioritize the provision of toilet facilities to the landing sites.
- The Central Government, Local Government, UNRA and the local community should prioritise construction, maintenance and rehabilitation of access roads to the landing sites.

CHAPTER 1

INTRODUCTION

1.0 BACKGROUND

Uganda's total surface area covered by water is 18%. The major lakes include Victoria, Albert, Kyoga, George and Edward. There are also over 160 minor lakes and many rivers, floodplains and swamps all of which are critical fish breeding and nursery grounds.

Fisheries resources are among the most significant natural endowments in Uganda not only because of their magnitude and diversity, but also because they represent a major source of protein in the diet of most Ugandans, in addition to employment and income for over one million people.

Lake Victoria is the world's second largest freshwater lake and the largest in Africa, with a total catchment of 250,000 square kilometers, of which 68,000 km^2 is the actual Lake surface. Lake Victoria stretches 412 km from north to south, between latitude 0°30's and 3°12´s and 355 km from west to east which is between 31°37'w and 34°53'w. The lake is at an altitude of 1,134m above sea level and has water volume of 27,600km^3 and an average minimum and maximum depth of 40m and 80m respectively. In the upper reaches of the Nile River Basin, the lake waters are shared by the three East African Countries of Kenya (6%), Uganda (43%) and Tanzania (51%). Rwanda and Burundi are part of the upper watershed that drains into Lake Victoria through the Kagera River and between them, occupy about 18% of the Lake catchment.

1.1 MOTIVATION

The Lake Victoria basin supports an estimated population of 30 million people with large concentrations along the lake edge and within the Kagera River basin, which is shared by Rwanda, Burundi, Tanzania and Uganda. The economy of the region is characterized by a heavy dependence on the fisheries resources of Lake Victoria, which accounts for over 25% of the region's GDP. Other important sectors include agriculture, agro-processing, tourism, and small scale manufacturing.

For the past 30 years Lake Victoria has been under considerable environmental pressure from a variety of interlinked human activities, including over-fishing, destructive fishing practices, pollution from human and industrial activities, siltation

from the erosion of deforested watersheds and enhanced urban runoff with high sediment loads and large volumes of waste products. The cumulative impacts of these activities are now clearly in evidence and have resulted in the dramatic decline of fish stock in the lake.

1.2 DESCRIPTION OF THE AUDIT OBJECT

The current fisheries management arrangement is under co-management arrangement instead of past fisheries management institutions commonly referred to as command management. Under co-management arrangement, citizens and government share responsibilities. The national authority responsible for fisheries sector is Fisheries department in MAAIF with the overriding responsibility of providing technical guidance for formulation, review and implementation of policies, legislation, standards, plans and strategies in the areas of fisheries production, fish capture, regulation and control. Accordingly, Fisheries department in MAAIF is the main audit object.

Fisheries department in the Ministry responsible for Fisheries Industries

1.2.1 Vision

The national vision for fisheries in Uganda is "an ensured sustainable exploitation and culture of the fisheries resources at the highest possible levels, thereby maintaining fish availability for both present and future generations"

1.2.2 Mandate

The mandate of Department of Fisheries is to; promote, support and guide the sector, but also retains responsibility for setting and enforcing the standards and regulations for practices pertaining to fisheries.

1.2.3 Objectives of fisheries managements

The strategic objective of fisheries management is to support sustainable, market oriented fish production, management, development, quality control and safety of fisheries products; for improved food security and household income.

1.2.4 Funding

Fisheries activities are funded by the Ministry, District Local Governments, BMU, LVFO and Fisheries development partners. The table 1 below shows actual funding as extracted from the District records for the years 2008/9; 2009/10; 2010/11:

Table 1 STATUS OF FUNDING TO FISHERIES OPERATIONAL ACTIVITIES IN DISTRICTS

Districts	2008/09		2009/10		20010/11		Total	
	Approved	Released	Approved	Released	Approved	Released	Approved	Released
Mukono	1,500,000	400,000	41,103,000	15,082,000	12,109,000	12,108,194	54,712,000	27,590,194
Buikwe	-	-	-	-	13,000,000	7,000,000	13,000,000	7,000,000
KCCA	10,000,000	11,700,000	25,000,000	23,400,000	25,000,000	15,313,000	60,000,000	50,413,000
Buvuma	-	-	-	-	43,106,000	43,104,462	43,106,000	43,104,462
Namayingo	-	-	-	-	24,650,000	23,157,500	24,650,000	23,157,500
Mayuge	7,360,800	7,360,800	18,000,000	18,000,000	40,395,000	40,395,000	65,755,800	65,755,800
Mpigi	61,465,000	41,992,000	63,307,000	41,992,000	46,345,000	47,728,000	171,117,000	131,712,000
Masaka	85,576,803	85,576,803	20,200,393	20,200,393	13,600,000	13,600,000	119,377,196	119,377,196
Rakai	10,000,000	9,450,000	10,000,000	9,560,000	30,520,000	26,520,000	50,520,000	45,530,000
Kalangala	221,284,086	221,284,086	611,947,070	611,947,070	18,350,000	18,350,000	851,581,156	851,581,156
Wakiso	10,447,061	2,749,000	16,000,000	6,000,000	22,521,000	18,000,000	48,968,061	26,749,000
Jinja	14,420,000	14,420,000	14,420,000	14,420,000	14,420,000	14,420,000	43,260,000	43,260,000
Bugiri	10,709,000	10,675,000	15,654,355	22,386,355	10,800,000	18,843,500	37,163,355	51,904,855
Busia	21,036,627	8,559,847	20,573,178	16,699,246	18,217,200	11,151,450	59,827,005	36,410,543
TOTAL	**453,799,377**	**414,167,536**	**856,204,996**	**799,687,064**	**333,033,200**	**309,691,106**	**1,643,037,573**	**1,523,545,706**

Source: Entities Accounts for 2008/09, 2009/10 and 2010/11

NB: Buikwe and Buvuma Districts acquired district status from Mukono District in the financial year 2010/11 while Namayingo District acquired a district status from Mayuge District in the financial year 2010/11. This explains the absence of budget provisions in the earlier two years.

1.2.5 Organisational Structure

Fisheries Management organization structure involves Ministry for fisheries, Districts, LVFO, Association of fisheries stakeholders and Beach Management Units (BMU).

1.3 AUDIT OBJECTIVES

The main objective of the audit is to assess the implementation of fisheries management measurers to address the IUU of fish stock in Lake Victoria

1.3.1 Specific Objective

The specific objectives of the audit is to assess whether the partner states have effectively implemented the Monitoring, Control and Surveillance system for SFM in Lake Victoria in regard to:

i. Combating Illegal, Unreported and Unregulated fishing(IUU)
ii. Overfishing
iii. Post-harvest handling

1.4 AUDIT SCOPE

The audit focused on whether the partner states have effectively implemented the Monitoring, Control and Surveillance system for SFM in Lake Victoria in regard to:

Combating Illegal, Unreported and Unregulated fishing (IUU), Overfishing and Post-harvest handling.

This study covered 138 landing sites in all the thirteen Districts in Uganda surrounding Lake Victoria and the Kampala Capital City Authority (KCCA) which also borders the lake. Random sampling method was used to select the landing sites within the surrounding Districts and KCCA. The Districts which surround the lake are: Mukono, Buikwe, Buvuma, Namayingo, Mayuge, Mpigi, Masaka, Rakai, Kalangala, Wakiso, Jinja, Bugiri, Busia and KCCA. The study analysis covers 3 financial years from July 2008/09 to June 20010/11 but field data is based on observations in the 138 landing sites (Appendix 2) done in the month of December 2011 and January 2012.

CHAPTER 2

METHODOLOGY

The audit was conducted in accordance with International Organization of Supreme Audit Institutions (INTOSAI) Auditing Standards, and OAG VFM Audit Manual. These standards require that a VFM audit should be planned in a manner which ensures that an audit of high quality is carried out in an economic, efficient and effective way and in a timely manner.

2.1 DATA COLLECTION METHODS

The methods used to collect data were: Interviews, document review and physical inspections/Field visits.

2.1.1 Document Reviews

A number of documents and records were reviewed with the objective of understanding the activities and operations in fisheries management as per **appendix 1.**

2.1.2 Interviews

Interviews were conducted at District Fisheries office and landing sites during the audit. The purpose of the interviews was to obtain information on fishing management and establish the challenges faced. The following officials and groups were interviewed; 14 District Fisheries Officers, 138 chairmen, General Secretaries and secretary for security of Beach Management Units (BMUs).

2.1.3 Physical inspection and field Visits

The inspections and visits covered 14 District fisheries offices and 138 landing sites (see below). This was with the view of understanding the whole operations in fisheries management and to corroborate finding with the results from interviews and documents reviewed.

CHAPTER 3

SYSTEMS DESCRIPTION

3.1 ROLES AND RESPONSIBILITIES OF KEY PLAYER IN FISHERIES INDUSTRIES:

3.1.1 The Fisheries departments in the Ministry of Agriculture, Animal Industry and Fisheries

i. To provide technical guidance for formulation, review and implementation of policies, legislation, standards, plans and strategies in the areas of fisheries production, fish capture, regulation and control;
ii. To monitor, inspect, evaluate and harmonize national programs and projects in the sub sector;
iii. To advocate for and mobilize resources for the sub sector;
iv. To build human and institutional capacity for delivery of services in the sub sector;
v. To develop and promote collaborative mechanisms with national, regional and international institutions and organisations on issues pertaining to the sub sector including management of trans boundary resources;
vi. To provide guidance on the generation, dissemination and application of appropriate technologies and the provision of advisory services for the development of value chains in the sub sector.
vii. To provide technical assistance for fisheries development to various stakeholders
viii. To design fisheries information collection systems for implementation by relevant local authorities/Government Departments and BMUs;
ix. To ensure registration and provision of certificates to BMUs and monitor their performance.

3.1.2 The roles of Local Authorities and District Technical staff

i. To implementation national fisheries polices and ensure enforcement of fisheries laws and regulations in partnership with resource users;
ii. To produce development plans and access to central government grants to support, among others, capture fisheries and post-harvest fisheries sector;

iii. To assist in resolving conflicts between resource users and within lower level co-management institutions;
iv. To support the development of BMUs through awareness raising and training programs
v. To develop and implement fisheries management plans in collaboration with BMUs
vi. To approve BMU bye-laws and assist in implementing ordinances and bye-laws
vii. To monitor and evaluate the performance of the BMUs in accordance with prescribed performance criteria issued by department of fisheries.

3.1.3 **The Lake Victoria Fisheries Organization (LVFO)**

The Lake Victoria fisheries organization (LVFO) is a regional organization under the East African community responsible for coordinating and managing fisheries resource of Lake Victoria. The organization was formed through a convention signed in 1994 by the three East African Community (EAC) partner states of Kenya, Uganda and Tanzania sharing by Lake Victoria and commissioned in 2008. The objective of the LVFO is to foster cooperation among the partner states by harmonizing national measures, development and adopting conservation and management measures for the sustainable utilization of living resources of Lake Victoria for maximum socio-economic benefits.

