



THE FISHER OMUVUBI

Analysing Issues

UGANDA

A PUBLICATION FOR THE FISHING INDUSTRY

ADAPTIVE GOVERNANCE: The way to go for responsible fisheries

THE PROJECT THAT IS IMPROVING LIVELIHOODS

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Lake Victoria Small Fish project is a transformative initiative aiming to enhance the livelihoods of communities

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A severe thunderstorm, characterised by strong gusty winds and heavy rains, has left a trail of destruction in Kalangala District

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GOVERNANCE NEEDS TO BE MORE RESPONSIVE TO CHANGES IN THE ENVIRONMENT, ECONOMY AND SOCIETY



Stakeholders meeting about responsive fishing

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Why adaptive fisheries governance?

We all know that fisheries face multiple challenges.

These include high levels of pressure from the number of boats and gears used and the high demand for fish. Changing weather patterns, water levels and temperature of the water are also bringing challenges – both for fish

and fishers. To cope with uncertainty from the weather and from changing fishing practices, the system that makes and enforces rules – the governance system – needs to be able to respond in a timely and informed way. It also needs to do this in a way that is felt to be fair by people working in fisheries and in a way that includes their views and knowledge.

What is adaptive governance?

Taking an adaptive approach to governance means that the systems involved are able to:

- Respond quickly to change and uncertainty
- Make decisions fast – so the systems shouldn't be too bureaucratic
- Generate, share and use information from different

sources

- Cope with the impacts of climate change

Assessing capacity for adaptive fisheries governance

To learn how to assess the capacity for adaptive fisheries governance, research is being carried out in Uganda and Malawi, led by the

University of Birmingham, UK, working with the National Fisheries Resources Research Institute (NaFIRRI), Uganda, the Lilongwe University of Agriculture and Natural Resources, Malawi, and the Institute for Poverty, Land and Agrarian Studies (PLAAS), University of the Western Cape, South Africa.

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Adaptive Governance: The way to go for responsible Fisheries

The research is taking place between December 2023 and November 2026 and aims to identify how adaptive governance capacity can be developed, which will strengthen the governance systems and help the fisheries sector better cope with climate change, whilst also protecting environmental resources and improving people's livelihoods.

But what about co-management?

Co-management is the system in place in both Uganda and Malawi. In recent years, the co-management system in Uganda has been suspended, but the 2022 Fisheries and Aquaculture Act commits the government to establishing fisheries co-management committees at all levels: landing sites, sub-county, district lake-wide, national and regional levels. In Malawi, the co-management system is based on Beach Village Committees (BVCs) but the system could be more effective and sustainable.

Co-management can form the basis for adaptive governance. By bringing in the idea of adaptive governance, more attention will be given to improving communication between national and local government, and between government and communities, making better use of knowledge and data, and

What does the research involve?

The research involves several studies, workshops with the national fisheries departments,



Local traders buy mukene silver fish from the fishermen

fisheries officers, representatives of fishing communities and representatives from civil society, and the development of plans and guidelines.

The studies underway are:

1. An assessment of the capacity for adaptive governance at community, district and national levels.
2. Investigation into what kinds of information are generated, used and shared within fisheries, and whether there are gaps in information and knowledge.
3. Analysis of how and why fishing practices have changed over time, and how government responds to those changes, such as through making new regulations.

Following on from these studies, small pilot interventions will be supported for several months, from which we hope to learn more about how communities can better protect their natural environment and be more prepared to cope with climate change. We will also support regular meetings in selected districts to bring communities and government together to identify key issues that need to be addressed and how to generate and use better information.

From these experiences and studies, we will work with fisheries stakeholders to develop guidelines and plans to develop capacity for adaptive fisheries governance, with the aim of

strengthening fisheries governance for more sustainable fisheries and better livelihoods.

Who is funding the research?

The research is funded from the UK Government's International Climate Finance, through its Department for Environment, Food and Rural Affairs (DEFRA), under the Global Centre on Biodiversity for Climate (GCBC).

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Kagwara fish handling facility that fell into pieces before use

The Shillings 2.7 billion facility constructed with support from African Development Bank to fund Fisheries Development Project (FDP) in 2009 has been lying idle since the district leadership declined to receive it from the contractor citing shoddy works.



When we visited Kagwara and observed that almost all the structures have developed huge cracks. The roofs of both the store and offices have been blown off by wind and some walls have since fallen forcing residents to use ropes

to support the other roofs. All the window panes have broken into pieces, ceiling peeled off leaving bats to enjoy the remaining corners. The facility which had

turned into a drying rack for clothes and food by residents and a shed for animals was supposed to be a state of art fish handling facility in the district.

One of the fishermen at the landing site explained that the facility has only benefited students who come for tours by providing a shade since it

failed to serve its intended purpose.

While government had a good will after designing the project to revitalize fishing, it has turned out to be a mockery to the fishing community in Kagwara.

The roofs of both the store and offices have been blown off by wind and some walls have since fallen forcing residents to use ropes to support the other roofs.

The Project that is improving Livelihoods

The Lake Victoria Small Fish Project (<https://lvsfp/lvfo.org>)

The Lake Victoria Small Fish Project (LVSF) is a transformative initiative aiming to enhance the livelihoods of communities that depend on small fish in Lake Victoria. Funded by the International Fund for Agricultural Development (IFAD) with a budget of USD 2 million, the project spans from February 2022 to March 2026. It is implemented across the riparian states of Kenya, Uganda, and Tanzania, coordinated by the Lake Victoria Fisheries Organization (LVFO).

The overarching goal of the LVSF project is to contribute to improved, inclusive, nutritious, and sustainable livelihoods for communities reliant on small fish. Specifically, the project aims to reduce food losses by implementing sustainable practices that minimize waste in small fish systems, improve incomes by introducing innovative marketing strategies to enhance the economic benefits derived from small fish and enhance nutrition by increasing the availability and consumption of small fish to improve community nutrition.

Key Components of the Project include the Promotion of Green Technologies, where the project focuses on adopting environmentally friendly technologies in fishing, processing, and preservation. This encourages sustainable resource use, ensuring that fish populations are maintained for future generations and minimizing environmental impact. Marketing Innovations -by supporting new marketing strategies, LVSF helps communities increase their income from small fish. This includes direct sales to consumers and value-added products that can fetch higher prices in the market. Knowledge Generation and Dissemination - the project emphasizes the importance of research and education, providing communities with the knowledge to implement sustainable practices and make informed decisions about fish production.

Success Stories and Impact of the Lake Victoria Small Fish



School children from fishing communities around lake Victoria participating in small fish consumption awareness quiz and music competitions at Jinja Fish Festival supported IFAD through Lake Victoria Fisheries Organisation

The project began on 13 December 2018, with implementation starting on 11 January 2021, initially set to conclude on 13 May 2025, but extended until December 2025 to complete the five years of effective implementation and to finalize key activities.

Project

The Lake Victoria Small Fish Project (LVSF) has begun to yield significant positive results that are transforming the lives of communities across the region. Through its sustainable practices and innovative approaches, the project has led to numerous success stories that showcase its impact.

Improved Incomes -Local fishermen have reported remarkable increases in their catch through adopting sustainable fishing practices introduced by the LVSF project. For example, fishermen from a community in Uganda indicated that their average catch has increased by nearly 40% since participating in the project. This boost in their daily haul has translated to a 30% increase in household incomes, enabling families to invest in education, healthcare, and improved living conditions. Moreover, fishers are now receiving better product prices by promoting effective marketing strategies, such as direct selling to consumers and establishing connections with local markets. One local fisher shared that he can now sell a kilogram of small fish for up to 50% more than he could before the project's initiation, significantly enhancing his financial stability.

Enhanced Nutritional Options: The LVSF project has also significantly improved nutritional options for families near Lake Victoria. Increased availability of small fish has enriched diets often limited by scarcity. For instance, in a typical household, fish consumption has risen from once a week to three or four times per week. Community health workers have noted improvements in nutritional health indicators, particularly among children, who benefit from the high protein and essential fatty acids found in small fish, as demonstrated during the recent Fish Festival in Jinja. Personal stories illustrate the transformative nature of this change. A mother from Kenya expressed her gratitude for the project: "Before, we struggled to find enough food; now, my children eat fish regularly, and I can see the difference in their health. They are stronger, and their school performance has improved."

Innovative Processing Methods: One of the project's significant achievements is the introduction of innovative processing methods that have enhanced fish preservation and reduced waste. Community members have adopted solar drying techniques, which allow them to preserve their catch longer without relying on expensive, electricity-intensive methods. This innovation not only minimizes food loss but also extends the marketability of small fish beyond the immediate locality. As a result, fish processors are realizing better profits as well. A group of women involved in fish processing in Tanzania reported that their revenues doubled after implementing these new techniques, which not only preserve the fish but also improve the quality of the consumer market.

Broader Economic Benefits: The LVSF project has sparked a ripple effect within local economies. With increased fishing incomes and improved occupational stability in fish processing, families are spending more on local goods and services, leading to economic growth in surrounding communities. New businesses, such as fresh fish markets and small-scale aquaculture operations, have emerged, providing additional employment opportunities. Additionally, the project has fostered community cohesion and collaborative networks among fishers and processors, enhancing resilience against economic challenges.

Their collective efforts in sustainability ensure their livelihood and safeguard the future of fisheries in Lake Victoria.

Challenges Encountered by the Lake Victoria Small Fish Project: Despite its notable successes, the Lake Victoria Small Fish Project (LVSF) has encountered several challenges that could impede its goals and the long-term sustainability of its benefits. Addressing these challenges is essential for ensuring the project's continued effectiveness and for enhancing the livelihoods of communities dependent on small fish. **Resistance to Change:** One of the primary challenges the LVSF project has faced is resistance from local fishers to modify their traditional fishing practices. Many individuals and communities have relied on longstanding methods, which they believe are effective, and may be hesitant to adopt new techniques or technologies introduced by the project. This apprehension can stem from concerns about the risks associated with change, such as potential reductions in fish catch while adapting to new methods. This resistance can slow down the adoption of sustainable practices that are vital for the project's objectives.

Market Accessibility Issues: Reaching wider markets poses another significant challenge. Local fishers often struggle to access urban markets where the demand for small fish is higher. Poor infrastructure, such as inadequate roads and transportation networks, can hinder fish distribution. As a result, even when there is an

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EU-EAC True Fish Farming in Lake V. Basin

The overall objective of the project is to contribute to the development of a competitive, gender-equitable and sustainable commercial aquaculture sector

INSTITUTIONAL BACKGROUND

Lake Victoria Fisheries Organization (LVFO) is an institution of the East African Community (EAC) charged with the management and development of fisheries and aquaculture. It was formed by a Convention in 1994 with major amendments in 2016. It is accommodated under Article 9.3 of EAC Treaty and registered as a regional fisheries management organization under the FAO UN Charter CAP 102. The overall objective of the LVFO is to promote sustainable management and development of the fisheries and aquaculture in order to contribute to food security and economic growth in the EAC region. The Lake Victoria Fisheries Organization (LVFO) in collaboration with Landell Mills, Food and Agriculture Organization (FAO) of the United Nations (UN), and WorldFish is implementing the European Union - East African Community TRUEFISH Farming Story in the Lake Victoria Basin Project, financed under the 11th European Development Fund (EDF 11), for the benefit of the East African Community (EAC). The overall objective of the project is to contribute to the development of a competitive, gender-equitable and sustainable commercial aquaculture sector in order to support economic development and sustainable management of natural resources in the Lake Victoria Basin.

The project aims to:
Remove key impediments to growth faced by investors to ensure a more rapid transition to a more efficient and sustainable sector

Address identified challenges and threats which could undermine the sustainability of aquaculture development, or could impact negatively on the environment, food security or livelihoods. Promote harmonized aquaculture development in the region; e.g., through mechanisms for shared experiences, examples, and lesson learning.

The Project has three Specific Objectives (SO) (components), which are implemented as follows: SO1 BUSINESS: to improve access to commercial networks for aquaculture-related businesses (Implemented by Landell Mills).

SKILLS: to increase availability and quality of local skilled workers for



Farmed fish contributes to the development of competitive, gender equitable and sustainable commercial aquaculture

The project began on 13 December 2018, with implementation starting on 11 January 2021, initially set to conclude on 13 May 2025, but extended until December 2025 to complete the five years of effective implementation and to finalize key activities.

the development of aquaculture-related businesses (Implemented by FAO).

SUSTAINABILITY: to improve sustainability and bio-security of regional aquaculture production systems, with three subcomponents: (i) Strengthening aquatic animal health

management (Implemented by FAO) (ii) Zoning of Lake Victoria (Implemented by FAO), and ((iii) improved protection of biodiversity (Implemented by WorldFish).

TARGETED COUNTRIES AND GROUPS

The project focus is particularly on the Lake Victoria Basin in Kenya, Tanzania and Uganda however, the components on aquatic animal health and biosecurity is extended to Burundi and Rwanda.

Key stakeholders, including:

The private sector: This includes private operators actively participating in various aspects of the aquaculture supply chain such as the aquaculture associations.

National public sector training institutions: These include institutions in Kenya, Tanzania, and Uganda that are dedicated to providing specialized training and capacity building in aquaculture and related fields such as FTI (Uganda), RIAT (Kenya), and FETA (Tanzania). Regional and national public sector actors: These are government and intergovernmental bodies that oversee and regulate aquaculture policies and activities at both national and regional levels.

National fisheries research institutions and national competent authorities for aquatic animal health: These organizations play a critical role in research, innovation, and maintaining the health standards of aquatic animals within the aquaculture industry. Private sector operators not directly benefitting from project activities: This includes stakeholders such as fish processors, traders, and the end-consumers of fish and fish products who indirectly benefit from improved aquaculture systems. The project began on 13 December 2018, with implementation starting on 11 January 2021, initially set to conclude on 13 May 2025, but extended until December 2025 to complete the five years of effective implementation and to finalize key activities.



What has worked within the 3 Specific Objectives?

BUSINESS:

to improve access to commercial networks for aquaculture-related businesses

The project established a yearly Eastern Africa Regional Aquaculture Conference (EARAC) platform which started by organizing a conference online in September 2022 (EARAC I) then farmer centered conferences have been conducted both online and physical in Bondo, Kenya, in March 2023 (EARAC II) and Mwanza, in Tanzania in August 2024 (EARAC III).

The conferences provided a platform for stakeholders to exchange best practices, gain technical expertise, and participate in practical training to enhance productivity and sustainability in aquaculture, showcases regional aquaculture products and services, fostering new market linkages and attracting investment to boost the sector's growth and Connected farmers, policymakers, researchers, and service providers to build partnerships and strengthen regional and international cooperation in aquaculture.

The EARAC events have now become a recognized aquaculture conferencing brand in East Africa.



EARAC II Conference in Bondo, Kenya March 2023



Farmers attending basic training during the conference in Bondo, Kenya

The selected farmers were leaders of aquaculture associations in Kenya, Tanzania, Uganda, Burundi and Rwanda and are expected to share information with other farmers in their countries.



EARAC III Conference in Mwanza, Tanzania August 2024



Women showcasing their products during EARAC III in Mwanza

The project in collaboration with World Aquaculture Society is in preparation for hosting the World Aquaculture Safari '25 from 24th to 27th June 2025 in Entebbe, Uganda which is the upgrade of EARAC IV and AFRAQ 2025.

The World Aquaculture Safari '25 whose aim is to showcase Africa's aquaculture industry, emphasizing East Africa and Uganda, foster international collaborations and market linkages and expose East Africa to advanced aquaculture techniques, research, and investment opportunities.

It is expected to attract over 2,000 people and more than 100 exhibitors from across the world. Moreover, several side-events are already in planning around matters such as health management in aquaculture and sector investment.



WORLD AQUACULTURE SAFARI'25

SAVE THE DATE

24 - 27 JUNE 2025

Make sure you are part of the biggest aquaculture gathering in Africa!



www.was.org/meeting







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What has worked within the 3 Specific Objectives?

World Aquaculture Safari 25 in Entebbe Uganda from 24th to 27th June 2025

The Project facilitated 36 EAC Aquaculture Farmers leaders, fisheries and environmental officers to conduct Study tours to farms and feed manufacturers companies in Egypt, China and Malaysia where they shared knowledge and best practices, created business-to-business (B2B) linkages and acquired tools for biosecurity risk management and biodiversity restoration.

The selected farmers were leaders of aquaculture associations in Kenya, Tanzania, Uganda, Burundi and Rwanda and are expected to share information with other farmers in their countries.

TRUEFISH is in the planning phase for the last study tour, which will see delegates from Kenya, Tanzania, Uganda, Burundi and Rwanda visit the country of Nigeria. This tour will take place early in 2025 and will focus on the well-known catfish farming sector in Nigeria, which will allow participants insight into both a different farming species, but also a different sector model. This will improve access to commercial networks for aquaculture-related businesses.



Aquaculture Farmers visiting Women fish processors in Egypt



Aquaculture Farmers visiting Fish feed additives manufacturer company in China



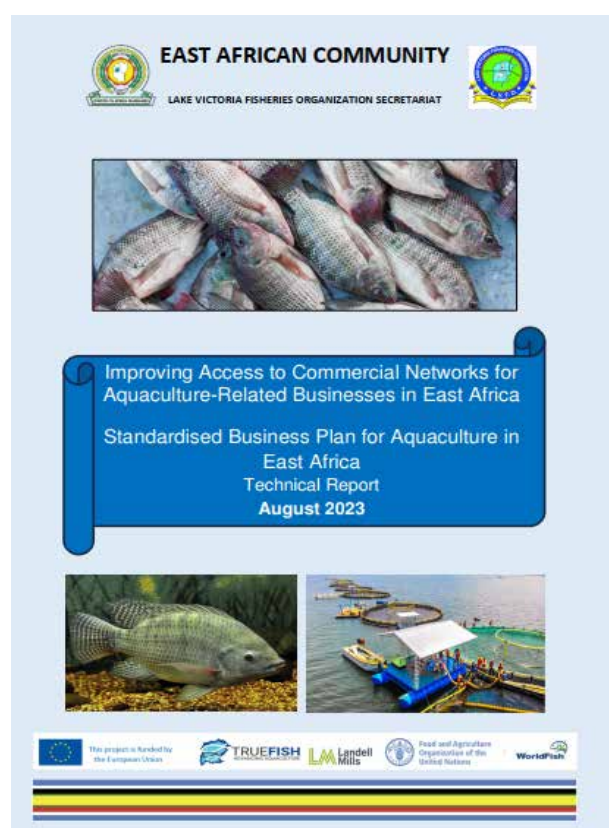
Fisheries and Environmental Officers receiving certificates of participation in the international

biosecurity study tour in Malaysia. The project supported the development of Standardised Business Plans for Tilapia and catfish which are the mostly farmed fish species in East Africa. The purpose of this Standardised Business Plan is to assist the Lake Victoria Fisheries Organization (LVFO) of the East African Community (EAC) to facilitate an increased flow of investment into the sector.



The development of Standardised Business Plans will further assist fish farmers to present credible bankable business plans and ease their interaction with financial institutions. Business orientation will also help farmers to become independent of donor support. Furthermore, the business plans will provide a framework of business information that can be used by farmers and aquaculture associations in approaching financial institutions.

The plans will also be used by financial institutions and sector investors to better provide and access finance, respectively.



Standardised Business Plan for Aquaculture in East Africa

The project has also supported the national aquaculture associations in the East African Community (EAC) to establish a Regional

Aquaculture Association. This unified body strengthens sector advocacy, enhances bargaining power, and fosters greater collaboration and development within the aquaculture industry.

Component 2 –

Strengthening Skills Development & TVETs in Aquaculture

As a baseline during the first year of implementation (2021), three training institutions were assessed alongside the private sector, leading to the development and update of four Training Needs Assessments (TNAs). Based on these TNAs, three business plans (2022) were created for TVETs, focusing on infrastructure, personnel capacity, and curricula enhancement.

These business plans guided the development and validation of 12 specialized short courses for aquaculture professionals, covering topics such as hatchery management, pond and cage aquaculture, aquafeed formulation, fish health and biosecurity, value chain and market development, post-harvest handling, environmental management, aquaculture business management, sustainable aquaculture practices, fish genetics, ICT applications, and aquaculture regulations.



Visit at FETA in Mwanza

Additionally, regular curricula upgrades were implemented at FTI, RIAT, and FETA, with FETA and FTI certifying six regular courses, pending final integration into academic programs along 2025. RIAT had undergone recent curriculum upgrades before project intervention.



Visit at FTI Entebbe by the European Union Delegation to the EAC and implementers of TRUEFISH Project

A total of 35 TVET trainers were trained across 11 aquaculture disciplines through partnerships with Aquaculture Academy (Kenya), Bureau Veritas (Nairobi), Dar es Salaam Maritime Institute

(Tanzania), and FTI Boat Construction Center (Uganda). Furthermore, nine trainers underwent international training at the Freshwater Fisheries Research Center (FFRC) in China, specializing in cage aquaculture technology.



TVET staff capacity building in Food Safety for Aquaculture (Training of Trainers), Nairobi, Kenya in March 2023. Over €1 million worth of laboratory, breeding, processing, IT, and nautical equipment was supplied, with additional deliveries expected in 2025.



Equipment procured for FTI, Entebbe, Uganda



Equipment procured for FTI, Entebbe, Uganda



STRIP FOUNDATION & FOUNDATION WALLING



LEVELING AND COMPACTION

Lab construction works at RIAT in Kenya

170 farmers per country were trained (undergoing), contributing to a total target of 570 beneficiaries, including 120 farmers in Burundi and Rwanda, focusing on AAH farm-level training in 2025.



Training of farmers in Machacos, Kenya

A regional training network was also established, facilitating curricula alignment across TVETs, paving the way for mutual recognition of certifications and enhanced labor mobility within the region.

Component 3.1 – Enhancing Aquatic Animal Health (AAH) and Biosecurity

A comprehensive one-year baseline effort (2021) developed five national AAH self-assessments and SWOT analyses, laying the groundwork for further strategic development.

The project supported the development of the Lake Victoria Regional Aquatic Animal Health Strategy which was endorsed by the Fisheries and Aquaculture Sectoral Council of Ministers (FASCOM) in Arusha Tanzania in its yearly seating in May 2024 and directed the Lake Victoria Fisheries Organization to assist participating countries to develop National Aquatic Health Strategy.

