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CONSULTATIVE WORKSHOP ON FISHERIES AND AQUACULTURE KNOWLEDGE MANAGEMENT AND INFORMATION DISSEMINATION IN AFRICA

Lusaka, Zambia, 13–16 November 2023

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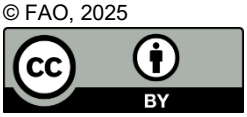

PREPARATION OF THIS DOCUMENT

This document provides a summary of the presentations, discussions, conclusions and recommendations of the Food and Agriculture Organization of the United Nations (FAO) consultative workshop on the fisheries and aquaculture knowledge management and information dissemination in Africa held in Lusaka, Zambia from 13 to 16 November 2023. The workshop was prepared and coordinated by the FAO Fisheries and Aquaculture Division (NFI) with the support of the FAO Representation in Zambia. This document was prepared by Mr Mohamed ElSayed Mohamed Megahed, Fishery Officer, FAO Fisheries and Aquaculture Division.

ABSTRACT

The consultative workshop on the fisheries and aquaculture knowledge management and information dissemination in Africa was held in Lusaka, Zambia, from 13 to 16 November 2023. The workshop convened key experts and stakeholders from Botswana, Cameroon, Côte d'Ivoire, Ghana, Kenya, Malawi, Senegal, Seychelles, South Africa, Thailand, the United States of America and Zambia as well as researchers, policymakers, industry representatives, non-governmental organizations (NGOs), World Bank (WB) officers and the Network of Aquaculture Centres in Asia-Pacific (NACA) delegates to address critical challenges and opportunities in harnessing, sharing and utilizing knowledge effectively. This workshop focused on improving knowledge management and information dissemination within the fisheries and aquaculture sectors across Africa. The workshop aimed to foster collaborative efforts in developing strategies to enhance knowledge management practices and streamline information dissemination mechanisms tailored to the diverse needs of African fisheries and aquaculture stakeholders. The workshop was organized under a Letter of Agreement with the African Union – InterAfrican Bureau for Animal Resources (AU-IBAR) its main objective being to develop a project proposal for submission to the African Development Bank (AfDB). By fostering a participatory and inclusive dialogue, the workshop laid the groundwork for future initiatives aimed at advancing knowledge management and information dissemination in support of sustainable fisheries and aquaculture development across Africa. Overall, the consultative workshop highlighted its significance in catalysing positive change and fostering collaboration towards the achievement of the Sustainable Development Goals (SDGs) in the long term and in moving towards Blue Transformation in African fisheries and aquaculture.

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ACKNOWLEDGEMENTS

The experts and all participants of the Consultative Workshop on Fisheries and Aquaculture Knowledge Management and Information Dissemination in Africa are acknowledged for their invaluable insights and contributions towards advancing the sector. Their dedication and expertise are instrumental in shaping a sustainable future for fisheries and aquaculture in Africa. Acknowledgment and gratitude are extended to the FAO Representation in Zambia, especially Ms Anne-Rose Suze Percy Filippini, FAO Representative Zambia for her precious support in coordinating and executing the workshop. The presenters and facilitators, Dr Harrison Charo, WB, Dr Jie Huang, NACA, Mr Xinhua Yuan, Deputy Director, NFI, provided crucial support to its organization and delivery. This workshop was supported by NFI through the LOA with AU-IBAR. We appreciate involvement by all stakeholders and look forward to continuing our collective efforts to enhance knowledge sharing and promote best practices in fisheries and aquaculture across the continent.

ABBREVIATIONS

AfDB	African Development Bank Group
AFFADATA	Africa Fisheries and Aquaculture Database
AFRM	Africa Fisheries Reform Mechanism
ANAF	Aquaculture Network for Africa
ARIS	Animal Resources Information System
AU	African Union
AU-IBAR	African Union – InterAfrican Bureau for Animal Resources
AU-MS	African Union Member States
CAADP	Comprehensive African Agricultural Development Programme
CAMFA	Council of Africa's Ministers of Fisheries and Aquaculture
CCRF	Code of Conduct for Responsible Fisheries
COMESA	Common Market for Eastern and Southern Africa
eCAS	electronic fish assessment
FAO	Food and Agriculture Organization of the United Nations
ICT	Information and Communication Technologies
IK	Indigenous Knowledge
LOA	Letter of Agreement
LVFO	Lake Victoria Fisheries Organization
NACA	Network of Aquaculture Centers in Asia-Pacific
NFI	Fisheries and Aquaculture Division
PFRS	Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa
ProFishBlue	Program for Improving Fisheries Governance and Blue Economy Trade Corridors in SADC Region
REC	Regional Economic Communities
RFB	regional fisheries bodies
SDGs	Sustainable Development Goals
SWOT	strengths, weaknesses, opportunities and threats
WAHIS	World Animal Health Information System

BACKGROUND

Africa's fisheries and aquaculture industries are undergoing a transformation. The continent's conventional fishing techniques and historical production-focused fishery management practices no longer auger with the sector's sustainability due to added pressures from population growth, environmental deterioration and climate change. This has resulted in the decline of fish stocks and increased unemployment, poverty and food insecurity. The livelihoods, socioeconomic status and welfare of fishery dependent communities is steadily declining. The contribution of Africa's fish sector towards national food and nutrition security, rural development and economic growth among several African Union Member States is also suffering.

The distressing state of Africa's fisheries and aquaculture sector caused African Union Member States and their development partners to organize the Fish for All Summit in Abuja, Nigeria in 2005 with the objective of producing remedial solutions to reverse the sectors' negative trends. The Fish for All Summit identified the following strategic investments as necessary to safeguard the future contribution of Africa's fish sector: (i) improve the management of natural fish stocks; (ii) develop aquaculture production; and (iii) enhance fish trade in domestic, regional and global markets. The summit's outcome, the *Abuja Declaration on Sustainable Fisheries and Aquaculture (2005)*, galvanized political will across Africa for the transformation of the sector. This propelled the convening of the Council of Africa's Ministers of Fisheries and Aquaculture (CAMFA) to establish a pathway for actualizing the *Abuja Declaration on Sustainable Fisheries and Aquaculture (2005)*. The CAMFA noted that given the transboundary nature of Africa's aquatic ecosystems and Regional Economic Bodies, the absence of policy coherence in Africa's fishery and aquaculture sector made it difficult to comprehensively address the challenges of the sector and its ability to contribute effectively to economic growth and social benefits whilst continuing to provide food, livelihoods and jobs in many countries.

CAMFA prioritized the following transformative actions:

1. Recommended the AU put in place a mechanism for broad-based participatory continental policy dialogue and fisheries management and support Member States to strengthen policy coherence with respect to the Comprehensive African Agricultural Development Programme (CAADP), to enhance the role of fish in food security, poverty alleviation and trade development.
2. Recommended that the AU develop and implement a coordination mechanism among Africa's Regional Economic Communities (REC) and Regional Fisheries Bodies (RFB), to ensure coherence of fisheries policies and initiatives with the regional economic integration agenda.
3. Urged AU Member States to consider options for fisheries reforms and strengthen institutional arrangements to improve the productivity of fisheries and aquaculture.
4. Recommended that AU Member States must commit to developing fisheries and aquaculture in a way that focuses on: (i) productivity; (ii) profitability; (iii) sustainability; (iv) wealth generation; (v) social welfare, nutrition and food security; (vi) regional management of shared resources; and (vii) strengthening south-south (bilateral and regional) cooperation.

