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GLOBAL WORKSHOP BETWEEN REGIONAL FISHERY BODIES AND BASIN MANAGEMENT ORGANIZATIONS FOR SCALING UP COOPERATION TOWARDS SUSTAINABLE INLAND FISHERIES IN THE CONTEXT OF FOOD SECURITY AND NUTRITION

Entebbe, Uganda, 6–8 December 2023

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PREPARATION OF THIS DOCUMENT

This document represents the report of the global workshop between regional fishery bodies and basin management organizations for scaling up cooperation towards sustainable inland fisheries in the context of food security and nutrition held from 6 to 8 December 2023 in Entebbe, Uganda. It was prepared and edited by Valerio Crespi (FAO Fishery Officer), Varun Tandon (FAO Fisheries Consultant), Piero Mannini (FAO Senior Liaison Officer), Stefania Savorè (FAO Fishery Officer), Amani Alfarra (FAO Land and Water Officer) and Ashley Steel (FAO Forestry Officer).

ABSTRACT

Inland fisheries are pivotal for global food security and support local livelihoods, especially in landlocked and developing regions. These vital ecosystems supply substantial amounts of food while utilizing resources more efficiently than terrestrial livestock production. The Food and Agriculture Organization (FAO) recognizes the critical need for sustainable management of these resources and has advocated for an integrated management approach that aligns with global sustainability goals and biodiversity conservation frameworks. This initiative addresses pressing contemporary challenges such as climate change impacts, water scarcity, and ecosystem degradation, which pose significant threats to the productivity and sustainability of inland fisheries.

The primary objective of the Entebbe workshop, and the subsequent initiatives, is to develop effective regional cooperation frameworks that seamlessly integrate inland fisheries management into comprehensive basin management strategies. This approach aims to promote sustainable practices that balance economic, environmental, and social interests across different regions. Key areas for collaboration identified include improving water quality, conserving aquatic ecosystems, and developing joint strategic planning and management practices. The collaborative strategy involves sharing knowledge, strategies, and resources between Regional Fishery Bodies (RFBs) and Basin Management Organizations (BMOs) to effectively implement Integrated Water Resources Management (IWRM). Anticipated outcomes from these efforts include enhanced regional coordination, targeted policy recommendations, and the identification of synergistic funding opportunities that support sustainable fisheries management.

Looking ahead, the FAO and participating organizations are dedicated to formalizing this cooperation framework, conducting pilot studies to refine IWRM approaches and continuing to engage stakeholders at regional and global levels. These proactive steps aim to ensure the long-term sustainability of inland fisheries and ensure resilient aquatic ecosystems capable of supporting diverse fish species and providing enduring benefits for human populations.

CONTENTS

ACKNOWLEDGEMENTS

FAO would like to acknowledge the contributions of Lake Victoria Fisheries Organisation, Lake Victoria Basin Commission, and the FAO Representative Office in Uganda towards organizing the workshop at Entebbe, Uganda. The workshop participants from different parts of the world contributed significantly to the workshop outcomes in the plenary discussions and breakout sessions and we would like to thank them for these contributions.

ABBREVIATIONS

ACTO	Amazon Cooperation Treaty Organization
AfDB	African Development Bank
ANBO	African Network of Basin Organizations
AU-IBAR	African Union – Interafrican Bureau for Animal Resources
BMO	basin management organization
CACFish	The Central Asian and Caucasus Regional Fisheries and Aquaculture Commission
CIFAA	Committee on Inland Fisheries and Aquaculture of Africa
COFI	Committee on Fisheries
ECOWAS	Economic Community of West African States
EIFAAC	European Inland Fisheries and Aquaculture Advisory Commission
FAO	Food and Agriculture Organization of the United Nations
IGAD	Intergovernmental Authority on Development
INBO	International Network of Basin Organizations
IWRM	Integrated Water Resources Management
LTA	Lake Tanganyika Authority
LVBC	Lake Victoria Basin Commission
LVFO	Lake Victoria Fisheries Organization
MoU	memorandum of understanding
MRC	Mekong River Commission
NBI	Nile Basin Initiative
NGO	non-governmental organization
RFAB	regional fisheries advisory body
RFB	regional fishery body
RFMO	regional fishery management organization
RSN	Regional Fishery Body Secretariats' Network
SADC	South African Development Community
SEAFDEC/IFRDMD	Southeast Asian Fisheries Development Center: Inland Fishery Resources and Management Department

1. INTRODUCTION

1.1. Background

Inland waters play an important role as the habitat for productive inland fisheries, critical for human wellbeing and livelihoods. In a world with a fast growing population, inland fisheries deliver quality, sustainable and affordable food to the world's most vulnerable populations. In 2021, production from inland fisheries stood at 11.4 million tonnes with 17 countries producing 79 percent of total inland captures (Arthur, forthcoming). Regarding inland captures at the global level, Asia accounts for over 60 percent and Africa accounts for over 29 percent, representing an important source of food security, particularly in the case of landlocked and low-income countries (Arthur, forthcoming). More than 90 percent of inland-capture harvest is for human consumption (Welcomme *et al*., 2010). Inland fisheries are also highly efficient, producing over 12 percent of global fish production from less than one percent of aquatic habitat while simultaneously having a far lower resource usage footprint when compared with production of livestock or other protein-dense foods (FungeSmith and Bennett, 2019). Recent estimates suggest that around 50.6 million people are employed in inland fisheries and participation rates by gender suggested that 44.3 percent of subsistence harvesting and processing is undertaken by women (FAO, Duke University and WorldFish, 2023).

At the Thirty-second Session of FAO's Committee on Fisheries (COFI) in 2016, Members requested FAO to provide best practice guidance on the management of inland fisheries, particularly within broader planning frameworks (FAO, 2017). At COFI34 in 2021, FAO Members reaffirmed the fundamental role of inland small-scale and artisanal fisheries for achieving the Sustainable Development Goals and addressing hunger and poverty, achieving food security, and improving nutrition (FAO, 2022b). In addition, the Eighteenth Session of the Committee on Inland Fisheries and Aquaculture of Africa (CIFAA) emphasized the importance of inland fisheries for nutritional, economic and cultural roles, as well as their contribution to sustainable ecosystem function. CIFAA18 noted the various conflicts arising from diverse water uses that hinder sustainable production and the important role that the river or lake basin organizations can play in resolving those conflicts (FAO, 2022c).

In 2022, COFI35 urged FAO to increase its support to Marine and Inland Regional and Subregional Organizations including the Regional Fishery Body Secretariats' Network (RSN), emphasizing the need for investigations into the nutritional, economic and cultural importance of inland fisheries and aquaculture, particularly through detailed analyses of production statistics (FAO, 2023b). Furthermore, the Fifteenth Conference of the Parties to the Convention on Biological Diversity adopted the Kunming – Montreal Global Biodiversity Framework in December 2022. The framework consists of four goals for 2050 and 23 targets for 2030 that aim to halt and reverse biodiversity loss and achieve the three objectives of: the Conservation of Biological Diversity, the sustainable use of the components of biological diversity, and the fair and equitable sharing of the benefits arising from the utilization of the Earth's ecosystems (Conference of the Parties to the Convention on Biological Diversity, 2022). This is relevant for inland fisheries because freshwater biodiversity is declining and is expected to further decline at potentially even higher rates than in terrestrial and marine habitats (Janse *et al*., 2015).

Inland fisheries are often dominated by small-scale and artisanal fishers who rely on traditional and low technology fishing methods. Small-scale fisheries in inland waters are particularly important for supporting local communities, providing livelihoods and ensuring food security, especially in rural areas along or around existing water basins. These food systems are vulnerable to stressors such as pollution, habitat loss and degradation, draining wetlands, river fragmentation, and poor land-management (Coates, McInnes and Davidson, 2023; Elliott *et al*., 2022; Hernández-Barrero

et al., 2022). Inland fish and fisheries heavily depend on freshwater habitats, controlled by the quantity and quality of flows as well as surrounding land use. Forests, including upland, riparian and floodplain varieties, play critical roles in ensuring the timing of flows, preventing erosion, maintaining instream habitats and providing the bases of aquatic food webs.

It is vital to recognize that water use for irrigation, supporting livestock or providing hydropower might be undermining the basis of an existing and essential food production system. In many cases, it is important to seek synergies between water management and inland fisheries to reduce and mitigate impacts on livelihoods and food security. The competition between consumptive and non consumptive uses of water resources is exacerbated by increasing water scarcity which translates to decreasing water levels, pollution from human activities and increasing levels of risk for agricultural production and ecosystem services (Coates, McInnes & Davidson, 2023; Nguyen *et al.*, 2016; Finlayson, 2011). Leveraging Integrated Water Resources Management (IWRM) approaches presents an opportunity to improve synergies across sectors.