3.14 **The functions of the LVFO are:**

i. To promote the proper management and optimum utilization of fisheries and other resources of the Lake
ii. To enhance the capacity of existing fisheries institution
iii. To provide a forum for discussion of the impacts of initiatives on the lake
iv. To provide for the conduct of research on the living resources of the lake and its environment
v. To coordinate and undertake training and extension in all aspects of fisheries
vi. To consider and advise on the impact of introductions of non-indigenous organisms into the lake Victoria
vii. To serve as a clearing house and a data bank for information on the fisheries of the lake and
viii. To promote the dissemination of information

3.1.5 **The Beach Management Units (BMU)**

The BMU Committee perform the following functions:

i. To maintain and keep register of all boat owners and their fishing equipment, fishers and BMU members operating from the beach in conjunction with central government or local government.
ii. To decide on local markings for identification of fishing gears and outboard engines by licensed fishers
iii. To participate in vetting of boat owners and fishers for licensing and, in collaboration with government officials, ensure licenses are granted to those registered with government with the BMU
iv. To propose bye-laws for endorsement by the District Authorities and enforce them
v. To identify fish breeding areas on the basis of indigenous knowledge and identify and clearly demarcate prohibited fishing zones
vi. To undertake monitoring, control and surveillance in collaboration with the relevant authorities
vii. To assist in the collection of data for Frame Surveys, catch monitoring and socio-economic investigations, using agreed formats;
viii. Inspect and record visiting boats and give permission to land where appropriate.
ix. Improve sanitation and hygiene at landing sites
x. Network with other BMUs to ensure marketing and fair pricing of fish and fish products.
xi. BMU committee should be part of the development organ in their areas of jurisdiction;
xii. Preparation of annual work plans, budget reports and present them to the BMU Assembly for approval.
xiii. Formulate funding proposals, make financial reports and present them to the BMU Assembly for approval.

3.1.6 **The Role of NGOs involved in fishery**

i. Train BMUs and local government, based on training needs assessment
ii. Participate in co-management institutions at all levels
iii. Disseminate information on co-management and fisheries technologies
iv. Provide credit support on appropriate; gears, fishing methods, boat designs, population and processing technologies;
v. Assist fishing communities in developing their savings capacity

vi. Assist with the development of alternative income generating activities within fishing communities;
vii. Provide some rural development services e.g. schools, dispensaries.
viii. Advocate for fisheries stakeholders' rights and positively influence national policies and laws
ix. Advocate for control of HIV/AIDS and other STDs within fishing communities.

3.1.7 **The Roles of Development Partners in fishery**

i. Advise governments and BMUs on long term-development strategies.
ii. Assist governments to build capacity of BMUs through fisheries research and management.
iii. Support and strengthen NGOs in fisheries and development;
iv. Support in strengthening relationships among border fishing communities;
v. Provide resources to assist in the implementation of plans and programmes

3.1.8 **The Role of fisheries Research Institutes**

i. Disseminate research results to guide development of fisheries management strategies
ii. Develop e-appropriate technologies for sustainable fisheries management e.g. curbing post-harvest losses, improved aquaculture and acceptable fishing methods.
iii. Develop appropriate control measures for invasive aquatic weeds
iv. Provide information to guide co-management and socio-economic development of fishing communities.

3.2 KEY FISHERY PROCESS DESCRIPTION

3.2.1 Catch Assessment Surveys (CAS)

Catch assessment surveys are aimed at the harvest sectors and are designed to obtain information on both fish catches and fishing effort. A catch survey requires data from frame surveys in their design and to raise samples to give total estimates for the fishery as a whole. It begins with catch data from which policies and plans are formulated; Effort data from which the plans are implementd and evaluated and frame survey data from which policies and development plans are evaluated.

A catch assessment survey system employs a two-stage stratified sampling design. Within each district, a sample of primary sampling units (PSUs) is first selected, and

then at each PSU stratified samples of secondary sampling units (SSUs) are randomly selected by the field enumerators for sampling.

Data on supply of fish and trends on the average per capita consumption are derived from the catch data to indicate the importance of fish as food source at local, national or regional levels. Information on catch assessment surveys would include among others the followings:

- Quantity of fish landed monthly, quarterly and annually in the riparian local administrative units and countries;
- The monetary value of the fish landed;
- The contribution of the different types of gears and boats to the total catches;
- How the different catch rates of different fish species change between different areas, seasons, gear types and gear sizes;
- The trends of fish catches and catch rates in relation to total fishing effort.

3.2.2 Frame Surveys (FS)

A frame survey is a method that is used to generate information for management purposes and helps to design Catch Assessment surveys by providing the sampling frame. Frame surveys involve the direct enumeration of all fish landing sites on a regular or adhoc basis and provides information on aspects of:

- The location of landing sites;
- The number and types of fishing crafts including details of their size, and composition, the type of gear used on them, and the kind of fish they target;
- Fishing activity and landing patterns of different craft gear combinations including seasonal, diurnal and geagraphyical operations;
- Supply centres, infrastructure and markets and;
- Fish distribution routes, utilization, processing centres and methods.

The information recorded in the frame survey helps to identify primary and secondary sampling sites and appropiate sampling strata for Catch Assessment Surveys.

3.2.3 Monitoring, Control and Surveillance

Directorate of fisheries Resources is responsbile for all regulatory issues in the fisheries subsector in MAAIF, with regulation and control unit taking the lead. The unit is responsible for monitoring, control and survelleillance (MCS) of fisheries activities. It controls fishing capacity and enforces measures to curb illegal fisheries and malpractices. The unit regulates fish trade at all levels and collaborates with other agencies, co-management structures, the fisher fork and Local Governments.

The unit undertakes the following activities to enforce the above:

- Conduct sensitization meetings
- Undertakes enforcement on all water bodies of Uganda
- Licenses and regulates fishing activities
- Develops the project for enforcement
- Develops guidelines on Regional Fish Trade
- Develops standard Operating Procedures for enforcement and authorising Officers.

3.2.5 Patrol Process

The patrol procedures involves setting Pre-patrol, patrol and Post patrol procedures:

Pre-patrol procedures are where the objective of the patrol activity are articulated and it involves putting the following measures in place:-

- Operating planning ;
- Command and control structures;
- Responsibilities during preparations;
- Preparation and contents of tasking orders;
- Deciding on the patrol routes and timing;
- Selection of patrol team members;
- Pre-patrol briefing and pre-patrol checks;

- Vessel markings and handling informers.

Patrol Measures include the following:

- Asigning responsibilities during the patrol;
- Securing Health and safety measures;
- Communicating with BMUs, Fishers and communities;
- Asigning weapons and security;
- Interacting with vessels/gear/location under inspections
- Seizure of items
- Arrest of suspects
- Selling seized fish and fishery products;
- Destruction of seized items;
- Communications of protocals and
- Completion of patrol reporting forms.

Post patrol procedures involves asigning:

- Post patrol responsibilities;
- On return responsibilities;
- Procedure for prosecution
- Procedures for forfeiture of things/items used to commit offence;
- Procedures for compounding offences;
- Data on analysis and report preparation.

3.2.6 Beach Management Process

The Fish (Beach management) rule 2003 NO.35 section 10 (n) mandates BMUs to develop Local Fisheries Management and development plans and advocates for their integration in other local development plans.

Steps followed by BMUs involve: identifying the problems to be solved, identifying and priotising resources, consulting the community, drafting the plan and allocating the budget, submitting to BMU assembly for debate and approval. The BMUs also submit the approved plans to the sub county through the parish/ward councils for final approval and incorporation into the local government plans. The approved plans are returned to the BMU and Local Governents.

The specific steps involved are as follows:

- Pre-planning meeting
- Situation analysis
- Consultation with different groups of people
- Agreeing on a goal for the BMU
- Budgeting for BMU activity
- Writing the plan
- Incorporating agreed lake wide priorities into beach development plans
- Presenting to the BMU assembly for discussion and approval
- Incorporation of BMU plans into local government plans

CHAPTER 4

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

4.1 IMPLEMENTATION OF MEASURES TO COMBAT ILLEGAL, UN-REGULATED AND UN-REPORTED FISHING (IUU)

In order to achieve sustainable fisheries management (SFM) in Lake Victoria, the partner states of the East Africa Community ought to embrace practices that control exploitation of fisheries resources in the lake. These practices include registration and licensing of the fishers and fishing vessels, conducting regular patrols, operationalizing BMUs, conducting awareness and sharing information on fisheries activities in the Lake.

4.1.1 Registration and Licensing of Vessels operating in Lake Victoria

Registration and licensing are among the tools generally used to regulate access to fishing activities in the Lake. The East African council of Ministers resolved that all fishing vessels, fish collection and fish transport vessels prior to operation in Lake Victoria should be registered and licensed[1]. This requirement is also re-emphasized in LVFO[2] fisheries management plan that all Partner States should license all fishers operating in Lake Victoria.[3] The key players in this activity are: BMUs, Local Governments, MAAIF and LVFO in a co-management arrangement.

Registration of Vessels

According to the frame survey of 2010[4], 56,957 vessels were found to be operating in the Ugandan side of Lake Victoria alone compared to 13,450 registered and licensed in 2010 and it is more than the number registered as in table 2

[1] Lake Victoria fisheries organization, LVFO regional plan of action to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing on lake Victoria and its basin, may 2004. section 3.3.1

[2] EA council of ministers minute

[3] Lake victoria fisheries organization regional plan of action to prevent, deter and eliminate illegal, unreported and unregulated (iuu) fishing on lake victoria and its basin *may 2004, 3.3(i)* Partner States shall require their fishing vessels, fish collection and fish transport vessels to be registered and licensed in order to operate in Lake Victoria. 3.3(i)

[4] Coordinated by LVFO

Table 2: Numbers of fishers and fishing vessels in Lake Victoria according to frame survey

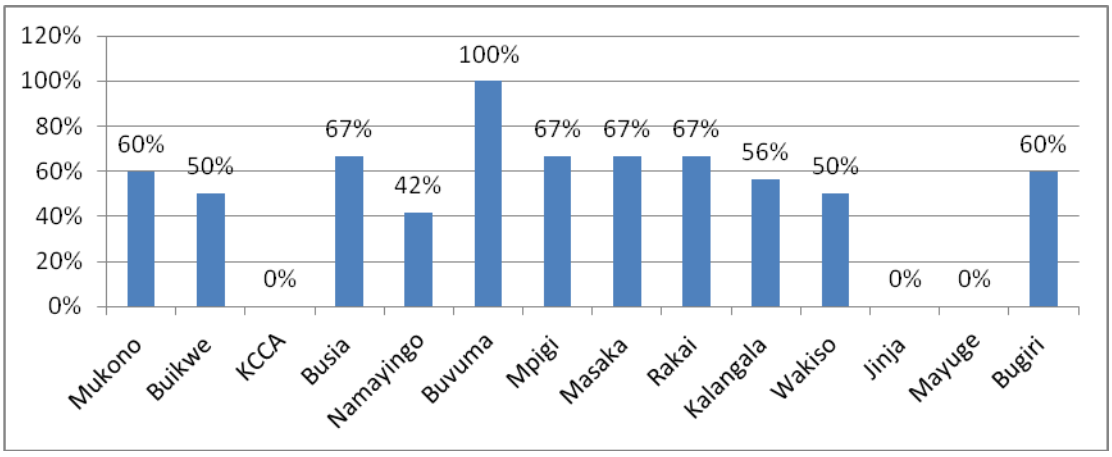
Description	2008	2010
Fishers	23,252	23,455
Fishing vessels	51,916	56,957

Source: Regional status report on Lake Victoria bi-annual frame survey between 2000 and 2010-Uganda. December 2010

This implies 76% of the vessels were not registered[5] and should not operate in the lake. However, no records were availed by MAAIF in respect of registration of vessels for the period 2008 -2009.