The guiding principles for this process constitute global and continental sectoral norms and best practices notably, the respective Development Goals, African Union Agenda 2063, CAADP, Lomé Charter, FAO's Code of Conduct for Responsible Fisheries (CCRF), Voluntary Small-Scale Fisheries Guidelines and the World Trade Organisation Sanitary and Phyto-Sanitary Measures. The recommended pathways for achieving the transformation envisaged by the Fish for All Summit are articulated by the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS). The PFRS consequently serves as a practical continental guide that facilitates coherence in implementation approaches for transforming Africa's fisheries sector into a sustainable and productive sector that contributes to food and nutrition security, generates employment, creates wealth and enhances socioeconomic development while promoting the regional management of shared resources and south-south cooperation. The sustainability of sectors continues to face threats of environmental degradation, climate change, rapid population growth. Additionally, there is a pressing need to foster equity and promote the sustainable development of fish value-chains to fully achieve the goals of the PFRS. Hence, the continent's development outlook for the sector has been expanded to embrace the Blue Transformation.

The Africa Fisheries Reform Mechanism (AFRM) and the Policy Framework and the PFRS were consequently developed and endorsed by the African Union's Heads of State and Government in 2014. They constitute the

agreed mechanism for facilitating broad-based participatory continental policy dialogue and fisheries management and strengthen policy coherence with regard to the CAADP among Member States, RECs and RFBs and to ensure coherence and coordination of fisheries policies and initiatives with Africa's regional economic integration agenda in mind.

Since 2010 all of FAO's work has been guided by its Strategic Framework which is prepared for a period of ten to fifteen years and reviewed every four years. The FAO Strategic Framework 2022-2031 has been developed in the context of major global and regional challenges in the areas of FAO's mandate. FAO ensures that today's challenges require cooperation, not only across borders but across the whole of society, with relevant stakeholders including regional and sub-regional organizations, non-governmental and civil society organizations, the private sector, research institutions and academia and parliamentarians. The FAO's Strategic Framework seeks to support the 2030 Agenda through the transformation to more efficient, inclusive, resilient and sustainable agrifood systems for better production, better nutrition, a better environment and a better life, leaving no one behind. The four betters represent an organizing principle for how FAO intends to contribute directly to SDG 1 (No Poverty), SDG 2 (Zero Hunger) and SDG 10 (Reduced Inequalities) as well as to supporting achievement of the broader SDG agenda, which is crucial for attaining FAO's overall vision. The four betters reflect the interconnected economic, social and environmental dimensions of agrifood systems. As such, they also encourage a strategic and systems-oriented approach within all FAO interventions.

Effective knowledge management and information dissemination are crucial for optimizing these sectors' contributions. The challenge remains establishing a system that facilitates the collation and channelling of information and knowledge generated on the continent across the various echelons of the sector in a manner that fosters equitable and equal access, to promote sustainable development without marginalization.

THE WORKSHOP

The workshop was organized with the support of the Fisheries and Aquaculture Division (NFI) through a Letter of Agreement (LOA) between FAO and AU-IBAR. The Consultative Workshop on Fisheries and Aquaculture Knowledge Management and Information Dissemination in Africa, a pivotal event held in Lusaka, Zambia on 13 November 2023, not only served as a beacon for the transformative potential of effective knowledge management and collaborative efforts within the African aquaculture sector, but also delved into detailed discussions aimed at shaping the future of the industry – the establishment of a continental knowledge hub. The overarching objective of the meeting was to assess the developmental and investment needs of the sector, with a specific focus on enhancing the capacity of AU-IBAR in managing and disseminating fisheries and aquaculture information within the frameworks of AFRM and the PFRS for Fisheries and Aquaculture in Africa. The consultative meeting took place prior to the AFRAQ 2023 Conference and was facilitated by FAO.

The specific objective of the workshop was to obtain stakeholders' views and inputs on:

- status, needs and expectations of the sector for fisheries and aquaculture information and knowledge;
- evaluation of the status and current capacity of fisheries and aquaculture information and knowledge management systems utilized by AU-IBAR *vis-à-vis* its capacity to meet the needs of Africa's fishery and aquaculture sector stakeholders; and
- recommendations to enhance the capacity of AU-IBAR's fishery and aquaculture information and knowledge management systems to deliver and fulfil the continent's policy and industry expectations in coherence with the Blue Transformation and SDGs.

Key messages

The opportunities and challenges affecting the sustainable development of Africa's fishery and aquaculture resources are influenced by the continent's vast and diverse aquatic resources and cultural and socioeconomic perspectives. Achieving coherence under such circumstances requires that a common understanding should be founded on facts and knowledge generated and collated from the different facets of the sector. The availability and access to such information and knowledge is one of the major challenges affecting the adoption and/or adaptation of recommended best practices to suit local conditions. To support the African Union, identify possible solutions for addressing this challenge, FAO entered a LOA with the AU-IBAR of Animal Resources to organize a multi-stakeholder consultative workshop on fisheries and aquaculture knowledge management and information dissemination in Africa back-to-back with the second Africa Aquaculture Conference (AFRAQ23) in Lusaka,

Zambia. It is envisaged that lessons learnt from the experiences shared by participants will provide a situation analysis and input for identifying strategic actions and bottlenecks hindering the generation, collation, dissemination and equitable access to fisheries and aquaculture information and knowledge in Africa.

Key points and topics

A consultative workshop on fisheries and aquaculture knowledge management and information dissemination in Africa played a crucial role in bringing together experts, stakeholders and policymakers to exchange knowledge, identify challenges and develop strategies for sustainable management and dissemination of information in the fisheries and aquaculture sectors. The key points and topics addressed in the workshop were:

- *Knowledge Management Strategies:* Effective strategies were discussed for collecting, organizing and managing fisheries and aquaculture knowledge, including data management, information systems and knowledge sharing platforms.
- *Information Dissemination Channels:* Various channels were explored for disseminating information to different stakeholders, such as websites, mobile apps, social media and traditional media outlets.
- *Capacity Building:* Capacity building needs were identified for individuals and organizations involved in fisheries and aquaculture, including training programmes, workshops and educational resources.
- *Partnerships and Collaboration:* The importance of partnerships and collaboration among government agencies, research institutions, NGOs and the private sector were highlighted to enhance knowledge management and information dissemination efforts.
- *Policy and Governance:* Policy and governance issues were addressed related to fisheries and aquaculture management, including regulatory frameworks, enforcement mechanisms and stakeholder engagement.
- *Sustainable Practices:* Sustainable fisheries and aquaculture practices were discussed to be promoted through the dissemination of best practices, guidelines and technical assistance.
- *Climate Change Adaptation:* The impact of climate change on fisheries and aquaculture in Africa was discussed and strategies identified for adaptation and resilience building.
- *Community Engagement:* The importance of involving local communities in fisheries and aquaculture management were emphasized and their access to relevant information and resources should be ensured.
- *Monitoring and Evaluation:* Mechanisms for monitoring and evaluating the effectiveness of knowledge management and information dissemination initiatives in achieving their goals and objectives were discussed.
- *Funding and Resource Mobilization:* Exploring opportunities for funding and resource mobilization to support fisheries and aquaculture knowledge management and information dissemination activities in Africa.

Workshop agenda

After the opening remarks, Ms Hellen Guebama, AU-IBAR, presented the workshop's background, objectives, expected results and agenda (Appendix I). Mr Xinhua Yuan and Mr Mohamed Megahed, FAO, provided an overview for developing the African Knowledge and Information Hub. Participants were split into three groups and discussed the status of fisheries and aquaculture information and knowledge management and sharing in Africa. The groups thereafter drew recommendations upon undertaking a Strengths, Weaknesses, Opportunities and Threats (SWOT) and gap analysis of the status for the respective topic under discussion.

Participants

A total of 29 participants attended the workshop comprising AU-IBAR and self-sponsored participants who had come to attend the AFRAQ23 event. The profile of participants included representatives from African Union Member States (AU-MS), African Union Development Agency (AUDA-NEPAD), continental fisheries and aquaculture non-state actor networks, development partners (FAO, WB, AfDB, World Organization for Animal Health (WOAH), WorldFish), NACA, RECs (Council of Africa's Ministers of Fisheries and Aquaculture – COMESA), the private sector and Fisheries Department, Zambia (Appendix II).