According to the Global Water Partnership, IWRM is a process that:

> *promotes the co-ordinated development and management of water, land, and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment (Global Water Partnership, 2011).*

Although there are examples where inland fisheries management has been successfully integrated into IWRM initiatives, the current landscape lacks global or regional cooperation frameworks between regional fishery bodies and basin management organizations to exploit synergies between inland fisheries and other water use sectors. Hence, Fisheries and Aquaculture Division of FAO in cooperation with Forestry as well as Land & Water Divisions have taken the initiative to organize this workshop to improve cooperation among the inland fishery sector and basin organizations.

1.2. Introduction to regional fishery bodies and basin management organizations

Regional fishery bodies

Regional governance and cooperation in fisheries management is facilitated through regional fisheries management organizations (RFMOs) and regional fisheries advisory bodies (RFABs), collectively referred to as regional fishery bodies (RFBs). RFBs are responsible for promoting conservation and management, ensuring responsible fishing, and the effective conservation and protection of living aquatic resources (FAO, 2020). FAO has always promoted and supported RFBs and is actively committed to bolstering regional cooperation through the RSN,[1] providing a forum for consultation and regional dialogue. There are over 50 RFBs worldwide, with 11 of these RFBs actively engaged on the topic of inland fisheries.

Basin management organizations

Basin management organizations (BMOs) are institutions set up by national laws or international treaties and are responsible for IWRM at the scale of a national or transboundary hydrographic basin of a lake, a river and related aquifers. BMOs fulfil their mandate through activities of monitoring, data sharing, design, and implementation of basin management plans. The most effective BMOs involve public and private basin constituencies and decision makers from all

1. For more information, see www.fao.org/fishery/en/rsn

sectors in these activities, typically through basin committees, to improve their diagnosis of the status of water and associated resources and to ensure ownership of the discussed measures. The international network of basin organizations (INBO) is a global network promoting IWRM at basin level and supporting the strengthening of BMOs throughout the world through field projects, major international events, advocacy initiatives and publications, in order to share experiences on the best methodologies and tools to perform BMO functions (INBO, 2016).

1.3. Objectives

The objective of this initiative was to promote, discuss and establish effective regional cooperation frameworks between RFBs and BMOs and to develop concerted approaches to integrate inland fisheries management into basin management in the context of climate change, food security, sustainable forest and water management, and ecosystem health.

The anticipated outputs from the workshop were recommendations for developing a regional coordination framework to make inland fisheries management an integral component of basin management. This framework would include the identification of common areas of work between BMOs and RFBs such as watershed planning, design of monitoring systems and policy development.

2. ESTABLISHING A COOPERATION FRAMEWORK

The approach leveraged FAO and RSN's prior experience of creating a cooperation framework among RFBs (FAO, 2023b) and was designed to bring out areas of common interest among the RFBs and BMOs as follows:

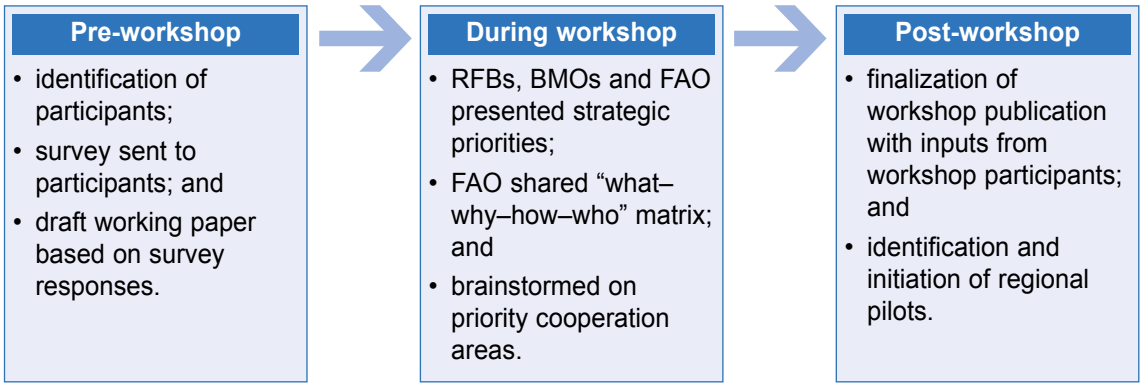
1. First, representatives from targeted RFBs and BMOs in the regions and sub-regions dealing with inland fisheries were identified (see Figure 1).
2. Second, FAO developed a regional survey for selected RFBs and BMOs to collect information on strategies and workplans related to inland fisheries and water basin management. The survey also included the relation between IWRM and inland fisheries in the context of food security, biodiversity, and climate change.
3. Third, information from the survey was used to develop a draft working paper in preparation for the workshop.

In parallel, FAO collaborated with Lake Victoria Fisheries Organization (LVFO) as well as Lake Victoria Basin Commission (LVBC) to organize the workshop and secured the participation of RFB and BMO representatives. In the workshop, 29 participants joined representing six RFBs, four BMOs and two BMO networks from Africa, South America, Asia, Central Asia, and Europe as well as the Fisheries and Aquaculture, Forestry, and Land and Water Divisions at FAO. The RFB and BMO representatives presented their strategic priorities, challenges and expectations from the cooperation framework.

FAO presented the survey results and FAO strategies for basin-level approaches to manage inland fisheries and to exploit synergies and collaboration opportunities with land and water management and forestry management. A "What–Why–How–Who" matrix was used during the workshop to streamline the process and create ownership of actions and common ground for solving shared problems and identifying common priorities.

These inputs served as the basis for the brainstorming meetings in two working groups. In the working groups the different experience and knowledge of participants revealed the focus areas to work on and issues to be addressed (**what**), the benefits of working on these focus areas (**why**) and concrete actions to resolve issues (**how**), as well as institutions responsible for action implementation (**who**). Finally, FAO drafted and shared recommendations for the establishment of a cooperation framework based on the outcomes of the workshop with concerned RFB and BMO secretariats for subsequent presentation to their member states for consideration and endorsement.

Figure 1: Steps to establish an effective cooperation framework between regional fishery bodies and basin management organizations



3. STRATEGIC PRIORITIES OF REGIONAL FISHERY BODIES, BASIN MANAGEMENT ORGANIZATIONS AND FAO

3.1. Regional fishery bodies – strategic priorities and challenges

Strategic priorities

The common priorities across most RFBs (see Table 1) are sustainable management and development of inland fishery resources to provide food security and generate livelihoods while maintaining biodiversity through conservation and management measures. In addition, RFBs prioritize community empowerment, prevention of habitat and ecosystem degradation, planning for climate change impacts, and institutional capacity building. The RFBs support their member states to achieve these goals related to inland fisheries and watershed management by providing advice and regional coordination, encouraging stakeholder participation, and delivery of effective research.

Table 1. Regional fishery bodies priorities

RFBs - Priorities and objectives	Additional priorities	How
• development of inland fisheries and aquaculture; • food security and nutrition; • livelihoods; and • maintain biodiversity	• addressing climate change impacts in the fishery and aquaculture sectors; • prevention of ecosystem degradation and restoration of degraded areas; • community empowerment; and • institutional capacity building.	• providing advice, scientific information, and regional coordination; • encouraging improved stakeholder participation and communication; and • delivery of effective research.

Challenges

The RFBs highlighted their challenges relating to inland fisheries and common thematic areas emerged. These were, among others: habitat degradation; pollution; changing water levels; impediments to fish migration; hydropower and small dams; climate change impacts; overfishing; and overexploitation such as excessive logging and invasive species as well as illegal, unreported and unregulated fishing.

Habitat degradation was highlighted by several RFBs. Human activities such as deforestation and forest degradation, wetland destruction and degradation, sand mining, and channelization of river courses alter freshwater basins leading to reduced biodiversity and declines in fish stocks. Pollution was also highlighted often, with examples given that included the impact of waste including pesticides and toxic chemicals from agriculture, industry and urban sources on inland water bodies. In addition, there is the impact of per- and polyfluoroalkyl substances which do not occur naturally in the environment and can accumulate in fish, impacting human health. Dams and their impact on water levels and fish are a key challenge to inland fisheries. For example, the large floodplain systems of South America, such as the Paraná and Amazon River basins, rely heavily on the natural flow regime (with its high- and low-water phases) for maintaining biodiversity and productivity. Anthropogenic modifications, for example damming and land conversion, reduce water connectivity and consequently influence ecological functions, fish recruitment and fisheries. Another example is from the Mekong basin, where fisheries are under

increasing pressure from water-related development interventions. Thus, fisheries resources, associated habitats and ecosystem services are interlinked, with upstream conditions such as forest cover impacting downstream fisheries and viceversa. Finally, unsustainable fishing is a common challenge in all regions that is attributed mainly to increasing population pressure.

