



AFRICAN UNION
**INTERAFRICAN BUREAU
FOR ANIMAL RESOURCES**

TECHNICAL REPORT OF A WORKSHOP ON

***Trade and improved livelihoods in aquatic production in Africa (TILAPIA)
Building capacity on fish health and aquatic biosecurity to sustain and
develop aquaculture and fisheries in Africa***

Held at

Three Cities - The Square Boutique Hotels & Spa (Umhlanga)

5-7 November, 2014 Durban, South Africa



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SUMMARY

A workshop on ‘Trade and improved livelihoods in aquatic production in Africa’ was organised by African Union- Interafrican Bureau for Animal Resources (AU-IBAR) with the overall aim of building capacity on fish health and aquatic biosecurity to sustain and develop aquaculture and fisheries in Africa. The workshop was held as scheduled from the 5th to 7th of November 2014, at the Three Cities-The Square Boutique Hotels & Spa (Umhlanga) in Durban, South Africa. The workshop was held under the current scenario of recognizing the good potential for aquaculture development in Africa, while at the same time acknowledging the need to address aquatic animal health management and biosecurity issues proactively following recent fish health problems experienced in the region.

The workshop was organized on the basis of the proposal on ‘Trade and improved livelihoods in aquatic production in Africa (TILAPIA)’ submitted to the Standards and Trade Development Facility (STDF) of the World Trade Organization (WTO) by AU-IBAR, Food and Agriculture Organisation of the United Nations (FAO), NEPAD Planning and Coordinating Agency (NPCA) and World Organisation for Animal Health (OIE). The objective of the workshop was therefore to identify, discuss and build consensus on the elements to be included for improving the TILAPIA proposal and procedures to be followed for responding to the call from STDF for the proposed project. The large aim of the TILAPIA proposal is building capacity on fish health and aquatic biosecurity to sustain and develop aquaculture and fisheries in Africa.

There were 47 participants drawn African Union member states (AU-MS), Regional Economic Communities (RECs), private sector and individual experts. There were representatives from partner organizations including AU/IBAR, FAO, OIE and the NPCA.

The main outcomes of the workshop were the identification of key issues, challenges and proposed actions for achieving the following three key result areas of the TILAPIA proposal:

- Improved institutional and human resources capacity to prevent, early detect and respond to aquatic animal diseases of economic or public health importance.
- Developed/improved policy/legal frameworks aimed at promoting good governance of fisheries and aquaculture through trade-related measures which address unregulated international trade and encourage investments in domestic production of safe aquatic commodities for human consumption.
- Enhanced private sector investment in aquaculture, with support services being developed along the value chain, leading to spill-over effects benefiting the small scale producers (animal health practitioners, feed suppliers, transporters, processors, cold chain, HACCP,...).

I. INTRODUCTION

AU-IBAR in collaboration with the NPCA, FAO and OIE had developed a concept note on **“Building capacity on fish health and aquatic biosecurity to sustain and develop aquaculture and fisheries in Africa”** for trade and improved livelihoods in aquatic production in Africa (TILAPIA). This proposal was developed against the background of increasing interest and investments in aquaculture development on the continent, amidst stagnation or decline in capture fisheries, but underpinned by recent concerns for environmental and fish health issues on the continent. The reporting of Epizootic ulcerative syndrome (EUS) in fish in the Zambezi River and White spot of shrimp disease (WSSD) on Mozambique and Madagascan prawn farms has demonstrated how vulnerable the continent is to aquatic diseases and how ill-prepared Member States are to effectively deal with these situations and reduce the risks of further spread.

In response to the above a draft TILAPIA Concept Note aimed at addressing key issues related to animal health and in particular aquatic animal health, whether from aquaculture production (e.g. farmed fish or shrimps) or from inland capture fisheries was formulated by AU-IBAR, FAO, OIE and NPCA and submitted by AU-IBAR to the World Trade Organization (WTO) Standards and Trade Development Facility (STDF) to assist in consolidating the concept note for a regional capacity building project with the assistance of (i) technical (and institutional) stakeholders meeting and subsequently convene a (ii) round table meeting to present the project to bilateral and multilateral donors in view of sourcing funds for (a) the required feasibility studies and project preparation documents, as well as (b) the project itself.

The goals of proposed TILAPIA project are:

- i. to secure rural livelihoods and increase commercial production for regional food security through improved public and private-sector management of, and investment in aquaculture and fisheries production in the African region; and
- ii. to contribute to Millennium Development Goals (which are to eradicate extreme poverty and hunger, ensure environmental sustainability, develop a global partnership for development) and relevant New Partnership for Africa’s Development (NEPAD) Comprehensive Africa Agriculture Development Programme (CAADP) pillars (land and water management, market access, improved food supply and reduction of hunger).