Participant contribution

During the workshop, participants were presented with the proposed content of the background document that was shared ahead of the event. They were then invited to discuss the content, validate it and provide input on a revised text. The expert input was taken forward into the final draft of the project proposal. Through interactive sessions, participants engaged in lively discussions, sharing insights, best practices and innovative approaches to address information gaps, improve data accessibility and promote sustainable practices. Key themes explored during the workshop included leveraging technology for data collection and analysis, strengthening institutional capacities for knowledge sharing, enhancing communication channels and fostering partnerships for information exchange and collaboration. Participants also examined the role of traditional knowledge and Indigenous practices in complementing scientific research and promoting resilience in the face of environmental and socioeconomic challenges. Moreover, the workshop facilitated networking opportunities, enabling participants to forge new collaborations, exchange resources and build synergies for collective action.

The workshop also celebrated collaborative platforms that promote knowledge sharing and foster innovation. Initiatives like the Aquaculture Network for Africa (ANAF) and the AFRM received well deserved applause for their efforts in creating networks that facilitate the exchange of expertise, technological advancements and best practices across borders. These collaborative mechanisms were recognized as critical in propelling the African aquaculture sector towards greater heights by leveraging shared knowledge and experiences. Stakeholders also acknowledged the need to strengthen existing aquaculture network mandates through governance structures and capacity building. Additionally, the event underscored the pivotal role of effective knowledge management in bolstering capacity and fostering empowerment. Offering training, educational resources and access to information, especially to small-scale farmers and local communities, enhances stakeholders' capabilities, amplifies productivity and uplifts livelihoods while advocating for sustainable practices.

The workshop emphasized that informed policy development and implementation heavily rely on accessing accurate, up-to-date information. Emphasizing the utilization of comprehensive data and insights, the gathering highlighted the importance of shaping policies that bolster the growth of the aquaculture sector. Equally critical is the effective dissemination of these policies to all stakeholders, ensuring successful implementation and alignment with sustainable development goals. Notably, significant contributions stemmed from group efforts to shape a comprehensive concept for the African Knowledge and Information Hub on aquaculture. Through a SWOT analysis, each group identified internal strengths and weaknesses, alongside external opportunities and threats, contributing to the conceptual development and planning of this knowledge hub. Effective knowledge management, as the participants emphasized, fosters efficiency by streamlining processes, minimizing risks and maximizing productivity. By disseminating information about sustainable practices, biodiversity conservation, disease management and technological advancements, stakeholders can make informed decisions that contribute not only to economic growth but also to the preservation of aquatic ecosystems.

Official opening

The workshop was officially opened on behalf of the Minister of Fisheries and Livestock, Honorable Makozo Chikota by the Acting Director of Fisheries, Mr Dalitso Mbewe was tasked with the responsibility of overseeing one of the most vital sectors of Africa’s economy and food security.

Leaders in the field, including Mr Xinhua Yuan (NFI, FAO Deputy Director), Ms Hellen Moepi Guebama (representing the Director AU-IBAR, Dr Huyam Salih) and Ms Anne-Rose S.P. Filippini (FAO Representative in Zambia), set the tone with their opening remarks. Their emphasis on collaboration and a unified commitment toward fostering sustainable fisheries practices underscored the importance of a collective approach to address the challenges facing the African aquaculture sector.

Mr Yuan, in his address, not only highlighted the significance of information and knowledge sharing but also positioned it as a crucial step towards achieving noble goals in aquaculture development. Ms Filippini, on the other hand, shed light on the urgent need for improved services and fortified research/development connections, especially given the current global challenges, including climate change, diminishing water resources and the imperative shift towards renewable energy. She stressed the necessity for innovative thinking to transform fisheries and aquaculture, ensuring continuous access to nutritious food through information access.

Mrs Guebama, provided valuable insights into the response of the African Union to the Abuja Declaration. She detailed the backing of the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa and

the AFRM. She noted that this endorsement was designed to create an environment ensuring fair access to information and knowledge, promoting learning, innovation, transparency and good governance. Mrs Guebama further emphasized that achieving these goals requires inclusive dialogue involving all stakeholders under a unified agenda. She stressed the need to establish a system that gathers and shares information and knowledge across sector levels in an equitable manner, crucial for sustainable development without marginalization.

Adding a governmental perspective, Dr Mungalaba, Director Agribusiness and Trade, Ministry of Fisheries and Livestock, conveyed the sentiments of Hon Makozo Chikote. Dr Mungalaba emphasized the importance of engaging with fishing communities and aquaculture stakeholders in discussions about the African Knowledge and Information Hub. He acknowledged the invaluable knowledge and expertise these communities possess, emphasizing the necessity of supporting their efforts to adapt to changing circumstances (Appendix III).

TECHNICAL PRESENTATIONS

The Role of aquaculture and fisheries in the Blue Economy transformation - Harrison Charo, Senior Fisheries Specialist (Aquaculture), the World Bank, the United States of America

The World Bank (2017) defined the Blue Economy as being the sustainable use of ocean resources for economic growth, improved livelihoods and jobs and ocean ecosystem health. The WB's development approach stems from an economic perspective that aims to ensure returns on investment accrued sustainably from any development prospect within framework of the UN Sustainable Development goals. The WB Blue Economy initiative is consequently set on four pillars: fisheries and aquaculture, marine litter and pollution, the bluing of oceanic sectors and establishing an integrated seascape. The WB's outlook for sustainable fisheries and aquaculture development in the Blue Economy (ProBlue) constitutes establishing fishery and aquaculture value-chains with a circular economy outlook that are climate informed, managed transparently following all-inclusive governance systems, resilient fish stocks and communities. The WB envisages that this can be achieved through improved fisheries management, social protection and promoting climate-smart and resource-efficient aquaculture practices. The WB is consequently undertaking studies and has established the "Aqua Business Investment Advisory Platform" where information and knowledge generated on these aspects can be accessed to inform the public and private sector on making suitable investment decisions. The online platform is designed to be interactive with iterative tools that include provision for delivery advisory services and the sharing of technical information and practical experiences to enhance practical knowledge and skills for implementation. The platform's scope for disseminating and sharing practical knowledge and skills includes online workshops, webinars, conferences, blogs and social media. With these transformative programmes, the WB endeavors to strengthen the capacity for sustainable fish production and business in the Blue Economy.

Introduction of the Aquaculture Network for Africa and the Africa Fisheries Reform Mechanism - Nelly Isyagi, Fisheries and Aquaculture Trade and Investment Expert, AU-IBAR, Kenya

AU-IBAR's mandate is to provide leadership for the implementation of the Africa Union's policies on sustainable management and utilisation of animal resources for the welfare of African citizens. The PFRS is Africa's overarching policy on the sustainable management and utilisation of its fishery and aquaculture resources. A single continental policy was deemed as being necessary following the recommendations of the Fish for All Summit (2005), bearing in mind the diverse yet interlinked transboundary nature of Africa's aquatic sector and thus fishery and aquaculture resources. The PFRS therefore serves as Africa's blueprint for establishing coherence across the continent for Sustainable Fisheries and Aquaculture Development.

The broad and diverse scope and contexts of Africa's fishery and aquaculture sector create a vast potential for sustainable development. To harness this potential effectively, the provisions of the FAO CCRF need be adopted holistically across all echelons of the sector to achieve equitable socioeconomic development, as outlined by the PFRS. A vast amount of data, information, knowledge and skills needs to be generated and shared by the continent's stakeholders to achieve this. Cognizant of this, AFRM was established to strengthen the continent's capacity for fisheries and aquaculture data, information and knowledge management and sharing to facilitate the implementation of the PFRS coherently across the continent. The AFRM is an all-inclusive bottom-up participatory process that hinges on multi-stakeholder consensus building to achieve One Voice for coherent implementation. It promotes the establishment of partnerships, collaboration and networking as a means for

achieving the coherence aspired by the PFRS, for the sustainable development of Africa's shared fishery and aquaculture resources.