Field audit established that 54% of landing sites operate without registers or un-updated registers. This means that vessels in this area of the lake operate without vetting by BMUS as control measure. The Districts with the greatest incidence of unregistered vessels at the landing sites were: Buvuma, Busia, Mpigi, Masaka and Rakai. While the landing sites, which greatly exercised registration of vessels were found in the Districts of Mayuge, Jinja and Kampala Capital City Authority (KCCA) as further illustrated in chart 1:

Chart 1:Districts whose landing sites lacked registers of vessels

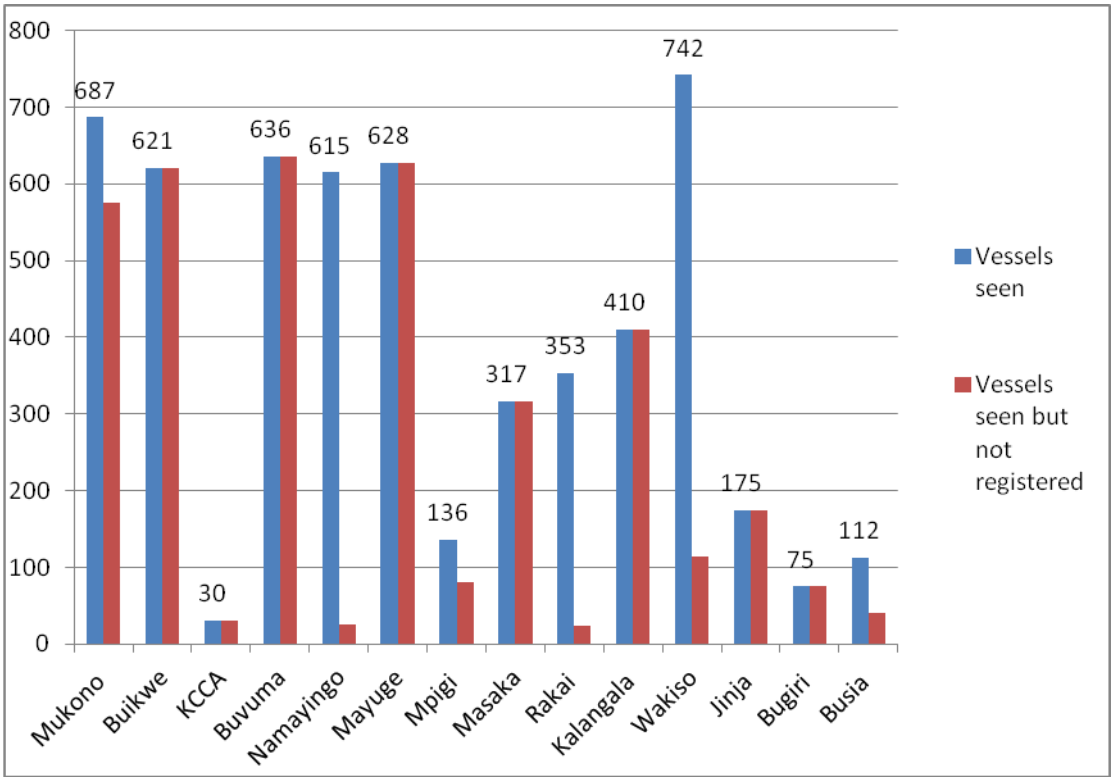


OAG Analysis

Out of 5,537 vessels seen docked at the 138 landing sites, 3,751 vessels were not in the register of the respective BMUs, implying that 68% of vessels were operating at the landing sites without formal authorization. This situation varies district by district as seen in chart 2.

[5] Department of Fisheries Annual Report of 2011

Chart 2: Percentage of vessels operating without formal registration with BMUs



Source: OAG Analysis

The cause of non registration of vessels is attributed to lack of facilitation of BMUs compounded by weak supervision and enforcement by Local Government fisheries office, and the department of fisheries resources in MAAIF. Failure to sensitize the BMUs to appreciate the importance of vessel registration exercise is another cause. According to the MAAIF and 14 district Fisheries Officers (DFOs), funding to the department does not match the responsibilities. Some members of the BMU attributed the low registration levels to the cumbersome process and requirements.

Audit noted that the penalty levied for non-registration was not deterrent. The delay by the MAAIF to issue registration certificate also led to loss of interest by applicants and this affected their compliance levels. It was further revealed that BMUs lost data on vessel registration when the function was taken over by MAAIF.

Lack of effective registration of vessels leads to inadequate control and management of fishers and this may increase illegal fishing practices in the lake, which culminates into the decline in the level of fish stock.

The preventive control measure of illegal activities through vetting vessel owners was not achieved as a result of allowing unvetted vessel owners to operate. Consequently, there are continuous patrols on water and land by BMUs, District fisheries officials, Taskforce from minister's office, and maritime forces, thereby increasing the cost of detection and enforcement.

Failure by MAAIF to issue certificates to registered vessels has complicated isolation of registered and non-registered vessels during patrols.

Licensing of Vessels

According to MAAIF 13,450 fishing vessels were licensed[6] in 2010. No licensing activity was reported for the two prior years as indicated in the table 3.

Table: 3 Numbers of fishing crafts/Vessels licensed in Lake Victoria

Description	2008	2009	2010
Fishers	Nil	Nil	13,450

Source: MAAIF, Department of fisheries resources annual report, 2010/2011

Although records from the MAAIF indicated that there was registration of vessels in 2010,the records from the districts and BMUs indicated that no registration exercise had been done for the last three years; 2008/9; 2009/10; 2010/11. There was also no evidence of issuance of licensing certificates by MAAIF in respect of all the 5,537 fishing vessels operating in the sampled landing sites. According to the 13 DFOs, non-licensing of fishing activities applied to all the lakes and rivers in the country.

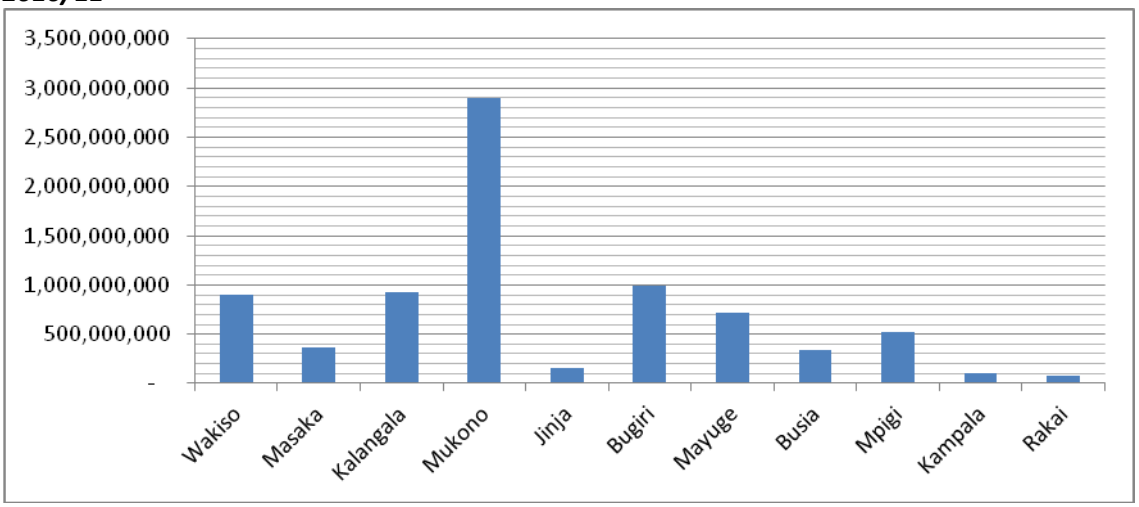
Non-licensing of fishing vessels was attributed to the failure to streamline the administrative procedures for licensing by MAAIF after recalling the function from the Districts.

As a result, the thirteen Local governments of Mukono, Buvuma, Buikwe, Busia, Mpigi, Masaka, Mayuge, Namayingo, Kalangala, Rakai, Wakiso, Jinja and Bugiri including KCCA lost over 8 billion Uganda shillings ($3.2 million) in uncollected revenue, while the MAAIF lost over shs.2, 357.75 billion ($1.9 million) in uncollected application fees for the two years of 2008/9 and 2009/10[7]. District revenue losses are indicated in chart 3.

[6] Department of Fisheries Annual Report of 2011

[7] MAAIF, department of Fisheries resources annual report 2010/2011, page 17 table 4.2

Chart 3: Uncollected revenue in license fees for three years 2008/9; 2009/10; 2010/11



Source: OAG Analysis

The greatest loss of revenue was suffered by Mukono District, which had the greatest number of landing sites. The district lost close to three billion Uganda shillings.

The loss of revenue further incapacitated the Local Governments to improve landing sites facilities, which were found dilapidated. For example, at Ggaba landing site the sewerage pipe was found broken and it was discharging sewer in the open drainage as shown in photo 1.

Photo 1: Showing a broken sewerage pipe at Ggaba Landing site-KCCA:

Photo on 13th December 2011 by OAG

Conclusion

The licensing control mechanism was found inadequate leading to loss of revenue and this also affected employment opportunities and income that would accrue to the

people. In addition, the negative multiplier impact of loss of licensing revenue hinders Government fight against poverty.

Management response

Districts

The recalling of the registration function by MAAIF in 2008 led to the stoppage of the exercise in the districts thereby adversely the number of registered fishers and vessels.

Although Fisheries licensing generates significant revenue value, such revenue has not been ploughed back to the districts for Fishery management.

The BMUs require formation of higher BMU Networks purposely for information sharing among the roles. The networks failed to function because of the financing arrangement proposed in the guidelines which required contribution of funds from BMUs at landing sites and the BMUs are not raising enough funds to meet this obligation. Most of the BMUs are illiterate and facing challenges in registering of vessels.

The MAAIF takes long to issue registration certificate, for instance, the districts that submitted registration applications in 2009 received registration certificates in 2011. Some landing sites are inaccessible due to poor roads.

MAAIF

In the strategy of licensing; registration of fishers is a prior requirement for one to be licensed to carryout fisheries activities in this country. A criterion was set for all persons engaged and intending to engage in fisheries activities to apply to the Commissioner for Fisheries Resources (CFR) for a license.

Until 2002 Department of Fisheries Resources (DFR) was conducting licensing, then it was decentralized to districts for easy plough back mechanism to enhance fisheries management, but it never worked out, some districts abandoned licensing and others tendered it out and eventually it lost the meaning and purpose. Licensing was used as a

money generating tool, which led to increased capacity and decline of fish stocks in all the Lake in Uganda.