The project will have the following specific objectives:

- i. to increase the output of the market-oriented aquaculture sector and foster regional trade of aquatic animals and their products through improved animal health management, biosecurity and food safety;
- ii. to improve rural livelihoods of fishing communities and fish farmers through public-sector interventions in animal health, aquatic biosecurity and policy and legal frameworks; and
- iii. to provide an enabling environment in the aquatic sector through appropriate policy and legal frameworks.

The following outcomes will be expected:

- i. Policy framework that creates an enabling environment;
- ii. Protect investments from aquatic diseases and pests;
- iii. Safe aquatic commodities for human consumption;
- iv. Improved market access and trade in aquatic commodities;
- v. Improved systems capacity for the prevention, early detection and response to aquatic threats including diseases;
- vi. Increased and effective participation of AU-MS in the international standard-setting process.

The TILAPIA workshop was co-funded by the European Union (EU) funded continental Fisheries Governance project titled “**Strengthening institutional capacity to enhance governance of the fisheries sector in Africa**” which is being implemented by AU-IBAR in collaboration with NPCA. This project has the overall objective of enhancing the contribution of fisheries resources to food security and economic growth in Africa through improved institutional and policy environment for sustainable management and utilization of fisheries resources in Africa. This fisheries governance project has a component on fish health with a specific activity of “Enhancing capacities for fish diseases surveillance and control, timely collection, analysis and sharing of accurate sanitary information as well as enhancing market access for fish and fish products from the African continent”. This will be achieved by strengthening capacity of National veterinary services for early detection, timely notification/reporting, prevention and control of fish diseases and building capacity in MS for biosecurity and safety measures in aquaculture practices. Other activities includes but not limited to creation of Animal Resource Information System (ARIS) in which fish module would be created for reporting fish disease, addressing issues of access to market by strengthening capacities of MS in Sanitary and Phyto-sanitary (SPS) issues along value chain, eco-labelling and strengthening aquaculture network and information sharing. The synergy and strategy of co-funding related activities towards achieving identical outcomes significantly optimizes resources.

The TILAPIA workshop was organized on the basis of two related initiatives, jointly with FAO and the South Africa Government on their initiative on development of an SADC Subregional Framework for Aquatic Biosecurity Strategy. This was to achieve a broader participation by AU-MS, experts and partner organizations. FAO had carried out Aquatic Animal Health Performance and Capacity Survey in SADC countries in October 2014 and the focus of this aspect of the workshop was also to identify main elements for the formulation of the Regional Framework for aquatic health for countries in the Southern African Development Community (SADC). This joint endeavour provided the opportunity for participation of all regions of the continent in the workshop and hence allowed broader inputs and views into the discussions that constituted the outcomes of the workshops.

1.1 Rationale

The increase in aquaculture production is related to the increase in demand for fish, the increase in the price for fish (making it more profitable for fish farmers) and the results of research to improve production and increase the number of species farmed. Another catalyst to the growth of aquaculture is the relative decline in fish production from capture fisheries. In the 70's and 80's aquaculture was promoted at the subsistence level farming and the net results were poor—though the continent has favourable environmental conditions for farming. Nonetheless in the last two decades there has been a shift to aquaculture as a commercial venture. Nigeria has become the largest producer of catfish in the world and Egypt seconds China only to tilapia production. International investors are increasingly considering Africa to invest in aquaculture ventures. However, in recent years, environmental and fish health issues are becoming a major concern for this region. The former also includes coastal types of cage production (oysters, fish). The outbreaks of several diseases of aquatic animals in the past decade have led to biosecurity breaches, in that several river-basins and coastal ecosystems in southern Africa today are affected by hitherto unknown diseases such as Epizootic Ulcerative Syndrome (EUS) of finfish in Zambezi River and the Mozambique Channel white spot disease (WSD).

The responses to the outbreaks of these diseases clearly demonstrated how vulnerable the continent is to aquatic diseases and how ill-prepared Member States are to effectively deal with these situations and reduce the risks of further spread. The increasing interest in development of cage culture on various African lakes and rivers could be at risks of poor environment management and aquatic diseases.

These incidences have the capacity of causing huge economic loss to the aquaculture and fishing industries similar to the devastation that occurred in Asian countries where massive expansion in aquaculture industry preceded fish health capabilities which cost the industry dearly. It is therefore critical that capacity of African countries be developed in aquatic animal health and biosecurity governance the formulation of strategic frameworks at regional levels that would ensure adequate measures are in place for rapid response to the disease outbreaks. The formulation of the concept note on TILAPIA was therefore informed by these concerns.