ANAF was established soon after the Fish for All Summit (2005) as a network of aquaculture policy makers from sub-Saharan major aquaculture producing countries. ANAF's aim was to accelerate the development and mainstreaming of sustainable aquaculture development strategies into a national development agenda by promoting scientific and technical information exchange in aquaculture, regional and sub-regional collaborative aquaculture research, training of fish farmers and extension workers and technology transfer between countries. Its objectives aligned Africa's continental agenda to the sector. Thus, to prevent duplicity and foster continental coherence in the implementation of the PFRS, the ANAF Secretariat was transferred from FAO to AU-IBAR in 2018. ANAF's initiative to accelerate sustainable aquaculture development in Africa now encompasses all African Union Member States.

Other notable continental actions in this regard include promoting the establishment of regional and continental public and private sector fishery and aquaculture networks and building capacity information and knowledge management and sharing among stakeholders and networks through AU-IBAR Ecosystem, AU-IBAR Repository, the Africa Fisheries and Aquaculture Database (AFADATA) and establishing AU Regional Centers of Excellence in Fisheries and Aquaculture.

Experience of the Network of Aquaculture Centres in Asia-Pacific region - Dr Huang Jie, Director General, Thailand

NACA is an intergovernmental organization comprising 20 Member Asian-Pacific States. The objective of the network is to expand aquaculture development in the region with the aim of increasing fish production, improving rural income and employment, diversifying farm production and increasing foreign exchange earnings and savings. The organizational and operational structure of the network constitutes the coordination of five regional lead centers and thirty participating centers to conduct collaborative research, sharing of information and resources, provide training and sharing of expertise in prioritized areas of interest. NACA's current core thematic areas of work are productivity and sustainability, health and biosecurity, genetics and biodiversity, safety and quality and emerging regional and global issues that include aspects such as climate change. Establishing capacity for implementation is the core for sustainability. Consequently, NACA's cross-cutting themes are education and training, information sharing and networking, strategy and governance, innovation and investment and one community. The sub-theme in one community aims at harmonizing aquatic production with social well-being advancement by holistically integrating technical, economic and humane elements systematically across the region's aquatic value chains to facilitate sustainable development. As a result, the region has been able to advance its inherent strengths and opportunities more effectively to become the leading global aquaculture producing region. NACA generated 19 million jobs and accounted for over 88 percent of the 120 million tons of global aquaculture production in 2020.

WORKING GROUPS

The participants were divided into three groups (Appendix IV). Group I focused on generating, managing and sharing technical and sector data, information and knowledge among fisheries and aquaculture stakeholders in Africa. Meanwhile, Group II concentrated on establishing a continental fisheries and aquaculture information hub. Their discussions revolved around effectively coordinating the collection, collation, validation, management, dissemination, sharing and archiving of diverse fisheries and aquaculture data, information and knowledge sources across the continent. They highlighted existing tools for data sharing that required integration, including: i) Africa Fisheries and Aquaculture Database (AFFADATA) by AU-IBAR (currently at a trial level) and the Animal Resources Information System (ARIS) (currently being upgraded) for potential in collecting fisheries and aquaculture information; ii) AU-IBAR's e-Platform and online repository for knowledge sharing and information management; global platforms like World Animal Health Information System (WAHIS) and Lake Victoria Fisheries Organization's (LVFO) use of Electronic fish assessment (eCAS) regionally. Group III delved into assessing the utility and value of existing information management systems concerning the establishment of a continental hub for the sustainable development of the sector.

Outcomes and recommendations
The working groups highlighted the following key aspects.

Group I: Status and prospects for generating, managing and sharing information and knowledge
There was data, information and knowledge being generated and shared across Africa from among the sector's stakeholders. This included vast amounts of Indigenous knowledge (IK). Unfortunately, much of this information remained either documented or in the form of literature. However, there were no continentally standardized protocols for the collection, collation, validation and dissemination of information across the continent which made it difficult to objectively monitor and ascertain status, specific needs, accessibility, availability, utilisation and impact among the sectors' multiple stakeholders. This applied both with respect to the vertical and horizontal flow of information and knowledge generation and sharing and whether it was within or between the public or private sector.

The prospects and opportunities for generating, managing and sharing fisheries and aquaculture information and knowledge through a continental hub to improve the effectiveness of outreach are however great. These arise from the growing demand for fish, aquaculture potential and public and private sector commitment towards developing the sector. The major threats stem from conflicts of interest among stakeholders stemming from access to resources, markets and benefit sharing. The perspective this takes is broad and diverse and covers geopolitical interests, transboundary water resources, climate change and environmental degradation.

Weaknesses and threats can be addressed by increasing investments to strengthen capacity for information and knowledge generation, management and sharing, especially through optimising the benefits digital technology offers. The recommendation is equally applied to IK. Commensurate policy and governance needs be instituted to ensure users are protected and have equitable and equal access and benefit from sharing and utilising credible fisheries and aquaculture information and knowledge (Appendix IV).

Group II: Status and prospects for establishing a continental fisheries and aquaculture information and knowledge hub in Africa
The tools currently used at continental and regional level by AU-MS for fisheries and aquaculture information and knowledge management are the AU- IBAR repository and eCAS being used by LVFO. The AU-IBAR has just launched the AFFADATA which is being piloted. At the global level, AU-MS also contributes to the FAO Fisheries and Aquaculture Information and WAHIS.

At national level, there are several other information and knowledge management systems that AU-MS contribute to as a country. Similarly, there are several other information and knowledge management systems where respective community, private and/or public sector institutions also independently share and source fisheries and aquaculture information and knowledge. Most of the systems through which this is done are information and communication technologies (ICT) based, workshops, seminars and other events or through media.

At institutional and national level, utilization and access to these is dependent upon existing institutional policy and legal arrangements. For example, it is obligatory for AU-MS to report animal disease incidents to ARIS and WAHIS. Some AU-MS countries have data and information protection policies on how and where data is stored, limiting data sharing. Only data which they are legally obliged to divulge is provided.

A systematic way of collecting, collating and disseminating the wide array of fisheries and aquaculture information and knowledge generated in Africa to the sectors' stakeholders remains a gap. Fortunately, there are already several established platforms through which the sectors' stakeholders share information and knowledge at national, regional and continental levels. These can be leveraged through better coordination to provide validated and consolidated information with good outreach for the sector. However, the current capacity to achieve this is weak. Addressing this weakness would entail support in establishing systems with the capacity to integrate data from the different facets of the sector in a harmonized manner that translates into functional information that can be interpreted for appropriate implementation by the sectors multiple stakeholders (Appendix IV).

Group III: The utility and value of existing information management systems *vis-à-vis* a continental hub for sustainable fisheries and aquaculture development

Social media, libraries and repositories are the major information and knowledge management systems used to share fisheries and aquaculture information and knowledge. The information and knowledge shared through these is used in advocacy, training and knowledge dissemination.

There is currently no comprehensive comparative assessment on the utilization and impacts of the various information systems on the status of fisheries and aquaculture development in Africa. Furthermore, for the general stakeholder, the information shared through the most commonly accessible public systems tends to be nation-centric with a topical bias towards technical disciplines. The information is hardly integrated and contextualized to provide a comprehensive perspective of the practical realities of fisheries and aquaculture management and practice on the continent from the community level. For example, the transboundary nature of Africa's shared aquatic ecosystems negates that most data, information and knowledge should be accessible regionally, rather than only countrywide. However, for this to effectively happen, mechanisms need to be put in place to promote transparent data and information sharing not only between governments, but also among all actors with interests in said aquatic ecosystem be they directly or indirectly engaged in the fisheries and aquaculture sector.