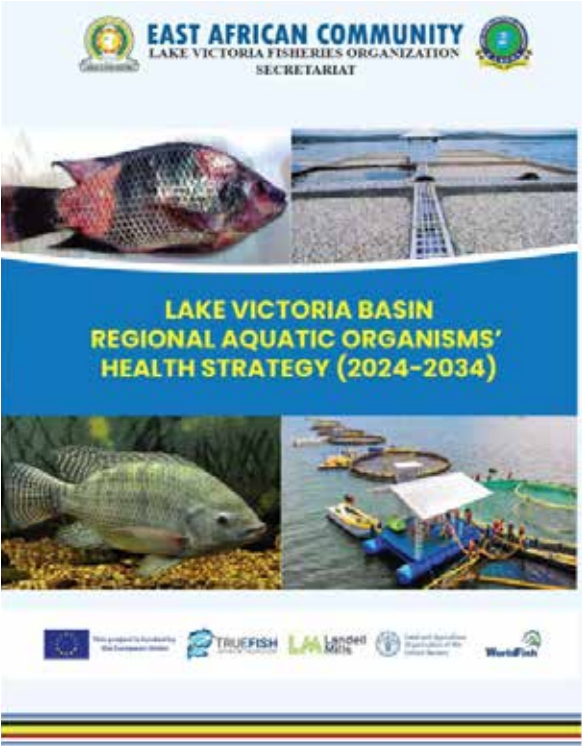
The strategy includes a regional list of pathogens affecting aquaculture and outlines 16 targeted biosecurity programs for implementation across the participating countries.

The implementation of the strategy is expected to achieve the following outcomes:

Improved regional management of aquatic animal health and welfare by strengthening coordination among stakeholders and fostering collaboration among Lake Victoria Basin (LVB) countries to ensure effective management of aquatic animal health.

Enhanced awareness and capacity building through training programmes organized for aquatic animal health experts, aquaculturists, and other stakeholders regarding responsible and scientifically justifiable practices for optimal aquatic animal health management. Enhanced technical capacity at various expertise levels within Competent Authorities and other relevant agencies responsible for aquatic animal health management.

Collaborative efforts and confidence built among LVB countries to instil confidence in the aquaculture sector and other stakeholders in the efficacy of national Competent Authorities, state veterinary services, and relevant extension services.



Lake Victoria Basin Regional Aquatic Organism Health Strategy 2024-2034 (LVB RAOHS) The project supported the development of five National AAH strategies, launching five national disease surveillance plans, with fieldwork planned for 2025. The project supported capacity-building initiatives which trained 75 officials in supply chain risk analysis, disease surveillance, and monitoring, with emergency preparedness and response training planned for 2025.



Aquaculture farmers attending a field trip for Aquatic Animal Health training.

A total of 120 farmers from five countries were trained in AAH farm-level practices through TVETs, which had been previously strengthened for this purpose by the project and an AAH international study tour is scheduled for Q1 2025 in the Philippines, facilitating knowledge exchange on biosecurity measures.

Component 3.2 – Improving Aquaculture Zoning & Spatial Planning

A comprehensive two-year baseline study (2021-2022) analyzed the institutional and legal frameworks, socio-economic aspects, environmental impact, and remote sensing data for aquaculture development. Enhanced regional coordination was achieved through the establishment of the LVFO Zoning Working Group, integrating representatives from five countries.

The data collected and insights from the Zoning Working Group supported the development of a web-based spatial database platform, hosted by LVFO, featuring over 75 datasets related to aquaculture zoning.

EMPOWERMENT

Improved protection of biodiversity



Participants pose with their certificates of attendance

Large-scale feasibility maps were created for Lake Victoria and riparian countries, supporting the identification and designation of two Aquaculture Management Areas (AMAs) per country to minimize habitat and social impacts. Carrying capacity was modeled and calculated for these AMAs, while optimized farm site selection aimed at reducing disease spread and environmental impacts. The project also delivered training to 35 professionals and specialized personnel from TAFIRI, NAFIRRI, and KMFRI in spatial planning and water quality monitoring. The development of regional aquaculture zoning guidelines and an updated regional aquaculture management plan is expected to be finalized by 2025.

Component 3.3 – improved protection of biodiversity

The project, in collaboration of

EAC fisheries and aquaculture research institutions such as National Fisheries Resources Research Institute (NaFIRRI), Kenya Marine and Fisheries Research Institute (KMFRI) and Tanzania Fisheries Research Institute (TAFIRI) conducted study on Genetic Diversity of Tilapia Populations aimed to develop advanced techniques for conserving tilapia diversity. The findings highlighted high genetic diversity among lake populations and distinct separation between species, which are critical insights for biodiversity conservation strategies.

The study also identified weak population structure for Oreochromis niloticus across the LVB, showing that nearly all sampled populations form a large, genetically admixed group. For farmed tilapia, diversity estimators revealed no

evidence of inbreeding, indicating healthy genetic diversity within aquaculture operations.

Accidental hybridization on fish farms likely occurs due to the close proximity of different fish species and the challenge of distinguishing species at the juvenile stage. The presence of multiple hybrid fish in production ponds may result from a single hybrid mating, rather than multiple independent hybridization events. These findings underscore the importance of maintaining genetic variation to support both conservation and aquaculture productivity.

The project supported training of 12 members of Genetic working group, 12 junior scientists in molecular biology and bioinformatics and 3 researchers at the Earlham Institute (UK) in genetic screening and mapping.



Scientist from NaFIRRI, KMFRI, TAFIRI sampling tilapia from Lake Victoria basin, under the genetic screening study.

Junior scientists training in molecular biology and bioinformatics at BecA ILRI, Nairobi Kenya The project conducted also a study on the assessment of how social dimension mainstreaming (Gender) can be reflected in the design of the proposed fish genetics screening research in EAC Lake Victoria Basin,

The study has revealed that within the Lake Victoria basin, women are intimately involved in the aquaculture value chain. Their role is especially evident in the processing and vending of aquatic organisms for fish feed, as well as in the processing and marketing of the final product to consumers. In addition, women are increasingly engaged as investors, technical operatives as workers in hatchery and aquaculture production facilities.

REASONS FOR THE SUCCESS OF THE EAC TRUEFISH PROJECT

The understanding between the EAC and harmonious collaboration with the LVFO as the central coordinator of the project lead to success of the TRUEFISH project. However, the TRUEFISH Project’s success can be attributed to its comprehensive approach, which combines sustainability, collaboration, innovation, education, market demand, and strong regulatory frameworks. These factors work together to create a system that benefits both the environment and the fishing industry. Strong Institutional Collaboration:

The partnership between the European Commission and East African Community as well as implementers such as LVFO, Landell Mills, FAO, WorldFish, and national research institutions like NaFIRRI, KMFRI, and TAFIRI has provided technical expertise, resources, and coordination to achieve project objectives effectively. In addition, the endorsement and support from the East African Community (EAC) institutions and member states have ensured alignment with regional priorities. Comprehensive and Targeted Approach: The project



EMPOWERMENT

addressed key challenges through a multi-pronged approach, focusing on business networks, skills development, sustainability, aquatic animal health, aquaculture zoning, and biodiversity conservation. Specific objectives were well-defined, with measurable outcomes and strategic actions that directly respond to the sector's needs.

Capacity Building and Knowledge Sharing: Training initiatives targeted farmers, trainers, researchers, and policymakers, enhancing technical and business skills across the aquaculture value chain. Study tours to countries like Egypt, China, Malaysia, and Nigeria allowed stakeholders to learn from successful models and implement best practices in their operations. **Stakeholder Engagement and Participation:** Involvement of key stakeholders, including the private sector, public institutions, and farmers' associations, fostered ownership and ensured that project activities were practical and relevant. Platforms like the Eastern Africa Regional Aquaculture Conference (EARAC) and the upcoming World Aquaculture Safari '25 have facilitated networking, advocacy, and collaboration.

Promotion of Innovation and Technology: Development of standardized business plans and aquaculture zoning tools provided frameworks for sustainable investment and environmental management. Integration of advanced techniques, such as genetic diversity studies and spatial planning, has improved aquaculture practices and biodiversity conservation efforts. **Significant Investments in Infrastructure and Equipment:** Over €1 million worth of laboratory, breeding, processing, IT, and nautical equipment were supplied, boosting the capacity of training institutions and research facilities. Business plans



Researchers collecting samples

and curricula upgrades for TVETs ensured that training institutions are better equipped to support the sector.

Focus on Gender and Social Inclusion: The project emphasized the role of women in aquaculture value chains and incorporated gender-sensitive approaches in training and research activities. Studies on the social dimensions of aquaculture helped address gender equity and participation in aquaculture development.

Regional and International Recognition:

The EARAC platform has become a recognized brand for aquaculture conferences in East Africa. Hosting of World Aquaculture Safari '25 will showcase the region's achievements and opportunities, attracting global attention and investment. **Flexibility and Adaptability:** The project adapted to emerging needs, such as extending its implementation period to ensure the effective completion of activities and maximize impact. Adjustments, such as focusing on biosecurity and expanding training efforts, addressed challenges that could undermine aquaculture sustainability. **Focus on Long-Term Sustainability:** The development of regional strategies for aquatic animal health, aquaculture zoning,

and biodiversity conservation ensures continuity beyond the project's lifecycle. Harmonized curricula, development of short courses for enhancing skills for aquaculture workers and mutual recognition of certifications will enhance labor mobility and foster regional integration in the aquaculture sector.

LESSONS LEARNT FROM THE EU-EAC TRUEFISH PROJECT

The EU-EAC TRUEFISH Project has demonstrated several lessons learned based on its achievements. These lessons highlight best practices, challenges overcome, and key takeaways that can guide future initiatives in similar contexts. Additionally, they point to the potential for replication in other regions.

Capacity Building Drives Sustainability: Training and skills development, such as staff exchanges among RIAT, FETA, and FTI, have strengthened institutional capacity and improved the quality of fisheries and aquaculture education in the region.

Investments in technical education ensure that local stakeholders can manage and sustain aquaculture systems effectively.

Regional Collaboration Enhances Impact:

The collaboration between regional institutions under the Lake Victoria Fisheries Organization (LVFO) fostered knowledge sharing, harmonized curricula, and promoted joint solutions to common challenges. Cross-border partnerships can lead to shared ownership and long-term sustainability.

Integration of Policy and Practice is Essential:

Activities like developing aquaculture management plans, improving biosecurity, and integrating aquaculture into regional policies demonstrated the importance of linking technical efforts with regulatory frameworks. Alignment with global and regional instruments ensures that project outputs are relevant and impactful.

Market-Oriented Development is Key:

Emphasizing value chain development, market access, and aquaculture enterprises ensures that interventions lead to tangible economic benefits for local communities. Strengthening SMEs and cooperatives enhances livelihoods and contributes to regional economic growth.

Infrastructure and Technological Advancement Boost Sector Growth:

Investments in infrastructure, such as laboratories, fish processing and quality assurance systems, enable compliance with market standards and increase competitiveness in international markets.

Stakeholder Engagement Ensures Inclusivity:

Engaging stakeholders at all levels, from small-scale farmers to policy makers, ensured that interventions were inclusive and met the needs of diverse beneficiaries. Supporting gender-sensitive approaches further enhanced equity and participation.

Monitoring and Evaluation Enhances Effectiveness:

Regular assessments and data collection enabled adaptive management, ensuring the project stayed aligned with its goals and addressed emerging challenges.

COULD IT BE DONE ELSEWHERE?

Yes, the EU-EAC TRUEFISH Project's approach can be replicated in other regions, provided the following considerations are addressed:

Contextual Adaptation: Projects must be tailored to the local context, considering ecological, cultural, and socio-economic conditions of the target region.

Strong Regional Framework: A regional body or organization (e.g., LVFO) is necessary to facilitate collaboration and harmonize efforts across borders.

Policy and Institutional Alignment: Policies should be aligned with international guidelines and frameworks

while addressing the specific needs of the region.

Long-term Funding and Commitment: Sustainable funding mechanisms, such as public-private partnerships or donor funding, are crucial for long-term success.

Focus on Capacity Building: Strengthening human resources, institutions, and infrastructure is fundamental to creating a self-sustaining system.

Stakeholder Ownership: Engaging stakeholders from the start and ensuring their active participation is key to ensuring the program's acceptance and sustainability.

CONCLUSION

The EU-TRUEFISH project has catalyzed sustainable aquaculture development in the Lake Victoria Basin by addressing barriers in business, skills, and sustainability. Through capacity building, policy harmonization, and regional collaboration, it has strengthened livelihoods and biodiversity. Initiatives like the World Aquaculture Safari'25 aim to position East Africa as a global aquaculture hub.

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FOREIGN EXPERIENCE

Experiences from the Implementation of Small-Scale Fisheries Voluntary Guidelines and Development of NPOA-SSF in Malawi

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A group photo of the participants at NPOA-SSF workshop in Malawi

ABSTRACT

Malawi shares part of the African Great Lakes, with Lake Malawi, being the major source of fish for the country. For many people living in the fishing communities, small-scale fisheries is a way of life and a culture. Despite its importance, the small-scale fisheries sector continues to experience several challenges that include declining fish stocks due to overfishing, illegal, unreported, and unregulated fishing (IUU), environmental degradation, to mention but a few. Like many of the Great Lakes of Africa, most of these challenges are caused in part by poor governance of both the fisheries resources and adjacent land. In addition, for quite some time, the sector has remained invisible, unappreciated and unrecognized because fishing occurs in remote areas far from the eyes of policymakers. In addressing these challenges, the Government of Malawi adopted the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the context of Food Security and Poverty Alleviation (SSF Guidelines) in 2021 as a tool for small-scale fisheries development and governance.

In 2023, the Department of Fisheries, with support from FAO, developed the National Plan of Action for the implementation of the SSF Guidelines (NPOA-SSF). The NPOA-SSF in Malawi lays the foundation for joint action, outlines strategic approaches, defines major actions, provides guidance on the implementation, monitoring, learning and governing structures and suggests measures to be taken together by various stakeholders in the fisheries sector. This paper therefore discusses issues around the experiences in the implementation of SSF Guidelines in Malawi, as a pathway to improve governance of small-scale fisheries in the Great Lakes of Africa. Further to the domestication of the SSF Guidelines, the paper highlights lessons from the implementation of complementary interventions, both technical and legislative, that have reinforced the adoption of these Guidelines around Lake Malawi.

Introduction

Globally, small-scale fisheries play a vital role in the food security and livelihoods of millions of people around the world. In Africa, the majority of those engaged in

fisheries are small-scale (Allison et al. 2001; Allison et al. 2009). Millions of people living in coastal and riparian communities depend on fisheries as a source of livelihood. It is widely recognized that fisheries resources make multiple contributions to societies, cultures, and the economy, especially in terms of employment, food security, income, and revenues (Zeller et al. 2006; Béné 2006; Teh et al. 2011; Belhabib et al. 2015). In Malawi, 90% of the fish catches are from small-scale fisheries, which translates to an important source of livelihood for those in the form of fishing, fish processing, fish marketing, boat building and engine repairing, among others (Manase et al. 2022). The subsector contributes to economic development and food and nutrition security.

It is for this reason that the development of sustainable small-scale fisheries is an integral part of the African Union Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS – 2014). It states that the open access character of African fisheries has resulted in over-exploitation and because of fairly high fish prices, this has led to over-fishing, which in turn contributed to lower catches and to changes in the fish species community composition and structure of aquatic ecosystem, and increases in the incidences for Illegal, Unreported, Unregulated (IUU) fishing. Access control in well-regulated fisheries (e.g. registration, licensing systems) is yielding varying types of benefits, including social benefits and revenue. In addition, a 10-Year Action Plan for Small-Scale Fisheries Development in Africa was published (AUC and NPCA, 2017). At the global level, the SSF Guidelines represent the first international instrument specifically dedicated to small-scale fisheries. They provide a comprehensive framework for states and stakeholders in supporting the visibility, recognition and enhancement of the important role of small-scale fisheries and their contribution to global, continental and national efforts towards the eradication of hunger and poverty.

At national level, the SSF Guidelines have informed the review process of the Malawi National Fisheries & Aquaculture Policy of 2016 (NFAP 2016), taking into consideration the Policy Priority areas (PPA) 5: Social

Development and Decent Employment and in small-scale fisheries. Subsequently, the Malawi National Agriculture Policy of 2023 has identified “Strengthening the role of small-scale fisheries in fish stock management” as one of the major policy priority areas. In the same year, 2023, Malawi developed the NPOA-SSF with support from FAO (NPOA, 2023). The NPOA-SSF is aligned with the Malawi Agenda 2063, specifically through Pillar 1-Agricultural productivity and commercialization. Within the Malawi Agenda 2063, the NPOA-SSF is coherent with Enablers such as environmental sustainability, economic infrastructure, human resource development, private sector dynamism and mindset change. The overall objective of the NPOA-SSF is to provide a framework that will ensure the effective contribution of small-scale fisheries to improved food security, nutrition, economic contribution, as well as poverty eradication. The NPOA-SSF serves as a comprehensive framework for coordinated efforts, encompassing strategic approaches, defining key actions, offering implementation guidance, outlining monitoring procedures, and establishing governance structures, all done collectively with the active involvement of small-scale fisheries actors. The development of NPOA-SSF was consultatively done through various stages, initiated by a consultative workshop for small-scale fishers and other relevant stakeholders that was conducted in June 2021.

Thereafter, a situation analysis of the human rights issues in the small-scale fisheries sector was undertaken, followed by the formation of a 12-member National Task Team (NTT) consisting of personnel from small-scale fisheries, government departments, academia, research institutions, women groups and non-governmental organizations (NGOs). The NTT was responsible for the identification of the stakeholders, the compilation of the small-scale fisheries profile for Malawi, conducting the consultation meetings and feedback sessions and contributing to the drafting and finalization of the NPOA-SSF. An orientation workshop and a training workshop for the National Task Team were organized in May 2022 and June 2022 for effective contributions as members of the NTT.

After the training, the NTT was involved in a series of consultation meetings in the fishing communities to provide inputs related to the content and structure of the NPOA-SSF. The NPOA-SSF underwent validation through a workshop conducted in Salima in July 2023, and it was finally launched in October 2023. Since the launch, the Malawi Government, in collaboration with FAO and in partnership with other stakeholders, has been working to ensure that the SSF Guidelines are successfully implemented. This paper will discuss issues around the experiences (both successes and challenges) in the implementation of SSF Guidelines in Malawi as a pathway to improve governance of small-scale fisheries in the country. Further to the domestication of the SSF Guidelines, the paper highlights lessons from the implementation of complementary interventions, both technical and legislative, that have reinforced the adoption of guidelines around Lake Malawi.

The small-scale fisheries sub-sector

2.1 The importance of fisheries in Malawi

Fisheries is an important productive sector in Malawi, contributing to food, nutrition and income security. Aquatic products contribute up to 70 percent of the dietary animal protein intake and 40 percent of the overall protein supply in Malawi. It contributes 4 percent to the gross domestic product and supports the livelihoods of almost 10 percent of the population (NFAP, 2016). Capture fisheries and aquaculture production exceed 180,000 tonnes and 3,600 tonnes annually, respectively. (Annual Economic Report, 2023). Small-scale fisheries play a fundamental role in food and nutrition security, sustainable livelihoods, provision of employment and poverty reduction. The bulk of the fish production (98 percent) of the total fish landing comes from small-scale fisheries, while the large-scale mechanized fishery contributes only 2 percent. The sector employs over 65,150 people directly and over half a million people indirectly in activities such as fish processing, fish marketing, boat building and engine repairing. Fishery supports over 1.6 million people and makes a substantial contribution to their livelihoods. In 2022, fish landings had a beach or landed value of MK219.45 billion (USD199.499 million), with a volume of 186,732 metric tonnes (Annual Economic Report, 2023).

2.2 Key challenges to the sector

Despite their socio-cultural and economic importance, the small-scale fisheries subsector faces many challenges, including overexploitation of fish stock due to, among others, IUU fishing, high level of post-harvest losses of fish and fishery products, and insufficient capacity in monitoring, control and surveillance. Due to its landlocked condition, small-scale fishing activities take place exclusively on inland waters, mainly conducted on Lake Malawi. Furthermore, despite the huge reliance on fish for human

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nutrition in the country, current fish handling and processing methods contribute to post-harvest losses, which in turn affect the availability, edibility and quality of fish products along the value chain (Chiwaula et al., 2018, Torell et al., 2020).

Estimates from a meta-analysis suggest that Malawi loses about 37% of the quantity of landed fish along the fish value chain (Torell et al., 2020). Recognition of the important problem which fish loss poses is reflected in the FAO Code of Conduct for Responsible Fisheries (CCRF), which promotes fish loss reduction (FAO, 2010).

The current Malawi National Fisheries and Aquaculture Policy of 2024 (draft pending the launch) explicitly mentions the need for fish quality and value development as highlighted in the Policy Priority Area No. 3. Its strategies are focusing on reducing post-harvest fish loss.

The sector also experiences inequalities towards women, youth, and especially individuals with disabilities to access fisheries resources and decision-making processes that affect it. There are violations of women's rights in accessing fish and accessories to fish processing facilities, thereby affecting their ability to optimize their contribution to small-scale fisheries value chains. Njaya (2007) reported that given the economic importance of the sector, it is no surprise that governing the maintenance of fish stocks for the small-scale sector is a continuing challenge, especially in areas with increasing human populations that exert pressure on natural resources. All these challenges and many more do threaten the sustainability of fisheries resources.

3.0 Methodology

The information presented in this article was obtained from a review of a considerable body of literature on small-scale fisheries in Malawi, including documents and policies such as the Malawi NPOA-SSF (2023) and existing national aquaculture sector policies (2016). Further information was drawn from the implementation of various interventions among the small-scale fisheries in Malawi: plenary session of the High-Level Dialogue that was held on 8th May 2024; the regional dialogue session conducted in Zomba for the southern part of Malawi as well as in Karonga for the Northern part of Malawi. The key issues that were put forward to the plenary session included the following: (i) the challenges faced by the small-scale fisheries sector; (ii) how can we de-risk financing for the sector; (iii) the contribution of small-scale fisheries towards the achievement of the Malawi Agenda 2063; (iv) the effective administration of small-scale fisheries management agreements; and (v) how to effectively get women to participate in the sector.

4.0 SSF Guidelines: What are they and why are they useful to the



A group photo of the participants at NPOA-SSF workshop in Malawi

Malawian context Cognizant of the importance and challenges that the small-scale fisheries sector face, the Food and Agriculture Organization of the United Nations (FAO) organized an international conference in Bangkok, Thailand, in 2008, which was dedicated to discussing major issues in small-scale fisheries globally.

The conference underscored an urgent need for an international instrument to deal specifically with major issues in SSF small-scale fisheries together with potential mitigation measures. The resolution was followed up by consultative meetings and workshops held across the world, both at regional and national levels, including Malawi, ultimately leading to the development of the SSF Guidelines, which would later be endorsed by the 31st Committee on Fisheries (COFI) held in Rome, Italy in 2014.