The main objective of licensing is to control fishing capacity and is used as a management tool and not a money generating activity. Continued licensing by local authorities to generate revenue while the fishery was collapsing was untenable to Government.

DFR agrees that there is insufficient funding to the sector;

DFR requested for retention and plough back funds generated from Fisheries licensing activities into fisheries management including enforcement.

Recommendation

- The MAAIF should liaise with districts and BMUs to harmonise the registration and licensing policy and process.
- The MAAIF and districts should sensitize the fishing community about the benefits accruing from registration and licensing of vessels.
- The MAAIF should facilitate the districts and BMUs to carry out registration and licensing of fishers and vessels since it delegated these duties.
- The MAAIF, districts and BMUs should strengthen their regulatory framework to enable them carry out their enforcement of illegal activities.

4.1.2 Equipment for conducting regular patrols

The partner states should have sufficient equipment to conduct regular patrols on Lake Victoria[8]

The audit revealed that BMUs were the actual actors on-the-ground implementing fisheries activities including conducting patrols. Despite this, 90% of the BMUs of the sampled landing sites lacked the basic equipment, such as: the boat and the engine for effective carrying of regular patrols. 50% of the BMUs visited had either the boat or the engine but not both. BMUs cannot under take patrols without having to hire a boat or Engine. The rest of the BMUs have to either hire both the engines and boats

[8] LVFO, regional plan of action to prevent, deter, and eliminate IUU fishing on L. Victoria and its basin May 2004 section 3.3 (iii &v).

or seek assistance from the District Local Governments. It was also noted that 8 out of 14 Districts had both the boats, engines and equipment.

Inadequate boats, engines and equipment at the BMUs and Districts were attributed to the absence of clear source of revenue to finance them. This is partly due to MAAFs unsuccessful mobilization and advocating for increased resources for the subsector and Local Governments' failure to prioritise BMU activities in their development plan.

Inadequate provision of boats, engines and equipment hindered effective implementation of lake patrols, which in turn led to the presence of illegal activities in most of the landing sites.

Management response

Districts

MAAIF has set up parallel structures to carry out sensitization and patrol instead of harmonising it with the districts. Lake patrols are so costly that the BMus can only afford one patrol occasionally. Some districts are depending on PMA funds to facilitate fisheries department for patrols and surveillance, these funds are inadequate.

MAAIF

DFR has an approved project (Support to Fisheries Development and Regulation) where some equipment will be procured.

Recommendation

- The districts should strengthen the operational capacity of the department of Fisheries to intensify supervision and support to BMUs in order to combat illegal, un-regulated and unreported fishing through prioritising financial support to the department.

- The MAAIF should develop guidelines to streamline, harmonize and coordinate the operation of various parties involved in the patrol to avoid overlaps between patrol parties and help to eliminate imposters impounding fish and related items for personal gains.

4.1.3 Adequate number and Competent district personnel to conduct regular patrols

The partner states should have sufficient personnel and competent staff to conduct regular patrols on Lake Victoria[9] . Additionally best practice would require that staffing level in fisheries department should be adequate to provide the required supervision and guidance to BMUs at landing sites.

A study of the thirteen districts and Kampala Capital City Authority revealed that the ratio of fisheries staff to landing sites ranged from one (1) staff to thirteen (13) indicated in table 4.

Table 4: Ratio of Fisheries staff to landing sites

Districts	Actual No. of field staff	Total No. of Landing sites	Average landing site coverage per staff
Mukono	13	36	3
Buikwe	9	58	6
KCCA	5	6	1
Buvuma	10	126	13
Namayingo	4	50	13
Mayuge	7	65	9
Mpigi	3	22	7
Masaka	12	12	1
Rakai	8	20	3
Kalangala	11	64	6
Wakiso	6	34	6
Jinja	6	6	1
Bugiri	2	5	3
Busia	3	6	2
TOTAL	**99**	**510**	**5**

Source: OAG Analysis

The span of supervision is highest for fisheries staff of Buvuma, Namayingo, Mayuge and Mpigi Districts. Jinja, Masaka and KCCA have the lowest span of control. In addition to duties related to landing sites, the members of staff also have to offer other fisheries services, such as: aquaculture and quality assurance in markets spread throughout the districts and to all the farmers involved in fisheries industry.

[9] LVFO, regional plan of action to prevent, deter, and eliminate IUU fishing on L. Victoria and its basin May 2004 section 3.3 (iii &v).

Audit noted that the staff structure in the production department of the districts was suspended and as a result recruitment of staff in the department was frozen. The study also revealed that all the fisheries staff in the districts had capacity challenges that had not been addressed over the years. These challenges included inadequate training and limited staff development programs.

The high ratio of fisheries staff to landing sites in some districts was attributed to the failure by the responsible Ministries of: Agriculture, Local Governments and Public service to provide the required guidance on the recruitment of staff.

The high ratio of fisheries staff to landing sites leads to staff being overwhelmed with the high volume of work, thus affecting their motivation for hard work. This may further weaken the industry to the advantage of illegal activities. The fishery value chain, which consists of crew, fishing vessel owners, middlemen, agents, traders, small scale processors, transporters, factories, importers, distribution agents, retailers and consumers may be jeopardised.

Conclusion

The high ratio of fisheries staff to landing sites affects the level of surveillance on the lake, thus leading to increased abuse of the fishery value chain by all those involved and this may translate into the loss of considerable foreign exchange and income.

Management response

Districts

The delay in approving the structure in production department at the district level by MOPS has affected recruitment in fisheries and promotions in the sector regardless of the fact that a number of staff members have acquired higher qualifications. This has affected staff morale.

MAAIF

Authority to enforce fisheries law is the mandate of DFR with the CFO being directly responsible for all activities in the field (Fish Act cap 197, 2000). There are several organs/agencies, like: Police Marines, BMU's,

District Fisheries staff and Authorized Officers operating. Synergies have been established streamline and improve this by putting in place:

- ***Regional MCS guidelines for joint operation on L. Victoria.***
- ***Drafting of National Standard Operational Manual on Monitoring Control and Surveillance (2011 as latest edition).***
- ***BMU statute and guidelines 2003.***

District service commissions are supposed to fill the vacant posts in the established structures depending on affordability of the wage bill by a particular district.

Recommendation

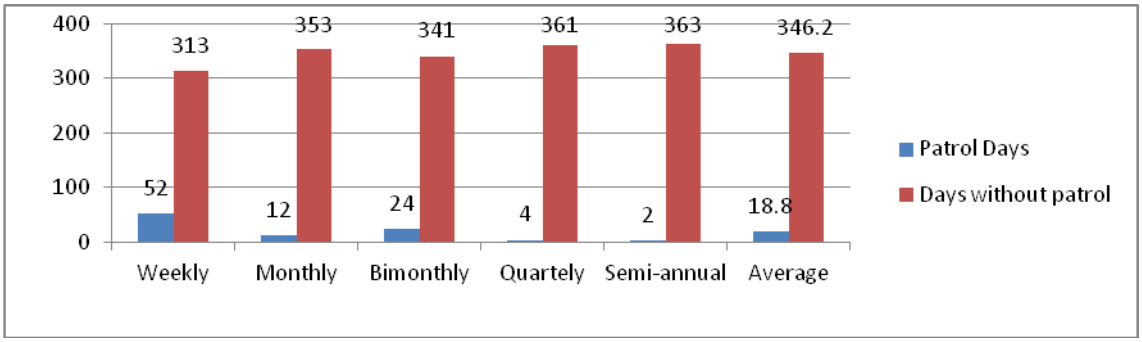
The MAAIF, MOFPED, MOLG and MOPS should review the staff requirements of the districts' production department and provide adequate staff in the fishery sector.

4.1.4 Monitoring, control and surveillance through Lake Patrols

The BMU are required to undertake monitoring, control and surveillance in collaboration with the relevant authorities as per BMU guideline for beach management Section 10 Annex 4, indicator 5.1.

The audit revealed that 110 (80%) of the 138 landing sites visited conducted patrols. Of those which conducted patrols 61 (55%) do it monthly, which amount to 12 days of surveillance in a year. 23 (21%) of the BMUs carry out weekly patrols, which implied 52 days of surveillance in a year. Generally, on average, surveillance was done for 18.8 days in a year meaning that illegal fishing was controlled for only 18.8 days in a year while 349.8 days are uncontrolled and can be exploited by illegal fishermen as detailed in chart 4.

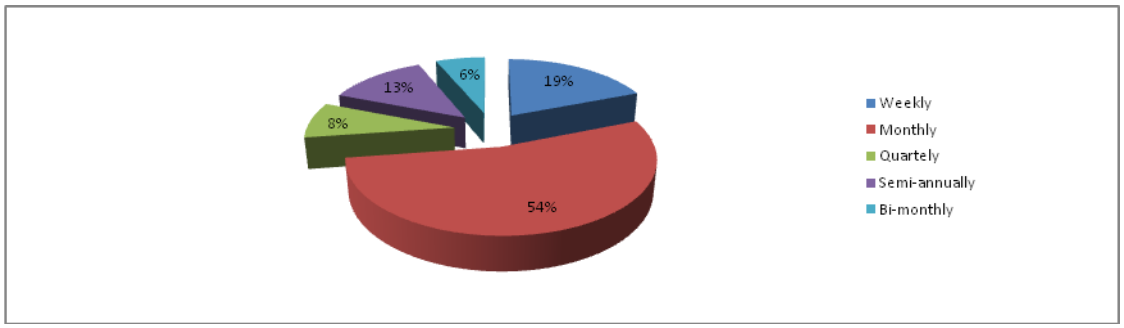
Chart 4: Comparison of patrol days in a year



Source: OAG Analysis

Analysis of the percentage of BMUs and their frequency of patrols is reflected in chart 5.