The capacity and a new culture of sharing information for the common good will be crucial if any of the above is to be achieved. Policy and governance structures to ensure feedback, security and equity are commensurate needs for strengthening the capacity and promoting willingness to share information by farmers, private companies, communities, governments and development partners at this level. Thus, there is validity for establishing a continental hub as it would provide the oversight to guarantee that user rights remain systematically protected from the grassroots to the ecosystem level. A continental hub would further facilitate quality assurance and monitoring on the status and impacts of fisheries and aquaculture information and knowledge management systems. Such an approach would enable the development of more accurate monitoring indicators to track the sectors performance against stakeholders and national to global development goals (Appendix IV).

PLENARY

In the plenary session all participants came together to discuss and reflect on the main topics and themes covered during the workshop. It was an opportunity for everyone to share their insights, ideas and takeaways from the discussions and activities that took place throughout the workshop. The plenary session allowed for a deeper understanding of the subject matter and helped to consolidate the learning objectives of the workshop. It was also a time for participants to ask questions, offer feedback and engage in a group discussion to further enhance their knowledge and skills. The plenary session allowed the sharing of ideas on developing a concept note for project proposal development (Appendix V). The plenary session concluded the workshop and summarized the following key points and outcomes:

- All objectives of the workshop were successfully achieved.
- There is information, knowledge and experiences from various ongoing aquaculture actions in the continent covering all the sector's technical disciplines and development actions most of which is generated from the continent's public and private sector experiences and expertise. The collation and archiving of the knowledge and information shared for future public access remains a challenge.
- There is a need to establish a continental fisheries and aquaculture information and knowledge hub for sustainable development.

CLOSING

With support from the FAO, the AU-IBAR jointly conducted a consultative workshop to brainstorm on establishing a continental fisheries and aquaculture knowledge and information hub and seek potential support through AfDB, the WB Group, related government and programmes, in particular the PFRS, the Blue Economy,

the Program for Improving Fisheries Governance and Blue Economy Trade Corridors in SADC Region (ProFishBlue), etc. It is important to create a conducive environment for Africa's Blue Transformation in support of the sector's long-term contribution towards the continent's global sustainable development goals. Therefore an international consultation workshop has been organized at AFRAQ23 to obtain stakeholder input for the form, nature and scope of establishing a system that anchors onto the Africa Fisheries and Aquaculture advancement, to facilitate the collation and channelling of information and knowledge generated from Africa's fisheries and aquaculture sector coherently across the continent in a manner that fosters equitable and equal access, to promote the sectors sustainable management and development without marginalization.

The workshop's discussions delved into the pivotal role of knowledge management in catalysing growth within the African aquaculture sector. The consensus among participants was that access to comprehensive and updated information, technological advancements, best practices and scientific innovations forms the bedrock for sustainable development. The unanimous agreement was that consolidating and disseminating this knowledge is key to equipping stakeholders, including farmers, policymakers and researchers, with the necessary tools to address challenges and leverage opportunities effectively. In the report-back session and subsequent discussions, it became increasingly evident that effective knowledge management and information dissemination are not merely advantageous but imperative for the sustainable development of aquaculture in Africa. By fostering collaboration, empowering stakeholders and enabling informed decision-making, these practices serve as the foundation for a prosperous and sustainable aquaculture sector across the continent.

The exchange of ideas and collaborative spirit embodied in this gathering are poised to steer Africa towards a brighter, more sustainable future in its aquatic endeavours. The workshop not only laid the groundwork for continued collaboration, knowledge sharing and concerted efforts but also sparked a collective vision to propel African aquaculture towards greater sustainability and prosperity. The comprehensive conceptual development and planning for the African Knowledge and Information Hub, including the SWOT analysis conducted by the groups, are integral components that will shape the future trajectory of aquaculture on the continent. As the dialogue continues, it is anticipated that the outcomes of this workshop will serve as a roadmap for transformative change and innovation in the African aquaculture sector that is strengthened through a knowledge hub.

APPENDIX I - WORKSHOP AGENDA

Time (GMT+2)	Activities	Speaker/ Lead/Support
08.00–08.30	Registration/arrival	**All participants**
	Opening session	
08.30–09.30	Welcome remarks by the Republic of Zambia	**The Honourable Makozo Chikote** Minister for Fisheries and Livestock, Zambia
	Welcome remarks and goodwill messages by AU-IBAR	**Dr Huyam Salih,** Director, AU-IBAR
	Opening remarks by Commissioner for Agriculture, Rural Development, Blue Economy and Sustainable Environment	**Her Excellency Josefa Leonel Correia Sacko** African Union Commission
	Opening remarks by FAO	**Ms Anne-Rose Suze Percy Filippini -**FAO Rep. Zambia
09.30–09.45	**Short coffee break**	
	Presentation and sharing	
09.45–11.15	*The Role of Aquaculture and Fisheries in the Blue Economy transformation*	**Dr Harrison Charo Karisa** WB Group
	Sharing of PROFISHBLUE	**Dr Ahmed Khan,** AfDB
	Introduction of ANAF and AFRM	**Dr Nelly Isyagi,** AU-IBAR
	Experience of NACA in the Asia-Pacific region	**Dr Huang Jie,** NACA
	Discussion	
11.15–12.15	Discussion and recommendations from participants, including discussion of country status reports	**All participants**
12.15–13.15	**Lunch Break**	
	Working groups	
13.15–16.15	Compilation of working group rapporteur reports, discussions and recommendations	**Working group**
16.15–16.30	**Short coffee break**	
	Conclusion	
16.30–18.00	Conclusion and next steps	**Working group**

APPENDIX II - LIST OF PARTICIPANTS

EXPERTS

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Senior Research Scientist
Kenya Marine and Fisheries Research Institute (KMFRI)

Ms Veronica Alphonse-Uzice
Assistant Manager - Aquaculture Department
Seychelles Fishing Authority
Seychelles

Dr Noble Kwame Asare
Centre Leader
AU Centre of Excellence in Marine Fisheries and Coastal Zone Management
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Dr Harrison Charo
World Bank
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Mr Namangohwa Chumba
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Lusaka, Zambia

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Network of Aquaculture Centres in Asia-Pacific

Ms Nelly Isyagi
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AU-IBAR

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African Development Bank (AfDB)

Ms Lucy Kimani
GAISBY Africa
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Mr Divine Ngala Tombuh
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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Mr Dismas Mbabazi
Fishery and Aquaculture Officer
Accra, Ghana

Mr Mohamed ElSayed Mohamed Megahed
Fishery Officer
Rome, Italy

Mr Xinhua Yuan
Deputy Director, NFI
Rome, Italy

APPENDIX III - OPENING REMARKS
Ms Anne-Rose Suze Percy Filippini, FAO Representative in Zambia

The Honourable Makozo Chikote, Minister for Fisheries and Livestock, Zambia
Her Excellency Josefa Sacko, Commissioner for Agriculture, Rural Development, Blue Economy and Sustainable Environment (ARBE)
Dr Huyam Salih, Director, AU-IBAR
Delegates from the World Bank Group and African Development Bank
Distinguished representatives from African Union Member States
Ladies and Gentlemen,

Good morning.