The SSF Guidelines promote responsible fisheries and sustainable socio-economic development with an emphasis on small-scale fishers and fish workers, including vulnerable and marginalized people. The recognition of small-scale artisanal fisheries as a sustainable method of food production is imperative as current food systems face increasing challenges globally. Such challenges include hunger and diet-related diseases, the need to provide a growing global population with sufficient and healthy food, vast amounts of food loss and waste, the depletion of natural resources, environmental degradation, and climate change, amongst others.

What makes the SSF Guidelines stand out is that they go beyond fisheries and highlight the rights of fishers and fish workers. In sum, they are about people, not just about fish. The SSF Guidelines are aimed at all actors striving to secure sustainable small-scale fisheries, end hunger and poverty and strengthen human rights. They are a tool to guide dialogue, policy processes, and action at all levels, from local communities to global fora.

As part of the implementation of the SSF Guidelines in Malawi in 2023, the Department of Fisheries, with support from FAO, developed

the NPOA-SSF to facilitate their implementation. The NPOA-SSF is a guiding tool to help identify strategies and actions to be taken at the country level. The NPOA-SSF lays the foundation for joint action, outlines strategic approaches, defines major actions, provides guidance on the implementation, monitoring, learning and governing structures and suggests measures to be taken together by various stakeholders in the fisheries sector. Additionally, NPOA-SSF further buttresses the contribution of the small-scale fisheries sector to the Malawi Agenda 2063 and the Sustainable Development Goals (SDGs).

5.0 Progress in the implementation of the SSF Guidelines in Malawi

5.1 Partnering for food systems transformation

One of the major objectives of the SSF Guidelines is to enhance global food security. The importance of fish in seeking food and nutrition security for all is a frequently overlooked but extremely important part of global food and nutrition security (HLPE, 2014). Fish is nutrient rich and provides high-quality protein that is low in saturated fat and rich in polyunsaturated fats, especially the omega-3 fatty acid eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (Bronner et al, 2002). In Malawi, fish is reported to be the most frequently consumed animal protein by the majority of households. It is further noted that the per capita fish consumption in the years 2020 to 2022 increased from 9.51kg/person/year to 10.17kg/person/year which is still below the recommended 13-15 kg of the World Health Organization (WHO), which demonstrates that fish consumption is still inadequate (Annual Economic Report, 2023). The findings and recommendations from the Malawi dialogue session on food systems noted that there is still low dietary diversity and low consumption of nutrient-rich foods in the country, with much emphasis on cereal-based diets for the majority of the population whereby other nutrient-rich foods, such as fruits, vegetables, fish, beans, and meat are often consumed in small amounts or not at all. In addition, there is

inadequate knowledge in food preparation, utilization, and processing towards a balanced diet. This may require, among other things, a shift from predominantly consuming maize to other crops like cassava, sweet potatoes, legumes, fish, meat, and horticultural products (Malawi Food systems Dialogue Report, 2021).

Within the context of the SSF Guidelines implementation, the Department of Fisheries has been working with women to increase fish consumption, especially among infants and young children, by promoting the inclusion of fish in the diets through trainings on feeding practices that include aquatic products. This work was paired with cooking demonstrations in various districts as well as with the compilation of a fish-based recipe book that includes various fish products such as fish powders, fish sausages, fish biscuits and fish balls. In addition, the fisheries department has been working collaboratively with various development partners to build the capacity of nutrition promoters (community volunteers), to introduce new ways of preparing fish and to cascade recipes and nutrition knowledge to households within their respective communities. All these initiatives respond to the call of increasing the consumption of fish-based diets, thereby increasing the percentage of lactating women and children accessing the minimum acceptable diet and, in this way, contributing to reduced stunting levels among children under the age of five. Building on this work, there are currently some initiatives to explore the opportunities to link small-scale fisheries organizations, particularly women's organizations working in the post-harvest sector, to home-grown school feeding programs in the country.

5.2 Empowering women in small-scale fisheries In small-scale capture fisheries, both men and women often perform different tasks within fish value chains and have different assets, skills, experience, knowledge and decision-making roles. Women's work in the fisheries sector is usually overlooked or under-represented in official statistics. The cultural

belief that views men as linked to the waterscape and women as mostly belonging to land can explain the gendered division of roles found in many fishery sectors worldwide (Torell et al., 2021; Alonso-Población and Niehof, 2019). In Malawi, various studies and experiences show that men and boys typically specialize in harvesting fish, while women and girls predominate in traditional processing for human consumption and marketing (FAO, 2023; FISH, 2015). Over a decade, the Government of Malawi, in collaboration with development partners, has made some strides towards mainstreaming gender in the fisheries sector. The National Fisheries and Aquaculture Policy (NFAP, 2016) provided a framework and guidance for the mainstreaming of gender in the fisheries sector. Priority Area 5 Social Development and Decent Employment states that the enhancement of social development and decent employment in small-scale fisheries, as well as the promotion of gender equality in the small-scale fishing communities, are key for both the improvement of livelihoods and the socio-economic sustainability of the small-scale fisheries sector.

In 2023, FAO, in collaboration with the Department of Fisheries, finalised the Gender, HIV and AIDS Strategy for the fisheries sector. This strategy recognizes the linkages between gender relations and the risk factors for HIV/AIDS in fishing and fish farming communities and suggests interventions and gender-sensitive indicators for monitoring and evaluation to strengthen HIV/AIDS programmes in the sector. (Sibale and Shaba, 2021). Additionally, the SSF Guidelines recognize gender equity and equality as its fourth guiding principle. In fact, they have an entirely dedicated chapter on gender, which, among other recommendations, insists on parties to recognize gender mainstreaming as "an integral part of all small-scale fisheries development strategies." Gender mainstreaming in fisheries has been further amplified in the Malawi National Plan of Action-SSF for 2024-2030. Thematic area 5 of the NPOA-SSF employs different approaches to achieve gender equality and women's empowerment, which are



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essential for sustainable and inclusive small-scale fisheries.

These strategies and policies, provide a framework for addressing gender-related issues and promoting equitable opportunities and benefits for all individuals involved in small-scale fisheries, regardless of their gender. Since the launch of the SSF Guidelines in Malawi, several interventions aimed at mainstreaming gender in the fisheries sector are being implemented, for instance, capacity building initiatives on gender mainstreaming, targeting men and women in the fisheries value chain with training on the gender transformative approaches using the gender household approach (HHA). These trainings also provided a forum for analysis of key issues that are faced by women in the sector. The HHA represents a good return on investment because it deepens the impact and enhances the long-term sustainability of conventional development initiatives and can be integrated into a range of development interventions and implemented in different cultural and social contexts. So far, the model has been piloted along Lake Malawi in three districts (Karonga, Mangochi and Salima), and the pilot registered some emergent changes. Participants using the HHA reported that their livelihoods are becoming more sustainable and resilient to various shocks as well as joint decision-making within the households.

Supporting women working in fisheries to be organized in groups is another model being implemented in the country that could be replicated in other districts. Women's participation in both formal and informal organizations can provide a space for collective action that strengthens women's voices and opportunities in markets and decision-making spaces. In efforts to support women's organizations, the Malawi government, the African Union and various development partners championed the establishment of a national chapter of the African Women Fish Processors and Traders Network (AWFishNet).

Following its launch in 2023, the network was legally registered in 2024. It is envisaged that the establishment of the network will contribute to enhancing the economic empowerment of women in fisheries and aquaculture, which is not only a social justice issue but also important for sustainable economic growth within the fisheries sector.

5.3 Promoting best practices aiming to reduce post-harvest losses

The small-scale fisheries post-harvest subsector constitutes the critical link between producers and consumers, and a well-functioning post-harvest sector is a fundamental part of any sustainable food system. Open sun drying for processing small fish species does not offer immediate solutions to fish losses, which accounts for over 30% in Malawi especially during peak catch periods (Nagoli et al.2002). Fish Loss and Waste (FLW) threatens the small-scale fisheries post-harvest subsector's contribution to food security and nutrition. Reducing FLW is a critical need in order to increase value and ensure that safe and nutritious products reach the consumer. Factors contributing to these losses include inadequate cold storage facilities, inefficient transportation, technological gaps and lack of training for fishery workers. These issues are compounded by fluctuating market demand and insufficient regulatory frameworks, affecting both developed and developing nations. Efforts to mitigate such losses are critical to ensure the sustainable use of aquatic resources and to secure the nutritional needs of the global population.

There have been many initiatives that have directly or indirectly aimed to reduce FLW. Improved post-harvest technology is critical in maintaining fish and fishery product quality, food safety and reduction in FLW. Learning from these past and ongoing initiatives that have demonstrated a reduction in FLW could provide important guidance for future interventions and support the implementation of the SSF Guidelines, more specifically, the recommendations of its seventh chapter. This thematic area employs several measures that can be implemented by governments to significantly reduce the incidence of fish losses: improved practices on fishing vessels, improved processing practices, improved public infrastructure, and improved market access, for instance.

To support the implementation of country-level activities, there is a need to identify evidence-based good practices throughout the value chain and in line with the SSF Guidelines, which demonstrate improved post-harvest and business activities, gender empowerment, livelihoods, food security and nutrition outcomes. Some of these good practices include the use of solar tents and raised drying racks (Vicovaro et al,2024), perforated plastic containers for handling small pelagic fish on board and during transportation, and trainings on post-harvest fish processing techniques and preservation methods. Trainings on the use of this infrastructure and on infrastructure co-management and maintenance

for beneficiaries and government officials have also been carried out.

6.0 Lessons generated from the implementation of SSF Guidelines in Malawi.

Experiences so far point to the fact that enhancing governance of small-scale fisheries through the development and implementation of the NPOA-SSF has enabled Malawi to apply a holistic and forward-looking approach that has the potential to create a vibrant, equitable, and sustainable small-scale fisheries sector, with benefits accruing to fishing communities. The NPOA-SSF is an avenue through which countries in the African Great Lakes Region can contribute to the sustainable use of the fishery resources and enhance the nations' food security and prosperity. An analysis of the lessons learnt in the implementation of the SSF Guidelines was examined based on the author's own experience and knowledge of small-scale fisheries in Malawi.

Recommendations for sustainable implementation of the SSF Guidelines in Malawi The issues presented are some of the recommendations to enable the sustainable and effective implementation of the SSF Guidelines through the NPOA-SSF in Malawi.

Empower the non-state actors: There is a need for more engagement of non-state actors through capacity building and financial support. Organizations like AWFishNet Malawi Chapter should be empowered and supported to carry the voice of fishers and fish workers to policy and decision-makers.

Long-term and secure rights to resources: Scale fishers and the government are to commit themselves to participatory governance and management of the resources, as well as the ecosystem within their localities and nationally. Management plans for small-scale fisheries should become a central part of any fisheries development program: These plans need to be developed with a clear and keen understanding of the realities of local natural resources and ecosystems and the viable structures for the governance of tenure. The implementation of plans should be participatory.

Provide financial and technical support to district-level government staff: The district level needs to be empowered to enable the implementation of the interventions listed in the NPOA-SSF. With a better understanding of the SSF Guidelines, it is envisioned that the district level staff will begin to prioritise fisheries and improve their planning and budgeting processes to include fisheries.

Additionally, there is a need for coordination between district-level and national-level staff for an effective implementation of the NPOA-SFF. Scaling up gender equality: Gender issues in fisheries are rooted in the cultural context, requiring a holistic approach to work with them. All stakeholders, including local authorities, should be involved in dealing with gender inequalities. In addition, the need to employ Gender Transformative Approaches such as the HHA would provide a pathway to address gender-related issues in the fisheries sector in Malawi. The HHA is deemed ideal as it empowers all adult and youth members of a household through better gender and power relations, enables equitable access to and control over resources, assets and benefits and aims to improve the livelihood of all household members indiscriminately.

Integrate fisheries in food security and nutrition policies within the context of food systems transformation: Increased advocacy from various actors as well as increased financial support, especially from the government, in the fisheries sector will help to better integrate fish and food-related policies.

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Embrace adaptive fisheries governance as an enabler of co-management and effective fisheries management

Capture fisheries in Uganda is supported by five major lakes i.e. Victoria, Kyoga, Albert, Edward and George. Lake Victoria is the most important, followed by Lake Albert, Lake Kyoga, Lake George, and Lake Edward. With estimated total annual fish production of about 600,000 tonnes, the contribution of fisheries to the national and local economies is substantial.

The sector employs 1.5 million people and contributes 3% and 12% to national and agricultural GDP respectively. Although per capita fish consumption is low, fish is a major source of food and a major protein source for 33% of households in Uganda. Until recently, the revenue from the export of fish and fish products to international markets made fisheries the second highest earner of foreign exchange, second to coffee. In 2024, the total revenue from the exports was 135.3M US\$, still making fisheries one of the leading sectors in foreign exchange earnings.

Uganda face multiple challenges. Key among these is overexploitation which is illuminated by routine stock assessments conducted by the National Fisheries Resources Research Institute (NaFIRRI). These have shown that all major exploited fish stocks are in poor state of exploitation with some collapsed, overfished, or recruitment impaired. In properly managed fisheries, fishing of these stocks would be closed or their fishing effort reduced considerably to rebuild their populations. The poor status of the stocks is reflected in undesirable social outcomes such as conflicts among fishing communities. The poor status of fish stocks is worsened by other challenges such as pollution, excessive nutrients, invasive species, habitat degradation and climate change. Climate change is key because fisheries in Uganda are among the most vulnerable to climate change. It is important to note that these challenges are persistent because they do not receive commensurate measures to counter their magnitude.

Adaptive fisheries governance, defined as the flexibility within the formal and informal structures and systems involved in fisheries decision making, offers the best approach to address the challenges. Unlike conventional fisheries management approaches, adaptive fisheries governance is dynamic in response to new knowledge, stakeholder needs, and changes in the environment. Adopting this approach offers the best chance for fisheries management in Uganda to successfully deal with the multiple challenges faced and build



Landslides at Bugoto fish landing site, Mayuge district, Lake Victoria. Flooding and increased water levels associated with climate change are ravaging fishing communities by destroying homes, fishing infrastructure, and farmlands. (Photo by Ashraf Kamya, NaFIRRI)

resilience to climate change and other risks.

Building on co-management
The implementation of adaptive fisheries governance may be incremental especially in places where the capacity for it is low. This can include building on existing structures. In Uganda, co-management offers an opportunity to accelerate adaptive fisheries governance. Co-management is a collaborative approach where all stakeholders are involved in fisheries management. Uganda implemented co-management until 2017 when it was fully dissolved by a presidential directive that removed beach management units (BMUs) — the main structures for co-management, and deployed a Fish Protection Unit (FPU) to strengthen compliance to fishing regulations.

The remorse on co-management followed many years of failure to control illegal fishing practices, mainly due to entrenched corruption. Hailed for a positive effect on enforcement at the beginning, the FPU is at the moment contested with allegations that, for example, it abuses human rights, operates money extortion schemes, and denies people fishing opportunities, and jobs. Most importantly, the operations of the FPU have, with no clear participation of other stakeholders, undermined other actors who are indispensable in effective fisheries management.

Adopting adaptive fisheries governance requires concerted efforts. The undergoing preparations to return to co-management as part of the efforts to implement the provisions

of the new Fisheries and Aquaculture Act provide conducive conditions for incorporating principles of adaptive fisheries governance. This is important because these principles are enablers of co-management since adhering to them can avoid the pitfalls that led to the failure and subsequent ban on co-management. Among others, it should be ensured that the system to return to co-management adequately incorporates key elements of adaptive fisheries governance including reliance on available information and knowledge for decision making, proper communication, environmental protection and establishing straight forward means for mobilising financial resources to support co-management efforts at the local and national levels

The proposed system should provide for regular collection of data to provide the information and knowledge on all aspects of fisheries to guide decision making. This can include data on catches, water quality, and fishing effort whose collection is limited by financing issues. Once collected, the data should be used to generate the information and knowledge required according to user needs. It is noteworthy that there may not be adequate capacity among users such as fishery managers to use the information and knowledge for decision making. Therefore, capacity building for data use may be necessary. The generation of the information and knowledge should be supported by clear communication channels to engage and interact with all stakeholders especially the resource users to for example, communicate decisions to resource users before they are implemented to

avoid gross disruption to fishing activities.

The new form of co-management should also be an opportunity for fisheries management to look beyond fisheries and consider the protection of the environment. Pollution of waterbodies and excessive nutrients from catchments are major threats that do not only endanger fisheries but also negatively affect aquatic biodiversity which is the basis of fisheries. Looking beyond fisheries would control these threats and more others such as invasive species which increase the extinction risk of a substantial proportion of fishes of Uganda. The national fisheries policies facilitate this view with provisions for protecting aquatic ecosystems and conserve biodiversity although at the moment, no direct and deliberate measures exist within the sector to put the provisions in practice and conserve aquatic ecosystems and biodiversity.

The failure of the FPU to maintain proper enforcement of fishing regulations and to work with other stakeholders does not differentiate it from the failures of co-management it replaced. Furthermore, it erodes the willingness of fishers and other stakeholders to corporate and reduces compliance to fishing regulations. This maintains the status of fisheries as unsustainable thus making it difficult for fisheries to support livelihoods of fishing communities and conserve biodiversity.

The failure of the FPU and the co-management system that preceded it is an important lesson to those preparing the next co-management form. The adoption of key elements of adaptive fisheries governance followed by incremental incorporation of others should be big steps forward to realise the full potential of co-management.



A shoreline at Kiyindi fish landing site, Lake Victoria polluted by plastics. Plastic pollution is one of the major environmental challenges that fisheries in Uganda are facing (Photo by Ashraf Kamya, NaFIRRI).

Laban Musinguzi National Fisheries Resources Research Institute, P.O. Box, 343, Jinja, Uganda

JAN - MARCH EDITION OF THE FISHER - OmuVUBI PUBLICATION.

With support from the University of Birmingham, Sustainable Fisheries Initiative (SFI) together with National Fisheries Resources and Research Institute (NaFIRRI) received articles/ stories for the January –March 2025 issue for “The Fisher-OmuVubi” Publication.

The University of Birmingham - UK, has supported this edition of the SFI newspaper through a research project on ‘Strengthening capacity for adaptive fisheries governance in Malawi and Uganda’, led by Professor Fiona Nunan, working with the National Fisheries Resources Research Institute, Uganda, the Lilongwe University of Agriculture and Natural Resources, Malawi, and the Institute for Poverty, Land and Agrarian Studies (PLAAS), University of the Western Cape, South Africa.

The aim of the research is to find out whether and how adaptive governance could be adopted in the fisheries sectors of Malawi and Uganda so that fisheries management takes greater account of the impacts of fisheries activities on biodiversity and is able to respond more effectively to the impacts of climate change. Articles were invited from Uganda, East African Region and beyond as a mechanism to allow knowledge exchange.

This publication was supported by a Research England under the ISPF Institutional Support Grant (ODA) for 2024 -2025 Funding stream via the University of Birmingham.

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Scientists explanation on the bacteria behind Lake Victoria’s green waters



Lake Victoria water turning green

A team of researchers studying algal blooms in Lake Victoria has revealed the cause of the lake’s recurring green waters, attributing the phenomenon to extensive pollution from farms, industries, and households.

In a research paper published by the American Society for Microbiology on January 8, scientists investigated harmful algal blooms in the transboundary freshwater lake.

Their findings established that the green colour is caused by deadly organisms known as cyanobacteria, which pose a serious threat to human health, livestock, and the broader ecosystem. Lake Victoria, a vital resource for drinking water, sanitation, aquaculture, and commercial fishing, is increasingly contaminated by agricultural and industrial waste. The study found that cyanobacteria thrive in warm, sunlit waters

with high concentrations of nitrogen and phosphorus—nutrients commonly found in fertilisers, manure, and sewage that are frequently washed into the lake. “When conditions are right, cyanobacteria multiply rapidly and form smelly green scums on the water surface,” the researchers wrote.

While cyanobacteria commonly occur in lakes, they are also found in ponds and rivers. The study traced major contributors to the problem, including the Nyando and Sondu Miru rivers, which transport large amounts of silt and chemical waste from surrounding farms and industries. Smaller rivers such as Awach-Tende, Awach-Kibuon, Kisat, and Kibuon are also heavily polluted with sewage and urban runoff from Kisumu.

Water samples collected from

Researchers linked *Microcystis* to microcystin. This is a liver-damaging toxin that can kill livestock, wildlife and humans, especially those whose immune system isn’t working well.

river mouths draining into the lake’s shores revealed alarmingly high pollution levels. Major pollution affecting the lake stems from sugar processing, tea, cereal farming, and urban areas.

Known to science as cyanoHABs (cyanobacterial harmful algal blooms), the scums are harmful to livestock, wildlife, pets, people and aquatic organisms like fish. Toxins make untreated water unsafe to drink, swim in, or even touch. Sometimes they can become suspended in air and be inhaled. The cyanoHABs also harm ecosystems by depleting oxygen, killing off whatever lives in the water, and disrupting food webs and fisheries.

CyanoHABs are a global threat and receive considerable scientific attention in North America and Europe. Despite the widespread occurrence of algal blooms in freshwater lakes, African lakes—including Lake Victoria—have historically received little scientific attention. Past research on cyanoHABs has mostly used microscopy to study the kinds found there, but microscopy cannot differentiate between toxic and non-toxic cyanobacterial cells.



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DEAR EDITOR

CYCLONE RAVAGES KALANGALA DISTRICT

Several Feared Dead and Homes Destroyed As Cyclone Ravages Kalangala Island



Destroyed property and houses at Kalangala by the Cyclone

A severe thunderstorm, characterised by strong gusty winds and heavy rains, has left a trail of destruction in Kalangala District, leading to the collapse of the Kalangala Central Police Station and destruction of over 300 houses, businesses and the loss of at least four lives.

Cyclones, including tropical cyclones (hurricanes or typhoons), are caused by atmospheric disturbances around low-pressure areas, fueled by warm ocean waters and the release of latent heat from condensing

moisture, leading to strong winds and heavy rainfall. Warm water evaporates, creating water vapor in the atmosphere. As this warm, moist air rises, it cools and condenses, releasing latent heat, which further fuels the storm.

Coriolis Effect:

As the Earth rotates, the Coriolis effect deflects moving air, causing it to spiral inward towards the low-pressure center of the cyclone.

Rotation:

The inward spiraling air, combined with the Coriolis effect, causes the

cyclone to rotate.

The release of latent heat from condensation creates a positive feedback loop, intensifying the cyclone.

Types of Cyclones: Cyclones are broadly classified as extra-tropical (temperate) and tropical cyclones. Tropical

Cyclones:

Tropical cyclones are characterized by strong winds (at least gale force) and are often associated with storm surges and heavy rainfall.