3.2. Basin management organizations – strategic priorities and challenges

Strategic priorities

Given their wider mandates, BMOs have a broader set of objectives and priorities (Table 2) to promote sustainable development at the basin level. BMOs such as LVBC, Mekong River Commission (MRC), Amazon Cooperation Treaty Organization (ACTO) and Lake Tanganyika Authority (LTA) have priorities that include the environment, social and economic development, as well as increasing cooperation among sectors (see Box 1 as an example). They are mainly concerned with sustainable development at the basin level through IWRM.

BOX 1: Lake Victoria Basin Commission's strategic objectives

- improve environment and natural resources management, and strengthen climate change mitigation and adaptive capacity in the Lake Victoria basin;
- promote Integrated Water Resources Management and development in the Lake Victoria basin;
- coordinate maritime transport safety and security, and prevention of marine pollution by vessels on Lake Victoria;
- facilitate social development programmes in the Lake Victoria basin;
- promote economic investment and improve Blue Economy potential in the Lake Victoria basin; and
- strengthen the institutional and coordination capacity of the commission and partner states.

For basin networks such as INBO, the priority areas are to develop cooperation between basin organizations, to promote effective governance and policies for IWRM, to strengthen the institutional capacities of basin organizations, and to develop water and basin information systems while addressing the impacts of climate change. They support their member organizations to achieve these goals through events, projects, initiatives and research publications.

Table 2. Priorities and objectives of basin management organizations and basin networks

Priorities and objectives – BMOs	Priorities – basin networks	How
• sustainable development at basin level; • integrated water management (utilization of water resources); and • poverty eradication.	• facilitate basin cooperation; • promote effective governance and policies for integrated water management; • promote IWRM; and • strengthen institutional capacity of BMOs.	• water resource management; • development of multi sectoral basin management plans; • cooperation around water in general; • initiatives and projects; • events and • research.

Challenges

For BMOs, the main challenges include unsustainable land management, insufficient resilience to impact of climate change, increasing fishing pressure, degradation of critical habitats, and increasing pollution. For example, in the Amazon basin the migratory goliath catfish (*Brachyplatystoma juruense*, *Brachyplatystoma platynemum*, *Brachyplatystoma rosseauxii* and *Brachyplatystoma vaillantii*) are affected by changes in land use including loss of forest cover, damming, pollution, increasing fishing pressure near urban and high population areas, and lack of coordination on management measures between the basin countries.

Cross-cutting governance and development challenges faced by BMOs are:

- insufficient resources and financial mechanisms for adequately dealing with IWRM issues;
- inadequate updating, implementation, enforcement, and monitoring of legislation;
- lack of sufficient mechanisms for institutional coordination and inter-sectoral governance; and
- lack of human resources and technical capacity of institutions dealing with IWRM issues.

For basin networks such as INBO and the African Network of Basin Organizations (ANBO), the main challenges are the tradeoffs between water users and the environment, for instance the exploitation of hydropower and irrigation potential, while limiting the adverse effects and externalities of reducing river and freshwater connectivity. In addition, availability of water resources in sufficient quantity and at the needed times of the year is impacted by drought and unpredictable rainfall patterns. Pollution, both nonpoint source and untreated wastewater, affects the water quality in water bodies such as lakes and rivers.

3.3. FAO strategy and basin approach

3.3.1 FAO Inland fisheries strategy and basin approach

The new FAO strategy for inland fisheries recognizes that integrated approaches to basin management are critical to enhancing the contribution of inland fisheries to Sustainable Development Goals. It has been found that fisheries are a relatively smaller threat to freshwater resources compared to changes in water flow often resulting from abstraction and damming, instream habitat degradation often caused by deforestation and forest degradation, as well as water quality reduction due to pollution. Indeed, the decline of inland fish catches is often not due to fishing pressure but rather to basin-level pressures such as deforestation and forest degradation, damming for hydropower and irrigation, pollution, climate change, invasive species, wetland drainage, water management changing the flood cycle, water consumption (urban and industrial), and mining. Therefore, basin-level integrated solutions, which leverage IWRM, are imperative for inland fisheries.

As the greatest threats to inland fisheries mainly come from outside the fishing sector, tracking and monitoring inland fisheries requires a basin approach that utilises habitat and watershed metrics beyond fish catch or fishing pressure alone. FAO has developed a standardised approach, using publicly available satellite data, for assessing the status of inland fisheries and their habitats for 45 major hydrological basins and can be used by stakeholders from a wide range of sectors that includes researchers, fisheries managers, policy makers, and stakeholders from other water use sectors. This approach could be used in Environmental Impact Assessments to establish the baseline of basin-level indicators (including land use, deforestation and pollution) ahead of any proposed development within the basin.

RFBs and BMOs share common focus areas offering collaboration opportunities in basin monitoring and climate change adaptation. Thus, leveraging synergies in resources and joint programmes is crucial. Finally, "sentinel fisheries" are proposed as indicators of ecosystem health because fisheries rely on the integrity of the entire river basin. These fisheries can serve as barometers for cost-effective realtime management and impact assessment, emphasizing essential integration of fisheries management within basin water management for the well-being of basin populations and society at large.

3.3.2 FAO and Integrated Water Resources Management approach

IWRM is a comprehensive approach to managing water resources sustainably and equitably. It involves the coordinated development and management of water, land, and related resources to maximize economic and social welfare without compromising the sustainability of ecosystems. IWRM emphasizes the interconnectedness of water sources, recognizing that actions taken in one part of a watershed can have implications for others.

IWRM operates on the fundamental principles of social equity, economic efficiency and environmental sustainability. Through its technical expertise, experience and stakeholder engagement at all levels, FAO has developed tools and knowledge platforms that implement IWRM to address challenges across the agricultural sector including crop, livestock, forestry, and fisheries management.

Implementing IWRM requires crosscutting actions such as focusing on shared identification of the main challenges and proposing solutions to build trust among all stakeholders. Decision support tools can include a harmonized database for identifying and tracking key facets of water flows that are important for better decision making. In addition, defining holistic approaches, developing multiple management instruments and investment plans, establishing effective partnerships, and developing clear coordination, communication and monitoring mechanisms are all pivotal IWRM implementation actions.

Past and ongoing FAO projects exemplify how comprehensive basin analysis, gender equity, hands-on capacity building and effective stakeholder engagement at global, national and local levels are key when implementing IWRM and overcoming challenges such as limited collaboration, fragmented support from relevant agencies, and inadequate motivation.

In the context of inland fisheries, IWRM plays a crucial role in promoting the health and productivity of aquatic ecosystems. Inland fisheries are highly dependent on the availability and quality of water resources. IWRM ensures a holistic and inclusive approach to water management, considering the needs of local communities and the aquatic ecosystems that support fisheries.

The linkages between IWRM and inland fisheries are multifaceted. The key points of connection include:

- Ecosystem health: IWRM promotes the health of freshwater ecosystems by considering the ecological needs of rivers, lakes and wetlands. Healthy ecosystems, including forests, provide essential habitats for fish reproduction, growth and migration.
- Water quality: Proper water quality management, a core component of IWRM, is vital for sustaining fish populations. Contaminated or altered water quality can adversely affect fish health and reproductive success.
- Flow regimes: IWRM emphasizes the importance of maintaining natural flow regimes in rivers. Consistent and seasonally appropriate flows are critical for the life cycles of many fish species, influencing their migration patterns and breeding behaviours.

- Habitat conservation: IWRM encourages the conservation and restoration of habitats crucial for inland fisheries, such as spawning and nursery areas. This ensures the long-term sustainability of fish populations.
- Community engagement: Inland fisheries often support local livelihoods. IWRM promotes community engagement in water management decisions, ensuring that the needs of both communities and fisheries are considered.
- Adaptation to climate change: With climate change impacting water availability and temperatures, IWRM provides a framework for adapting fisheries management strategies to changing conditions, safeguarding the resilience of inland fisheries.

In conclusion, the implementation of IWRM is essential for the sustainable management of water resources, directly influencing the health and productivity of inland fisheries. Recognizing and integrating the linkages between IWRM and inland fisheries is fundamental to achieving both ecological and socio-economic objectives in the context of water resource management.

3.3.3 Forests and inland fisheries

Forests support the aquatic habitats on which inland fishes and fisheries depend. Fishes and fisheries depend on upland, riparian and floodplain forests for development of soils that enable water storage and purification, erosion prevention, maintenance of habitat complexity, seasonal habitats, shading, and direct inputs to aquatic food chains. Inland fisheries cannot be managed sustainably by focusing on the fishery alone: recent studies have provided evidence that in some tropical freshwater ecosystems, such as the Magdalena River basin in Colombia, up to 61 percent of fish population declines are caused by environmental degradation rather than overfishing (Hernández-Barrero *et al.*, 2022). Forests also depend on healthy fisheries for inputs of nutrients that enable tree growth and even for the distribution of tropical fruit tree seeds that maintain riparian forest diversity. Forests also provide the wood for many traditional boats and the fuel for drying fish for storage.