It is indeed my great pleasure to welcome the Ministers, delegates and the Representatives of the WB and AfDB to Zambia and we are honoured to host the **"Consultative Workshop on Fisheries and Aquaculture Knowledge Management and Information Dissemination in Africa."**

Today's special meeting will provide an important platform for our collective dialogue and action in going forward with the objectives of developing an Aquaculture and Fisheries Knowledge and Information Hub. FAO is a specialized Organization with multidisciplinary technical expertise that is precisely tailored to its mission, effectively utilizing its unique role as a global knowledge organization and policy expertise, as well as providing a forum for shaping agreements on major food and agriculture issues. Our future depends on harnessing the sustainable benefits of water that covers 71 percent of the plant. Oceans, rivers and lakes hold immense potential to feed our nations and catalyse socioeconomic transformation. Nearly 10 percent of the world's population relies on the fisheries and aquaculture sector for their livelihoods, mostly small producers that need our support to improve their quality of life and livelihoods. The fisheries and aquaculture sector has a crucial role in advancing the Four Betters - Better Production, Better Nutrition, a Better Environment and a Better Life, leaving no one behind, which reflect the FAO Strategic Framework in support of the 2030 Agenda.

FAO's work in Zambia, as in other countries, revolves around improving food security, economic development and environmental sustainability in the aquaculture and fisheries sectors. FAO plays a significant role in supporting aquaculture and fisheries in Zambia, as it does in many other countries. FAO works in collaboration with the Zambian government and various stakeholders to promote sustainable aquaculture and fisheries practices. FAO has developed the Blue Transformation Roadmap aimed at supporting and the sustainable expansion of the aquaculture industry, ensuring effective management of fisheries and promoting the efficient and equitable development of aquatic food value chains. FAO's involvement in aquaculture and fisheries in Zambia includes capacity building, policy support, market access, environmental sustainability, disease control, community development, data and Information and climate change resilience. For the most up-to-date and detailed information, you can refer to FAO's official publications, reports and the local Zambian government's resources related to aquaculture and fisheries.

Distinguished guests and delegates,

According to the 2022 edition of the State of World Fisheries and Aquaculture, global fisheries and aquaculture production reached an all-time high of 214 million tonnes in 2020, of which 122.6 million tonnes were from aquaculture. The international trade of fisheries and aquaculture products generated about 151 billion US dollars and on a per capita basis, consumption of aquatic food has grown from an average 9.9 kilos per person in the 1960s to over 20 kilos in 2020. There is an intricate relationship between peace, security and sustainable development. In Africa, we recognize that aquatic resources are critical to the aspirations of the African Union's Agenda 2063, which declares Blue Economy to be "Africa's Future". There is therefore a need for a coordinated continental structure to promote the growth of fisheries and aquaculture within the entire spectrum of Blue Economy, including science, innovation, business and investments.

African countries are recognizing the important roles of facilitating, coordinating and adopting reforms to improve the business environment linked to aquaculture. Some of these have invested in infrastructure and

services and others have adopted aquaculture policies and framework strategies providing a vision and roadmap to guide development. Additionally, other countries have provided credit through agricultural development and commercial banks, facilitated access to seed and feed and secured access to land for the expansion and/or intensification of production. However, most African countries are in urgent need of improving individual services and strengthening the links between research and development. Partnerships are key to ensuring we achieve our goals together, especially in these times when the world faces several challenges, including climate change, diminishing water resources and the need for renewable sources of energy. We require new ways of thinking to transform fisheries and aquaculture, ensuring that all people have continuous access to nutritious food. Our discussions can be transformative as we collaborate to conceptualize feasible solutions.

Distinguished guests and delegates,
Let us continue to work and advocate together.
With our collective commitment and solid partnerships, we will be able to deliver on our shared goals of ensuring a prosperous future for all, leaving no one behind. I look forward to an exciting day of sharing real experiences, discussing outcomes and formulating practical recommendations for action that will positively impact African fisheries and aquaculture.

I stop here.
Thank you so much.

The Honourable Makozo Chikote, Minister for Fisheries and Livestock, Zambia

Her Excellency Josefa Sacko, Commissioner for Agriculture, Rural Development, Blue Economy and Sustainable Environment (ARBE)
Dr Huyam Salih, Director, AU-IBAR
Delegates from the World Bank Group and African Development Bank
Distinguished representatives from the African Union Member States
Ladies and Gentlemen,

Good morning.

I am honoured to be with you today as the Minister for Fisheries and Livestock, tasked with the responsibility of overseeing one of the most vital sectors of our nation's economy and food security. It is indeed my great pleasure to welcome the delegates and the Representatives of the WB and AfDB to Zambia and we are honoured to host the **"Consultative Workshop on Fisheries and Aquaculture Knowledge Management and Information Dissemination in Africa"**.

I wish to extend my appreciation to the hard working, dedicated and resilient men and women in our farming and fishing communities, who derive their sustenance, employment and livelihoods from aquaculture, thereby providing us with a healthy source of protein. We are committed to implementing science-based policies and collaborating with experts, stakeholders and international partners to protect our water ecosystems and indigenous fish species. It is our primary responsibility to ensure the sustainable management of these vital African resources for the wellbeing of current and future generations. In Zambia, akin to other African countries, we face challenges yet remain resolute in our determination to build a more sustainable, prosperous and resilient fisheries and aquaculture sector. I am wholly committed to the assurance that the policies we implement, the practices we encourage and the partnerships we establish will contribute to the long-term sustainability of this sector. Therefore, we must prioritize the responsible management and conservation of our aquatic resources. The effects of climate change are increasingly evident, bearing significant implications on our fisheries and aquaculture ecosystems.

The Zambian government, through the Ministry of Fisheries and Livestock, has implemented regulations and policies to achieve sustainable fishery and aquaculture resources. As the Minister for Fisheries and Livestock, I am committed to addressing these challenges. We are poised to invest in research and adaptation measures, with an aim of supporting the ability of our fishing and aquaculture communities to adapt and be more resilient to climate change and its impact. The African Blue Economy Strategies has gained the attention of African countries in recent years. The fisheries and aquaculture pillars of the Blue Economy support the sustainable use of African water bodies, including oceans, seas, lakes and rivers, with economic growth, improved livelihoods and the conservation of the ecosystem.

In a landlocked country such as Zambia, the aquaculture pillar of the Blue Economy represents an immediate, relevant and direct contribution to enhancing food security and fostering economic growth, as well as influences the indirect critical impacts of aquatic ecosystems on our nation's wellbeing. Zambia has valuable inland water bodies, including Lake Tanganyika, Lake Mweru, Zambezi River and many others.

Today, we must recognize the importance of responsible management of these water bodies, ensuring their enduring capacity to provide livelihoods, employment and food security for future generations. These water bodies are home to commercially important fish species, including tilapia, catfish and various other freshwater fish. Nowadays, tilapia is widely farmed in aquaculture operations in Zambia. The government actively collaborates with international organizations and institutions to improve fish farming technologies and all value chain activities.

FAO's work in Zambia, as in other countries, revolves around improving food security, economic development and environmental sustainability in the aquaculture and fisheries sectors. The concept of the African Blue Economy and FAO Blue Transformation Roadmap concerns not only coastal states, but also applies to landlocked countries such as Zambia. FAO's Blue Transformation Roadmap is an initiative that focuses on sustainable development within fisheries and aquaculture. It emphasizes the importance of these sectors for food security, economic growth and environmental conservation. By embracing the FAO Blue Transformation Roadmap, we can create a future where our aquatic ecosystems flourish, stimulate economic growth and our nations will benefit from the sustainable development of our aquatic ecosystems. To realize the potential of the Blue Transformation

Roadmap, Zambia must adopt a multisectoral and multistakeholder approach that involves the government, private sector, civil society and local communities.

This collaborative, innovative and inclusive engagement of all stakeholders will be essential in achieving the goals of the Blue Transformation Roadmap. Aquaculture has been growing and promoted by the Zambian government as an important food production system, producing high quality protein, generating employment opportunities, boosting rural development and ensuring a consistent supply of fish for our growing population. Zambia is working to enhance its aquaculture practices through research and development initiatives. To support the growth of aquaculture in Zambia, we must invest in infrastructure, training and research. Developing appropriate aquaculture techniques and improving access to markets will be key to the success of this sector. Additionally, we should encourage small-scale fish farmers, particularly in rural areas and empower them with the knowledge and resources needed to thrive in this industry.