Chart 5: Landing sites which carry periodic surveillance

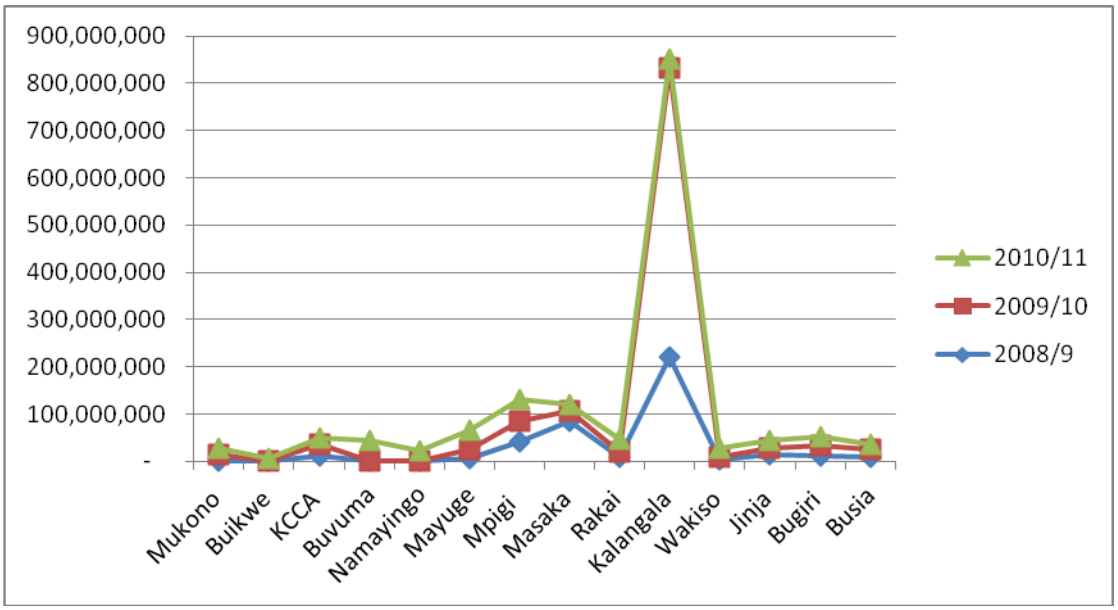


Source: OAG Analysis

Audit also revealed that there are a number of patrols done by other authorities independently, such as: task force managed directly in the office of the minister responsible for fisheries, police and other security agencies. Audit did not find evidence of coordinated surveillance jointly done by the various authorities.

Inadequate patrol and surveillance was attributed to low funding of BMU activities due to the suspension of vessel licensing by the Fisheries department in MAAIF. Inadequate patrol and surveillance was also attributed to insecurity in the lake and uncoordinated operation by various authorities. The low funding pattern to District Fisheries department for three years is reflected in chart 6:

Chart 6: The funding trend in 3 years to fisheries Departments of the Districts



Source: OAG Analysis

The trend of funding in all the districts did not reflect any progressive increase in the three years despite the increasing fishing activities at the landing sites. The unique funding case for Kalangala District in 2009/10 and 2010/11 is a result of some donor funding in the two financial years.

The low funding of the districts weakened their financial capability of enforcement and this increased the illegal fishing activities on the lake. For example, all the 138 landing sites sampled experienced illegal activities, despite the arrest, prosecution of persons involved and destruction of the illegal gears.

Conclusion

Only 54% of BMU were carrying out patrol monthly, thus the surveillance lacked consistency and may not deter illegal activities on the lake.

Management response

MAAIF

The Fish (Amendment) Act, 2010 was drafted but MoFPED has objected to establishment of fisheries fund. For example, Q2 release of F/Y 2011/12 is for all activities of DFR and it's not adequate for MCS

BMU Statute 2003 clearly provides for sources of funding for BMU activities. But what is lacking is constant/regular sensitization on operationalisation of these sources through enactment of bye-laws by local councils to help BMU realize these sources of revenue at the beaches. DFR agrees with this issue, and appreciates the recommendation provided by the Auditor General in this regard.

Recommendation

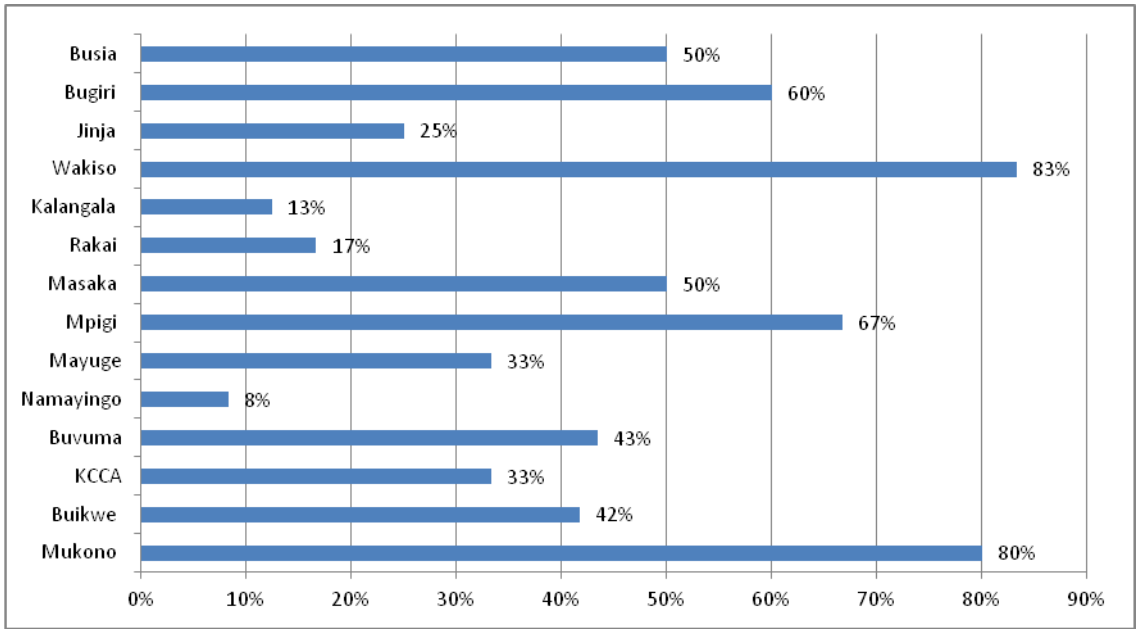
- The MAAIF should strengthen the operational capacity of the districts and BMUs to enable them conduct their monitoring, control and surveillance activities
- The MAAIF should strengthen its supervisory and monitoring functions over the districts and BMUs.
- The MAAIF should streamline, harmonize and coordinate the operation of various parties involved in the patrol to curb illegalities in fish management.

4.1.5 Performance of BMUs regarding demarcating prohibited fishing zones reserved for fish breeding

According to guidelines for Beach Management Units item 5.4.1(e), the BMU committee should identify fish breeding areas on the basis of indigenous knowledge and identify and clearly demarcate prohibited fishing zones. The Fish Act of Uganda, sec.91, prohibits fishing in designated areas regarded as breeding and nursery grounds and the Fisheries Acts sec 27 prohibits capture of immature fish.

A study of a sample of 138 landing sites in the thirteen districts and Kampala Capital City Authority indicated that 57 of the landing sites, representing 41% of the BMUs sampled had not identified fish breeding areas for purposes of clearly demarcating and marking them as zones prohibited from fishing. It was further noted that 94% of the 108 breeding zones in 81 landing sites had not been gazetted as indicated in chart 7.

Chart 7: Districts with landing sites without restricted zones for fish breeding



Source: OAG Analysis

The top five districts with landing sites without restricted zones for fish breeding included: Wakiso, Mukono, Mpigi, Bugiri and Busia Districts.

It was also noted that one of the outputs of MAAIF was to have 50 fish breeding areas validated on five major water bodies, among other deliverables and financed by a budget of shs. 746,000,000=[10]. There was no evidence that such activity was carried out on Lake Victoria.

The failure to identify, demarcate and gazette restricted zones was attributed to general laxity by the district and the Ministry authorities to provide technical support to the BMUs to perform this role among others. It was also noted in some districts parameters were not provided by MAAIF, DFO and NAFFRI to BMUs for identifying breeding grounds.

[10] OBT FY 2010/11, MAAIF, programe 09, Fisheries resource dept, page 146,

Conclusion

The MAAIF, Districts and BMUs have not gazetted breeding grounds on the lake in some of the landing sites and the fish multiplicity has been restricted, which could lead to the drop in the fish stock.

Management response

Districts

The MAAIF and the Fisheries Research Institute has not provided any rudimentary biological parameters upon which Districts and BMUs can base to identify breeding grounds. The legal Instrument No. 41 "The fish (closed sections) order, 2009 indicates coordinates for latitudes and longititudes bordering the closed areas. These coordinates are not physical and cannot be understood by the fishers neither the field officers since these require use of GPS.

MAAIF

DFR has a draft Fisheries Bill which includes establishment of Fisheries Authority. Demarcating and gazetting fish breeding areas requires; identification, Verification, demarcation, gazetting and enforcement. These processes need to be done by DFR, NAFIRRI, BMU's and Dept of surveys. DFR gazzetted the Fish Permanent Closed Area 2010 and Fish (Fishing) Rules 2010 to improve on protection of breeding grounds with a map to show locations. *On failure to gazette*

Fish breeding areas, it is the responsibility of MAAIF in collaboration with National Fisheries Research Resource institute (NaFFIRI).

MAAIF informed the Districts and BMUs to identify the potential fish breeding areas. A number of potential areas were identified and submitted to MAAIF. Some districts are still waiting for NaFFIRI to conduct the research to confirm these areas and later be gazetted by MAAIF. The districts have no capacity to confirm these areas on its own.

Efforts to gazette fish breeding grounds on Lake Victoria have always attracted community misinterpretation and resistance claiming the state has sold such sites, presenting a great challenge.

Recommendation

- The MAAIF and the districts should provide technical support to the BMUs to enable them identify, demarcate and gazette breeding zones.
- The MAAIF and the districts should set parameters for guiding BMUs to identify breeding grounds.

4.1.6 Conducting regular awareness campaigns to deter IUU

According to the Council of Ministers' minutes 15 of February 2009, partner states are required, through its implementation arms, to organize national stakeholder's conferences to raise awareness to sensitize the stakeholders on the dangers and impact of illegalities to their livelihood.

The audit revealed that awareness campaigns were mostly conducted by BMUs themselves. 87% of the 138 landing sites visited had conducted awareness campaigns to deter illegal fishing activities on the lake. The districts which had many of its landing sites not carrying out awareness campaigns were Mpigi with only 17% of its landing sites conducting campaigns, Bugiri 40% and Busia 50%. The districts which recorded the highest percentage in carrying out awareness campaigns were Jinja, Wakiso, Rakai, Masaka, Mayuge, Namayingo, Buvuma and KCCA. There was no evidence to support awareness campaigns carried out by the MAAIF and the Local government.

Awareness campaigns were carried out during BMU meetings, thus achieving a higher level of efficiency without incurring extra costs. The awareness campaigns conducted by the District officials and other authorities were rare due to laxity by the responsible authorities to prioritize this activity in their plans as reflected in the low funding and inadequate staffing of the MAAIF and the districts.

Inadequate awareness campaigns led to increased level of IUU in all landing sites visited as reflected by the level of BMUs' involvement in the enforcement as indicated in table 5.

Table 5: Status of law enforcement by BMUs against IUIU

Districts	BMUs with evidence of enforcement	BMUs without evidence of enforcement	Landing sites visited	Exhibits captured	Photos taken	Police record	% by District
Mukono	7	8	15	6		1	47%
Buikwe	6	6	12	3	3		50%
KCCA	3	0	3	3			100%
Buvuma	14	9	23	11	3		61%
Namayingo	2	10	12	2			17%
Mayuge	3	15	18	1	2		17%
Mpigi	1	5	6	0		1	17%
Masaka	2	4	6	2			33%
Rakai	2	4	6	2			33%
Kalangala	3	13	16	3			19%
Wakiso	3	3	6	3			50%
Jinja	2	2	4	1	1		50%
Bugiri	1	4	5	0	1		20%
Busia	1	5	6	1			17%
TOTAL	**50**	**88**	**138**	**38**	**10**	**2**	

Source: OAG Analysis

The weakest enforcement was noted in the districts of: Namayingo, Mayuge, Mpigi, Busia, Kalangala and Bugiri. Most of the illegal activities were in the form of under sized nets and other illegal fishing gears, which were usually burnt when captured. Some of the illegal fishing gear was found at Golo/Lwalalo in Mpigi as shown in photo 2 below.