Forests, freshwater habitats and fish are inextricably linked by the flow of water within watersheds. A new eLearning course co-published by FAO's forestry and fisheries divisions, Resilient rivers: Watershed-based management of forests, freshwater, and inland fisheries (FAO 2023c), provides information and tools for understanding, monitoring and managing freshwater systems at the watershed scale under a changing climate and could form a basis for capacity building across sectors. Mapping and monitoring forest cover change across watersheds and in riparian areas will be an important source of data for enabling IWRM and can be achieved inexpensively from remotely sensed data. Alternative sources of data, beyond traditional monitoring of fisheries, can also be essential for establishing the distribution of dispersed fishing, nutritional benefits, potential areas of impact to fish populations and the effect on habitat of land use changes. Information on informal fish catches could be incorporated into existing household surveys of forests, wild foods or agrifood systems.

4. AREAS FOR COOPERATION BETWEEN REGIONAL FISHERY BODIES AND BASIN MANAGEMENT ORGANIZATIONS

The workshop revealed similarities in the priorities and challenges of RFBs and BMOs. Thus, common areas for cooperation emerged. These were: thematic areas for cooperation, synergies in operations and functions of RFBs and BMOs, as well as political support and governance and institutional framework to enable cooperation.

4.1. Thematic areas for cooperation between regional fishery bodies and basin management organizations

Thematic areas were preliminarily identified in the workshop, which are recommended for cooperation between RFBs and BMOs along with states, Non-Governmental Organizations (NGOs), communities and academia (***who***). The top three thematic areas have been elaborated here while additional areas are mentioned in the appendix. The workshop participants also requested FAO to play a role in propagating best watershed management practices which would enable the delivery of these thematic areas.

Enhancing livelihoods of inland fishery communities

What: RFBs and BMOs along with other stakeholders should cooperate to raise awareness about the needs of inland fishery communities and make concerted efforts to improve their livelihoods.

Why: This focus area aims to reduce poverty in communities affected by changes in upstream land-use and reduce their marginalization, an objective shared by both RFBs and BMOs and which links to FAO's Blue Transformation strategy (FAO, 2022a).

How: This could be accomplished through initiatives such as exploiting alternate means of data collection on inland fisheries such as empowering traditional and community management, as well as leveraging local wisdom to inform sustainable basin and fisheries management. Additional initiatives could include promoting alternate livelihoods in inland fishery communities, including fishers' perspective in basin initiatives, and awareness creation in RFBs of basin impacts by dissemination through training and extension. For example, in the Lake Chad basin there is an attempt to incorporate the role of fisheries and their impact on livelihoods in the strategic planning of the Lake Chad Basin Commission.

Ensuring water quality, quantity, connectivity and timing

What: RFBs and BMOs along with other stakeholders should cooperate to ensure water quality, quantity and connectivity, in addition to flow regimes in respective transboundary basins.

***Why*:** This is critical for human and ecosystem health, equitable water allocation, mitigation of climate change impacts and maintenance of fisheries productivity. Again, these are objectives shared by both RFBs and BMOs and link to FAO's Blue Transformation strategy.

How: Water quality objectives could be achieved through initiatives such as basin water quality monitoring, including the use of "sentinel fisheries" to monitor changes across the basin, and advocacy for water treatment and pollution control. Point-source water pollution could be mitigated through better regulations while Non-point-source pollution such as agricultural effluent could be reduced by optimizing the use of fertilizer and implementing alternative pest-control practices.

Water quantity, connectivity and timing objectives could be achieved through managing dams to restore natural flow regimes through controlled flooding as well as fish connectivity solutions such as fish passages. For instance, a lot of work is being done in countries within the purview of the European and Inland Fisheries and Aquaculture Advisory Commission (EIFAAC) to improve fish passages in order to enable fish migration for critical species such as the European eel (*Anguilla anguilla)*.

Nature-based solutions to managing water quality, quantity and timing can also include forest management and regulations as well as wetland protection and restoration. Examples might include planting, protecting or shifting management of upland forests, or enabling and enforcing regulations to protect riparian forests along the banks of streams, rivers and lakes.

Common initiatives (across water quality, quantity, connectivity and flow regimes) include the previously mentioned "sentinel fisheries", which could also be used for monitoring the effect of changes in water flows and connectivity. Other initiatives could include encouraging and extending the capacity of RFBs and BMOs in the use of satellite data for monitoring water quality and quantity. Another recommendation was related to advocacy for compliance with regulations in place or new regulations. For example, the Ministry of Water and Environment of Uganda has developed guidelines on environmental flows. In addition, the Nile Basin Initiative (NBI) is already working on transboundary water flows and could share their experience.

Protect and restore watershed ecosystems (including riparian buffers)

What: RFBs and BMOs along with other stakeholders should cooperate to protect and restore watershed ecosystems in respective transboundary basins.

Why: This thematic area would contribute to enhancing the quality and quantity of fish habitat to maintain aquatic biodiversity, maintain aquatic ecosystem services such as fisheries productivity and to increase the value of ecosystem services. Fisheries productivity and aquatic biodiversity are key aspects of FAO's Blue Transformation strategy.

How: Watershed ecosystem protection and restoration could be achieved through advocacy for protection and restoration of watershed ecosystems including buffer zones, identifying, and gazetting critical habitats within the watershed using other effective area-based conservation measures as a tool, and the monitoring and surveillance of these gazetted areas. For example, this could include protection against logging (or using selective logging techniques) or development in critical forested areas as well as fishing restrictions in spawning sites in the watershed which are essential for fisheries sustainability.

These initiatives could be part of joint assessment-based watershed-level action plans. Another key set of initiatives is awareness building of the value of biodiversity and how to maintain it, building capacity for ecosystem approach to fisheries and basin management in RFBs and BMOs, and implementing nature-based solutions.

4.2 Synergies in operation and functions of regional fishery bodies and basin management organizations

The two main areas of synergies between RFBs and BMOs (**who**) identified in the workshop are elaborated here.

Development of joint plans and strategies

What: RFBs and BMOs should share existing plans and strategies to identify synergies and obtain joint funding.

Why: This approach could benefit both RFBs and BMOs through increased sources of funding and a joint regionally steered approach.

How: This could be achieved through a joint basin management plan addressing fisheries with a clear distribution of the roles for RFBs and BMOs for implementation, and by joint resource mobilization and programme preparation and implementation through joint donor mapping and formulating programmes based on agreed thematic areas.

Sharing of data, knowledge and experts

What: RFBs and BMOs should share knowledge, data, and experts to contribute to their respective initiatives.

Why: There are insufficient resources for IWRM implementation and BMOs and RFBs possess complementary data and knowledge.

How: This could be achieved by sharing scientific and technical information, lessons learned, and best practices and technologies because RFBs and BMOs may have complementary data and knowledge which is valuable for decision making to the other party. Knowledge exchange could include exchanging experts for specific assignments between RFBs and BMOs. Working groups for knowledge exchange are also recommended. In terms of data management, for a given region, RFBs and BMOs could aspire to a unified, coordinated and sustainable system to make it easy to access and exploit data for basin and fisheries decisionmaking process.

4.3 Political support and governance framework to enable cooperation

Political support for cooperation

What: RFBs and BMOs should establish political support for cooperation at a regional level.

Why: To ensure support for collaboration among their stakeholders at a regional level.

How: This could be achieved through initiatives such as joint stakeholder identification, in which RFBs and BMOs should collaborate in stakeholders' identification and engagement because, for a given region, they may have the same member states. The benefit of joint stakeholder engagement would be to improve the understanding among their member states of possible collaborations and synergies between RFBs and BMOs on integrated water management. It is also recommended to engage the Regional Economic Communities, so that communities such as the South African Development Community (SADC), the Intergovernmental Authority on Development (IGAD), and the Economic Community of West African States (ECOWAS) include RFBs in their regional strategies and invite FAO and BMOs to their review processes. The benefit of doing this would be that RFBs along with BMOs would have a seat at the table and influence decision-making of basin-level developmental initiatives. Finally, it is recommended to raise awareness at a regional level. An example of how this could be done is to raise awareness in the African Union Commission member states about the importance of inland fisheries and to engage the member states to integrate priority areas of RFBs and BMOs in the Agenda 2063.[2]

2. For more information, see https://au.int/agenda2063/overview

Governance framework to enable cooperation

What: RFBs and BMOs should establish a governance and institutional framework for cooperation at a regional and country level.

Why: To ensure the presence of mechanisms which facilitate cooperation, such as memoranda of understanding (MoUs) and collaboration fora.