In your discussions today regarding the African Knowledge and Information Hub, we must engage with fishing communities and aquaculture stakeholders. Their knowledge and expertise are invaluable in shaping our policies and we will support their efforts to adapt to changing circumstances. In my role, I am committed to several key principles, including sustainability, economic growth, food security, research and innovation, international cooperation, conservation and community involvement. Furthermore, the role of women in fisheries and aquaculture cannot be overlooked. Women are often significant contributors to this sector, both as fishers and in processing and marketing. We must ensure their equal participation and access to resources and support their involvement in decision-making processes.

Together, we can!
We appreciate the cooperation and partnership of all stakeholders in achieving these goals.
I look forward to working with you to secure a sustainable and prosperous future for our fisheries and aquaculture sector. I wish you all fruitful deliberations. It is my honor to declare the **"Consultative Workshop on Fisheries and Aquaculture Knowledge Management and Information Dissemination in Africa"** officially opened.
Thank you.

APPENDIX IV - WORKING GROUPS

Group I: Discussion notes

Members	• Dismas Mbabazi • Adeline Oduor • Vivian Phiri • Qurban Ali Rouhani • Yoseph Shiferaw Mamo • Veronica Alphonse-Uzice
Group focus area	• The status and prospects for generating, managing and sharing technical and sector data, information and knowledge among fisheries and aquaculture stakeholders in Africa.
Objective	• To generate, manage and share technical sector data, information and knowledge among fisheries and aquaculture stakeholders in Africa.
Status	• Lack of clear channels to collect data • Minimal data available at farm level • Inadequate feedback to farmers • Lack or no use of digital and technology • Lack of awareness among famers on data collection • Poor enforcement of legislation by the government to collect data
Accessibility and availability for stakeholders	• Limited availability and poor record keeping at farm level • Poor data flow pathway from farmers upwards and horizontally • Luck of data Sharing mechanism among institutions
SWOT analysis	
Strength • Rapidly growing sector • Government and inter-government commitment • Private sector • Reasonable capacity (institutions, human capacity infrastructure) • Legal and policy framework	**Opportunities** • High demand for fish • Support from development partners • Commitment from the private and non-sectors and government • Huge potential for growth of aquaculture on the continent
Weakness • Inadequate enforcement • Inadequate access to finance to collect data • Limited access to internet coverage and cell phone coverage • Inadequate capacity in data management • Limited digital technologies for data collection and analysis • Inadequate human capacity to analyse data	**Threats** • Conflict of interest on the continent • Conflict of transboundary water resources • Climate change • Environmental degradation
Gap analysis	• Enforcement of legislation by government • Access to finance to collect data • Access to internet coverage and cell phone coverage • Capacity in data management and analyses • Digital technologies for data collection and analysis

Group II: Discussion notes

Members	• Patricia Lumba • Mary Adhiambo • Philippe Ouedraogo • Moetapele Letshwenyo • Kwame Asare
Group focus area	• Status and prospects for establishing a continental fisheries and aquaculture information hub in Africa that effectively coordinates the collection, collation, validation, management, dissemination, sharing and archiving of fisheries and aquaculture data, information and knowledge from sectors various sources across the continent.
Current tools being used or tested at continental regional national and local level	• AFFADATA by AU-IBAR used to collect information on fisheries and aquaculture (currently at trial level) - Member states are to submit the information to AU-IBAR - regional and continental • AU-IBAR has a repository for information management and knowledge sharing - continental • WAHIS (World Animal Health Information System) - global • Electronic fish assessment eCAS for being used by LVFO - regional
Target beneficiaries and catchment	• Regional fisheries and aquaculture bodies, the 8 Regional economic blocks, non-state actors (World fish, ANAF), private sector, local and regional associations in Fisheries and aquaculture e.g., Africa women Fisheries Network (AWFISHNET), member states and development partners
ICT infrastructure and System in use	• Web-based • Mobile application • Open-source Proprietary technology
Existing and prospective institutional arrangements, policy and legal elements	
Institutional arrangements	• Policy briefs and reports completed to disseminate information in different countries • Periodic workshops to share information and for training • Data to be collected from the national levels before it is collated at regional levels and continental levels to ensure quality
Policy and legal elements	• Legal obligation for AU member states to report on animal diseases using ARIS and WAHIS • Some African countries have data and information protection policies on how and where data is stored limiting data sharing - only data which they are legally obligated is provided
SWOT analysis	
Strength • Validation of information exists due to reporting at different levels (locally, regionally) • Existence of data capture platforms • Data management platform is flexible from local to regional levels	**Weaknesses** • Lack of enforcement of the existing laws on lack of data and information provision • Lack of capacity to collect data and report • Lack of interoperability of the existing systems (technically and policy) • Data quality is a problem • The cost of verification of data • Poor internet connectivity • Data incompatibility from different stakeholders • Lack of funding
Opportunities • Capacity building can be done • System upgrades to be relevant	**Threats** • No guarantee on how the data will be used in the future • Unwillingness of stakeholders to use data management platforms due to lack of trust

GAP analysis	• Lack of human resource capacity to collect quality data • Translation of data to knowledge information • Information translation to knowledge • Lack of enough tools to target local information dissemination • Coverage of all data collection tools • No specific integrated tool for aquaculture data information and knowledge • Conceptualizing knowledge sharing at local levels • Data, information and knowledge are different • No audit of existing tools • Data and information sharing protocols

Group III: Discussion notes

Group Members	• Mohammed Megahed • Huang Jie • Gillian Denise Taylor • Hellen Moepi Guebama • Oyama Guwa • Divine Ngala Tombuh
Group focus area	• The utility and value of existing information management systems *vis-à-vis* the establishment of a continental hub for the sustainable development of the sector
Compare existing hub with the one we envisage in the future	
Existing information systems	**Establishment of continental hub**
• WhatsApp groups for various industry members	• Advocacy
• Libraries, national, regional and continental repositories	• Utilizing social media for outreach (e.g., WeChat, WhatsApp, Facebook etc.
• Technology is already there; knowledge can be shared between Asia and Africa	• Vocational training and access to information - disseminate information in a good platform e.g., Facebook or Twitter. Communication should be two way - giving info and tracking feedback of information

Issues	• Transboundary nature of Africa, information should be accessible regionally, rather than country wide, especially in shared ecosystems
	• Africa – Need to ask each member to do continental survey about performance on animal health and SWOT analysis
	  o Maybe work on final two steps (SWOT Analysis and Gap analysis) to determine what each country needs
	  o Surveillance of existing information
	  – From here we can inform questions for the surveillance or analysis
	• Info on production and genetics on the continent, little info available
	• What kind of technology can be used for Africa? What kind of needs are specific to Africa?
	• Government also has info, however info not well distributed between government and farmers
	• Farmers and private companies not willing to share information
	• Documents of AU downloaded by non-Africans; How can we ensure African farmers get the information? Linking hub with African on social media
	• In Africa, 25 countries speak English, majority speak French (27) and a few speak Portuguese (4). How can they all be reached?