2. OPENING SESSION

The Workshop began with a brief opening ceremony the included the following activities;

2.1 *Welcome remarks by the Deputy Director-General of the Fisheries Management Branch of the Department of Agriculture, Forestry and Fisheries- Mr Mortimer Mannya*

Mr. Mortimer Mannya, the Deputy Director-General (DDG) of the Fisheries Management Branch of the Department of Agriculture, Forestry and Fisheries (DAFF) provided a welcome speech on behalf of the Department. In his opening speech he emphasised and acknowledged the importance of the contribution of aquaculture towards food security, job creation, Gross Domestic Product (GDP), rural development and the potentials of African resources to contribute to the growing appetite of aquaculture products.

He further pointed out that aquatic animal health management and biosecurity continuously pose a threat to sustainable development of aquaculture. The aim of the workshop is to establish a comprehensive model for building fish health infrastructure and system in African region. This will be realised through creating an enabling long-term policy environment and framework for a cooperative programme on aquatic animal health management and biosecurity governance at all levels.

2.2 *Opening statement by FAO Representative in South Africa- Dr Tobias Takavarasha*

Dr Takavarasha expressed appreciation to be part of the official opening of the two workshops. He highlighted that aquatic systems in Africa including fish are faced by two significant aquatic diseases, that is, EUS of cultured and wild finfish in the Chobe-Zambezi River ecosystem and WSD of cultured shrimp in Mozambique and Madagascar. This was accelerated by intensification and expansion of aquaculture which leads to emergence of new diseases and pathogens that are transported through transboundary movement of fish. He emphasised the importance of strengthening aquatic biosecurity through appropriate policies, strategies and regulatory frameworks. He acknowledged the collaboration between FAO and AU-IBAR particularly in responding to the call from STDF for the proposed TILAPIA project. FAO is looking forward to work together in the implementation of TILAPIA project. He thanked DAFF, FAO, AU-IBAR, OIE, SADC, NEPAD and other parties for collaborating with FAO to organise and fund this Regional Workshop on Improving Aquatic Animal Health Management and Strengthening Biosecurity Governance in Africa. He officially declared the workshop open.

2.3 *Statement on behalf of Director of AU-IBAR- Dr Mohamed Seisay, Senior Fisheries Officer of AU-IBAR*

Dr Mohamed Seisay in providing a statement on behalf of Director of AU-IBAR Professor Ahmed El-Sawalhy thanked the South African government for accepting to host this continental event on 'Improving Aquatic Animal Health Management and Strengthening Biosecurity Governance in Africa'. Special thanks were also extended to the DAFF for their active role in the planning and organization of the workshop and AU-MS and RECs across the continent for their attendance. The presence of technical experts, decision



Dr. Mohamed Seisay providing a statement on behalf of AU-IBAR

3. BACKGROUND AND OBJECTIVES OF THE WORKSHOP

Participants were informed by a number of technical presentations, including reviews on the status of global and regional aquaculture; the status of global and regional aquatic animal health; recent aquatic animal health initiatives and activities in Africa; the status of finfish, crustacean and molluscan diseases of importance to Africa; and presentations on commodity-specific industry biosecurity practices, an example of a national aquatic animal health strategy (South African case), and the roles of regional and international organizations. The presentations were done by international experts from AU-IBAR, FAO, OIE, private-sector operators and other regional and international resource persons, as well as local South African technical experts.

3.1 *The Trade and Improved Livelihoods in Aquatic Production in Africa (TILAPIA) proposal- Dr Mohamed Seisay, Senior Fisheries Officer of AU-IBAR*

Dr Mohammed Seisay gave a background presentation on TILAPIA proposal highlighting that the implementing agencies will be AU-IBAR, NPCA, FAO and OIE. The proposal received funding from WTO for development of the full proposal and the project would benefit all 54 AU MS including eight (8) RECS and private sector. He presented the objectives, key results area and the expected outcomes as highlighted above in the introduction.

3.2 *Trends in global aquatic animal health - Dr Melba Reantaso*

Dr Melba Reantaso highlighted that factors contributing to poor biosecurity is the intensification of farming, development and expansion of ornamental fish trade, misunderstanding and misuse of specific pathogen free (SPF) stocks in hatcheries, slow awareness on emerging diseases, inadequate/ poor biosecurity measures, unanticipated negative interaction, enhancement of marine and coastal (feed live feeds) etc.

She highlighted that international treaties and national strategies, biosecurity awareness (surveillance program, risk analysis), farmer's empowerment (border control, farm-led biosecurity) could be used as tools to enhance biosecurity compliance. The other challenge she mentioned is the transboundary nature of aquaculture diseases and as fish remains one of the most traded commodity globally thus the risk

is elevated. She highlighted three levels of intervention that include, national level where Public Private Partnership (PPP) is encouraged with an institute identified with clear mandate and competency in aquatic animal health. At sub-regional and regional level and international level there are standards that are used to improve compliance. Dr Melba Reantaso made reference to binding and non-binding signatories which, if implemented could assist the countries in reducing the risk of transboundary aquatic animal diseases (TAADs) and are constantly amended and modified with a view to the rapid development in the sector, better knowledge on diseases and understanding dynamics of fish disease. The national strategies impact positively in such a way that it is a shared responsibility and collaborative efforts among government, private (farms etc.) and the strategy itself would thus cover risk analysis, pathogen list, aquatic animal health information list, health certification. She highlighted that it is crucial for countries to develop national frameworks in order to regulate, manage and control biosecurity.