How: RFBs and BMOs for a region should sign MoUs to create legal basis for cooperation and ensure stakeholder alignment at these institutions. This could include MoUs between INBO and FAO at the global level and between ANBO and FAO at a continental level. An example at the regional level is the MoU between the Lake Tanganyika Authority and Lake Victoria Fisheries Organization, which is the basis for a cooperation framework between these two organizations and could provide lessons learned. To enable cooperation, it is imperative to create fora for exchange and collaboration between RFBs and BMOs. This could include reciprocal invitations of the two parties to attend the statutory meetings of the other organization as an observer, or to any other specific meeting to promote experience sharing and complementarity. These fora for exchange could also include events organized by INBO such as the INBO World General Assembly, World Water Forum or similar events organized by RFBs, BMOs and FAO. Finally, it is critical to integrate RFBs in the governance and institutional framework within basin organizations. To initiate this integration, it was suggested that ANBO could assist with implementation of workshop recommendations in the African continent. Also, Regional Economic Communities need to play a significant role in this coordination effort, particularly in Africa.

5. CONCLUSIONS AND FUTURE PERSPECTIVES: THE WAY FORWARD

This FAO interdivisional cross-sectoral initiative has successfully enabled RFBs and BMOs to understand the interdependence of the forestry, fishery, and water sectors. Through this initiative, participants have identified valuable opportunities for enhancing and strengthening collaboration, data and information sharing, and implementing an integrated water management approach. The overarching goal is to ensure the sustainability of basin resources through coordinated efforts across these interconnected sectors.

The workshop highlighted a pressing need for increased and improved cooperation both globally and regionally among stakeholders in fisheries, forestry and basin management. This recognition emphasizes the importance of collaborative efforts to address challenges and promote sustainable practices in the management of fisheries within basin ecosystems for sustained ecological health and productivity.

The main outcomes of the workshop were achieving a consensus on the importance of employing multidisciplinary approaches, recognizing their value and the imperative need for such strategies. As a central outcome, there was the development of a concerted strategy plan to integrate inland fisheries into basin management. This marks a pivotal step towards fostering collaboration and ensuring the sustainable management of inland fisheries within the broader context of basin dynamics.

By the end of the workshop, participants actively requested FAO to lead the continuation of joint activities that aim to produce a coordination framework. In this regard, the working groups at the workshop crafted a list of priority actions to be collaboratively implemented, focusing on the promotion of sustainable agrifood systems. This collaborative approach signifies a commitment to coordinated efforts for the effective integration of inland fisheries into broader basin management initiatives.

Way forward

(i) Endorsement from contracting parties: The participants as secretariats will inform respective contracting parties (of RFBs and BMOs) regarding the workshop results (this document) to obtain formal approval and endorsement and ask that the workshop recommendations be given priority by the contracting parties in FAO regional conferences and COFI.
(ii) Establishing a Steering Committee and draft Terms of Reference: FAO headquarters, in coordination with participants, will prepare the Terms of Reference of the proposed Steering Committee.
(iii) Regional case studies: All participants are invited to identify pilot studies to test and implement IWRM, including cooperation between RFBs and BMOs and other sectors on common areas of interest (prioritize short, medium and longterm actions).
(iv) Events for collaboration: FAO‘s Fisheries and Aquaculture, Land and Water, and Forestry divisions to prepare a side event on Integrated Water Resources Management during the Thirty-sixth Session of COFI to be held 8–12 July 2024.
(v) Programme developed by FAO headquarters and Regional Offices in cooperation with RFBs and BMOs who participated in the workshop, to scope pilots including a clear methodology to test best practices for improved ecosystem and basin management.

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APPENDIXES

1. List of participants

Name	Organization (position)
Ms Florence Grace Adongo	Nile Basin Secretariat (Executive Director)
Ms Amani Alfarra	FAO headquarters (Land and Water Officer)
Mr Obinna Chukwuma Anozie	African Union – Interafrican Bureau for Animal Resources (Director)
Ms Agatha Ayebazibwe	FAO – Uganda (Communication Officer)
Mr Edouard Boinet	International network of basin organizations (Head of Project – International Cooperation)
Mr JeanMarie Byakweli	FAO – Uganda (Senior Policy Officer)
Mr Valerio Crespi	FAO headquarters (Fishery Officer)
Ms Eliana Eberle	Hidro-Ecología, Instituto Nacional de Limnología (Researcher)
Mr Adama Faye	Committee on Inland Fisheries and Aquaculture of Africa (Chairman) Inland Fisheries, Senegal (Director)
Mr Haydar Fersoy	FAO (Senior Fishery Officer) Central Asian and Caucasus Regional Fisheries and Aquaculture Commission (Secretary)
Mr Reinhold Hanel	European Inland Fisheries and Aquaculture Advisory Commission (Secretary)
Mr Robert Kayanda	Lake Victoria Fisheries Organization (Director, Fisheries Resource Monitoring and Research)
Mr Kwibisa Liywalii	Lake Tanganyika Authority (Director, Monitoring and Evaluation)
Mr Piero Mannini	FAO headquarters (Senior Liaison Officer) Regional Fishery Body Secretariats' Network (Secretary)
Mr Dismas Mbabazi	FAO – Regional Office for Africa (Fishery Officer)
Mr David Mlote	Lake Victoria Basin Commission (Legal Officer)
Mr Pape Ndiouga	African Network of Basin Organizations (Communication and Knowledge Management)
Mr Jacob Olwo	FAO – Uganda (Fisheries and Aquaculture Consultant)
Mr Antonio Querido	FAO – Uganda (FAO Representative to Uganda)
Mr Mauro Luis Ruffino	Amazon Cooperation Treaty Organization (Amazon Regional Observatory [ARO] Coordinator)
Mr Edward Rukuunya	Lake Victoria Fisheries Organization (Director, Fisheries Management and Development)
Ms Stefania Savoré	FAO headquarters (Fishery Officer)
Mr Andi Soesmono	Southeast Asian Fisheries Development Center: Inland Fishery Resources Development and Management Department (Chief)
Ms Ashley Steel	FAO headquarters (Forestry Officer)
Mr Rezki Antoni Suhaimi	Southeast Asian Fisheries Development Center: Inland Fishery Resources Development and Management Department (Officer)
Mr Anthony Taabu-Munyaho	Lake Victoria Fisheries Organization (Deputy Executive Secretary)
Mr Varun Tandon	FAO headquarters (Inland Fisheries Intern)
Mr Philippe Tous	African Development Bank (Principal Fishery Officer)
Mr Anvar Medelbek Uulu	Central Asian and Caucasus Regional Fisheries and Aquaculture Commission (Alternate Chairperson)
Mr Chavalit Vidthayanon	Mekong River Commission (Independent consultant representing the MRC region for this workshop)

2. Why–What–How–Who matrix

a. Thematic focus areas

WHAT	WHY	HOW	WHO
Improve livelihoods of inland fishing communities	• poverty eradication; • need for diversification of inland fishing activities; • to boost community welfare; and • reduce marginalization.	• recognize and empower tradition and community management; • describe and map local wisdom to inform sustainable basin and fisheries management; • propagate best basin and ecosystem management practices; • promote alternate livelihoods in inland fishery communities; • inclusion of fishers' perspective in basin initiatives; and • awareness creation in RFBs of basin impacts by dissemination through training and extension.	• RFBs • BMOs • governments • NGOs • communities
Protect and restore freshwater connectivity and watershed ecosystems (including riparian buffers)	• guarantee quality and quantity of fish habitat; and • maintain aquatic ecosystem services.	• propagate best basin and ecosystem management practices; • joint assessmentbased watershedlevel action plans; • identify and gazette critical areas within the watershed; • using OECM as a tool for gazetting; • monitoring and surveillance; and • advocacy for protection and restoration of watershed ecosystems and fish connectivity solutions (fish passages).	• RFBs • BMOs • governments • NGOs • communities • academia
Maintain aquatic biodiversity	• maintain ecosystem services; • maintain fisheries productivity; and • increase economic value.	• propagate best basin and ecosystem management practices; • assessment (including inventories) and monitoring; • prioritize spatial areas for action; • establish, map and demarcate protected areas; • building capacity for ecosystem approach to fisheries and basin management in RFBs and BMOs; • implement naturebased solutions; • awareness building of value of biodiversity and how to maintain it; • advocacy; and • joint watershed level action plans.	• RFBs • BMOs • governments • NGOs • communities • academia

(Table continued)

WHAT	WHY	HOW	WHO
Ensure water quality, quantity and timing	• human and ecosystem health; • equitable water allocation; • mitigate climate change impacts; • maintain fisheries productivity; and • biodiversity maintenance.	• basin monitoring (including the use of sentinel fisheries); • protection of catchments; • managing dams to restore natural flow regimes; • forest management for water objectives; • advocacy for water treatment and pollution control; • encourage and extend the capacity of RFBs and BMOs in the use of satellite data for monitoring water quality, quantity and timing; and • advocacy for compliance to regulations in place (enforcements) or new regulations.	• RFBs • BMOs • governments • NGOs • communities • academia
Improve contribution of inland fisheries value chain to food security	• equitable distribution of benefits; • superior and irreplaceable nutrition source; • improve livelihoods; and • mainstreaming gender issues.	• propagate best basin and ecosystem management practices; • best practices for postharvest loss and waste; • advocacy to increase fish consumption through polices and innovative programmes; and • promote diversification and distribution of inland fish products.	• RFBs • BMOs • governments • NGOs • communities • academia

b. Synergies between regional fishery bodies and basin management organizations

WHAT	WHY	HOW	WHO
Sharing of knowledge and data between RFBs and BMOs	• important for decision makers to have easy access to comprehensive information levels regarding water quality and quantity, aquatic environments, as well as social and economic indicators.	• establish agreements and Memoranda of Understanding at regional level; • establish joint working groups; and • platform for data exchange.	• RFBs • BMOs