According to the Uganda Red

Cross Society (URCS), which has dispatched a response team to assess the damage, three victims have so far been identified. These include Hassan Waswa, a barber, Geoffrey Sekiwere, a porter, and a police officer at the rank of sergeant.

At least 13 injured persons have been referred to Kalangala Health Centre IV and others referred to Maska Referral Hospital for treatment. Meanwhile, the Red Cross response team has begun assessments in Kifuufu and is proceeding to Kanyogoga, Bugala, and Mweena before finalizing their report.

Speaking on the response efforts, Uganda Red Cross spokesperson Irene Nakasiita confirmed that the organization is working closely with the Office of the Prime Minister to keep the government updated on the extent of the damage and the urgent needs on the ground.

"This is a devastating situation. Our team is already on-site, assessing the impact and determining what support is required," Nakasiita said. The cyclone's strong winds and intense rainfall have severely impacted communities in Kalangala, an island district known for its fishing industry, agriculture and tourism.

Many residents have been left homeless, with infrastructure damage further complicating rescue efforts.

Scientists explanation on the bacteria behind Lake Victoria's green waters

Continued from page 14

CyanoHABs occur in many basins in Lake Victoria, but are highly concentrated in Kenya's shallow Winam/Nyanza Gulf.

Past reports identified Microcystis as the dominant cyanobacteria in the Winam Gulf. The research, however, found Dolichospermum was the most abundant type in major cyanoHAB events there. This finding might be due to recent environmental

changes in the region.

But researchers linked Microcystis to microcystin. This is a liver-damaging toxin that can kill livestock, wildlife and humans, especially those whose immune system isn't working well. In Winam Gulf, it's often more abundant than the health limits set by the World Health Organisation.

However, blooms are becoming

more widespread worldwide because rising temperatures promote cyanobacterial growth and more intense rainfall delivers nutrients from the landscape. Only effective management of nutrients can reverse this trend.

The study raises concerns over Rapid human population growth and settlement around lakes and their watersheds, which is leading to

high levels nutrients in lakes around the world. This results in excessive growth of algae and aquatic plants.

The study recommended that local authorities monitor for these cyanobacteria and warn residents to stay away when blooms are present. Without urgent intervention, the continued influx of pollutants could lead to long-term ecological and economic damage.

The Resource Partners and Stakeholder's Conference on the National Plan of Action for Sustainable Small-Scale Fisheries (NPOA-SSF) – Kampala, Uganda

The Resource Partners and Stakeholder's Conference on the National Plan of Action for Sustainable Small-Scale Fisheries (NPOA-SSF) in Uganda brought together key stakeholders from the fisheries sector including central government and its agencies, local government, NGOs, private sector and development partners.

The conference was organized by the Food and Agriculture Organization (FAO) together with the government of Uganda aimed at fostering engagement with resource partners and stakeholders to mobilize necessary resources and support for the effective implementation of the NPOA SSF.

The objective of the conference was to i) Raise public and development partners' awareness about Uganda's NPOA-SSF; ii) Engage stakeholders from both the public and private sectors to support the implementation of the NPOA-SSF; iii) Garner political will and commitment to advance the implementation of the NPOA-SSF; iv) Encourage pledges and contributions from various actors to facilitate the NPOA-SSF's execution and ; v) Highlight priority areas requiring urgent attention to accelerate progress on the implementation of the NPOA-SSF.

The conference took place on the 14th March 2025 at Serena Hotel in Kampala. It was opened by the Permanent Secretary for Ministry of Agriculture, Animal Industry and Fisheries represented by the Commissioner Fisheries Resources Mr. Bwanika Joseph. In his remarks Mr. Bwanika shared with stakeholders the midterm Ministry's strategy which focus on market access through three main pillars of i) increasing production, ii) Management of post-harvest handling and, iii) value addition. To achieve the three pillars,



Partners and Stakeholder's Conference on the National Plan of Action for Sustainable Small-Scale Fisheries (NPOA-SSF) in Uganda

the Ministry is promoting sustainable fisheries despite the existing challenges of illegal, unreported and unregulated fishing, invasive species among others through creating special zones for conservation (fish breeding areas) to sustain productivity and, promoting more of land aquaculture than cage culture. He recognized that in order to promote sustainable implementation of the NPOA-SSF, there is need to recognize the roles of different actors and ensuring commitment from each one of them.

The Commissioner Fisheries Resources Madam Daisy Olyel welcomed stakeholders and especially the FAO team from Headquarters in Rome to the conference. She recognized the role of FAO in developing the SSF guidelines which are a global framework and Uganda's NPOA-SSF. She also noted the this document narrows down the global instrument to the context of Uganda and the next crucial step is implementation.

She stressed that despite the funding challenge for the fisheries sub-sector, government is very committed

to the implementation of NPOA-SSF.

"The Ministry submitted a budget of Uganda Shillings 20 billion yet only 3 billion has been approved although we are still negotiating that it is doubled to at least 6 billion which is still inadequate" added the Commissioner. She concluded her remarks with a call to action for stakeholders including development partners, NGOs, indigenous communities comprising of small scale fishers and Fish Workers.

FAO's Fishery Officer, Ms. Mele Tauati in remarks informed stakeholders that FAO recognizes that Uganda is one of African Countries spearheading the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) globally.

She also noted that without small-scale fishers we can't have fish on the table and while the SSF guidelines were being developed, Uganda was equally involved in the global consultations and therefore they are relevant to the Ugandan

context. Furthermore, 2024 marked the 10th anniversary of the SSF Guidelines and we need to move forward towards their implementation. She congratulated the government of Uganda as one of the governments to have the NPOA-SSF and committed continuous support to Uganda's Fisheries sub-sector despite the limited resources. She concluded her remarks with a call to action for all stakeholders and partners to support the implementation of the NPOA-SSF.

Ms. Margret Nakato, the coordinator for Katosi Women Development trust (KWDT) shared experiences on the ground based on the NPOA-SSF priorities. She noted that efforts have been made to organize women fishers into groups but challenges with tenure still exist.

Mr. Valerio Crespi, Fishery officer from FAO headquarters, presented on the Integrated Water Resource Management (IWRM) and inland fisheries and the link to the NPOA-SSF. In his presentation he noted

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the need to involve different stakeholders and actors that impact fisheries including agriculture, forestry and others.

At the conference, different organizations made the commitment towards the implementation of the NPOA-SSF, including Enabel, Iceland embassy, GIZ-SAF, Lake Victoria Fisheries Organization (LVFO), Directorate of Fisheries Resources (DiFR), Uganda National Women Fisheries Organization (UNWFO), Katosi Women Development Trust (KWDT), Sustainable Fisheries Initiative (SFI) among others.

Uganda successfully developed the National Plan of Action for Small-Scale Fisheries (NPOA-SSF). The plan addressed eight strategic areas and best practices derived from the SSFGuidelines, other relevant international instruments, such as the Code of Conduct for Responsible Fisheries and, consultations with stakeholders.

Its primary objective is to enhance visibility and participation of SSFFW in conservation and sustainable development of fisheries resources and the livelihoods that depend on them.

The NPOA-SSF was developed in a participatory manner through key stakeholder consultations between 2022 and 2023 around the six major lakes of Uganda to identify and consolidate priority strategic areas and interventions to be addressed.

The consultation was done by the National Task Force (NTF) headed by Government Focal point from Directorate of Fisheries Resources (DiFR). Other members included representatives of small-scale fishers and fish 2 workers, research, academia, women in fisheries, community-based organizations (CBOs) and non-governmental organizations (NGOs).

Financial support for this initiative was provided by the Food and Agriculture Organization (FAO) through the project "Implementing the Small-Scale Fisheries Guidelines for gender-equitable and climate-resilient food systems and livelihoods" phase 1 and phase 2.

Story by Betty Aliba and Photo presented by Patrick Kizito

The Project that is improving Livelihoods

Continued from page 3

abundance of fish, it may not reach consumers who are willing to pay better prices. This limitation in market access can reduce the income potential for fishers and processors, leading to economic instability. Price Fluctuations and Economic Vulnerability: Economic factors also play a crucial role in the success of the project. Fishermen are facing fluctuating fish prices that are influenced by seasonal variations in fish availability, changes in consumer demand, and competition from larger fishing operations.

Such volatility is creating income insecurity for families who depend heavily on fishing as their primary source of livelihood. Furthermore, external pressures, such as climate change, are affecting fish populations, resulting in decreased catches and heightened economic vulnerability.

Coordination and Stakeholder Engagement: Insufficient collaboration among various stakeholders involved in the project can complicate its implementation. Effective communication and partnerships among local government agencies, community organizations, and project coordinators are essential for achieving common goals. Environmental Challenges: Environmental changes pose ongoing challenges to the LVSF project. Climate change, pollution, and overfishing threaten fish populations in Lake Victoria, jeopardizing the sustainability of the local fishery. The project must continuously adapt to these environmental shifts to ensure fishing remains viable for local communities.

The Lake Victoria Small Fish Project has made significant strides in improving the livelihoods of communities dependent on small fish; these challenges highlight the complexities of achieving lasting impact. Addressing resistance to change, enhancing market access, managing economic vulnerabilities, fostering coordination among stakeholders, and responding to environmental threats is crucial for ensuring the project's long-term sustainability and success.

By recognizing and tackling these challenges, the LVSF can continue to fulfill its mission of enhancing livelihoods and promoting sustainable practices in small fish systems.

Lessons Learned and Future Applications from the Lake Victoria Small Fish Project. The Lake Victoria Small Fish Project (LVSF) has generated valuable insights that extend beyond its immediate achievements, providing lessons that can be replicated in other regions facing similar challenges. These lessons highlight the significance of community engagement, the economic viability of sustainability, collaboration, and scalability. One of the most crucial lessons from the LVSF project is integrating community needs into project design and implementation. Tailoring solutions to local communities' specific cultural, social, and economic contexts is essential for fostering buy-in and ensuring the success of any initiative.

The LVSF project has cultivated a sense of ownership among stakeholders by actively involving community members in the decision-making process, resulting in more effective and sustainable outcomes. Future projects should prioritize this engagement approach, ensuring that the voices of local populations are heard and addressed at every step of the process.

The LVSF project has also demonstrated that sustainable practices can be economically advantageous. By showcasing the financial benefits of adopting green technologies—such as sustainable fishing, processing, and preservation methods—communities are more likely to embrace these practices. Evidence from the LVSF illustrates that fishers who adopted sustainable methods experienced increased catches and incomes, thereby proving that ecological practices not only safeguard the environment but also enhance economic resilience. Future projects should communicate sustainability's financial benefits to encourage broader uptake of these practices. The

value of collaboration among various stakeholders cannot be overstated.

The LVSF project thrives on partnerships between local governments, non-governmental organizations, and community groups, creating synergies that enhance resource sharing and support. Such collaboration enabled combining expertise and resources, fostering comprehensive community-oriented initiatives. For future projects, building strong networks and ensuring continuous communication among all stakeholders will be vital for amplifying project impacts and ensuring broader support for sustainable practices.

The experiences and strategies employed in the LVSF project present an opportunity for scalability. Promoting sustainable fishing practices, innovative marketing strategies, and community engagement techniques can be adapted and applied to other regions confronting similar issues related to small fish systems.

By drawing from the lessons learned in Lake Victoria, practitioners can develop context-specific solutions tailored to the unique realities of different communities, thereby enhancing the project's impact in various settings.

The Lake Victoria Small Fish Project provides a wealth of lessons learned that can inform future endeavours aimed at improving community livelihoods through sustainable fisheries. Emphasizing the integration of community needs, showcasing the economic benefits of sustainability, fostering collaboration among stakeholders, and ensuring the scalability of successful strategies are essential components that can enhance the effectiveness of similar initiatives worldwide.

As other regions face challenges in small fish systems, the insights gained from the LVSF can serve as a guiding framework for addressing those challenges sustainably and impactfully.

EMPOWERMENT



TANZANIA: FAO trains and builds the capacity of 510 leaders and members of TAWFA on Village Community Banks (VICOBA)



Morogoro, Tanzania |

From September 30 to November 3, 2024, 510 leaders and members of the Tanzania Women Fishworkers Association (TAWFA) were trained on Village Savings and Loans Associations (VSLA) and Village Community Banks (VICOBA), a key community-based microfinance model.

This initiative was organized by the Ministry of Livestock and Fisheries (MLF) in collaboration with the Food and Agriculture Organization (FAO) under its project, "Implementing the Small-Scale Fisheries Guidelines for Gender-Equitable and Climate-Resilient Food Systems and Livelihoods – Phase 2."

The trainings were facilitated by VSLA and VICOBA experts, Mr. Sosthene Milobo from Aga Khan University and Mr. James Golola from WWF, alongside FAO National Project Coordinator Ms. Oliva Mkumbo and members of the National Task Team for small-scale fisheries (SSF NTT) for implementing the National Plan of Action for Small-Scale Fisheries (NPOA-SSF).

The trainings were delivered in two phases. The first phase, known as the Training of Trainers (ToT), took place over four days in Morogoro, starting on 30 September 2024. This session provided intensive learning opportunities, with practical exercises and assessments for trainers.



Cash-Books and VICOBA toolkits were handed over to the group leaders.
Photo: FAO/Edward Kondela Successful pilot phase implementation

The second phase focused on community-level training and involved training at least 20 members from each of the 30 TAWFA/VICOBA groups. The trainings' objectives were:

- To teach participants the fundamental concepts of the VSLA methodology.
- To equip them with facilitation skills for implementing the VSLA methodology.
- To enable participants to form effective savings groups, access loans from their collective savings, and follow proper VSLA procedures.

VICOBA is a community savings and credit model that operates by pooling regular weekly contributions from members into a common fund. Members can access these funds either through rotational sharing or short-term loans, provided at an agreed-upon interest rate. VICOBA has

become a preferred strategy for addressing livelihood and financial challenges in underserved communities.

As part of the initiative, 30 VICOBA toolkits were procured and distributed by the project to group leaders. Each toolkit included a secure cash savings box with three locks, passbooks for record-keeping, stamps and markers for marking shares, record books, visitor registers, a draft constitution tailored to each group's needs, and a comprehensive VICOBA guidebook for reference. These materials are instrumental to enable the establishment and operation of the groups.

The trainings organized during phase two of the project build on the success of the trainings piloted during phase one. The pilot phase demonstrated the effectiveness of VICOBA as a tool for empowering small-

scale fisheries communities. The initiative provided members with the means to access affordable credit, stimulating financial resilience and contributing to sustainable livelihoods. The positive results showcased the potential of community-based microfinance models in driving development and improving the lives of small-scale fishers and their families.

In 2021 the MLF adopted the NPOA-SSF to implement the SSF Guidelines in the country. The NPOA-SSF for Tanzania identified the lack of access to affordable finance and credit services as one of the main constraints in securing and developing small-scale fisheries. Aligning with this, one of the objectives of the TAWFA Strategic Plan (2023 – 2030) is to establish and enhance affordable financial services for small-scale fishers, and among its strategic actions is

to support the establishment of VICOBA for TAWFA.

From 2022 to 2023, the MLF through FAO, supported by the "Creating an enabling environment for securing sustainable small-scale fisheries" project, piloted VICOBA in four districts: Sengerema, Muleba, Mpwapwa, and Mkuranga. This pilot phase began in October 2023 with the training of 10 TAWFA change agents, followed by the development of VICOBA groups in the selected districts. A total of 164 small-scale fisheries actors—including fishers, processors, traders, and local officials—participated in these initial efforts, which resulted in the establishment of eight VICOBA groups across the districts.

The operations of these groups commenced in November 2023 and were closely monitored between August 3 and August 16, 2024. Financial performance indicators assessed during the monitoring included the value of savings, utilization of social funds, loan amounts disbursed, purposes of loan utilization, and the value of outstanding loans.

By August 2024, the total savings across all groups had reached \$23,776*, with the highest savings reported at \$6,332* and the lowest at \$1,254*. The groups had collectively loaned out \$42,580* to 141 members, 124 of whom were women. The largest amount loaned by a single group was \$11,135*, while the smallest was \$1,953*. Approximately \$36,448* (85.6%) of the total loans were utilized to support activities in the fisheries value chain.

* Using a conversion rate of 1 Tanzanian Shilling = 0.0004 USD

Advancing collaboration on integrated water resources management for sustainable fisheries

Entebbe, Uganda –

An international workshop aiming to increase cooperation and advance partnership on integrated water resources management for sustainable inland fisheries wrapped up today, 20 March, in Entebbe, Uganda after taking key steps towards its goal.

Inland fisheries' contributions to global food systems are often overlooked but they are essential, especially in regions where malnutrition and food insecurity are pressing challenges. In 2022, they produced 11.3 million tonnes of aquatic foods or 12 percent of the global fisheries catch. And they managed this with less than 1 percent of the world's freshwater resources.

This makes inland fisheries a powerful solution for feeding and nourishing people, especially in vulnerable communities across Africa, Latin America and Asia, which together account for over 95 percent of global inland fish production and are home to rapidly growing populations.

Tackling the lack of collaboration

However, inland fisheries, which are almost entirely small-scale, often remote, seasonal or occasional in nature, are frequently unmanaged and subject to unsustainable fishing practices. They are also threatened by activities from other sectors that either use water or impact aquatic ecosystems such as agriculture, forestry, industry, mining, and hydropower. These activities cause habitat fragmentation, land-use changes, pollution, and erosion. Addressing these challenges and achieving sustainability requires integrated planning and management of water resources and basins. Unfortunately, such integrated planning and management is rarely implemented.

One of the barriers to the integration of fisheries into broader land and water management is the existing lack of collaboration between Regional Fishery Bodies (RFBs) and Basin Management Organizations (BMOs) and between sectors. "Inland fisheries managers tend to have little influence or only a limited role in decisions related to water and land use at the



catchment or basin scale," said Valerio Crespi, a fishery officer at the Food and Agriculture Organization of the United Nations (FAO), who organized the workshop. "Marginalization of fisheries interests can have significant consequences for aquatic habitats and dependent communities, so it's crucial to develop integrated and inclusive forms of assessment and management at the basin scale."

Seeking solutions

To improve the management of inland fisheries, FAO is driving a global push for

more effective collaboration in integrated water resources management, which is the focus chosen by FAO Member States for the current two-year work period. In 2023, FAO and the Regional Fishery Body Secretariat Network kicked off this effort with a workshop in Entebbe, Uganda, that brought together representatives of RFBs and selected BMOs, FAO Officers from different technical divisions such as Forestry, and Land and Water, and experts from Africa, Asia, and Latin America.

The 2025 Entebbe workshop aimed to build on recent progress and continue to lay the

ground for the integration of inland fisheries into basin management frameworks and discuss a proposed methodology to do this. The next step will be to test this methodology, which is grounded in the ecosystem approach, enabling more effective identification of key basin threats and addressing the needs of smallholders who depend on these vital water systems.

The international workshop again involved a diverse group of key stakeholders, including representatives from countries, RFBs, and BMOs, experts on fisheries, forestry, land and water, and agriculture. At the workshop stakeholders endorsed a robust inter-sectoral methodology for integrated basin assessment and management, which will be tested through pilot projects in key areas such as Lake Victoria, Lake Tanganyika, Lake Titicaca, the Paraná basin, the Amazon, and the Mekong. Participants also developed a comprehensive funding plan for these initiatives. Additionally, efforts were made to strengthen collaboration between RFBs and BMOs and other sectors such as forestry, agriculture, land and water.



Inland fisheries produced 11.3 million tonnes of aquatic foods in 2022.

Making progress towards sustainability

"The workshop's progress marks a key step toward integrating inland fisheries into basin management frameworks," Crespi said. "By fostering collaboration across sectors and refining multi-sectoral methodologies and through the identification and elaboration of pilot project proposals ready to be implemented once funding is made available, we are laying the groundwork for sustainable water management. This will ensure the health of aquatic ecosystems and the livelihoods of communities dependent on them."

As these initiatives move forward, the pilot projects will provide key insights and good practices that will lead to full-scale implementation plans. This will provide important examples of how one can enhance the sustainability and resilience of inland fisheries, bringing positive outcomes for both ecosystems and communities.



Integrated basin-level management is vital for sustainable inland fisheries. Without a coordinated approach activities like agriculture, forestry, and mining can threaten this vital sub-sector.



Participants attending Global Workshop on Intergrated Water Resources Management and Inland Fisheries organised by FAO at Lake Victoria Hotel - Entebbe, Uganda.

ADAPTIVE FISHERIES GOVERNANCE

Q&A

Questions and Answers Session
on Adaptive Fisheries Governance

There are Frequently Asked Questions Unlocking the Potential of Adaptive Fisheries Governance. As we explore its benefits, we understand that you may have questions about its importance, implementation, and impact. In this Q&A section, we address some of the most frequently asked questions about adaptive fisheries governance, shedding light on why this approach is crucial for sustainable fisheries management as interviewed by Betty Aliba.



Mr. Bwanika Joseph
Ag. Director Directorate of Fisheries Resources

Is adaptive governance a good way to go for fisheries in Uganda? If yes, why?

Yes, adaptive governance is the way to go. The fisheries resource has been there for years, generations have found it and left it there, therefore it is important that we create a model system that ensure the next generations find this resource.

Taking a look at the value chain, there are many different actors with different interests, such actors include the users of the resource, regulators (government and its agencies), International players like the LVFO, fishing communities, there is therefore need for a just model that brings all actors to work together to ensure sustainability.

We must be able to respond to the key interests of the different actors and this again requires a just model, and in this case that model is co-management. However for this model to be successful, there is need for rules and guidelines to define the roles and resources including capacity building to sustain the model, otherwise no actor has the capacity to do it single handedly.

What might be some of the challenges to effective implementation of adaptive governance and how could they be overcome?

Unclear legal framework is one of the challenges although at the regional level it has been agreed that we go co-management. Uganda is improving the law by working on the regulations which is a good step towards overcoming the challenges that come with the unclear legal framework.

Resourcing, especially financial, there is limited resources to put up the structures and support them.

Lack of information and data to guide decision making for example who are the indigeneous communities?

Traditional conservatives, sometimes stakeholders are not willing to work together due to conflicting interests. Coordination, coordinating different stakeholders is still a challenge.

All the above challenges can however be overcome by a clear leadership and commitment to adaptive governance and agree on the model such as collaboration or equally shared roles or is it government delegating some of its powers

What is your message to key sector actors?

Stakeholders must appreciate that no body can work alone and achieve the desired goal of efficient management of the fisheries resource.

Dealing with issues like corruption, climate change among others can only be collectively confronted. We need data to inform decision making and lastly stakeholders need to reflect on their role towards resourcing the effective implementation of the model.