Photo 2: Captured illegal undersized nets by Golo/Lwalalo BMU in Mpigi District

Photo on 20th December 2011 by OAG

Conclusion

There were inadequate awareness campaigns carried out by the MAAIF, districts and BMUs and this affected the dissemination and sharing of information on fisheries activities in the Lake.

Recommendation

The MAAIF, district and BMUs should prioritize awareness activities in their plans.

4.2 MANAGEMENT MEASURES TO COMBAT OVERFISHING IN LAKE VICTORIA

In order to combat overfishing in Lake Victoria the state ought to; embrace practices that are effective enough to regulate the amount of fish caught, establish systems to ascertain: the total fish caught, the distribution of fishing efforts in the lake, the total biomass in the lake and utilization of the information obtained from the surveys.

4.2.1 Effective system to regulate the amount of fish caught per year on sustainable basis

The partner states are required to conduct Catch Assessment Surveys (CASs) at least every 4 months in order to assess: catch composition, catch rates and effort, and distribution of catch. This should be done in order to effectively manage the fisheries resources at optimal exploitable levels[11].

According to MAAIF, no CAS was done in 2009, 2(two) were done in 2010 and (1) one in 2011, thus totalling to 3 (three) CASs conducted out of 12 recommended in the three years. This accounts for 25% level of performance. Field inspections revealed that 135 landing sites, which accounts for 98% of the landing sites visited did not maintain physical record of fish catches and did not provide monthly catch statistics and socio economic data to the District Fisheries Officers. The three landing sites which attempted to record were: Katosi in Mukono and Kiyindi in Buikwe districts, which were basically landing sites handling fish for export processing. Ggaba landing site, which is found in KCCA, partially recorded data. The records kept, however, were only in respect of commercial fish species exported, such as: Nile Perch and Tilapia.

[11] LVFO, FMP2, 2009 t0 2014 of August 2008 section 9.5.

According to the bi-annual frame surveys conducted in 2008 and 2010 the landing sites, which issued fish movement permit daily, were as shown in table 6.

Table 6: Landing sites which issue fish movement permits

Description	2008	2010	Percentage %
Total number of	435	503	16
Landing sites that issued movement permits daily	298	363	22
Percentage %	68.5%	72.2%	3.7%

Source: regional status report on Lake Victoria bi-annual frame survey between 2008 and 2010-Uganda.

The audit inspection revealed that 69% of the landing sites visited issued fish movement permits to persons transporting fish out of the landing sites as shown in table 7.

Table 7: Status of landing sites which issue fish movement permits daily as per various Districts

Districts	Landing sites with estimates or actual records	Landing sites without estimates or actual records	TOTAL Landing sites visited	Percentage (%) of landing sites without records
Mukono	14	1	15	7%
Buikwe	7	5	12	42%
KCCA	0	3	3	100%
Buvuma	23	0	23	0%
Namayingo	9	3	12	25%
Mayuge	13	5	18	28%
Mpigi	0	6	6	100%
Masaka	4	2	6	33%
Rakai	2	4	6	67%
Kalangala	11	5	16	31%
Wakiso	1	5	6	83%
Jinja	4	0	4	0%
Bugiri	3	2	5	40%
Busia	4	2	6	33%
Total	**95**	**43**	**138**	
Percentage	**69%**	**31%**		

Source: OAG Analysis

The districts with the highest percentage of landing sites not issuing fish movement permit were: Mpigi and Wakiso. KCCA also had evidence of issuance of permits.

The poor performance in undertaking the CAS exercise was attributed to lack of prioritization of funding to the fisheries resource department by MAAIF.

As regards recording of fish caught daily, the fishers shun the exercise because they associate it with exposing them to the possibility of higher taxation. Weak enforcement by BMUs and inadequate supervision of BMUs by MAAIF and Local Governments also led non recording of fish caught daily.

As a result of the absence of records there was no information on fish stock based on CAS and daily records on fish caught. Surveillance and monitoring target for fishing activity and the trade in fish species, both locally and regionally cannot be set in order to enforce the closed seasons for fishing. The fish stock in the lake is declining and the actually quantity caught annually is only estimated.

Conclusion

The fisheries sector in the country lacks reliable statistical data to facilitate informed decision making. This partly explains the unpredictable fisheries state of affairs in the country due to inadequate information.

Management response

Districts

Fishers are poor in record keeping despite the training they undertook during BMU training. Some BMU executives are themselves the proprietors of illegal fishing. The methodology of election of BMU executives has a loop hole in that where illegal fishing is prominent, the likelihood of electing a member of the same illegal fishing class is high.

MAAIF

Considerable environmental pressure from overfishing is due to ever increasing fisher population, increased numbers in fishing vessels and fishing gears and methods with insignificant control and regulation i.e. increased fishing effort has been experienced over the years due to increase in demand for fish.

Measures instituted by the state can adequately avert the level of fishing illegality only if they are seriously implemented. However, successful implementation measures available are significantly hindered by general lack of capacity as summarised in the audit report. Particularly staffing is thin on the ground e.g. the staffing structure for the production sector is not yet approved and districts have few enforcement officers.

Over fishing has not only affected Nile perch, Dagaa and Tilapia, but also equally the rest of fish species including but not least, bargrus dorcmac, cat fish (clarias), lung fish and synod-antis (regarded as less-value fish species).

Recommendation

- The MAAIF and the districts should enforce recording of fish caught and issuance of fish movement permits by BMUs.
- The MAAIF, districts and BMUs should sensitize the fishers on the importance of daily recording of fish caught.

4.2.2 Use of hydro caustic, Trawl survey, survey reports to regulate fishing activities within the Lake

The Partner states of East Africa are required to use hydro caustic survey reports to establish biomass of fisheries stock within the Lake. Best practice requires that two (2) Hydro-acoustic surveys be done per year. Hydro-acoustic, trawl survey, biological and environmental surveys examines the status of the fish stock, their biology and interactions among themselves and with the environment.

A review of documents revealed that two hydro-acoustic surveys were done in 2009 and 2010[12]. This makes a total of 2 out of 6 recommended in the three years which indicates 33% performance. There was no evidence of use of Hydro caustic survey reports by the district fisheries offices.

According to MAAIF, hydro-acoustic surveys are very expensive. The ministry did not carry out the required surveys since most of them are conducted by LVFO.

[12] Technical report: stock assessment regional working group, 22nd to 25th November 2011, Ridar Hotel, seta, Uganda, pg2

As a result, there is limited current knowledge and awareness on the status of fish stock in the lake by relevant authorities to appropriately decide on the level of control required on Lake Victoria. This makes it hard to decide on the sustainable level of fish stock to be maintained in the lake, which makes fish stock determination subjective and may lead to over fishing.

Additionally, the inconsistency in carrying out hydro-acoustic surveys, monitoring Lake Victoria stock using real time data has been lacking. Mapping and monitoring fish distribution and habitat for an ecosystem has not been done. The resultant real time information to be used as input in assessment models to provide estimates of sustainable yield is missing. In the absence of this management advice, valuable tool for providing consistent information for use in formulating fisheries management instructions is lacking on Lake Victoria.

Conclusion

Hydro-acoustic surveys were not regularly carried out and monitoring of fish stock using real time data was lacking. Mapping and monitoring fish distribution and habitat for an ecosystem was not done. The resultant real time information to be used in assessment, to provide estimates of sustainable yield, was lacking.

Management responses

MAAIF

DFR agrees that there is insufficient data for DFR management, however, it is important to note that DFR manages Lake Victoria basing on the following references;

- ***Fisheries Surveys have been done adequately for 2010, 2008, and 2006 under donor funding.***
- ***CAS surveys: 2006, 2007, 2008 and 2011.***
- ***Hydro Acoustic Surveys conducted.***
- ***Lake Victoria Fisheries Management Plan 2009-2014***

Recommendations

The MAAIF should explore possibilities of carrying out joint hydro-acoustic surveys with LVFO and share the results of the surveys with all stakeholders.

4.3 INFRASTRUCTURE FOR POST-HARVEST HANDLING IN LAKE VICTORIA

The partner states, through their implementing agencies, are required to establish adequate infrastructure to cater for post-harvest handling. These structures should include cold storage facilities properly maintained and easily accessible, clean water supply, sanitation and housing and planning at landing sites. There should be regular sensitization programs carried out to improve fish handling practices and measures in place to ensure compliance with both national and international standards on the fish quality.

4.3.1 Distribution of Cold storage facilities

The partner states are required to establish, improve and rehabilitate landing sites and other infrastructure lake wide to meet acceptable hygiene and sanitary standards as required under minute 1(j) of EA council of ministers meeting of 26th June 1999. This also implies that all landing sites should have adequate cold storage facilities evenly distributed to provide uninterrupted preservation of the fish catch.

Audit inspection established that only two landing sites (in Busia and Bugiri) have modern cold facilities although a total of 55% have locally improvised cooling facilities, which are either holes dug or simple wooden boxes (see photo 4) with ice cubes to provide the cooling effect. Of the 55% improvised cold storage facilities, 95% of them were operational and within accessible distance. Other than Katosi landing site in Mukono, where the fish transport vehicles had cooling facilities inbuilt (see photo3), Wakawaka landing site in Bugiri district had ice plant and the rest of the 227 cold storage facilities in the landing sites were locally improvised. Wakawaka ice plant, however, is not operational because it lacks power to operate the plant. Some landing sites provide an alternative way of fish preservation through fish smoking in kilns common in Ggaba landing site in KCCA as seen in photo 5.

Photo 3: Fish transport vehicles with cooling facilities inbuilt

Photo on 14th December 2011 by OAG-Katosi –Mukono District

Photo 4: Cooling system locally improvised

Photo on 13th December 2011 by OAG-Port Bell KCCA

Photo 5: Fish smoking as a method of preservation-Ggaba Landing site-KCCA

Photo on 13th December 2011 by OAG

The reason for most of the landing sites having simple improvised cooling system was lack of prioritization of landing site improvement by responsible authorities in their development plans. The development of the cold chain from landing site was one of the Local Governments' deliverable[13], although funding constraints was cited as the hindrance.

The lack of cooling system at most of the landing sites affects the preservation of fish over a long period forcing the fishermen to sell off fish immediately at very low prices for fear of the fish getting perished.

Conclusion

The absence of cooling facilities increases waste in the fisheries sector, which may lead to overfishing as the fishermen are forced to return to lake to catch more fish.

Recommendation

The MAAIF and Local Governments should provide cooling facilities at the landing sites.

4.3.2 Provision of: clean water, sanitation facilities and roads at the landing sites

The partner states are required to establish, improve and rehabilitate landing sites and other infrastructure lake wide to meet acceptable hygiene and sanitary standards as required in minute 1(j) of EA council of ministers meeting of 26th June 1999.