(Table continued)

WHAT	WHY	HOW	WHO
Joint resource mobilization, programme preparation, and implementation	• share skills and resources between RFBs and BMOs; • joint funding requests; and • reduce costs.	• joint donor mapping fora; and • formulate joint programmes based on agreed thematic areas.	• RFBs • BMOs
Consistent policy development across the basin level (water management and inland fisheries)	• harmonizing basinwide policies create improved enabling environment.	• identify gaps or inconsistencies in existing policies; and • advocacy with national governments and relevant stakeholders.	• RFBs • BMOs

3. Regional fishery body and basin management organizations presentation summaries

Committee for Inland Fisheries and Aquaculture of Africa (CIFAA)

Dismas Mbabazi

The Committee for Inland Fisheries and Aquaculture of Africa plays an essential role in addressing Africa's inland fisheries and aquaculture challenges. Specifically, CIFAA focuses on sustainable resource management and collaboration among smallscale fishers, communities and stakeholders in 37 Members in sub-Saharan Africa.

Despite Africa's rich inland water resources, production and economic impact remain below global averages. CIFAA prioritizes sustainable management, food security, economic development, community empowerment and research promotion to tackle issues such as overfishing, habitat loss, climate impact and governance gaps.

Expectations of CIFAA's cooperation with RFBs and BMOs included: sharing knowledge, capacity building, regulatory framework improvement, joint research, and securing funding and technology support for informed decision-making.

Collaborative efforts and inclusive strategies are emphasized, acknowledging CIFAA's role as a unifying force towards actionable steps for a more resilient and prosperous inland fisheries sector in Africa.

Hidro-Ecología, Instituto Nacional de Limnología

Eliana Eberle

The floodplain systems in South America, particularly the Paraná River and Amazon basin, rely heavily on the natural flow regime with high and low water phases for maintaining biodiversity and productivity. However, anthropogenic modifications such as damming and landuse changes impact water functional connectivity, which influences ecological functions, fish recruitment and fisheries. Fisheries' performance is directly linked to hydrological and thermal regimes, with suitable conditions triggering fish reproduction during spring and summer. Recent low water levels have led to environmental and socioeconomic conflicts in floodplains. To ensure sustainable fisheries management, understanding hydrological connectivity, monitoring nursery habitats and considering localized anthropogenic effects are crucial. The stability of fisheries faces challenges due to climate change, emphasizing the need for longterm empirical data and climateconscious management strategies. Aquaculture is considered a mitigation solution, aligning with sociocultural foundations of fishing, but it must respect local biodiversity. The integration of aquaculture practices is essential for achieving sustainable food production in the context of changing environmental conditions.

Mekong River Commission (MRC)

Chavalit Vidthayanon (Independent consultant representing the MRC region for this workshop)

Over ten larger river basins are in the Greater Mekong Subregion countries, including two transboundary basins: Mekong and Salween. The Mekong is actively comanaged by the MRC, consisting of four member countries (Cambodia, Lao People's Democratic Republic, Thailand,

and Viet Nam) accompanied by two dialogue partners (China and Myanmar). The Mekong basin provides immense ecosystem services to approximately 60 million people for food and water security including hydroenergy and others. This basin is home to onethird of the planet's fish diversity, hosting approximately 1 000 fishes and thousands of florae and faunae. The commission works on five Strategic Priorities: Environment, Social, Economic, Climate change and Cooperation. These strategies against greater challenges of waterrelated development pressure; loss of wetland habitats, environment degradation; overexploitation and climate change for sustainable livelihoods; and use, effective management and conservation of fisheries and aquatic resources need to be approached holistically, addressing the larger Lower Mekong basin ecosystem.

European Inland Fisheries and Aquaculture Advisory Commission (EIFAAC)

Reinhold Hanel

The European Inland Fisheries and Aquaculture Advisory Commission is a regional fishery body under Article VI of the Constitution of FAO with the scope to promote the longterm sustainable development, utilization, conservation, restoration and responsible management of European inland fisheries and aquaculture. Thirty-four Member Countries and the European Union are represented. While the scale of inland fisheries in Europe (with regard to total production and the number of people involved) is of a different order as compared to most other regions, many of the issues and challenges are the same. Climate change, interaction of inland fisheries with other freshwater uses, the loss of habitats and river connectivity, and the spread of invasive and predatory species are all major threats for native aquatic genetic resources. One major difference between Europe and other geographic regions may be the importance of recreational compared to commercial fisheries, which poses additional challenges for sustainable management.

Amazon Cooperation Treaty Organization (ACTO)

Mauro Luis Ruffino

The Amazon Cooperation Treaty Organization is an intergovernmental organization made up of the eight Amazonian countries: Bolivia (Plurinational State of), Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela (Bolivarian Republic of), which signed the Amazon Cooperation Treaty, establishing the only socioenvironmental bloc in Latin America. The organization, with a broad vision of the South–South Cooperation process, works in different dimensions: political–diplomatic, strategic and technical, in order to build synergies between governments, multilateral organizations, cooperation agencies, organized civil society, social movements, scientific community, productive sectors and society as a whole, within the framework of the implementation of the Amazon Cooperation Treaty.

The Amazon is a place of immense natural and cultural wealth, values, and diversity. The Amazon basin constitutes 44 percent of the land area of South America. It is the greatest repository of biodiversity in the world, holding more than 10 percent of all the world´s known biodiversity. It holds the largest tropical wetland on Earth and a vast number of rivers, comprising the world's largest store of freshwater. It is also home to about 35 million people and immense cultural diversity, including nearly more than 420 Indigenous Peoples with their own identities, territorial effective management practices, and at least 370 different languages.

The added value that ACTO provides on the state of the situation is the holistic view of the Amazon region, with official information provided by the sector heads (ministries) of the member

countries. Within this framework and to address each axis of work, ACTO carried out a series of participatory diagnoses on the environmental, socioeconomic and demographic status of the region for example:

- crossborder diagnostic analysis, focusing on water resources and the elements associated with water management such as forests, glaciers, biodiversity, cities, industries and land use change;
- the Atlas of Hydroclimatic Vulnerability of the Amazon Region, which provides information between biogeophysical, socioeconomic interactions and climate threats to determine the vulnerability, sensitivity and adaptive capacity of ecosystems and populations to climate change; and
- the Status of Water Quality in the Amazon Basin, an exhaustive survey of characterizing water quality and emerging problems, defining longterm trends, determining compliance with water quality standards, and describing the seasonal variation and frequency of occurrence of selected components of water quality.

Since November 2021, ACTO has begun the implementation of the Amazon Regional Observatory as an information reference centre on the Amazon that promotes the flow and exchange of information between the institutions, government authorities, scientific community, academia and civil society of the Amazon Countries of ACTO. Its mission is to:

> *collect, process, organize and disseminate information on the Amazon shared by ACTO Member Countries in a comprehensive and comparable manner, providing consensual information services to governmental, non-governmental institutions, scientific community and civil society for the study and development of the Amazon Region.*

The observatory is organized into modules with their respective functions. The thematic modules deal with the topics prioritized by the ACTO member countries. Their added value is the degree of specificity in the information they contain, associated with their catalogue of indicators. Meanwhile the integrating modules group information based on the same type of technological tool.

Fish, and in particular the large migratory species, have strong requirements for habitat quality and ecosystem integrity, and it is not possible to address the factors that make them vulnerable in isolation from the rest of the ecosystem. Likewise, fisheries management is inseparable from conservation of biodiversity. Sustaining the populations of these resources must therefore happen by managing not only the fishery but also a range of other human activities that are having an impact on the aquatic ecosystem.

The direct linkages between water resource management, ecosystem health, aquatic biodiversity and fisheries make it meaningless to separate them. It is urgently necessary to develop a coordinated plan for the development and management of the basin fisheries, which goes beyond national interests. Appropriate fisheries management in transboundary waters requires that suitable policies and strategies for sustaining shared fisheries' resources and the water resources they depend on are developed at the regional level, and that these are incorporated in national legislation and implemented. To influence the planning, development and decision-making, data and information is required that show the importance of protecting aquatic habitats and maintaining ecosystem services.

Lake Tanganyika Authority (LTA)

Kwibisa Liywalii

Lake Tanganyika Authority was established under Article 23 of the Convention on the Sustainable Management of Lake Tanganyika. The convention provides a legal framework for regional cooperation on the conservation of biological diversity, sustainable management and the implementation of harmonized laws and standards for the sustainable use of natural resources of Lake Tanganyika and its basin. The member states are: Burundi, Democratic Republic of the Congo, United Republic of Tanzania and Zambia.