Evelyn Atuheire
DFO Kitagwenda.
Lake George

Is adaptive governance a good way to go? If yes, why?

YES, Adaptive Governance brings co-management which will help in the sustainable exploitation of the fisheries natural resource.

What might be some of the challenges to effective implementation of adaptive governance and how could they be overcome?

There's likely to be political interference especially if the message is not well understood.

What is your message to key sector players?

There is need to involve all stakeholders for better management of all fisheries activities and fisheries management.



Caroline, DFO Kumi
Lake Okutot Tisaai Island

Is adaptive governance a good way to go? If yes, why?

YES, Adaptive Governance will contribute to formation of plans that will guide the fisheries sector. It will bring structures and systems that will redirect landingsites, sub counties, districts, regional and national performances of these fisheries units with standard operating procedures and better management.

Adaptive Governance also has a component of co-management which encourages participatory approach in management that in turn leads to use of indigenous knowledge in informing policy and legislation.

What might be some of the challenges to effective implementation of adaptive governance and how could they be overcome?

Resource allocation for implementation of the plans under adaptive governance; This can be done by prioritisation of fisheries so as to increase resources for implementation of plans.

Enforcement will be another challenge as its a one sided approach and I highly discourage the use of military to enforce regulations. Use of co-management as an intervention can go a long way to enhance the success of adaptive governance. I also encourage the institution of the paramilitary arm in fisheries following forestry and wildlife.

What is your message to key sector players?

The research organisation should prioritise sharing of research findings with the intended beneficiaries in ways that can be easily understood by the end user like visual aides.

Ministry of Agriculture Animal Industry and Fisheries (MAAIF) should start engaging quarterly meetings with DFOs across the country to maintain touch with the foot soldiers of fisheries. Local communities should be fully engaged to encourage participatory management and governance of the fisheries system. Local governments should equally prioritise fisheries staff recruitment to bridge the gap of

ADAPTIVE FISHERIES GOVERNANCE

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staff shortage on the ground doing implementation. There is need to involve all stakeholders for better management of all fisheries activities and fisheries management.



Nakaziba Sarah - Principal Fisheries Officer
Mayuge District Local Government
Email; nakagitta@gmail.com

Is adaptive fisheries governance a good way to go? If yes, why?

YES, Adaptive fisheries governance emphasises the involvement of all stakeholders in decision-making with regards to fisheries challenges.

Adaptive fisheries governance about stakeholders being able to identify challenges or changes in the sector that affect development and jointly coming up with some workable solutions that are agreeable to all. The fisheries stakeholders should be able to move on with the challenges by implementing the solutions jointly identified.

What might be some of the challenges to effective implementation of adaptive fisheries governance and how could they be overcome?

There will be a challenge of limited resources. In most cases people tend to resist change. Lack of co-management structures might limit local community participation in decision making. Inadequate enforcement of the fisheries regulations/ non compliance. Adaptive Governance might face resistance rising from conflict of interest among stakeholders.

What is your message to key sector players?

There is need to allocate more resources to the fisheries sector. Support adaptive fisheries governance since it's all inclusive and can generate real workable solution to the challenge that the sector is currently facing.



Agaba Charles
District Fisheries Officer
Kasese District Local Government

Is adaptive fisheries governance a good way to go? If yes, why?

YES, Its because daptive fisheries governance involves all the key sector players like fishers, policy makers, surveillance team in decision-making with regards to fisheries challenges.

What might be some of the challenges to effective implementation of adaptive fisheries governance and how could they be overcome?

There's likely to be some challenges and these will include; mindset change, political will, lack of funding, teamwork, collaboration and advocacy as well as lack of effective communication strategies among others

What is your message to key sector players?

Need for expedition of fisheries regulations.

Let's allow the law to take its course. Resources allocations to the fisheries sector



Achibu Ekwilu John Peter-
District Fisheries Officer
Serere District Local Government

Is adaptive fisheries governance a good way to go? If yes, why?

YES, Adaptive fisheries governance puts responsibility to every stakeholder to contribute to the management. It calls for co-management of fisheries and ecosystem approach as a whole not a piecemeal. It' makes it a living system that changes as time changes hence addressing climate change.

What might be some of the challenges to effective implementation of adaptive fisheries governance and how could they be overcome?

The major challenge is political will: negative political influence will hinder adaptive governance process. Mindset of the fishing communities as far as illegalities are concerned might be a big challenge too. Technological advancement which is limited on the ground might also hunder implementation of adaptive fisheries governance.

Un harmonised policies in MDA will make adaptive governance a big problem. There's likely to be some challenges and these will include; mindset change, political will, lack of funding, teamwork, collaboration and

advocacy as well as lack of effective communication strategies among others

What is your message to key sector players?

Need for expedition of fisheries regulations. Let's allow the law to take its course. Resources allocations to the fisheries sector



Laban Musinguzi
National Fisheries Resources
Research Institute
(NaFIRRI), Uganda

Is Uganda ready for Adaptive Governance

We can consider key elements such as the state of fish stocks, biodiversity, stakeholder participation and inclusion in fisheries management, and reliability of research-based information to decide on whether Uganda needs adaptive fisheries governance.

The state of stock is poor according to stock assessments conducted at NaFIRRI while a substantial proportion of fishes of Uganda have high chances of becoming extinct.

At the moment, management is top down with limited participation of stakeholders especially the resource users and use of research-based evidence.

All these are signs that adaptive fisheries governance is necessary. However, the existence of these issues means that Uganda is not ready for adaptive fisheries governance.

There is need to increase capacity for it. But where do you begin from? That is why this project: Adaptive Fisheries Governance Capacity is being implemented.

Where do you see the Fisheries Sector upon implementation of adaptive governance?

If adaptive fisheries governance is implemented, we would have a sector that is able to meet the needs of resource users while conserving biodiversity. The sector would also be more resilient than it is now to climate change impacts and other shocks.

In simpler terms, we would see larger fish populations, increased catches, reduced illegal fishing, increased trust among stakeholders, and reduced pollution among others.

What is your message to key actors

All actors should embrace and support adaptive fisheries governance. Fisheries management is not supposed to be static at all. It is experimental. You are correct to think of it as a trial and error process which at the end results into the best fishery management measures.



Dr. Samuel Bassa
Senior Research officer
National Fisheries Resources
Research Institute.

Is adaptive governance a good way to go? If yes, why?

As a fisheries scientist, i say Yes; adaptive Governance is the way to go as far as fisheries is concerned because it brings about a co-management sector where a fisherman is working collectively with other sector players, working with a fisheries officer, marine officer working other ministry and also with the research to achieve a common goal.

Inclusivity is the way to go for fisheries sector and the only way to have that inclusivity is to have a governance sector and a policy which should address a holistic aspect of both the youth, elderly, disabled, the women and the men in fisheries.

What might be some of the challenges to effective implementation of adaptive governance and how could they be overcome?

Statutory instruments in the fisheries sector where the rules and regulations that are not addressing all the issues especially in the other sectoral aspect like the issues of the elderly and issues of women where the men take the highest percentage than women, women are not allowed to go to the lakes to fish.

Sensitisation is likely to be a big challenge; not everyone will understand what is supposed to be done. There's need for sensitisation especially on the fisheries laws.

What is your message to key sector players?

There is need for a holistic aspect of approaching as far as fisheries sector is concerned from the governance, harvesting, restoration of fish stocks, breeding sector of the stocks and all the aquaculture of the stocks as well

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ADAPTIVE FISHERIES GOVERNANCE

Q&A Frequently Asked Questions

as the management of the stocks in addition to the export and industrial sector.

If we have that holistic aspect and also ensure that even all the key players from the youth, women, men, disabled, researchers, industrialists and policy makers need to work together to address the fisheries sector challenges



Prof. Fiona Nunan
Professor of Environment and Development, International Development Department
University of Birmingham

What inspired you to research on Adaptive Governance?

I have carried out research into co-management for many years and wanted to develop research ideas on how collaborative governance (or co-management) could be more sustainable, effective and inclusive over time. Collaborative governance approaches to renewable natural resources, whether fisheries, forests or wildlife, are often introduced with donor support and are not well enough established by the time the project finishes. Due to this, and insufficient financial resources and technical support, the governance systems become less effective over time.

An opportunity came along for research applications that address natural resource management, whilst protecting biodiversity and building climate resilience and I felt that I could submit an application with collaborators that aims to strengthen collaborative governance which also better protects biodiversity and builds capacity to cope with climate change.

This is really encapsulated within the concept and approach of adaptive governance, which describes an approach to governance that is informed by good systems of information generation and learning, is able to cope with uncertainty and is able to respond to new information in a timely way.

What are the objectives of the research?

The main objectives of the research are to understand how capacity for adaptive

fisheries governance can be built. We are starting in Malawi and Uganda but intend to share the findings more widely and hope other countries will learn from them too.

We hope that by the end of the project we will have plans and guidelines in place for building adaptive fisheries governance capacity, which will have been developed with the departments of fisheries, NGOs and representatives of fishing communities.

Why Malawi and Uganda?

We chose Malawi and Uganda because they are both landlocked countries with substantial inland small-scale fisheries, with long experience in co-management. Although they have these similarities, they differ in how they've implemented co-management and so we hope that there can be lesson learning between the two countries as well greater insights from the inclusion of two countries.

Another reason is that the team has very good connections with the departments of fisheries, fisheries officers, NGOs and fishing communities in these two countries.

This is really important for research that takes a 'co-production' approach – i.e. we plan for and undertake the research together, including data collection and analysis.

What is the progress so far for both Malawi and Uganda?

We have recently finished collecting data for the assessment of adaptive fisheries governance capacity and on information generation and changing fishing practices.

We're at the early stages of analysing the data, which will take time, but we will use this data and the discussions from workshops to feed into the drafting of national plans and guidelines for adaptive fisheries governance.



Bakora Moses
Executive Director
Sustainable Fisheries Initiative.

Is adaptive fisheries governance a good way to go for Uganda?

YES!! Adaptive fisheries governance refers to a dynamic and responsive approach to managing fisheries resources, which takes into account the complex and ever-changing nature of fisheries ecosystems and the communities that depend on fishing for survival.

- It will help improve fisheries resources, which takes lead to improved and effective sustainable fisheries management.
- It will increase stakeholder engagement as it encourages participation and collaboration among stakeholders, leading to greater buy-in and support for management decisions.
- It promotes enhanced ecosystem resilience considering the interconnectedness of fisheries ecosystems and manages fisheries in a way that maintains ecosystem health and resilience.
- It's good for better decision-making as it emphasizes the use of science and data in decision-making, leading to more informed and effective management decisions.
- It creates and improves our adaptability to change as this enables fishermen to respond to changing circumstances, such as shifts in fish populations or environmental conditions.

What might be some of the challenges to effective implementation of adaptive fisheries governance in Uganda?

Some of the challenges will include

- Weak institutional capacity i.e. limited resources, inadequate training, and insufficient staffing may hinder effective implementation.
- Insufficient coordination among government agencies, local governments, and stakeholders may lead to conflicting policies and actions.
- Corruption may undermine the effectiveness of adaptive governance, particularly if it involves bribery, nepotism, or other forms of malpractice
- Insufficient participation from local communities, fishers, and other stakeholders may lead to a lack of ownership and commitment to adaptive governance.
- Unequal power dynamics among stakeholders may hinder effective collaboration and decision-making.
- Cultural and social barriers,

where cultural and social norms may influence attitudes toward adaptive governance, potentially creating barriers to implementation.

- Limited resources and insufficient funding as well as high poverty levels among fishing communities may also constrain the implementation of adaptive governance, particularly if it requires significant investments in infrastructure, training, or research.
- Conflicting economic interests among stakeholders, such as between commercial and artisanal fishers, may hinder cooperation and adaptive governance.
- Climate change may impact fisheries resources, making it challenging to implement adaptive governance.

However we can address these challenges through careful planning, coordination, and collaboration among stakeholders, as well as a commitment to adaptive governance principles.

What is your key message to sector actors

As we work together to promote sustainable fisheries management and improve the livelihoods of fishing communities, I want to emphasize the importance of collaboration, innovation, and adaptability. Our fisheries resources are vital to the country's food security, economy, and cultural heritage. However, we face numerous challenges, including overfishing, habitat degradation, and climate change.

To address these challenges, we must adopt a comprehensive and adaptive approach to fisheries governance. It requires us to work together through implementing sustainable fisheries management practices, promoting ecosystem-based management, enhancing stakeholder participation and collaboration amongst ourselves, information sharing and investing in research and development as well as supporting climate change adaptation and resilience.

Climate change is real and it's the biggest elephant in the room. Let us work together to improve the livelihoods of fishing communities, promote sustainability of our fisheries resources to promote Uganda's fisheries sector as a model for sustainable development

Together, we can achieve a brighter future for Uganda's fisheries sector.

WOFIMA: A Model for Women's Empowerment in Fisheries, Sustainability, and Food Security



Participating women from Butunduzi town council, Kyenjojo district, Kihuura sub-county, Kihuura sub-county, Kyenjojo district, Mabira town council, and Kyamutuzi town council markets

The Women Fish and Markets Project (WOFIMA) is transforming the fisheries sector in Kyenjojo, Uganda, by empowering women through skills development, sustainable aquaculture, and enhanced market access.

Launched in March 2024 as a YALI Visibility Fund project and funded by the U.S. Mission Uganda, WOFIMA addresses critical challenges, including post-harvest losses, malnutrition, and gender inequality in fisheries, ensuring women play a central role in food security and economic sustainability. Kyenjojo district faces alarming rates of child malnutrition, with nearly one-third of children under five experiencing stunted growth, peaking at 37% among children aged 18-35 months in rural and refugee-hosting communities. A high intake of fish significantly reduces stunting due to its rich composition of Omegas and essential micro- and macronutrients. However, economic struggles, post-harvest losses, and limited access to improved fish preservation

techniques have long hindered food security and sustainable livelihoods, particularly for vulnerable groups like lactating mothers.

To address these challenges, WOFIMA empowers women through training in fish farming, processing,

and business development. By equipping 120 women with modern fish preservation techniques and improved fish smoking kilns, the initiative enhances product quality, reduces food losses, and increases fish consumption. The training has sparked a ripple

effect, with the initial participants sharing knowledge within their communities, further expanding the project's reach and impact. This initiative has not only boosted women's incomes but also contributed to long-term community resilience and food security. Women play a crucial role in the fisheries sector, particularly in processing, marketing, and value addition, yet they face significant barriers such as limited access to financing, technology, and decision-making roles.

WOFIMA bridges this gap by supporting women entrepreneurs in accessing better markets and financial opportunities while advocating for gender-inclusive policies in fisheries management.

By emphasizing environmentally friendly fish production and sustainable post-harvest management, WOFIMA enhances long-term productivity, ensuring that small-scale fisheries remain profitable. The project's focus on strengthening food security and nutrition is particularly vital in a region where fish consumption can be a game-changer in reducing malnutrition.

Looking ahead, WOFIMA aims to expand its impact by reaching more women in rural areas through training and technology transfer, integrating digital platforms for fish product sales, and advocating for gender-inclusive policies. By investing in women-led fisheries enterprises, WOFIMA uplifts communities, strengthens local economies, and ensures the sustainability of aquatic food systems. The initiative stands as a model for women's empowerment in fisheries, paving the way for



Fish preserved using a smoking Kiln



A smoking Kiln



Women beneficiaries from the WOFIMA Project

RESEARCH PAPER



IMPACT OF ILLEGAL FISHING ON THE FISHERIES OF UGANDA

ABSTRACT

Uganda is well endowed with fresh water resources covering approximately 20% of its surface area. The country boasts of 5 major lakes and around 160 smaller lakes scattered across the country filled with over 500 species of fish. However, overfishing and poor fishing practices have taken a heavy toll on fish stocks, the environment and the communities who depend on them. Despite the continued investment in the control of illegal fishing activities by government through increased enforcement (use of force and sensitization), there is still continued use of illegal gears and harvesting of immature fish in almost all water bodies in Uganda.

Many fishers are engaged in illegal, unregulated and unreported fishing activities (IUU) and many fishers are fishing without permits or using small boats and nets that are not allowed on the lakes. The stocks especially of the big sized fish species have declined in all water bodies while the intensification of law enforcement by government has seen many people left without a source of livelihood. This is affecting the general interventions aimed at reducing poverty and ensuring increased household incomes and jobs for the fishing communities in Uganda.

There is need to try and compute the level of illegalities and their socio-economic impacts, analyze approaches in place to try and reduce illegalities and come up with suggested ways to improve on enforcement and compliance.

Although some publications have been made by the news media on the illegalities in Uganda fisheries, there are no figures given to give a glimpse into the extend of these illegalities. Data collected by the FPU sector commanders during the daily operations was analyzed for the month of October-December 2023 to see the trends in illegalities. Previous publications and data at the Directorate of Fisheries were also reviewed for historical information. Views were sought from the District Fisheries Officers on how to handle the persistence of illegalities.

In a period of three months (October-December 2023) more than 2387 undersized boats were destroyed on Lake Victoria while 558 and 357 were destroyed on Lake Kyoga and Lake Albert respectively leaving many people out of employment. During the same period 49242, 7561 and 9621 monofilament nets were destroyed respectively on Lake Victoria, Lake Kyoga and Lake Albert. Many legal boats and engines were also confiscated for either using illegal gears or fishing in breeding areas. More than 1346 suspects were apprehended on Lake Victoria while Kyoga had 1319 and L. Albert 879 suspects committed to Police for handling. The exports of fish which used to be second to coffee in foreign exchange earnings has seen a 40% decline in volume and revenue while the catches of the main commercial species have declined by 30%. Frame Surveys and Catch Assessments on Lake Victoria and Lake Albert revealed that despite all the efforts at law enforcement, the number

of illegal gears especially monofilaments and undersized hooks remains high. Other noticeable impacts include: loss of lives of many fishers due to drowning out of use of illegal small boats; increased poverty levels among households engaged in illegal fishing since they are involved in a cycle of arrests and bailing out of the arrested persons, boats or gears. The money used is got by selling either goats, cows or land or other household items, or even getting loans. This calls for review of the current law enforcement approach and seeking new ways to bring sanity into the industry.

Introduction

- Decreasing numbers of fish caught in global fisheries, overcapacity of fishing fleets and rising demand for fish have heighten the negative impacts of illegal, unreported, and unregulated (IUU) fishing and make it increasingly widespread and profitable for those involved.
- **Illegal fishing** is a key driver of global overfishing, it threatens marine ecosystems, puts food security and regional stability at risk, and is linked to major human rights violations and even organized crime.
- This practice undermines sustainable fisheries management and has substantial social and economic ramifications.
- Addressing illegal fishing will positively contribute to the equitable growth and empowerment of the people who rely on fisheries for food and income.

Fisheries in Uganda

- Uganda is endowed with rich water resources, rich in fisheries resources. Uganda has 5 major lakes and 160 minor lakes.
- Government is obliged to manage and ensure optimal utilization and sustainable development of these resources (Para XIII of the Constitution)
- Sector contributes significantly to economy
- Sector constrained with challenges
- Various MDAs with interest in fisheries, however, there are ineffective coordination and collaborative linkages.
- Government has moved from Command and Control to Collaborative arrangements under co-management approach.



Fig. 1: Map of Uganda showing the major lakes

Combating IUU

- IUU fishing is rife in Uganda and has led to decline in stocks and catches in our major lakes.
- The government has been implementing measures to reduce IUU fishing but with little success.
- Impacts of fishing activities on the health of fish stocks and their supporting marine ecosystems have spurred new efforts in fisheries management, including the use of Army in enforcement.
- In 2017, HE the President set up a fisheries protection unit composed of Marine UPDF. By 2020 there was a noticeable recovery of stocks on Lake Victoria, Edward, George and Kyoga.
- However, during the election period, there was reduced enforcement posture and fishers took advantage to re-fill the lakes with illegal gears.

A number of prohibited fishing gears are in use and increasing. Some of these include:

1) Undersized boats (BaoTatu/Parachute)



Fig.2: Parachute boats

2) Mono Filament Nets

These have become the biggest threat to the fisheries with their numbers continuously rising.

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Fig. 3.: Impounded Monofilament nets.

3) Beach seines and Boat Seines



Fig. 4: Impounded Seines

Other illegal gears in use include cast nets, basket traps, hooks of size 10 and above and undersized nets below 4"



Fig. 5: Wire basket traps



Fig. 6: Impounded boat and gears used on Lake Albert.

The impounded gears are destroyed through burning. This practice has its own negative impacts on the environment as it causes air pollution.



Fig. 7: illegal gears being burned

These illegal gears and methods have resulted in the catching of immature fish mainly Nile perch leading to their decline in Victoria and Albert.

The small pelagics have however, noticed increased catches.