4.3.2.1 Clean water supply at the landing sites

A review of the frame survey reports for the years 2008 and 2010, revealed that 80% of the landing sites in 2008 and 82.5% in 2010 had no clean water supply as indicated in Table 8.

Table 8: Distribution of clean water at the landing sites

Description	2008	2010
Total number of landing sites	435	503
Landing sites with Portable water (clean water facilities)	88	88
Landing sites without Portable water (clean water	347	415

[13] Ministerial policy statement, FY 2010/11, pg 433

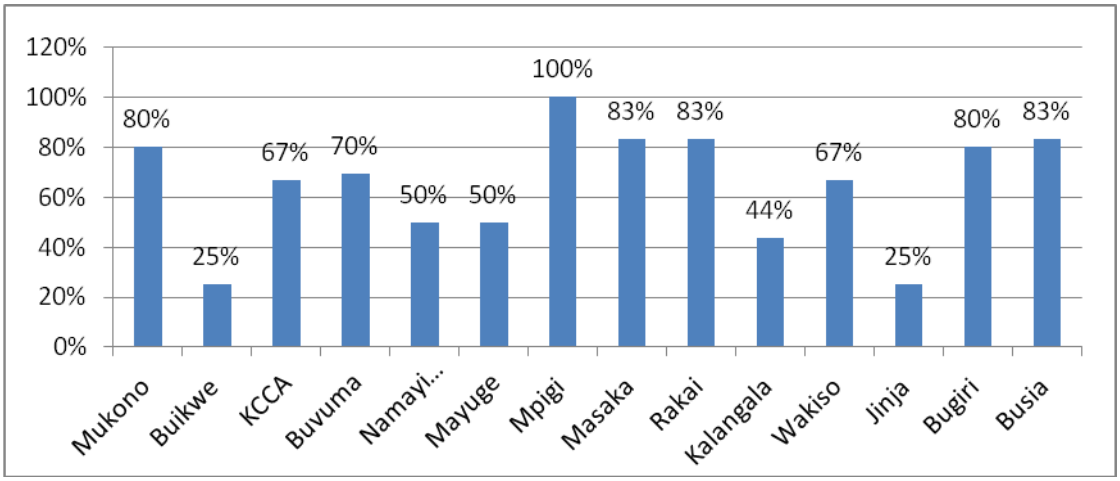
facilities)		
Percentage of landing sites without clean water	80%	82.5%

Source: regional status report on Lake Victoria bi-annual frame survey between 2000 and 2010-Uganda. December 2010

The Demographic and Health survey conducted in Uganda in 2006 also puts the level of safe drinking water nationwide at 33%[14], which further explains the low level of provision of water at the landing sites.

Audit inspection of the visited landing sites (138) also revealed that 62% of the landing sites lacked safe water. The distribution of landing sites without clean water in the districts is indicated in chart 8.

Chart 8: Percentage of landing sites without safe water



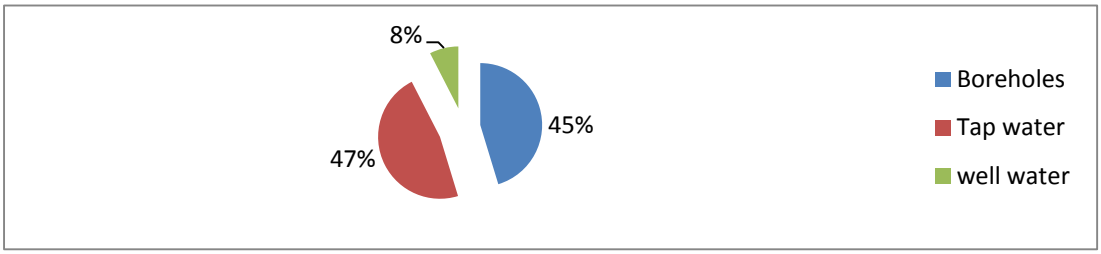
Source: OAG Analysis

The six most affected districts with absence of safe water at the landing sites were: Mpigi, Masaka, Rakai, Busia, Bugiri and Mukono. Buikwe and Jinja districts had most of the landing sites with safe water.

Further analysis of the type of safe water in the 53 landing sites visited revealed that 47% of the landing sites had tap water, 45% well water and 8% had bore holes as shown in the pie chart 9.

Chart 9: Distribution of safe water by type

[14] UBOS and Macro International inc.2007, pg 2



Source: OAG Analysis

It was also noted during audit inspection that the water facility, which is water purification system, at Katosi Landing site in Mukono district was uncompleted after investing a substantial amount of money. Photo 6 shows uncompleted water purification structure.

Photo 6: Uncompleted water purification structure at Katosi Landing site - Mukono

Photo on 14th December 2011 by OAG

The provision of safe water at the landing sites was inadequate due to the failure by MAAIF, District and Sub-County councils to prioritize the provision of safe water to landing sites.

The absence of safe water at landing sites places the population of over 95,000 people at the risk of outbreak of preventable water borne diseases, which may eventually spread to other people outside the landing sites.

Recommendation

The MAAIF, District and Sub-County councils should prioritize the provision of safe water to the landing sites.

4.3.2.2 Sanitation at Landing Sites

The BMU committees should improve sanitation and hygiene at the landing sites and ensure that there are sufficient toilet facilities for both the operators and persons at the beach for human waste disposal[15]"

The Demographic and Health survey conducted in Uganda in 2006 puts the level of toilet facilities nationwide at 12% without toilet facilities[16]. A review of the frame survey reports for the years 2008 and 2010 revealed that 55% of the landing sites in 2008 and 61% in 2010 had toilet facilities as indicated in Table 9.

Table 9: Distribution of Toilet facilities at the landing sites

Description	2008	2010
Total number of landing sites	435	503
Landing sites with Toilet facilities	196	198
Landing sites without Toilet facilities	239	305
Percentage of landing sites without Toilet facilities	**55%**	**61%**

Source: regional status report on Lake Victoria bi-annual frame survey between 2000 and 2010-Uganda. December 2010

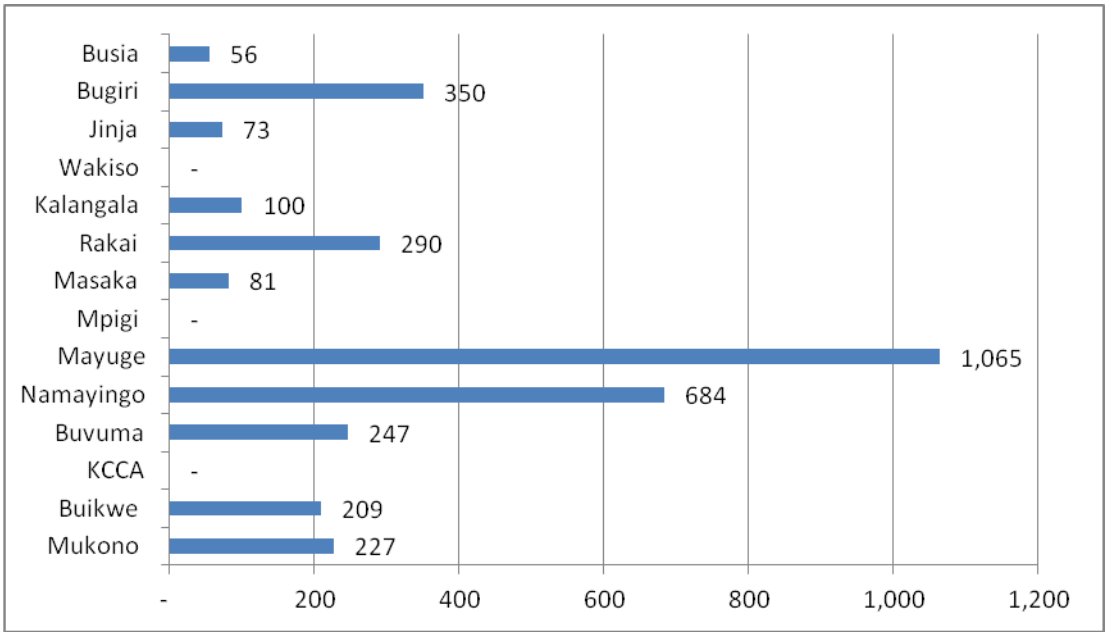
According to Lake Victoria framework report 2010[17] , the public toilet coverage at landing sites without toilets improved from 83% in 2002 to 55% by 2008, but dropped to 61% in 2010. The number of toilet facilities at the landing sites is reducing.

Audit inspection of 138 landing sites established that 41% had no good toilet facilities. The ration of the number of persons per toilet stance based on the

[15] Guidelines for Beach Management Units on lake Victoria, may 2005, Page 12,26,
[16] UBOS and Macro International inc.2007, pg 2
[17] Page 26-Uganda side report

estimated day time population at the landing sites varies per district as reflected in chart 10:

Chart 10: Persons per toilet stance at landing sites



Source: OAG Analysis

From the above chart, Mayuge and Namayingo district landing sites were the most hit with shortage of toilets while the situation was better in KCCA, Mpigi and Wakiso. The most striking case was Bwonda landing site in Mayuge with an estimated population of 5,954, but only had 3 toilet stances.

The inadequate toilet facilities at the landing sites were attributed to the failure by the MAAIF, Local Governments and BMUs to construct toilet facilities at the landing sites by according the landing sites funding priority.

The absence of inadequate toilet facilities at landing sites places the population of over 95,000 people at the risk of outbreak of preventable disease, such as: dysentery and cholera, which may eventually spread to other people outside the landing sites.

Recommendation

The MAAIF, District and BMUs should prioritize the provision of toilet facilities to the landing sites.

4.3.2.3 Access roads to landing sites

The Central Government, Local Government, UNRA and the local community should maintain roads at the landing sites to ease transportation of fish and fishery products.

A review of the frame survey reports for the years 2008 and 2010 revealed that 63% of the landing sites in 2008 and 68% in 2010 had no proper motorable roads as indicated in Table10.