The authority's mandate is to promote and represent the common interests of the contracting states in the management of Lake Tanganyika and its basin. The key priority areas for LTA are:

- aquatic and terrestrial ecosystems, as well as human societies are sufficiently resilient to adapt to the impacts of climate change and variability;
- Fish stocks are healthy and adequately managed to sustain future exploitation.
- Erosion and sedimentation rates are reduced through sustainable land management practices.
- Critical habitats are protected, restored, and managed for the conservation of biodiversity and sustainable use.
- Biological invasions are controlled, and future invasions are prevented.
- Pollution is reduced and water quality is improved to meet the regionally agreed standards.

The main threats include insufficient resilience to impact of climate change, unsustainable land management, unsustainable fisheries, destruction and alteration of critical habitats, biological invasions, and increasing pollution. Meanwhile, the generic root causes of transboundary threats and challenges in Lake Tanganyika are: increasing population pressure, poverty and inequality, inadequate governance, inadequate knowledge and awareness, and economic drivers.

There are related crosscutting governance and development challenges such as:

- insufficient resources and financial mechanisms for adequately dealing with Integrated Water Resources Management (IWRM) issues;
- inadequate updating, implementation, enforcement and monitoring of legislation;
- lack of sufficient mechanisms for institutional coordination and inter-sectoral governance; and
- lack of human resources and technical capacity in institutions dealing with IWRM issues.

Cooperation frameworks with RFBs and BMOs should focus on, among others:

- sharing of scientific and technical information (lessons learned and best practices);
- collaboration in the preparation and in the operational process of programmes;
- collaboration in resource mobilization efforts;
- exchanging experts for specific assignments; and
- joint planning of regional fora, conferences and workshops on specific subjects.

Inland Fishery Resources Development and Management Department (IFRDMD)

Rezki Antoni Suhaimi

The Inland Fishery Resources Development and Management Department was established in 2014 as a technical department of Southeast Asian Fisheries Development Center, with the responsibility of sustainable development and management of inland fisheries in the Southeast Asian region. The department focuses on providing guidelines, partnerships, data collection and capacity building to improve the development and conservation of inland fishery resources.

The main issues in inland fisheries are insufficient data, low prioritization by government, climate change impacts, overexploitation, and gender inequality. Expectations for cooperation with RFBs and BMOs include collaborative policymaking; capacity building; stakeholder engagement; data sharing and joint research to promote sustainability, in conjunction with the Smart Fisheries Villages model as a best practice in Indonesia for developing technology; and effective management for economic growth and environmental sustainability to increase fisheries communities' welfare.

4. Annotated agenda for Entebbe Workshop

First Global Workshop between Regional Fishery Bodies and Basin Management Organizations for scaling up cooperation towards sustainable inland fisheries in the context of food security and nutrition

Organized by the Food and Agriculture Organization of the United Nations (FAO), in cooperation and coordination with the Lake Victoria Fisheries Organization (LVFO) and the Lake Victoria Basin Committee (LVBC)

Venue: Lake Victoria Granada Hotel, Entebbe, Uganda

PROVISIONAL ANNOTATED AGENDA

DAY 1

WEDNESDAY, 6 DECEMBER

MORNING

09.00–09.30 Opening of the meeting and welcome address

09.30–10.00 Self-introduction of participants

Representatives from Regional Fisheries Management Organizations (RFMOs), Regional Fisheries Advisory Bodies (RFABs) and Basin Management Organizations (BMOs) as well as other workshop participants, provided short selfintroductions, in a tour de table style.

10.00–10.15 Workshop rationale and objectives

The introduction focused on the workshop rationale, workshop objectives, modus operandi, and introduction to the Regional Fishery Body Secretariats' Network (RSN).

10.15–11.15 Presentation of the Regional Fisheries Management Organizations and Regional Fisheries Advisory Bodies.

The presentations showcased relevant RMFO and RFAB activities, focus areas and priorities, issues and challenges related to inland fisheries, and expectations from cooperation frameworks between Regional Fishery Bodies (RFBs) and BMOs

11.15–11.30 Coffee break and group photo

11.30–12.00 Presentation of main findings of the FAO survey and the working document

The presentation focused on the main outcomes of the questionnaire sent to all participating organizations in preparation to the workshop. The primary objective of this questionnaire was to pinpoint shared areas of work within the realms of RFBs and BMOs.

Q&A and discussion

12.00–12.30 Presentation of Basin Approach for inland fisheries monitoring and management

The presentation focused on the role of inland fisheries at community level, and their sensitivity to many intertwined factors that go beyond fishing effort. As these factors typically lie beyond the realm of the fisheries sector, addressing them requires broader, multisectoral approaches. Integrating fisheries management into the management of basins (or catchment areas) offers a promising pathway by identifying synergies, instead of competition, between sectors.

Q&A and discussion

12.30–14.00 Lunch break

AFTERNOON

14.00–14.30 Integrated Water Resources Management approach to food security, nutrition and livelihoods

The presentation informed participants on the need for Integrated Water Resources Management (IWRM) – sustainable and efficient water use across all levels for transforming agrifood systems to achieve the Sustainable Development Goals.

Q&A and discussion

14.30–15.00 Forests and water under a changing climate

The presentation focused on the forestry prospective of integrated water management across watersheds, including the interdependence of forests, freshwater, and inland fish. It shared monitoring opportunities and new, watershed-based e-learning.

Q&A and discussion

15.00–15.30 Coffee break

15.30–16.30 Presentation of the Basin Management Organizations

The presentation showcased relevant activities of BMOs, focus areas and priorities, issues and challenges related to water management and environmental degradation, and expectations from cooperation frameworks between BMOs and RFBs.

Q&A and discussion

16.30–17.00 Wrap-up and end of Day 1

All workshop participants were welcomed to join us for a cocktail reception in the meeting venue.

DAY 2

THURSDAY, 7 DECEMBER

MORNING

09.00–09.30 Recap of Day 1 and agreement on Day 2 programme

09.30–10.00 The “What–Why–How–Who” matrix method

The presentation focused on the matrix method for identification of opportunities and priority areas to serve as a foundation of the plan of action for cooperation.

Q&A and discussion

10.00–11.45 Break out working groups

Workshop participants discussed indepth in two smaller working groups (RFBs and BMOs) on the identification of common areas of work to strengthen cooperation, the identification of regional players to develop regional plans of actions for inland fisheries and integration of inland fisheries into watershed and water resource management.

Guiding questions for the group discussions were:

What are the priorities and focus areas for better cooperation and coordination among RFBs and BMOs?

What actions and initiatives can BMOs and RFBs implement at national and regional levels to better integrate inland fisheries in Integrated Water Resources Management?

The discussion provided inputs for the "What–Why–How–Who" matrix, a draft version of which was provided to participants before the session started.

10.45–11.00 Coffee break

11.45–12.30 Break out group reporting

A rapporteur from each group presented to plenary the main discussion points from the working group activity.

12.30–14.00 Lunch break

AFTERNOON

14.00–15.30 Plenary discussion

All workshop participants discussed and consolidated a list of good practices, lessons learned, entry points and opportunities, gaps and challenges, and agreed on priority actions that will feed into a technical coordination framework to strengthen collaboration between RFBs and BMOs

15.30–16.00 Coffee break

16.00–16.30 Workshop outcomes and future actions

Workshop participants agree on the main workshop outcomes, roles and responsibilities of main actors, and future actions.