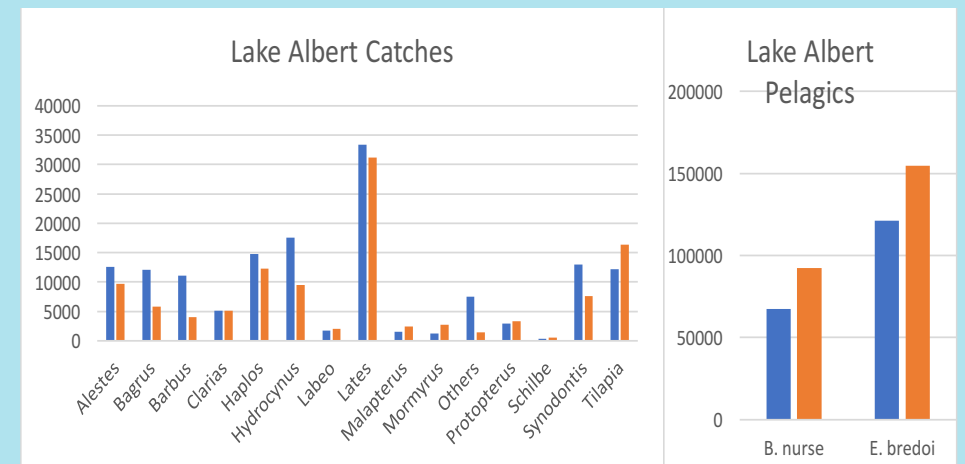


Fig. 8: Lake Albert CAS results

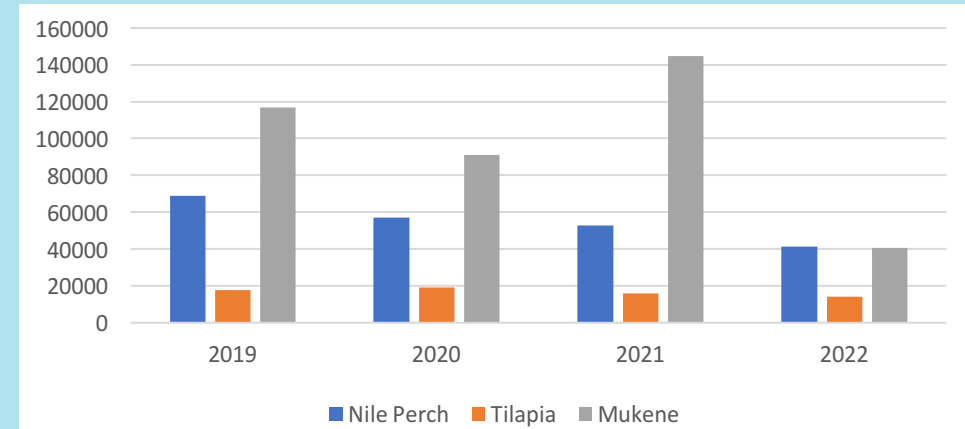


Fig. 9: Lake Victoria catches of the three main species

Table 1: Lake Victoria FS Results compared to illegalities destroyed in 3 months

	2010	2012	2014	2016	2023 (Oct-Dec)
GN<5"	66,532	59,585	78,571	78,070	1,656
BOS/BS	1,451	1,233	1,819	1,968	598
CN	1,095	1,372	1,359	1,342	137
MF	12,115	15,148	21,793	31,876	49,242
Traps	10,331	7,082	9,000	6,144	325
Parachute	5,356	4,798	5,252	6,202	2,387



Fig. 10.: Various impounded immature Nile perch

RESEARCH PAPER

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Fig. 11: Immature fish hidden in bush and others being buried



Fig. 12: Smoking covers and their products



Fig. 13: Salting of fish in the sudd on Lake Kyoga



Fig. 14: Impounded immature salted fish



Fig. 15: Sacks of salted fish in a store Immature Nile perch disguised as charcoal

COLLABORATIVE EFFORTS

- ▶ Effective monitoring and control of fishing activities requires identification of IUU fishing and sharing of information with enforcement agencies; enforcement and sanctions.
- ▶ All stakeholders have a role to play: Fishers àprocessors àtraders à Consumers
- ▶ We have shared water bodies so information sharing goes beyond national borders.
- ▶ Regional fisheries management organizations (RFMOs), such as LVFO, LEAFAO have a central role to play in the fight against IUU fishing on transboundary fisheries resources

Why should we care

- ▶ Aside from the sheer scale of these crimes, why should you care?
- ▶ Illegal fishers, by plundering this natural resource, are cheating fishing communities that depend on fish for sustenance and income, undermining the position of law-abiding fishermen, skewing scientific assessments that measure the state of our fisheries.
- ▶ The illegal fishers are economic saboteurs – deny government revenue, reduce available raw material for fish factories and hence reduce foreign exchange

Challenges

- ▶ Monitoring and enforcement of our fisheries is a huge challenge because of the vast size of our waters, the number of islands, swamps and the large number of boats that are fishing with no means of real-time monitoring of their location.
- ▶ We do not have sufficient resources to spend on monitoring, control, and surveillance.
- ▶ The application of fisheries management for the effective conservation and sustainable development of living aquatic resources requires large quantities of information of many kinds: from catch and fishing operations, and from biological, ecological, limnological, economic and socio-cultural sources.
- ▶ IUU fishing limits the availability of information, and distorts and devalues information from compliant (non-IUU) fishing.

Way forward

- ▶ Socio-economic research needed on the level of IUU and its impacts.
- ▶ Research needed on status of existing co-management and how to improve it.

By: Joyce Ikwapat Nyeko
Lake Edward & Albert Fisheries, Aquaculture Organisation

SSF Guidelines Go small-scale Fishing Cards game excites players

The GO small-scale Fish!ng card game was developed by the Food and Agriculture Organization (FAO) to teach players about the SSF Guidelines. This game is an educational tool teaching the context of SSF Guidelines through short, simple sentences and descriptive illustrations

SSF Guidelines are voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication.

The 'Go small-scale Fishing' card game is played in the same way as the popular children's game "Go Fish" but instead of asking someone for the '5 of Diamonds' or '8 of hearts', here players will ask for the cards related to SSF Guidelines; letsay, someone will ask for 'No discrimination against women' card in the set of '*Gender Equality*' or the card of 'Learning opportunities' in the set of '*Capacity Development*' set of the cards etc.

Small-scale fisheries are traditional fisheries that use small amounts of capital and energy, and small fishing vessels. They are labor intensive and mainly for local consumption. Small-scale fisheries are important for food security and nutrition, and provide income to those directly and indirectly employed in the sector. SSF Hub

The Small-Scale Fisheries Resource and Collaboration Hub (SSF Hub) is a platform that helps small-scale fishers, their communities, and advocacy groups connect, share ideas, and find solutions to problems.

The aim of the game is to collect as many complete sets of cards possible – and get an introduction to the SSF Guidelines in the process. It is a suitable game for groups of two to eight players. The time to play is flexible, but about an hour is recommended.



Players enjoying the game during a break at a workshop at Rider Hotel Kampala



One can also use the cards to start a discussion, even without playing the game. Each card offers a mini lesson about the SSF Guidelines, and along with the rules of the game comes a note of guidance for facilitators on how to use 'GO small-scale Fish!ng' to maximize learning.

The 'GO small-scale Fish!ng' game is

developed for FAO by the Wageningen Centre for Development Innovation (a part of Wageningen University and Research).

Are you planning an event about small-scale fisheries? Would you like to play the game? Get in touch with us on SSF-Guidelines@fao.org to ask for copies of the game.



QUALITY CONTROL

Exploring QAMA the unsung Heroes of the Fisheries Sector.

The late 1990's were a trying period for the fish processing industry in Uganda. Given the huge dependency on the European Union market by all the fish factories in Uganda (Approx. 75% of all exports) dictates that they must adhere to EU marketing regulations. The industry has been forced to evolve and develop better Quality monitoring and assurance systems leaning from past experiences. The industry faced huge losses as a result of two fish bans in the late 1990's namely;

First Fish Ban

The year was 1996 during the Rwandan genocide, a ban was placed on fish from Lake Victoria because of dead bodies that were thrown in the lake. The following year, due to El Nino extreme weather, the whole region of the great lakes was affected by floods and cholera, again prompting EU to ban fish from the East African countries including Mozambique.

Many factories reacted by upgrading to meet the quality standards as demanded by the EU market. In line with the EU quality regulations, most factories largely adapted renovations, though some factories have had to quit the business completely. The Fish ban was finally lifted in July 1998.

Second Fish Ban

Meanwhile as the competent authority (Uganda National Bureau of Standards, UNBS) was striving to upgrade Uganda's EU export status from "List 2" to "List 1" (like Tanzania) by early April 1999, another fish ban was placed on fish from Lake Victoria/Uganda, due to fish poisoning (destructive fishing method employed by fishers).

"List 1", exports have total free access to the EU markets, an arrangement referred to as "full harmonisation". Uganda being a

"List 2" exporter, its rights to trade on the EU market depend on bilateral country-to-country arrangements and the fate of its fish export trade being in the hands of individual countries. This means that fish upon arrival in Europe is subject to scrutiny, but this ban suspended even this arrangement.

The second Fish ban was lifted in October 2000 after the Department of Fisheries Resources introduced a residue monitoring programme.



UFPEA interventions to save the industry.

With the events taking place in the industry the Uganda Fish Processors & Exporters Association which is the umbrella organisation representing the private sector in the fisheries sub-sector devised a lasting solution to ensure quality integrity of products from its member companies. This led to formation of the Quality Assurance Managers Association (QAMA) which is the technical arm of UFPEA.

The Quality Assurance Managers Association (QAMA)

QAMA membership is comprised of Quality Assurance Managers of the fish factories that are members of UFPEA and receives funding for its activities from UFPEA the parent association. QAMA has always participated in the formulation of fish quality related documents at all stages their input is highly respected.

QAMA works in partnership with the Competent Authority which is the Directorate of Fisheries Resources to address any quality challenges and alerts whether local or international with the purpose of not only sorting them up but also putting out measures to curtail future reoccurrence. QAMA also works in partnership with the National Standards body -Uganda National Bureau of Standards (UNBS) in the

formulation and implementation of national standards that relate to the fisheries sector. This includes formulation of new standards as the market may demand.

QAMA is also involved in working together with the suppliers of both raw material fish, packaging material and chemicals with a purpose of having them adhere to the stringent required standards expected of them. QAMA serves as a technical link for absorbing any technical support or assistance extended to the fish factories in all fields of food safety from development partners, NGOs and well-wishers.

Members and sometimes accompanied some selected staff always attend workshops, seminars and training /refresher courses organized by UFPEA or its development partners.

The efforts of QAMA working with the relevant stakeholders in the fisheries sub sector have yielded great dividends as seen in the previous successful EU inspections not to mention a steady and compliant fish export trade. Uganda is now recognized by the EU commission as a fully harmonized country and accorded No. 1 list status of exporting countries. Individual QAMA members serve as the quality contact persons for their companies and their respective international clients.

The financing of the QAMA is by an expense-based budget from the mother association (UFPEA) which is catered for annually.

The objectives of QAMA include; Promote quality and food safety among members. Share experience and technical skills. Capacity building which is both internal for new members and external capacity building based on needs assessment.

Harmonization of quality management systems including HACCAP.

Technical lobbying and advocacy. This has led to the recognition by policymakers where QAMA's contribution is highly valued during policy development.

QAMA has also been a technical forum for public-private Partnerships. Hence QAMA is represented on technical committees like UNBS fisheries technical committee, East African fisheries technical committee, the African standards organization for fisheries.

Provided technical support to UFPEA. The chairman QAMA is a permanent member of the UFPEA Executive committee and hence technical support is fed into the process of the decision-making process.

Promoting sustainable fisheries through Lifestyle Events & music

A cross section of revellers at the Jinja Fish Festival

Jinja Fish Festival



A cross section of revellers that include corporates, families and students at jinja fish festival

BY Asiimwe Didas

The 6th edition of Jinja Fish Festival (JFF) that took place in December 2024 at Nile Park at the Source of River Nile in Jinja brought together people from all walks of life to celebrate the annual fish festival event.

These included fishermen, holiday makers, sly queens from Kampala and Jinja, tourists, families, fish lovers, school children, policy makers and other stakeholders along the fish value chain.

This event was organized with support from IFAD through Lake Victoria Fisheries Organisation (LVFO), GIZ-Responsible Fisheries Business Chain Project (GIZ- RFBP), Food and Agriculture Organisation (FAO), the key stakeholders in fisheries under the theme; **"Celebrating Sustainable Fisheries"**. There was a showcase of the different fish species that Uganda is endowed with, with fish exhibitions of different species from L. Victoria,

Kyoga and Albert as well as farmed fish from fish farmers and big Aquaculture players like Yalelo and Geddo fish farms who made sure there was a steady supply of fresh fish to showgoers and participating restaurants throughout the day.

Restaurants from Kampala and Jinja and local fishermen showcased their Cooking skills with exciting fish menus ranging from intercontinental fish menus to local fish restaurants that included ; Indian fish menu, roasted

fish, steamed fish, deep fried fish, fish fillets, fish kikalayi, to local fisherman's fish menu of Kibelo and modo modo, fish pizzas, samosas and sausages that gave revellers a variety to choose from.

There was knowledge exchange and business opportunities available through various exhibitions that included back yard fish farming (Aquaponics), modern cage fish farming, modern fishing technology like the Kua solar lighting technology for fishing silver fish (mukene), fish

processing, value addition, recycling / cutting glass bottles into useful household items like lamp shades, candle holders, among others as well as tree planting and distribution of tree seedlings to showgoers to plant in their homes back home to address climate change.

More than 20 schools that included both primary, secondary and tertiary institutions participated in the schools sustainable fisheries awareness quiz, art and music competitions and poster



Ykee Benda performance at Jinja Fish Festival.

PROMOTIONAL EVENT

Continued from page 29

presentation to raise awareness on fish consumption for children in schools and in fishing communities. Schools participation was supported by Lake Victoria Fisheries Organisation where winners in different categories were awarded with Go Back to School Packages that included suit cases, laptops and laptop bags and stationery and awards among others.

Recycled plastic waste products and items that included, plastic bottle lights, table mats made out bottle tops, art pieces, cooking briquettes made out of waste, fishing gears, fish feeds, fish by products like Mukene porridge, samosas, cakes, Nile perch oil and more were some of the items that excited revellers.

Music performances from Henry Tigan, Ykee Benda, Chosen Blood, Karole kasita, Sandra Sanja Sakata band, a leading band in Jinja kept party goers on their feet, while kids play area and boat rides, fishermen's games gave revellers value for their money.

Jinja Fish Festival is not only a lifestyle food event but it's also a good platform where people come to learn, network, party and end the year in style as they celebrate sustainable fisheries.

Bakora Moses the event organiser for the festival, said that through all the performances and exhibitions, people were encouraged people to eat more fish, stop plastic pollution, care for the water and environment so as to conserve the fish resource.



Students from different schools in fishing communities around Jinja, Buikwe and Mukono arriving at the festival



Winners receive their awards that included Back to School packages with Suitcases, stationery and plagues from IFAD

Fish menu from different restaurants cooked in various forms to give fish lovers a variety to choose from



This event was organized with support IFAD through Lake Victoria Fisheries Organisation (LVFO), Food and Agriculture Organisation (FAO), Germany Federal Development through their Responsible Fisheries Business Chains Project based in Jinja and ither key stakeholders in fisheries under the theme; "Celebrating Sustainable Fisheries.



FAO representative Jacob Olwo and Giz SAF team leader Adolf Gerstl handing over prizes to winners of different categories in Music,, Quiz and Art competitions at the festival



A family seemingly satisfied with the amazing Fish Festival

Jinja Fish Festival through the lenses

Continued from page 30



Winning school receiving an award



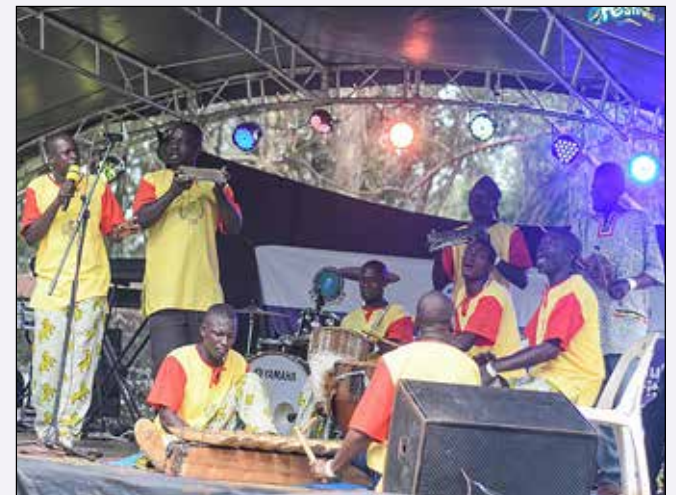
FAO together with MAAIF presenting a gift pack to students after answering questions on responsible fisheries as part of celebrating the 10th anniversary of SSF Guidelines



Students enjoying the festival



Security checks at the entrance



Cultural performance by Nile Beats



Yalelo Restaurant at the festival



NaFIRri exhibition



Mukene (silver fish) packed porridge by women processors



Deep fried tilapia



Fish samosas by women processors



Deep fried Nileperch by women processors



Raw Nileperch



Fish sausages by women processors



Whole tilapia prepared by fish avenue restaurant ready to eat



Mukene (silverfish snacks) exhibition supported by LVFO through IFAD



NEWS

Jinja Fish Festival: Improving women and Youth Livelihoods



KUA Solar Exhibits their Solar fishing Light Technology to participants during the Festival

Uganda is the youngest (16yrs) and 3rd most rapid growing population in the world (estimated to 74m by 2040). Ensuring adequate employment and healthy livelihoods for her population remain topmost priorities for the government.

Fisheries contribute significantly to Uganda's economic growth (12% Agricultural GDP; 2.5% on the whole), employment (1.2m people) and Nutrition (50% of animal protein). While a production target of 300,000MT pa is set for 2020, the National Fisheries and Aquaculture Policy (2017) has further projected Uganda's production capacity at 1.7m MT pa based on available resources. With an increased value of fish in the recent past, it is anticipated that fish will collect more revenue as compared to all other non-oil commodities if set capacities are attained

"The gender dimensions of the entire fish value chain, beyond youth and women as wild fish traders and youth and women as consumers, is well-recognized in Uganda. The youth are crucial and their effective functions should be enhanced by youth and women empowerment programmes, access to credit facilities and resources, training programmes and enhancing their roles in decision making processes. In the case of traditional hunting of fish youth and women could be more involved by adding

value to the fish caught in-order to get more profits than the current trends where it is sold only fresh and smoked. Also in the wild fisheries there is a segment of the untapped potential of ornamental fish trade in Uganda yet it is multibillion dollar business elsewhere in the world for example Asia.

In the event of fish farming the youth and women can improve their livelihood and coming out of poverty by engaging all the way in the fish value chain including management of production(feeding the fish), harvesting , processing , trade and value addition .

Fish can be raised without the need to acquire land done for pond systems through back yard farming in aquaponics systems and tanks with technology currently under development by researchers this will go a long way to alleviate poverty as the youth and women rarely possess land titles" says Nattabi J.K (PhD) Department of Zoology, Entomology and Fisheries Sciences, Makerere University). Sustainable fisheries when inclusive can push women and youth out of poverty.

This means participation and growing the sector together. At production women contribute less but youth form most of the baria in active fishing. Although they may be exploited at the baria level they earn a living. If organized and supported to fish sustainably the benefits can increase. Over

The gender dimensions of the entire fish value chain, beyond youth and women as wild fish traders and youth and women as consumers, is well-recognized in Uganda.

60 percent women are at the artisans processing level and their products are gaining market ie Mukene, fish sausages, fish maws among others. Given support in value addition through training and equipment and market access they can increase their incomes and move out of poverty while also contributing to the economy, says Bakora Moses Mujuni, the Executive Director SFI. The Jinja Fish Festival with the support of the National and International Organizing Committee offered an opportunity for youths, women and the entire business community to explore through the different exhibitions by the different stakeholders in the fishery and they were able to identify opportunities of investment, capacity building, empowerment and benchmarking among others which are key aspects that can boost their livelihoods out of poverty.

Not only did the fish festival tackle poverty issues but the public with the support of the Lake Victoria Fisheries Organization (LVFO) through the International Fund for Agricultural Development (IFAD) under the Lake Victoria Small Fish Project (LVSFP) was able to learn about the mukene fishery through exhibitions of

different mukene products and school fisheries awareness competitions where primary, secondary and tertiary institutions competed in areas of quiz, art, music, dance and drama as well as poster presentations.

The public also learnt about the different fish species including the silver fish (Mukene), tilapia, Nile perch among others generally considered as very healthy food being rich in protein, omega-3, fat acids and micro nutrients and therefore a valuable contribution to the population diet as well learn how to support responsible fishing that is sustainable and legal. Fishermen and experts in the field shared their knowledge with the public on a number of subjects including fish processing, transportation, trading among others.

The festival was a good mixture of celebrating and learning about sustainable fisheries with delicious fish menu and entertainment from Uganda's leading artists. Artists too as influencers of community behavior re-echoed the voice of responsible fishing through musical performances.

There was lots of awards to winning schools from primary, secondary to tertiary institutions which participated in sustainable fisheries awareness quiz, dance, music and art competitions as well as poster presentations. The Festival was organized by Sustainable Fisheries Initiative and Lake Victoria Fisheries Organization and the Ministry of Agriculture, Animal Industry and Fisheries with funding support from Lake Victoria Fisheries Organization (LVFO) through the International Fund for Agricultural Development (IFAD) and the ECOFISH project, GIZ-SAF and the Food and Agricultural Organization of the United Nations (FAO).

The festival had an International and National Organizing Committee which consisted of: Lake Victoria Fisheries Organization (LVFO), Sustainable Fisheries Initiative (SFI), Directorate of Fisheries Resources (DFR), Uganda Fish Processors and Exporters Association (UFPEA), Katosi Women Development Trust (KWDT), Makerere University Department of Zoology, Entomology and Fisheries Science, National Fisheries Resource Research Institute (NAFIRRI), Association of Fisheries and Lake Users of Uganda (AFALU), Ministry of Water and Environment (MWE), World Wide Fund (WWF), IUCN, Uganda National Women Fisheries Organization, Kenya Marine and Fisheries Research Institute (KEMFRI), Kenya Fish Marketing Authority, African Union -Interafrican Bureau for animal Resources (AU-IBAR) and the Aquaculture Association of Kenya among others.

Fisheries and Fish Farming In Kween District

Fish is one of the high value commodities to economic growth in Uganda. It contributes to 3% National GDP and 12% to agricultural sub sector GDP.

Aquaculture is the rearing of aquatic organisms (Fish, crustaceans, mollusks, algae etc.) under controlled conditions. In Uganda, the aquatic organism currently reared is the fish. The commonest aquaculture productions system is the PONDS. Fish farming is the practice of keeping fish artificially constructed water enclosures. In Uganda, the practice is popularly carried out in earthen ponds though fish can also be kept in tanks, cages and concrete ponds. Fish ponds are more popular because they are easier and cheaper to construct and the District Fisheries Officer (DFO) is able to provide a step by step procedure to constructing a simple earthen pond, management practices and stocking of the fish pond.



IMPORTANCE OF FISH FARMING

Fish farming is important because it contributes to the following;

- Contributes into improved food and nutritional security albeit with climatic change and growing population. It's a source of animal

protein more than chicken and pork.

- Improved household income, produce fish for sale
- Create employment
- Conserve endangered fish species
- Improve gender and youth employment
- Raising ornamental fish (decoration)
- Build back fish declining population
- Eventually leads to inclusive growth and wealth creation as aspired by VISION 2040.

In Kween, fish farming is implemented by the host fish farmer or group of farmers under direct supervision of the District Fisheries Officer (DFO).



Youth clearing for fish farming



Youth enjoying the fish harvest

AQUACULTURE (FISH FARMING) DEVELOPMENT IN THE DISTRICT

Aquaculture is one of the emerging enterprises selected by farmers especially the youth below 40 (UB40) for development and promotion.

The growing gap in fish production from the capture fisheries for domestic and regional demand could easily be met by increased expansion and production in the enterprise.

Fish farming is a key source of protein and other essential proteins and provides an important link with household nutrition and improved household incomes.