Lessons/Examples of NACA	• NACA – Aquaculture investment hub-share information and how to bridge investment with innovation. Aquaculture development in China saturated and looking at potential to develop innovation e.g. marine cage farming, sea reefs etc. • SWOT analysis – list of questions provided may be misleading as not specific to Africa - template used generally not specific for the country • NACA developed new method for SWOT analysis specific to them • Set up survey and analysis • Demonstration extension services - training by commercial agencies, e.g. feed manufacturers (after sale services are important) • How did NACA target their people as they speak different languages? They only publish in English and countries translate for themselves • For how many years did it take to determine priorities? After how many years do you do surveys…After every 5 years? Priorities change depending on leadership

	• How were farmers reached initially? WeChat was used. National Focal points used for specific project in different regions
Best practices	• Use of social media - access and feedback of information important. Cut intermediaries for sales • Key farmers and satellite farmers to disseminate information - mainly social media is used • Who are informing, farmers and professionals? Short webinars generally work with farmers • Invest in extension services, however, sharing of information is minimal.
Conclusion	• Develop human capacity building or culture of sharing • Have links for diverse types of information required in the hub

APPENDIX V - CONCEPT NOTE

Establishing a continental fisheries and aquaculture information and knowledge hub for sustainable development

Background

The *Fish for All Summit* in 2005 recognised that the sole reliance on production focused fishery management tools for the sector's management could not address the challenges impinging the sector's sustainable development. Added pressures from population growth, environmental deterioration, climate change and poor access to markets were key drivers for the negative trends being observed in the sector, notably: decline of fish stocks, increased unemployment, poverty, food and nutrition insecurity and low contribution of the sector towards socioeconomic development. The welfare of fishery dependent communities was progressively worsening. The Summit noted that unless strategic investments to improve the management of natural fish stocks, promote aquaculture development and enhance fish trade were made, the future Africa's fish sector would not be safeguarded. The sustainability of Africa's fisheries and aquaculture sector would depend on the extent to which it could be transformed into a sector whose management was based on promoting productivity, profitability, sustainability, wealth generation, social welfare, nutrition and food security, regional management of shared resources and strengthening of south-south (bilateral and regional) cooperation.

The Africa Union Heads of State and Government subsequently endorsed these recommendations in the *Abuja Declaration on Sustainable Fisheries and Aquaculture (2005)* with modalities for implementation outlined in the PFRS. The PFRS is consequently the blueprint for the sustainable utilisation and management Africa's fishery and aquaculture resources. It is the anchor through which the sector is subsequently also integrated into other related continental and global strategies, such as the Africa Blue Economy Strategy and FAO's Blue Transformation Initiative. The provisions outlined in the PFRS provide a sound foundation for facilitating the coherent transition Africa's fisheries and aquaculture sector into a sustainable blue food system and pillar of Africa's Blue Economy.

The Issue

Not all AU-MS and Regional Economic Communities (RECs) have fully attained the transformation envisaged by the PFRS. This poses a challenge for effectively establishing sustainable blue food systems and the sustainable development of Africa's pillar on fisheries and aquaculture in the blue economy. Unless all AU-MS are equitably enabled to achieve and benefit from the outcomes of the PFRS at a minimum, the short and long-term goals for the sectors development and consequent contribution towards food and nutrition security, job creation, wealth generation, social welfare and socioeconomic development will remain elusive.

While all AU-MS and RECs have adopted the PFRS and the political will exists to promote implementation, not all AU-MS and REC have adequate capacity to transform and effectively implement the PFRS nor position themselves to benefit from emerging opportunities associated with Blue Transformation. The major bottlenecks cited in relation to this, center on inadequate financial, human, institutional and technological resources. These constraints cut across the board and their occurrence has not stopped AU-MS and REC doing what they can with the resources they have. Useful lessons have been drawn from the strides taken to implement at national, regional and continental level so far. Key among these are the impacts of Africa's ecological, socioeconomic and geo-politically diverse contexts for the transformations its fishery and aquaculture sector to acquire new skill sets and innovative approaches. To avoid repeating stereo-typical failures associated with top-down development interventions, all-inclusive participatory processes anchored on collating, synthesising and sharing information and knowledge generated from the grassroots levels is recommended as a basis for identifying best fit options to address the various challenges cited in tune with stakeholders' specific capacities and needs.

It is against this background that the fundamental challenge for the transformation of Africa's fisheries and aquaculture sector within the framework of the PFRS and effective Blue Transformation remains access to the information and knowledge required to inform the development of appropriate management tools and skills. The success on any investments made depends on this.

Proposed Methodology

Cognizant of the issues discussed above, a continental consultative multi-stakeholder workshop back-to-back with AFRAAQ23 was organized to seek the views of stakeholders on the prospects for establishing a continental fisheries and aquaculture information and knowledge hub. The workshop deliberated on the status, needs and expectations of the sector for fisheries and aquaculture information and knowledge and evaluated the status and current capacity of fisheries and aquaculture information and knowledge management systems at AU-IBAR in relation to the sector's needs.

The workshop noted that much of the information, knowledge and experiences from Africa's own experts in the sector is continuously generated and shared by the sector stakeholders. The collation, archiving and dissemination of this information and knowledge beyond the sphere of select communities of practice was a major challenge. The establishment of a continental hub through which the generation, management and sharing of fisheries and aquaculture information and knowledge was coordinated for use across the continent. This would enhance: (i) effectiveness of outreach; (ii) governance and policies on access and use; (iii) harmonization of standards, systems and processes thus improved flow and quality assurance of IK; (iv) promotion of equitable access and benefit sharing for both generators and users due in part to enhanced economies of scale; (v) the scope, utility and functionality of IK generated and shared; and (iv) promotion of private and public sector investment and development of sustainable IK value-chain.

Outline of proposal to be submitted for funding

Bearing in mind the diversity of stakeholders, characteristics of the sector and IK and ICT systems in use, the hub must serve different interests across the sectors and different domains. Hence, the systems and processes employed must be robust, hinge on collaborative initiatives and emphasize interoperability, scalability, adaptability, flexibility and security concerns. Therefore, the strategy appended below is recommended for strengthening fisheries and aquaculture information and knowledge management and dissemination in Africa.

Situation analysis involving:

a) comparative analysis of the current status of existing fisheries and aquaculture IK systems and hubs in Africa and their impacts for change against global best practices;
b) stakeholder mapping exercise to establish the needs, current roles and capacities for IK generation, collation, management, dissemination and utilization;
c) establishment and evaluation of the current state of information and knowledge flow within the aquaculture sector, identifying bottlenecks and communication barriers; and
d) establishment and evaluation of the mechanisms in use for translating raw data into usable information and knowledge within the aquaculture sector *vis-à-vis* stakeholder needs and current capacities.

Situation analysis of ICT infrastructure

a) situation analysis of ICT systems and infrastructure in use and accessible options for stakeholders in the sector *vis-à-vis* objectives of the hub, international best practices and capacities at AU-IBAR and RECs;
b) stakeholder mapping on ICT needs, current roles, capacities and capabilities within the context of Africa's fisheries and aquaculture landscape;
c) synthesis of ICT system architecture and flow of knowledge *vis-à-vis* the IK situation analysis conducted above and proposed objective for establishing the hub; and
d) assessment of the existing systems for translating raw data into usable information and knowledge bearing in mind outcomes and recommendations of the IK situation analysis conducted above within the aquaculture sector.

Design and establishment of the hub

a) systems design considering ICT infrastructure requirements and IK functionalities at the various nodes of the IK knowledge pathway(s);
b) establishment of an institutional and governance framework of the hub considering need for establishing collaborative partnerships with the sectors key stakeholders and partners;

c) installation and commissioning of the system, covering aspects such as construction, training, piloting and upscaling/rolling out;
d) technical support post-commissioning to ensure local capacities in the various roles are built up to meet critical threshold of human resource needs; and
e) consideration of administrative costs.

This report summarizes the outcomes of the Consultative Workshop on Fisheries and Aquaculture Knowledge Management and Information Dissemination in Africa. By gathering experts and stakeholders from diverse regions, the workshop aimed to enhance collaboration and address critical challenges in the fisheries and aquaculture sectors. Key discussions focused on effective knowledge sharing, innovative information dissemination strategies and sustainable practices to empower local communities. This report highlights the collective insights and recommendations that emerged, serving as a valuable resource for policymakers, practitioners and researchers committed to advancing sustainable fisheries and aquaculture in Africa.

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