16.30–17.00 Wrapup, concluding remarks and end of Day 2

DAY 3

FRIDAY, 8 DECEMBER

MORNING

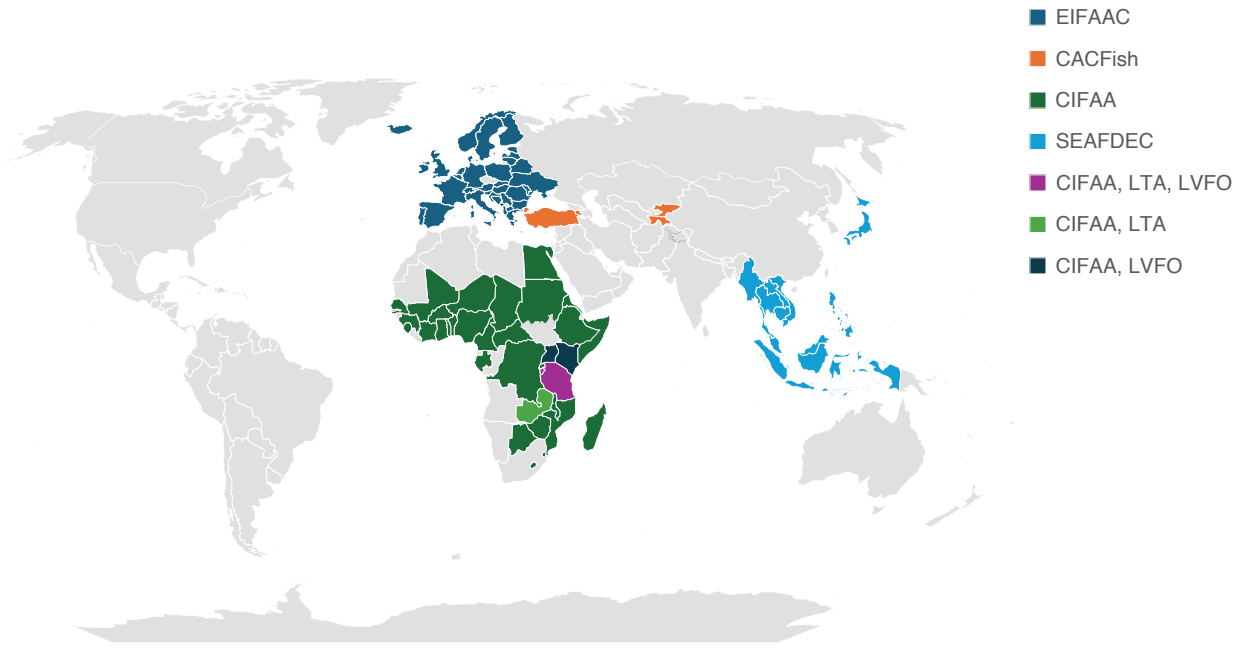
08.30–11.30 Field visit to the landing site of Kaseny (Lake Victoria)

All participants were welcomed to participate in a field visit to the whole inland fisheries value chain in a landing site on Lake Victoria.

12.00–14.00 Lunch break and end of Day 3

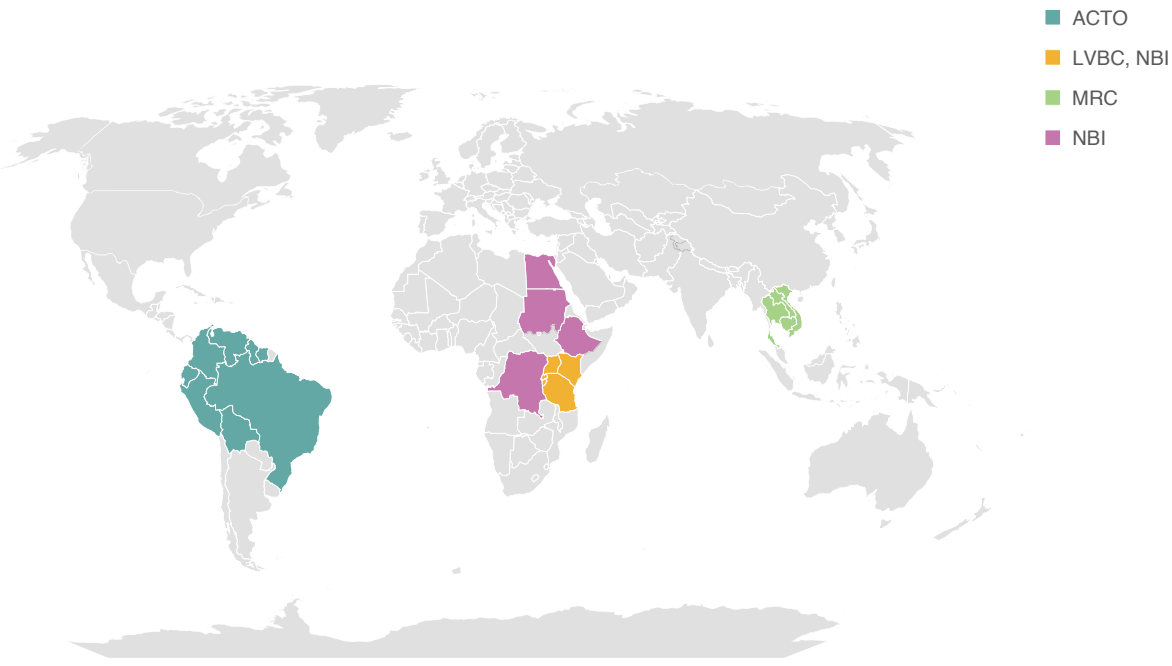
Participants departed from hotel according to their flight schedule.

5. Map showing geographical coverage of participating regional fishery bodies



Source: United Nations Geospatial. 2024. Map of the World. www.un.org/geospatial/mapsgeo/generalmaps

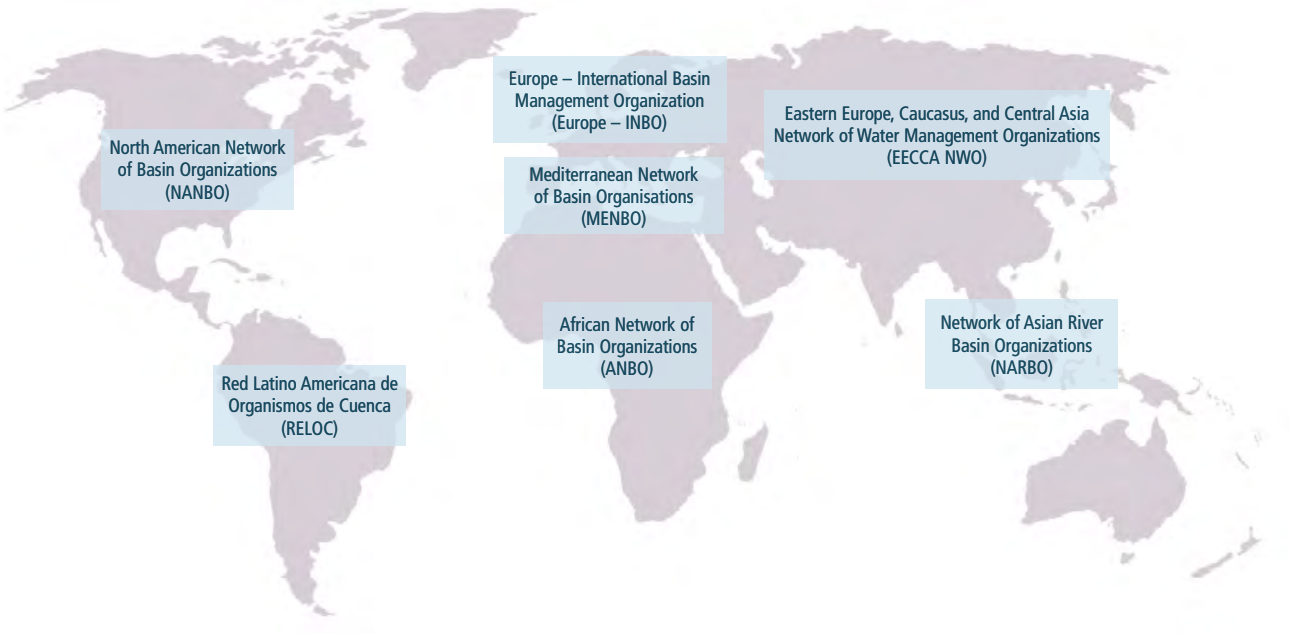
6. Map showing geographical coverage of participating basin management organizations



Source: United Nations Geospatial. 2024. Map of the World. www.un.org/geospatial/mapsgeo/generalmaps

Notes: Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.

7. Map showing geographical coverage of the basin networks (INBO's regional Networks)



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8. Group photo of workshop participants

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Inland fisheries are essential for global food security and local livelihoods, particularly in landlocked and developing regions. These ecosystems not only provide substantial amounts of food but also utilize resources more efficiently than terrestrial livestock production. The Food and Agriculture Organization (FAO) has advocated for an integrated management approach that aligns with global sustainability goals and biodiversity conservation frameworks to address the threats posed by climate change impacts, water scarcity, and ecosystem degradation.

The primary goal of the Entebbe workshop and ongoing efforts is to establish effective regional cooperation frameworks that integrate inland fisheries management into comprehensive basin management strategies. This approach aims to promote sustainable practices that align economic, environmental, and social interests across regions. Key areas for cooperation include improving water quality, conserving aquatic ecosystems, and developing joint strategic planning and management practices. The collaborative strategy involves sharing knowledge, strategies, and resources between Regional Fishery Bodies (RFBs) and Basin Management Organizations (BMOs) to effectively implement Integrated Water Resources Management (IWRM). Expected outcomes of these initiatives include enhanced regional coordination, targeted policy recommendations, and synergistic funding opportunities to support sustainable fisheries management.

Looking ahead, the FAO and partner organizations are dedicated to formalizing this cooperation framework, conducting pilot studies to refine IWRM approaches, and engaging stakeholders globally. These efforts aim to ensure the long-term sustainability of inland fisheries and ensure robust aquatic ecosystems that continue to support diverse fish species and provide enduring benefits for human populations.

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