AQUACULTURE OPPORTUNITIES IN KWEEN DISTRICT

Firstly, the networks of streams and rivers that flow throughout the year from Mt. Elgon gives the highest opportunity for fish farming in the district. Secondly, the spring water from the rocks which is common in most parts of the middle and upper belts of the district provides another opportunity for aquaculture. These fresh rivers and streams are suitable for aquaculture.

Thirdly, the nature of soil in Kween is clay-loam soils to retain water, which is a requirement before sitting and setting up ponds. Fourthly, the terrain of the district is gently sloping for ease of construction and water diffusion and transfer by gravity. Fifthly is market availability. It has been known that over 80% of the population in Kween consume or do enjoy eating fish.



RDC Kween monitoring fish farmers for the Youth Stocking fish farm

REPORT

Unlocking the Nutritional Power of Silver Fish (Mukene) in Uganda



mukene fish (silver fish) traders

Silver fish, locally known as mukene, is a small, oily fish that is abundant in Uganda's freshwater lakes and rivers. For decades, mukene has been a staple food source for many Ugandans, particularly in rural communities. Despite its small size, mukene packs a big nutritional punch, making it an essential part of a healthy diet.

Silver fish has a number of nutritional benefits that include excellent source of protein making it an ideal food source for building and repairing muscles, omega-3 fatty acids that are essential for heart health, brain function, and inflammation reduction, Mukene is a good source of various micronutrients, including vitamin D, calcium, and iron as well as containing essential minerals like zinc, magnesium, and potassium.

Regular consumption of mukene has been linked to several health benefits, including improved heart health as omega-3 fatty acids in it help reduce inflammation and improve heart health, support brain health and development. Mukene is rich in calcium, which is essential for building and maintaining strong bones and support immune function and reduce the risk of illnesses.



Mukene is not only a nutritious food source but also an important economic driver in Uganda.

Mukene fishing and trade provide income opportunities for thousands of Ugandans, creating jobs in fishing, processing, and marketing. It's also an affordable and accessible source of protein, improving food security for many Ugandans.

Mukene is a nutritional powerhouse that offers numerous health benefits, economic opportunities, and food security.

As Uganda continues to grow and develop, it is essential to promote and support sustainable mukene fishing and consumption practices. By doing so, we can unlock the full potential of this incredible resource and improve the lives of millions of Ugandans.

Since Smaller quantities are preferred with frequent supplies, KWDT should strategize frequent field deliveries and supplies.

Products should be made more affordable mainly for schools

Sourcing from Landing sites should be considered to favourably compete with competitors source from landing sites could be a reason for their low prices. Smell and inconsistencies in supply are among the major significant challenges highlighted and therefore, strategies to address these should be laid e.g efficient packaging and a robust stocking and distribution/supply plan.

The distribution channels should be more comprehensive to have a wider community reach out including Kiosks For channels of information and communication, social media should be given priority in addition to help-lines connected to whatsapp for consumer communications.

Stronger efforts should be made to advertise KWDT products using various technologies to increase their visibility in the market. This includes leveraging social media platforms such as TikTok, WhatsApp, and others.

Inland Fishing in Uganda: A Vital Source of Livelihoods.

Inland fishing refers to the practice of fishing in freshwater bodies such as rivers, lakes, and reservoirs that are located away from the ocean. This type of fishing is often done for recreational or commercial purposes and can involve catching various species of fish such as tilapia, catfish, and Nile perch.

Uganda, a landlocked country in East Africa, is endowed with an abundance of freshwater bodies, including lakes, rivers, and wetlands. These water bodies support a thriving inland fishing industry, which provides a vital source of livelihood for thousands of Ugandans.

Overview of Inland Fishing in Uganda

Inland fishing in Uganda is a significant economic activity, with many communities relying on it as a primary source of income. The industry is characterized by both small-scale and commercial fishing operations, with fishermen using traditional and modern methods to catch a variety of fish species.

Uganda's inland fishing industry is concentrated around several key fishing grounds, including:

- * Lake Victoria*: The world's second-largest freshwater lake by surface area, Lake Victoria is home to over 200 species of fish, including Nile tilapia, Nile perch, and catfish.
- * Lake Albert*: Located in western Uganda, Lake Albert is a vital source of fish, including Nile tilapia, catfish, and lungfish.
- * Lake Edward*: Situated in southwestern Uganda, Lake Edward is known for its abundant stocks of Nile tilapia and other fish species.
- * River Nile*: The River Nile, which flows through Uganda, is home to a variety of fish species, including Nile tilapia, catfish, and tigerfish.

Uganda's inland waters are home to over 300 species of fish, including: Nile tilapia which is a popular specie for both commercial and small-scale fishing. Nile perch large predatory fish species found in Lake Victoria and other lakes



Fishing boats at the lake shore as fishermen prepare for a fishing trip.

common species found in many of Uganda's lakes and rivers, Lungfish which is a unique species that can breathe air and is found in Lake Albert and other lakes.

Despite its importance, Uganda's inland fishing industry faces several challenges, including:

Overfishing from the increased demand for fish threatening the sustainability of fish stocks, habitat degradation where destruction of fish breeding areas such as wetlands and riverbanks, has reduced fish breeding grounds and affected fish populations. Climate change has altered water temperatures and levels, affecting fish populations and the livelihoods of fishermen

The use of illegal fishing gear and practices has contributed to the decline of fish stocks and damaged fishing equipment.

To address these challenges, the Ugandan government, in collaboration with stakeholders, has implemented several initiatives to promote sustainable inland fishing, including: fisheries management systems established by government to regulate fishing practices and protect fish stocks, conservation efforts, such as habitat restoration and protection, are underway to preserve fish breeding grounds and habitats.

Fishermen are being trained and educated on sustainable fishing practices, including the use of appropriate fishing gear and techniques, research and development initiatives are focused on improving fisheries management, conserving fish stocks, and promoting sustainable

fishing practices.

Inland fishing is a vital source of livelihood for many Ugandans, providing income, employment, and food security. However, the industry faces several challenges, including overfishing, habitat degradation, climate change, and poor fishing practices.

Efforts to promote sustainable inland fishing are underway, and it is essential that stakeholders continue to work together to ensure the long-term sustainability of Uganda's inland fishing industry.

Compiled by :
Turyaheebwa Nicholas

HIGH LEVEL BLUE DIALOGUE ON ADAPTIVE FISHERIES GOVERNANCE



20th March, 2025



11:00am - 12:30 pm, E.A Time

Moderator



Betty Aliba
Director Communications
Sustainable Fisheries
Initiative

Speakers



Prof. Fiona Nunan
Professor of Environment and
Development, International
Development Department,
University of Birmingham



Daisy Olyel
Commissioner, Directorate of
Fisheries Resources (DIFR),
Ministry of Agriculture, Animal,
Industry and Fisheries - MAAIF,
Uganda



Dr. Laban Musunguzi
National Fisheries Resources
Research Institute
(NaFIRRI), Uganda



Prof. Mafa Hara
Institute of Poverty, Land and
Agrarian Studies (PLAAS)
University of Western Cape,
South Africa



Dr. Friday Njaya
Lilongwe University
of Agriculture and
Natural Resources, Malawi



Elliot Lungu
District Fisheries Officer,
Zomba - Malawi

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Meet ACIK: Helping Fishing Communities Find a Better Way

The Aquaculture Community Initiative Kyoga (ACIK) is Community Based Organization (CBO) started by fishermen to help fishermen and their families find better and more sustainable ways to earn a living.

Fishing has been a way of life for thousands, but with fewer fish in the lake, things are getting harder. ACIK has created a model to train, support, and guide fishermen and their families in fish farming (aquaculture)—a way to grow fish in ponds instead of depending only on the lake.

Why aquaculture?

Fishing used to be easy. But now, many fishermen struggle because fish stocks are decreasing. Government restrictions and climate change are making the situation worse. With aquaculture, people can still make money from fish, but in a way that is more reliable, sustainable, and profitable. Instead of going out on the lake every day, they can grow fish in ponds and sell them at good prices. This means steady income, better food security, and less pressure on the lake.

Removing barriers to fish farming
Fish farming offers fishing communities in Uganda a way to escape poverty. However, there are many barriers that can prevent fishermen from becoming fish farmers. ACIK's goal is to help is to enable fishermen and women to overcome those barriers by providing them with the knowledge, skills, and support they need to become successful fish farmers.

Hands-on training in aquaculture. ACIK's first objective is to create a fish farm for training local fishers how to farm fish properly. This includes setting up fish ponds, choosing the right fish, feeding them well, and keeping them healthy. With the right skills, aquaculture can be easy and successful. Business mentorship. Fish farming is not just about growing fish; it's also about making a profit. We train fish farmers on how to sell their fish, manage money, and plan for the future. This way, aquaculture becomes more than just a side job—it becomes a sustainable business.

Financial support.

ACIK will enable graduates of its training program to start their own fish farms by providing low-interest loans as well as equipment, feed, and other resources.

Environmental protection.

ACIK teaches farmers how to use eco-

friendly methods that do not pollute water sources or harm natural fish habitats. This means better fish for farmers without damaging the lake and surrounding areas.

Cooperatives.

ACIK creates local cooperatives and combines them into a cooperative union in order to give fish farmers an advantage in both purchasing and marketing.

Marketing.

ACIK helps farmers find buyers for their fish. Through our network, we connect farmers to restaurants, hotels, and fish traders so they can sell their fish at good prices and earn more.

Extension services: ACIK will provide new fish farmers with the technical support they need to solve problems and guarantee success. It will also keep them up to date with cutting-edge methods.

More than just aquaculture

The ACIK model aims at helping improve the lives and livelihoods of fishing communities. It works to strengthen families so that they live in greater peace and harmony. It encourages family members to find new and different ways of making money so that they are not dependent on only one source of income.

It brings people together so that they can use the profits from aquaculture to improve health services, education, and infrastructure in their communities.

Where is ACIK now?

ACIK is the process of putting its model into practice. It is currently trying to raise the capital to set up the training fish farm. ACIK welcomes foundations, government agencies, donors, and provide investors to contribute to this innovative, grassroots model for enabling people to pull themselves out of poverty.

The ACIK model can work in any community facing fishing challenges.

Join us

If you are interested in helping create better livelihoods through sustainable aquaculture, please get in touch with. If you are a fisherman who is looking for a new and profitable way to earn a living, we want to hear from you. Together, we can make fishing communities stronger and more resilient!

Call/WhatsApp: +256781935902
Email: okelloedmond11@gmail.com
Website: <https://www.fisherfolk.org/>
Location: Kaberamaido District, Uganda



ACIK has created a model to train, support, and guide fishermen and their families in fish farming (aquaculture)

Sustainable Fisheries Initiative's Aqua Tree Project: A Key Strategy for Biodiversity Conservation in Uganda



Fishermen and women receiving tree seedlings from Aqua Tree Project team donated by National Forestry Authority to plant at Busiro landing site in Namayingo district."

Uganda is home to a rich array of biodiversity, with its unique geography and climate supporting a wide range of ecosystems, including forests, grasslands, and wetlands. However, the country's biodiversity is facing numerous threats, including deforestation, habitat fragmentation, and climate change.

In a bid to combat climate change and protect the country's rich biodiversity, Sustainable Fisheries Initiative's Aqua Tree Project is revolutionizing community-led tree planting initiatives. By engaging local communities in tree planting activities, we can restore degraded habitats, promote sustainable land use practices, and support rural livelihoods.

Benefits of Community Tree Planting Our community tree planting initiatives offer numerous benefits for biodiversity conservation in Uganda:

1. *Habitat restoration*: Tree planting helps restore degraded habitats, providing a home for a wide range of plant and animal species.
2. *Soil conservation*: Tree roots hold soil in place, preventing erosion and landslides.
3. *Climate change mitigation*: Trees absorb carbon dioxide, helping to reduce the impacts of climate change.
4. *Income opportunities*: Tree planting provides income opportunities for local

communities, supporting sustainable agriculture and forestry practices.

Success Stories from the Aqua Tree Project*

The Aqua Tree Project has supported the planting of over 1 million trees in Uganda, particularly in Namayingo, Mayuge, and Jinja in Eastern Uganda with support from National Forestry Authority. The project that was launched in 2021 with the goal of promoting food security, human health, and improve household incomes for fishing communities and also to address climate change has planted trees in 10 landing sites, 20 schools, 05 churches and more than 100 homes and still counting, one tree at a time.

Working with local leadership, churches and schools and also ensuring that locals get fast growing fruit and herbal trees as well as giving technical support on how to select the trees to plant and care for trees planted, has contributed much to our project's success.

70% of the trees planted are fruit and herbal trees that include; mangoes, ovacadoes, jack fruits, guavas, sourso (kitafeeli), saw Palmetto (entassesa), covid tree, eucalyptus, mugavu, muvule grievelia among others that provide an economic value to the communities since they are a source of fruits, herbs, timber and thus promoting food security, improved health and restoring degraded habitats and for lake catchments protection.

"Some of our fruit trees in the school compound have started flowering and we are excited about our fruits next term and also our children now have shade in the compound during break time. Thanks you Aqua Tree for

this initiative, we need more trees next season" - Gilbert, a teacher at Buyondo primary school at Busiro landing site in Namayingo district.

While community tree planting offers numerous benefits for biodiversity conservation in Uganda, there are also several challenges to consider, from unclear land tenure that can create conflicts over land use, making it difficult to establish and maintain tree planting initiatives to climate change that impacts tree growth and survival, making it essential to select tree species that are resilient to changing environmental conditions.

Community engagement and participation are critical to the success of community tree planting initiatives and a powerful strategy for conserving Uganda's biodiversity.

As Aqua Tree project, we believe that by engaging local communities in tree planting activities, we can restore degraded habitats, promote sustainable land use practices, and support rural livelihoods.

As we move forward, it is essential that we address the challenges facing community tree

planting initiatives and seize the opportunities that they present. "Aqua Tree project has been a game-changer for our community, we have seen a significant improvement and livelihoods and we are grateful for the support and guidance provided by the team". - Lazaro, chairman Busiro landing site.

As our campaign to green L. Victoria continues, we call upon everyone from local leaders, school owners, church leaders, corporate companies, government and other organisations to join us in this campaign by donating tree seedlings, participating in tree planting to enable us continue changing livelihoods in local fishing communities in Uganda.

"Our goal is to empower locals to take charge of their environment of their environment and livelihoods. Aqua Tree Project is shining example of what can be achieved when communities come together to drive positive change" - Bakora Moses, Project Coordinator, Aqua Tree Project.

Together, we can create a brighter and green future for Uganda's biodiversity.



The community members listening to instructions about tree planting

AWARDING SUCCESS

Sustainable Fisheries Awards rewarding the unsung heroes in environment and the fisheries sector



Some of the award winners pose for a photo (left-right) GIZ- Responsible Fisheries Business Chain Project (RFBCP), Yalelo Uganda, Dr. Oguttu Ohwayo Richard, and Katosi landing site



Charles Brown from AFALU receiving an award on behalf of Lake Bountty under the Best fish processor and exporters category from UFFCA



Jacob Olwo from FAO receiving a certificate for the development Partners award category from MAAIF

SUSTAINABLE FISHERIES AND ENVIRONMENTAL AWARDS 2024 WINNERS

1. **BEST FISHERMAN...**
Adupu Abdallah Serere
2. **BEST AQUACULTURE ENTERPRISE**
Yalelo Uganda
3. **BEST LANDINGSITE**
Katosi Landingsite
4. **RESEARCH DEVELOPMENT INSTITUTION**
Kenya Marine Fisheries Research Institute (KEMFRI)
5. **FISHERIES INNOVATIONS AWARD....**Geddo Ltd
6. **LIFETIME ACHIEVERS AWARD.....**DR. Oguttu Ohwayo Richard
7. **WOMEN ACHIEVERS AWARD**
DR. Mary Opiyo - KEMFRI
8. **YOUNG FISHERIES ENTREPRENEURS AWARD**
Nyakoojo Patrick
9. **SUSTAINABLE FISHERIES COMMUNITY AWARD**
Women Economic Empowerment Bugiri - WEEB
10. **GREEN CITIES OF THE FUTURE AWARD**
KUA Solar Fishing Light Technology
11. **DEVELOPMENT PARTNERS AWARD**
GIZ - RFBCP
12. **BEST FISH MARKET**
Yalelo Outlets
13. **BEST FISH PROCESSOR & EXPORTER....** Lake Bountty.
14. **GOVERNMENT EXCELLENCE AWARD:**
Makerere University - Department of Zoology Entomology and Fisheries (ZEF)
15. **SCIENCE FOR THE PLANET AWARD:**
DR. Gladys Kalema-Zikusoka
16. **ENVIRONMENTAL ACTIVIST OF THE YEAR AWARD**
Hon. Beatrice Anywar.

The 2024 Sustainable Fisheries, Aquaculture and Environmental Awards (SFA):

Recognizing East Africans who give their time, expertise and passion on behalf of our precious natural resources

The 2024 Sustainable Fisheries, Aquaculture and Environmental Awards(SFA) brought together stakeholders from the fisheries

and aquaculture, Water and environment fraternity to celebrate East Africans who give their time, expertise and passion on behalf of our precious natural resources.

Across 18 categories, this annual event celebrates and acknowledges regional champions working in fisheries as well as nature protection, climate action and care for communities while supporting food security and nutrition,

sustainable economies, sustainable societies, sustainable environment, gender equity and equality. The SFAE Awards look at major categories which include Best Fisher of the Year, Best Landing Site of the Year, Innovations Award, Blue Heroes Award, Life time Achievers award, Young Fisheries Entrepreneur Award,

Sustainable Fisheries Community Award, Green Cities of the future Award, Women Achievers award,

Environmental activist of the year among others.

The SFA awards seek to take forward the recommendations from the celebrations of the International Year of Artisanal Fisheries and Aquaculture 2022 that arose from the International Conference on Artisanal Fisheries and Aquaculture (ICAFA) that took place in Jinja in commemoration of IYAF2022.

Continued to page 39

AWARDING SUCCESS

Continued from page 38

The award ceremony took place on 30th November 2024 at the Source of the Nile Hotel in Jinja under the theme "Celebrating Sustainable Fisheries" as a pre-event to the Jinja Fish Festival. Here is the pictorial the 2024 winners!



Hon. David Migereko the proprietor for Source of the hotel gives his remarks



Yalelo Uganda gives remarks on behalf of private sector



Betty Aliba of SFI gives her remarks



The representative for the minister of state for environment Beatrice Anywar gives his remarks



Adolf Gerstl of GIZ-SAF project gives his remarks



MAAIF hands over certificate to KWDT



The ED SFI Bakora Moses poses with one of the participants



MAAIF hands over certificate to katosi Landing site



Nominee receives a certificate of recognition



Yalelo Uganda receives the best Aquaculture Enterprise Award and certificate of recognition

Call for Articles

January – March 2025 Issue

With Funding support from the University of Birmingham, Sustainable Fisheries Initiative (SFI) together with National Fisheries Resources and Research Institute welcome the submission of articles/stories for the January –March 2025 issue for "The Fisher-Omuvubi" Publication.

The University of Birmingham, UK, is sponsoring this edition of the SFI newspaper through a research project on 'Strengthening capacity for adaptive fisheries governance in Malawi and Uganda', led by Professor Fiona Nunan, working with the National Fisheries Resources Research Institute, Uganda, the Lilongwe University of Agriculture and Natural Resources, Malawi, and the Institute for Poverty, Land and Agrarian Studies (PLAAS), University of the Western Cape, South Africa.

The aim of the research is to find out whether and how adaptive governance could be adopted in the fisheries sectors of Malawi and Uganda so that fisheries management takes greater account of the impacts of fisheries activities on biodiversity and is able to respond more effectively to the impacts of climate change.

It is against this background that we invite articles/stories in the following areas:

- Fishery news
- Fishery Policy and Adaptive Fisheries Governance
- Fisheries Management
- Projects protecting the environment
- Projects that are improving livelihoods
- Fishery Business
- Fishery Technologies
- Fishery Research
- Fishery literacy (Primary, Secondary & Tertiary)

For an article/story to be published, it should meet the following criteria

- Practice Article/story: Thought pieces, best practice articles, case studies, new approaches, technologies and techniques, research reports, legal and regulatory update and other contributions written by practitioners. All case studies/features must address the following questions:
 - What has worked?
 - Why has it worked?
 - What lessons were learned?
 - How could it be done elsewhere? Articles should be 500-5000 words in length and should be accompanied by respective high-resolution photos.

All submissions will be reviewed to ensure that they are of direct, practical relevance to the Fisheries sector.

All inquiries and submissions should be sent to sfinitiative2020@gmail.com by 17th February 2025.

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NARO

SUSTAINABLE FISHERIES INITIATIVE

LIFESTYLE

Empowering Women to Reduce Post-Harvest Losses: The Impact of Solar Tent Dryers and Fish Drying Racks in Mukono District, Uganda.

In Mukono District, a transformative solution is addressing a critical challenge faced by women in the region, post-harvest losses due to unpredictable weather. Solar tent dryers have been constructed at Nangoma landing site by Katosi Women Development Trust in partnership with arche noVa so that women can dry their silver fish during the rainy season, ensuring their catch is preserved and the overall quality of their products is improved.

Dependent on sun, the rainy season presents significant difficulties for women involved in silver fish drying in these communities. Without the sun, silver fish caught during this time is highly susceptible to spoilage, leading to considerable economic losses. Women have reported losses averaging to UGX 2,000,000 (USD 544) in a day! Traditionally, Silver fish was spread out in the sun, on rocky grounds, and gradually turned with a broom to ensure consistency in drying. This exposed silver fish to foreign elements and made preventing contamination nearly impossible. This often resulted in low quality fish put on the market and sometimes relegating it to animal feeds subsequently reducing the income for women from the sale of silver fish.

KWDT supported women to collectively acquire, and use raised fish drying racks. The adoption and use of raised fish drying racks had an immediate impact with increase in the price of fish dried on the racks by 37% according to KWDT end of project report "Building resilient livelihoods for women in fishing villages on Lake Victoria in 2023. The stock of fish used for human consumption increased due to improved handling on dry racks. "Many people who buy from me, are buying for consumption because the fish has been processed on raised rack with no contamination, and I sell at a higher price compared to the fish dried on the ground" reported a female processor using raised racks at Bugula.

The unpredictable season and intense rains in the past 3 years demonstrated that raised racks were insufficient for the women processors to adapt to the changing weather patterns. Abasabyoona (2022)¹ reported the a rise in the water levels in the Lake Victoria caused by an increase in rainfall patterns caused by climate

¹ <http://hdl.handle.net/20.500.12281/15570>



Women drying Silver fish with the Solar tent dryer

change confirmed in the Daily Monitor (2024)² Although loss of quality of fish dried on the racks was lower than fish dried on the ground during the rainy seasons, it all pointed to exploring with new adaptive technologies to address emerging challenging.