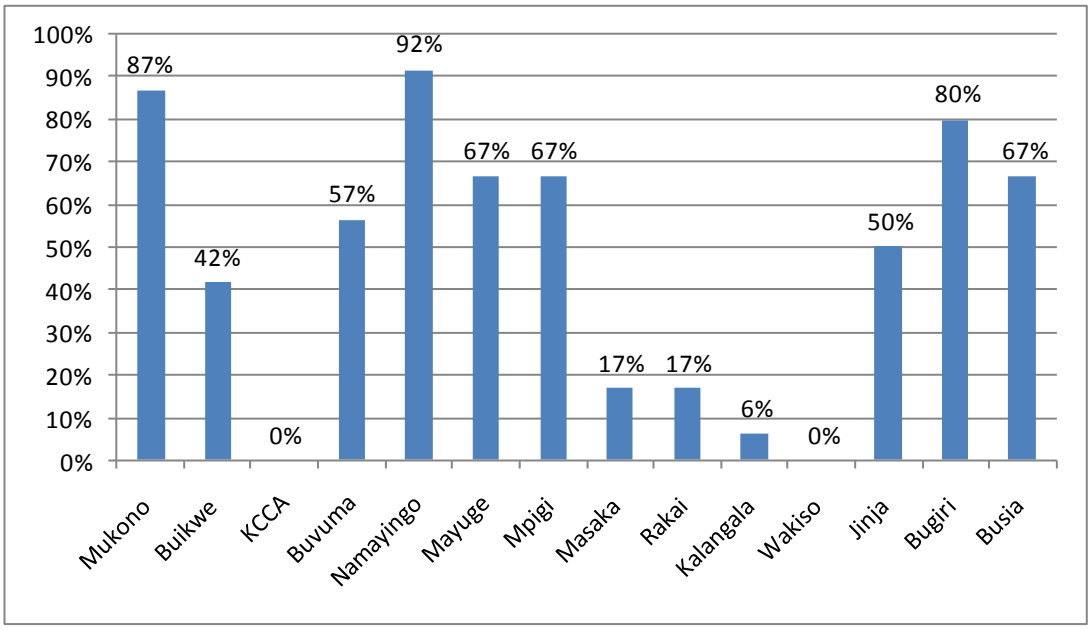
Table 10: Distribution of access roads

Description	**2008**	**2010**
Total number of landing sites	435	503
Landing sites with motorable roads	161	163
Landing sites without motorable roads	274	340
Percentage without %	**63%**	**68%**

Source: regional status report on Lake Victoria bi-annual frame survey between 2000 and 2010-Uganda. December 2010

Audit inspection of access roads in 138 landing sites visited established that 51% of the access roads were in bad condition. The situation varies from districts to districts as reflected in the chart 11.

Chart 11: Percentage of landing sites with bad condition access roads



OAG Analysis

The worse hit districts were: Namayingo, Mukono and Bugiri while KCCA, Wakiso, Kalangala and Masaka districts were in a relatively better position.

The poor condition of roads at the landing sites was attributed to the failure by the Central Government, Local Government, UNRA and the local community to prioritise construction, maintenance and rehabilitation of access roads in their management plans.

The absence of good access roads at the landing sites hinders the implementation of fisheries management activities, such as: transportation of fish, sensitization campaigns, enforcement activities, and monitoring and evaluation activities.

Recommendations

The Central Government, Local Government, UNRA and the local community should prioritise construction, maintenance and rehabilitation of access roads to the landing sites.

Management response

Districts

The districts have attempted to provide some essential facilities for the fishing communities such as public toilets and potable water, however, the progress is curtailed by the expensive nature to establish these facilities at the landing sites, which do not match the districts funding base.

Poor sanitation standards including unsafe water and insufficient latrine coverage is attributed to unfavourable soils and terrain in some districts. Latrines are inadequate for providing good sanitation while modern toilet facilities are beyond funding capability of the districts. Besides, the communities are not willing to contribute to construction of such sanitation facilities due to high costs involved.

MAAIF

DFR notes and agrees that facilities are inadequate and that there are 503 landing sites which require improved fish handling facilities on Lake Victoria (FS, 2010). However, the following efforts have been undertaken:

- ***Seven fish handling facilities were developed with support from ADB some photos provided***
- ***The DSIP and other developed projects are planned to handle this challenge further***
- ***Draft National policy on Fisheries management and Development of small fishes***
- ***Provisional Fisheries Sector Strategic plan 2004 indicating strategy for infrastructure development for post harvest handling in the Fisheries***

John F.S. Muwanga
AUDITOR GENERAL

KAMPALA

26th March, 2012

Glossary of terms:

IUU	Illegal, unreported and unregulated fishing is fishing which does not comply with national, regional or global fisheries conservation and management requirements
Illegal fishing	fishing done in violation of the laws of a fishery, either within areas of national jurisdiction, the regional fisheries management organizations or the high seas.
Unreported fishing	Fishing that has been unreported or misreported to the relevant national authority or regional organization in contravention of applicable laws and regulations.
Unregulated fishing	Refers to fishing by vessels without nationality, or vessels flying the flag of a country not party to the regional fisheries management organization governing that fishing area or species.
Gravid stock	Breeding fish
Juvenile	Immature fish
Framework survey	is a method used to generate information required both for management purposes and for helping to design catch assessment survey by providing the sampling frame
Catch Assessment survey	are surveys aimed at the harvest sector and are designed to obtain information on both fish catches and fishing
Hydro-acoustic surveys	are surveys aimed at providing information on biomass, composition, distribution structure and population structure of fisheries stock
Biomass	Status of fish stock

Appendix 1

LIST OF DOCUMENTS REVIEWED DURING LAKE VICTORIA ENVIRONMENTAL AUDIT

SERIAL NO.	DOCUMENT	PURPOSE
1	Technical report: stock Assessment regional working group 22nd-25th Nov,2011	To ascertain the total fish catch in a particular period
2	Fisheries management plan for lake Victoria 2009/2014 Regional synthesis of the social economic baseline survey of the fishing communities of lake Victoria	To understand Fisheries management plan for lake Victoria
3	Regional trade in fish from lake Victoria synthesis report	To ascertain Regional fish trade statistics
4	Technical report: stock Assessment task force may 2008	To ascertain the total fish catch for a particular period
5	Statutory instrument 2003 No. 35: the fish(Beach Management) rules, 2003	Understand legal set up of BMUs
6	Strategy and Action plan for monitoring control and surveillance of fishing on lake Victoria: final report may 2005	To understand the strategy for MCS
7	LVFO of the EAC Nile perch fisheries management plan for lake Victoria July 2009-June2015	To understand Nile perch fisheries management plan
8	Implementation of a fisheries management plan for lake Victoria .Project No. 8 ACP ROR/029 consultancy report No. 42	To understand Implementation of fisheries management plan
9	Uganda 2006 demographic and health survey key findings	To appreciate demographic and health data
10	Regional status report on lake Victoria Bi-annual frame survey between 2000 and 2010 Kenya, Tanzania and Uganda	To obtain Regional status report on lake Victoria Bi-annual frame survey
11	HIV/AIDS in fishing communities of lake Victoria: A strategy and action plan (LVFO)	To appreciate a strategy and action plan for HIV/AIDS among the fishing community
12	Human resource development strategy and action plan for Lake Victoria fisheries	To understand the guidelines for BMU
13	Guidelines for Beach management units(BMUs0 on Lake Victoria	To understand Guidelines for Beach management units
14	Regional plan of action to manage fishing capacity and fishing effort on lake Victoria	Regional plan of action to manage fishing capacity
15	Fisheries co-management development of BMUs and their roles in sustainable fisheries management of lake Victoria	To obtain understanding of Fisheries co-management
16	Status and impact of illegal fishing on fisheries wealth	To obtain impact of illegal fishing
17	Joint communiqué of the council of ministers of Lake Victoria Fisheries organization issued at Munyonyo, Kampala Uganda on 28th May 2010	Resolutions of council of ministers
18	Standard operating procedures for catch Assessment surveys (LVFO)	To understand the standard operating procedures for

		catch assessment survey
19	Standard operating procedures for fisheries frame surveys (LVFO)	To understand the standard operating procedures for fisheries frame survey
20	Regional stakeholders conference on the state of the fish resources of lake Victoria and their management	Resoultions of stakeholders
21	Regional operations manual for monitoring, control and surveillance(MCS) of fisheries on lake Victoria	Operations of monitoring, control and surveillance(MCS)
22	Min of Agriculture Animal Industry and fisheries Department of fisheries resources (guidelines for planning at BMU level)	Understand the Planning process of BMUs
23	Lake Victoria fisheries organization. The institutional structure and programs of the organization	To understand the institutional structure and programs of the organization
24	LVFO regional plan of action for the management of fishing capacity in lake Victoria	Regional Actions on Lake Victoria
25	Uganda environment and natural resources	Environmental matters of Uganda

Appendix 2 LANDING SITES SAMPLED

DISTRICT LANDING SITES SAMPLED 2010/2011

I. Rakai District Landing Sites

1. Mukokote
2. Rwabiriba
3. Lwanga
4. Kasensero
5. Kyabasinga
6. Sango Bay

Masaka District Landing Sites

1. Kanchanga
2. Lambu
3. Kaziru
4. Kisuku
5. Makonzi
6. Mitondo

II. Kalangala District Landing Sites

1. Mwena
2. Lutoboka
3. Kasenyi
4. Banga
5. Semawundo
6. Ndeje
7. Mulabana
8. Nakatimba
9. Kasamba
10. Lwabalenga
11. Mutambala
12. Nsenero
13. Kusu
14. Lulindi

15. Kaazi
16. Njoza

III. Mukono District Landing Sites

1. Katosi
2. Bulebi
3. Kiziru
4. Nangoma
5. Sumbwe
6. Mbale
7. Bugula
8. Nakitokota
9. Kibanga
10. Kijjiko
11. Kikoko
12. Bubanzi
13. Buzindere
14. Mpeja
15. Kamwanyi
16.

IV. Buvuma District Landing Sites

1. Kirongo
2. Lukoma
3. Banga
4. Namakeba
5. Walwanda
6. Kitamiro
7. Mawanga
8. Nambalira
9. Bugabo
10. Ssese
11. Kikongo
12. Itojjwe
13. Nvuza
14. Bukali

15. Buwanzi
16. Kifulu
17. Kyanamu
18. Kapapapli
19. Kabangungu
20. Cheema
21. Buwangwebi
22. Namugiri
23. Bubale

V. Bugiri District Landing Sites

1. Wakawaka
2. Naguru A
3. Naguru B
4. Lwenge
5. Namatu

VI. Busia District Landing Sites

1. Maduwa
2. Majanji
3. Nalyoba
4. Buloosi
5. Nagumbi
6. Busime

VII. Namayingo District Landing Sites

1. Busiro
2. Mulwanda
3. Lubango
4. Bumeru B
5. Busoli
6. Bulundira Mutumba
7. Bulundira Buhema
8. Lugaga
9. Bumeru C
10. Bumeru A

11. Mpanga
12. Lugala

I. Mayuge District Landing Sites

1. Bukoba
2. Nakilimira
3. Kabaganja
4. Lutale
5. Katwe
6. Kayanja
7. Kafirimbi
8. Nango
9. Bwonda
10. Busabala Musoma
11. Busabala Jaguzi
12. Bugoto
13. Lwanika
14. Nakalanga
15. Ntinkalu
16. Musoli
17. Busuyi
18. Bukalenzi

II. Jinja District Landing Sites

1. Wailaka
2. Masese
3. Ripon
4. Wanyange

III. Wakiso District Landing Sites

1. Kasenyi
2. Koko
3. Nakabugo
4. Busabala
5. Gerenge

6. Mukuba

IV. Mpigi District Landing Sites

1. Lwalalo Goolo
2. Kiwanga
3. Namugeye
4. Namirembe
5. Sanya
6. Buvumbo

V. KCCA District Landing Sites

1. Portbell
2. Gaba
3. Munyonyo

VI. Buikwe District Landing Sites

1. Nile
2. Bugungu
3. Busaana
4. Kiyindi
5. Koko
6. Kigaya
7. Ssenyi
8. Kikondo
9. Namabele
10. Kalega
11. Buwagajjo
12. Nkobwe