A consultative learning exchange with Kiyindi women and Pakwach women who had adopted the use of solar drier, informed KWDT's decision to promote the use of solar drier in silver fish drying. KWDT constructed two solar dryers, to reduce post-harvest of silver fish on rainy and cloudy days. These solar-powered dryers allow women to dry silver fish during the wettest months, providing a reliable, eco-friendly technology of silver fish preservation. The solar tents dryers trap heat to create a controlled environment that accelerates silver fish drying while minimising contamination preserving the quality of silver fish for human consumption.

In addition to the dryers, KWDT has set up a dedicated storage facility, providing women with clean, secure spaces to store their silver fish. These storage units

² <https://www.monitor.co.ug/uganda/news/national/lake-victoria-water-level-rises-to-14-metres-experts-4585540#>

play a crucial role in preserving the quality of the processed silver fish. By ensuring consistency, women can enhance the marketability of their fish, increasing demand and improving their incomes.

However, the women still face low supply of silver fish. The ongoing ban on "hurry up" silver fish harvesting method, which has not yet been formally lifted, has resulted in a reduced stock.

Enhancing women's capacity for adaptive fisheries has been combined with lobbying and advocacy efforts to ensure their voices shape the policies affecting their livelihoods. For example? Raising their voices during the National Dialogue on the sustainable co-existence of multi-species fisheries in Uganda water bodies." that was organised by National Fisheries Resources Research Institute (NaFIRRI), in collaboration with FIAN Uganda and KWDT, women shared the impact of the ban on their livelihoods and collectively called to be educated on good fishing practices, regulations to guide on the gear to use, all aimed to reduce on juvenile Nile perch in silver fish harvests.

Additionally, improving women's access to processing and value addition equipment has enabled them to engage in collective

processing and produce diverse silver fish products, including dried silver fish, silver fish powder, and spicy fried silver fish which they supply to KWDT for purchase.

The infrastructure development, knowledge and skills empowerment of women in silver fish by KWDT show case complimentary interventions along the silver fish value chain that must be supported to strengthen adaptive fisheries governance and drive positive change. Peer to peer learning, through exchange of experiences on the use of the new technology was equally motivating for the women organised under KWDT.

KWDT supports women as the key actors in the food production offering practical and sustainable solutions, to enhance their capacity to produce high quality food, reduce losses while enhancing their income for food security and economic prosperity.

With continued support and the expansion of these solutions, KWDT's impact in the region will continue to grow, providing a model for sustainable development that can be replicated in other communities.

Top of Form
Bottom of Form

Recycling Impacting lives of women and youth in fisheries in Uganda

In Uganda, plastic recycling is revolutionizing the lives of youth and women, offering them economic opportunities and empowering them to become change-makers in their communities.

Meet Sofie, a 35-year-old woman from Bukasa who works at SFI Recycle Hub an enterprise established by Sustainable Fisheries Initiative to skill women and youth in fisheries to get an alternative source of survival as than depending on only fishing.

Women and youth are skilled in glass cutting, weaving, briquette making using recycled materials turning waste into useful products to earn a living and save the environment. Sofie is part of a team that collects, sorts, and creatively uses plastic and glass waste to make new products like spice jars, lampshades, candle holders, planters, and flower vases from used plastic bottles, car tyres, Pvc pipes and glassware.



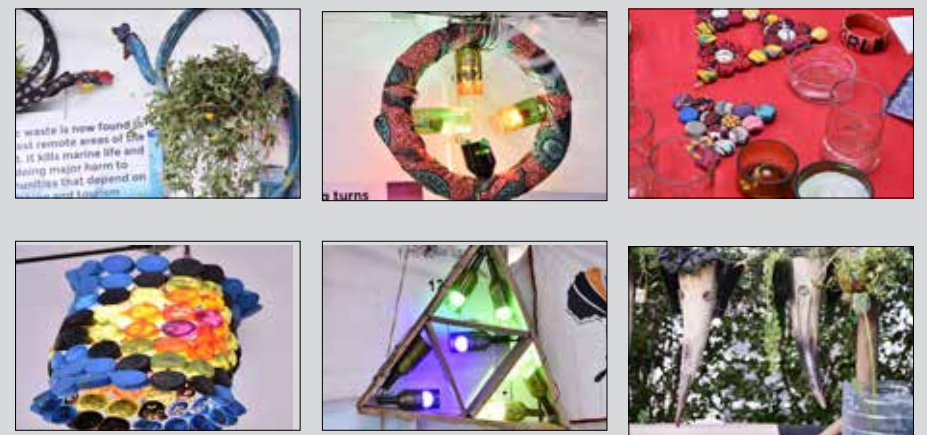
Through recycling, Sofie earns a steady income, enabling her to support her family. Sofie's story is not unique. Many young people and women in Uganda are finding employment and economic stability through plastic recycling. Companies like PRI, Resintile EA Limited, and Takataka Plastics are leading the charge in creating jobs and promoting sustainable waste management practices. The impact of plastic recycling on youth and women in Uganda extends beyond economic benefits. It also provides them with a sense of purpose and fulfillment. Many young people are passionate about environmental conservation and see plastic recycling as a way to

make a positive impact on their communities. For instance, a group of students from Gulu University partnered with Takataka Plastics to develop low-cost technologies for recycling plastic waste. This initiative provided them with hands-on experience in innovation and entrepreneurship, empowering them to become agents of change in their communities.

Women, in particular, play a crucial role in Uganda's plastic recycling sector. They are often the primary collectors and sorters of plastic waste, and their work is essential to the success of recycling programs. Women

like Sofie are becoming leaders and entrepreneurs in the sector, starting their own recycling businesses and creating jobs for others.

Recycling is having a profound impact on the lives of youth and women in Uganda. It provides them with economic opportunities, empowers them to become change-makers, and promotes sustainable waste management practices. As the sector continues to grow and evolve, it is likely that we will see even more innovative solutions and initiatives emerge, led by the young people and women driving this transformation.



Some of the products from Recycling

Plastic Pollution: A Growing Concern

By Bakora Moses

Plastic pollution has become a pressing environmental issue worldwide, and Uganda is no exception.

The country's rapid urbanization, population growth, and increasing consumption of plastic products have led to a significant rise in plastic waste. Uganda generates approximately 1,500 tons of plastic waste daily, with a significant portion ending up in the environment. Plastic bags, bottles, straws, and other single-use plastics are the main contributors to this problem.

The effects of plastic pollution in Uganda are far-reaching as plastic waste is contaminating Uganda's lakes, rivers, and wetlands, harming aquatic life and affecting human health, plastic waste being burnt or

dumped in landfills, release toxic chemicals into the soil and air.

Plastic pollution harms Uganda's unique wildlife, including endangered species like the mountain gorilla and chimpanzee and exposure to plastic pollution has been linked to various health problems, including cancer, reproductive issues, and respiratory diseases.

The Ugandan government, civil society organizations, and some private sector entities have initiated various efforts to combat plastic pollution:

1. National Plastic Policy*: Uganda has developed a national plastic policy to regulate the use, production, and disposal of plastics.
2. Ban on Single-Use Plastics*: In 2019, Uganda banned the use of single-use plastics, including plastic bags, straws, and water bottles.
3. Recycling Initiatives*: Several organizations are promoting recycling and waste management practices, including the



Bakora SFI ED looking at heaps of plastics collected at the shores of L.Victoria in Buvuma island ready for recycling

4. Public Awareness Campaigns*: Educational campaigns are being conducted to raise awareness about the dangers of plastic pollution and promote sustainable practices.

Plastic pollution is a pressing issue in Uganda, with significant environmental and health impacts. While efforts are being made to address this problem, more needs to be done to ensure a plastic-free future for Uganda. It requires a collective effort

from the government, private sector, civil society, and individuals to adopt sustainable practices, reduce plastic waste, and promote recycling.

There is need to encourage manufacturers to take responsibility for the waste generated by their products through increased Recycling Infrastructure, developing more recycling facilities and improve waste management practices.

Also promoting sustainable alternatives by encouraging the use of biodegradable products, reusable bags, and refillable water bottles. Strengthening enforcement and Monitoring through Regular monitoring and enforcement of laws and regulations related to plastic waste management.

By working together, we can mitigate the effects of plastic pollution in Uganda and create a cleaner, healthier environment for future generations.

FOREIGN NEWS

Science-to-Policy Lab (SPoL) in Mombasa, Kenya, Deliberates on Availability of Small-scale Aquatic Food Systems

Globally, food production is sufficient to meet the needs of all in regards to food security, however, in most cases there are instances of malnutrition and hunger reported at different scales in different regions.

This could largely be attributed to challenges in the distribution, access, affordability, utilization, and wastage of food. Concurrently, as the world's human population grows, the food sector continues to exert significant environmental pressure, particularly through greenhouse gas emissions and eutrophication which affects several food production sources.

In addition, several lifestyle diseases have in the recent past impacted the consumption of some food sources more specifically red meat. This calls for an urgent need for a transition towards secure, sustainable, and equitable food systems. The aquatic bodies cover huge space globally and are being prioritized to produce diverse aquatic foods that can serve the global populations sustainably while providing necessary nutrients as well.

Small-scale fishers along the coastal region play a major role in boosting food security not only for the residents at the coast but also for the country as a whole. Whereas they play critical roles in developing our nutrition, millions of individuals including fishers, processors, and traders, who depend on small-scale fisheries to support their livelihoods feel that policies supporting this sector are not favorable to support the industry to provide the much-required food resources.

More frequently, policies have always been developed using a top-down approach with no due consideration involving those low in society and those affected mostly by such policies. Establishing suitable mechanisms to get the voice of all through science-to-policy lab workshops ensures that they are all included in policy development.

Involvement of all, ensuring their rights, supporting sustainable fisheries practices, and integrating them into governance structures and policy will go a long way in strengthening their roles in food security. Thus, there is a need for the government and stakeholders to put more effort into ensuring there are all-inclusive frameworks that support small-scale aquatic food system producers.

A sustainable aquatic food supply that meets the needs of all people is a good indicator of consideration and acceptance that food insecurity in the country is a challenge that needs to be addressed through the development of appropriate policies geared at constantly improving the food security sector through diversification in production of diverse aquatic foods like seaweeds, prawns, finfish, etc. through aquaculture interventions. It's under this back group that the science-to-policy lab on sustainable aquatic food systems was organized and brought diverse stakeholders to the table to look at different options that will boost food security and develop policies that will encompass all actors in the fisheries sector without discriminating against any actor.

"Sustainable Agri-Food Systems Intelligence – Science-Policy Interface" is a project geared towards knowledge exchange for an understanding of best strategies to improve food security, nutritional benefits, livelihoods, and gender inclusivity for small-scale actors within the aquatic food systems. This project underscores the importance of embracing cultural diversity and the use of Indigenous knowledge from the local communities



Prof. Konstantinos Karantininis - making a point

to enhance the sustainable utilization of aquatic resources and create an all-inclusive approach to bridging challenges in the aquatic food systems.

To bring all stakeholders on board to deliberate on policies to ensure inclusivity a workshop was organized that involved policy-makers, researchers, non-governmental organizations, the business community, and farmers (Producer organizations) in Mombasa, Kenya themed "Strategies for improving food security, nutritional outcomes, livelihoods, and gender equality for small-scale actors within the aquatic food systems."

The workshop explored to have the participants understand the implication of having one stakeholder group make decisions on behalf of others versus the inclusivity aspect when all are considered including making all gender considerations. It was clear that some decisions could be made by the educated elites but did not address the needs of the producers or the business community while others could favor the researchers and not the policy makers or the NGOs. However, through undertaking all possible considerations, effective policy decisions to support the small-scale aquatic food systems were developed that included "Enhance the capacity of non-fishing communities to consume aquatic value-added products by taking advantage of sensitization and campaigns" among others.

Different producer organizations participated in the workshop to present their view on policies affecting the small-scale aquatic food systems. Kibokoni Umoja

Self Help Group in Kilifi Creek, Kilifi County in Kenya. Is a local community that engages in mariculture: (rearing marine species like crabs, milkfish, rabbitfish, and marine tilapia in earthen ponds. The Kibokoni community Mariculture project has helped to improve the livelihoods of the community as well as their nutrition due to the consumption of fish which enriches them with protein, omega 3,6, and other rich vitamins and minerals."

The workshop attracted over 100 participants from 9 countries (Kenya, Uganda, Tanzania, Zambia, Burundi, Mozambique, Seychelles, Mauritius, and Madagascar) apart from facilitators, had interactive sessions conducted including presentations from different actors showcasing the need to hold more workshops to share knowledge and expertise as a road map to bridging food insecurity as well as influencing the consumption of fish among the regional communities to boost food security and nutrition.

The workshop speakers highlighted that livelihoods of hundreds of millions of people are directly or indirectly dependent on fisheries and aquaculture and thus the need to put more focus on aquaculture as a major source of aquatic foods globally.

However, as communities everywhere, including many parts of Africa, work toward sustainable development, they encounter obstacles when attempting to utilize the resources found in fisheries and aquaculture, such as infrastructure limitations, climate change-related effects, accessibility, and inclusivity issues.

Contributions from the different actors heightened the need to collaborate with diverse multidisciplinary actors in the aquatic food systems to address the available challenges affecting the aquatic food systems through the development of policy frameworks to remedy these challenges as a whole.

To obtain more information from the stakeholders and experts, the workshop was divided into three different segments allowing the members to delve into deeper deliberations on how to effectively bring on board the disadvantaged groups in the society especially indigenous communities, women, and children to ease access and availability of aquatic food.

The discussions also emphasized developing alternative working frameworks to eradicate available barriers hindering the already progressive adoption of aquaculture practices in the country and support effective collaboration among communities, the national government, and all stakeholders at different levels. The central benefit of having women in the aquatic food systems was underscored during the deliberations.

Prof. Konstantinos Karantininis the team leader from the Swedish University of Agricultural Sciences believes that putting into action recommended policies to achieve success entails bringing everyone on board from the fishers to the consumers. He emphasized the need for community members to be at the forefront in championing the strategic development of policies that will benefit them locally and in the aquatic food systems sector. "For this advice and strategies to succeed, we need the collaboration and involvement of the subjects of these policies. The subjects of these policies are everybody in the agrifood systems including farmers, fishers, researchers, processors, producers, and consumers," he said.

After a series of deliberations in Siros, the group discussion culminated with a voting exercise, with the stakeholders voting for a total of six policies, two coming from each group. The actors voted for the six policies put forward with an effort to understand policies that needed more priority and the influence they would have once implemented. Takeaways from the science-to-policy lab discussions included the fact that small-scale fisheries play a crucial role in providing coastal communities with a social safety net and alternative sources of income when other economic opportunities are scarce. Therefore, it is essential to create a supportive work environment that can assist and engage with various stakeholders involved in small-scale fishing and aquaculture.

Additionally, the significance of health management in aquaculture and the critical role government regulations play in fostering the long-term expansion of the sector was also emphasized during the conference, as well as the improvement of nutritional needs among individuals. Our increased efforts to solve the worldwide issues endangering aquaculture through research will be necessary to create sustainable small-scale aquatic food systems was the clarion call with all actors forging to work together as a team to combat challenges affecting the industry.

"We need to bring together all the different actors as we have done in this science-policy lab (communities, stakeholders at global, regional, national, subnational, and local levels) and undertake candid discussions to mainstream integrated and holistic approaches to the development of the small-scale aquatic food systems sector," noted Dr David Mirera from Kenya Marine and Fisheries Research Institute (KMFRI).

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Contributions during the workshop

Malawi small-scale fisheries: towards adaptive governance?

Malawi is blessed with a number of lakes and rivers, with therefore substantial inland fisheries. The largest and main source of fish is Lake Malawi (29,000 sq. km), which is responsible for about 70-90% of the fish that is landed.

The other lakes are Chilwa (2,000 km), Malombe (390 sq. km) and Chiuta (200 sq. km). The Shire River, in particular the Lower and Upper Shire, are also important sources of fish. An estimated average of about 200,000 tonnes of fish is landed annually across the country.

Unfortunately, some of the key species, for example the chambo (*Oreochromis* spp. - the most valuable species) which occurs mainly in Lake Malawi and Lake Malombe, and tilapia species in Lake Chilwa and Lower Shire, have been severely depleted as a result of factors such as over-fishing (excessive effort) and illegal fishing practices including use of illegal gears, fishing during closed season, fishing in closed areas and destruction of breeding habitats. The buoyance in total national catches in the last two decades has largely been as a result of high catches of Usipa (*Engraulicypris sardella*), a freshwater sardine.

Despite its best efforts, the Department of Fisheries has not been able to stem the use of illegal fishing practices and excess effort, and therefore the tide of decline of the main target species and the general decline of fisheries. In order to deal with these negative trends and try to reverse the decline in the chambo, the Department of Fisheries launched a pilot programme for co-management of fisheries, the 'Participatory Fisheries Management Programme' for Lake Malombe and the Upper Shire River the early 1990s. The 1973 Fisheries Act was revised in 1997, which became Fisheries Conservation and Management Act of 1997 which is still the Act for fisheries management. The Act contains Part III (Community Participation) a provision which empowers communities to participate in fisheries management. The revised act enables the introduction of co- management – an approach that is based on managing fisheries jointly between government and fishing communities and other stakeholders (for example fish traders, other environmental



Boats on Lake Chilwa ab important source of fish

department and environmental NGOs) through sharing of authority and responsibilities.

Building on co-management

Following the pilot co-management programme in the 1990s, the department extended the approach and practice through the formation of Beach Village Committees (BVCs) - the vehicle for co-management in Malawi - to all areas and water bodies towards the end of the 1990s, thereby trying to institutionalise co-management as the new approach for fisheries management in the whole of Malawi. The performance of co-management is, however, variable, with a few success stories such as Lake Chiuta and Mbenje Island, where fishing communities have been able to manage the fisheries in their areas resulting in recovery of the fisheries, or/and maintenance of sustainability of the fisheries. Generally, though, the formation of BVCs has not proved to be as effective as hoped.

Adaptive governance of fisheries offers a way of revitalising and building on co-management by bringing attention to the relationships between stakeholder groups, the need for greater attention to information generation, knowledge and communication and to take a more integrated approach that recognises the ecosystem in which fish live, reproduce and are caught.

Information, knowledge and communication

There are multiple sources of information and knowledge that are already used in fisheries management but much scope for the generation of more information and greater sharing of research findings.

The Department of Fisheries undertakes catch assessment survey (CAS) and Malawi Traditional Fisheries (MTF - a gear-based sampling system) to routinely collect information on landed catches and beach prices from fishers at selected beaches in each district monthly. This is used to estimate total monthly and annual catches for the water bodies. Once a year, the Department carries out a complete census of the fishery called a 'Frame Survey' which counts the number of boats, nets, fishers (categorised into gear owners and crew members), and number and type of engines in use. This information is used to making management decisions by the Department and is also sent to the FAO.

The research divisions (both capture fisheries and aquaculture) undertake scientific research into fish biology and environmental impacts that also feeds into management. Social and economic information is mainly collected through projects.

One type of information that is probably not collected systematically is the number of fish processors, fish traders. Additionally, the price of fish, and value addition of the fish as it moves through the value chain is also not collected systematically. In most cases, however, data and information collected are not communicated and fed back to communities. In addition, there is lack of recognition of local and indigenous knowledge. Fishers feel that their views and opinions are not considered as useful for management purposes.

There is then need to build on and strengthen information generation and sharing, and better recognise and use fishers knowledge and experience in management.

Protecting the environment

There has been a decline in productivity of some of the key species such as *Oreochromis* and *Tilapia*. This has resulted from destruction of breeding areas, harvesting of immature fish that has not bred yet, etc. A number of things have been suggested such as use of fish aggregating devices (Zilundu) to both provide fish breeding areas and protect breeding fish. Whether these could play a key role in recovery of fisheries is the real question. Activities in the terrestrial catchments, such as deforestation and soil erosion from agricultural activities also have negative impacts fisheries.

For example, the decline in species such *Mpasa* (*Opsaridium microlepis* - Lake Salmon) and *Ntchila* (*Labeo mesops*), which depend on rivers for part of their life cycles has been attributed to siltation and reduced river flows and destruction of breeding areas. There are then many ways in which a more integrated, ecosystem-based approach could strengthen the protection of biodiversity and reduce the negative impacts of fisheries activities on the environment. Adaptive governance would provide a mechanism to bring attention to environmental impacts and encourage greater coordination between fisheries, environment and forest management.

Way forward

The assessment of adaptive fisheries governance capacity underway in Malawi will identify the strengths and weaknesses of the current co-management system. More specifically, it will call for better incorporation of fisher knowledge and experience, and joint data and information generation. The ongoing fisheries governance reforms with decentralisation and devolution processes, if well implemented and supported with adequate resources, could be a solution to the key problems being experienced including shared ecosystems.

The involvement of the BVCs in establishing sanctuaries on Lake Malawi, if they can be supported and sustained might facilitate restoration of biodiversity. There is then much potential for adaptive fisheries governance to take co-management further, with the aim of strengthening fisheries governance and creating systems that can better respond to climate change and better protect the environment.

SPORTS

Uganda hosts plastic boat races, in a bid to end water pollution

People compete in a recycled plastic boat race in Kaazi, Wakiso District in Uganda, on Feb. 22, 2025.

Uganda held a recycled plastic boat race on Saturday as part of ongoing efforts to combat water pollution.

The plastic boat race event that took place on 22nd February 2025 at Kaazi beach on Lake Victoria in Wakiso District in central Uganda, attracted participants from primary and secondary schools located around the water body.

Romina Wilke Koehler, a board member of 7 Hills International School, which is one of the event's co-organizers, said this was the fourth edition of the plastic boat race.

We ask every school to tell us how they're going to dispose of the plastic. We don't want them to collect the plastic and then just throw it away again," Koehler explained.

She noted that several schools had developed innovative ways to recycle plastic waste,



students on their plastic boats during the competition.

turning it into crafts, seats, and tables.

"We need to find a way to reduce the pollution of our water bodies. We rely on

water for livelihood, so it's very important to talk to our future generation about how to protect it," she said.

Koehler expressed optimism

that more people would contribute to reducing pollution through such initiatives.

Peter Julius Ogenrwot, a teacher from Chrysalis Secondary School in Omoro District, northern Uganda, said they had learned about the event through social media and decided to participate.

"We started with a recycling club, and now we are making seats and dustbins from plastic bottles collected from around our school," he said.

He emphasized that the boat race provided an opportunity for students to understand the importance of water conservation and plastic waste recycling.



a boy carrying his plastic boat



students on their plastic boats during the competition.



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