3.3 Regional aquatic animal health management and the role of OIE - Dr Moetapele Letshwenyo

The core mandate of OIE was outlined by **Dr. Moetapele Letshwenyo**, the OIE Sub-Regional Representative for Southern Africa, in his presentation as promoting (i) transparency to ensure accurate global animal disease situation; (ii) collection, analyses and dissemination of veterinary scientific information, (iii) international solidarity in the control of animal diseases, (iv) sanitary safety to safeguard world trade by publishing health standards for international trade in animals and animal products, (v) veterinary services, especially to improve the legal framework and resource availability, and (vi) food safety and animal welfare to provide a better guarantee of food of animal origin and to promote animal welfare through a science-based approach.

He highlighted that WTO recognises the OIE as the competent authority in matters of animal health, welfare and veterinary public health (zoonoses). The OIE has developed a tool for the evaluation of Performance of Veterinary Services (OIE PVS Tool) to assist countries in assessing current level of performance in complying with OIE international standards, identifying gaps and mitigating measures. It is aimed at strengthening veterinary services and ensuring their compliance to international standards. All SADC countries have undergone PVS evaluation, but specifically for aquatic animals only Lesotho, Seychelles and Mozambique have expressed interest.

3.4 Regional animal health management and the role of AU-IBAR - Dr Hiver Boussini

Dr Hiver Boussini started his presentation by outlining AU-IBAR's vision, mission, mandate and 2014-2017 strategic plan. With particular reference to Strategic Program I: Animal Health, Disease Prevention and Control Systems, with the main objective of strengthening veterinary governance and animal health systems for increased productivity, improved food and nutritional security, enhanced food safety and trade and public health protection. Its sub-activities is to addresses the issues of TADs and zoonoses through development and implementation of specific programs/ projects and to supports AU-MS and RECs to enhance their capacities in the management of TADs and zoonoses

The AU-IBAR has embarked on improving fish disease control and biodiversity across the continent. He highlighted the following challenges encountered which includes but no limited to lack of fish diseases data; MS not reporting fish diseases although the fisheries were captured under the normal livestock disease report; national reporting systems does not include fish disease reporting; fish data issues which includes veterinarians dealing with fish health, lack of good knowledge of fish diseases in most of MS, reporting system/network in MS, laboratory support and institutional framework and networking.

He mentioned that AU-IBAR, in collaboration with NPCA, is presently implementing a Fisheries Governance

project aimed at strengthening institutional capacity for improved fisheries management on the continent with key activities in this project pertinent to this workshop as outlined in the introduction. In addressing issues of fish disease control and biodiversity, AU-IBAR has developed ARIS-2 for animal resource information reporting and sharing including fisheries and aquaculture module, aquatic animal health module, disease outbreak data-specific on fish health or integrated in general animal health, disease outbreaks, surveillance activities and laboratory data, production data, major production sites and commercial outfits, national focal points, specialized national user group and experts database for fish health.



Dr Hiver Boussini providing presentation

4. WORKING GROUP TILAPIA PROJECT SESSION

Key to the workshop was the working group sessions that discussed the main objectives of the workshop which informed the outcomes or products of the workshop.

- i. The TILAPIA session was focused on reaching consensus on the key issues, challenges and activities to addressing the three main outcomes in the TILAPIA proposal: These included identifying, discussing and building consensus on the elements to be included and procedures to be followed for responding to the call from the STDF for the proposed project.



AU-IBAR funded participants which formed part of proposed TILAPIA discussion group

4.1 Scene setting: proposed TILAPIA project presentations

The session was attended by approximately 47 participants and facilitated by FAO, Dr Rohana Subasinghe. Scene setting presentations were provided to the participants in order to inform and trigger discussions. The participants were also informed by the draft concept note on the project which was circulated to the participants prior to the workshop with other informative documentations. The participants were informed that TILAPIA project is still a concept and this workshop provides provision for improvement, amendments and additions prior to concluding the final draft concept note.

Mr Qurban Rouhani and **Dr Letshwenyo** opened the session by providing presentation on the initiation of TILAPIA project. Dr Nouala provided a presentation detailing the background, past, present and future aspirations of proposed TILAPIA project. He stressed that health and biosecurity are not addressed usually in aquaculture practices in Africa hence there is a need for improved policy and regulatory standards, increased capacity building and institutional capacities strengthened. He highlighted that these are the areas that can advance trade in aquaculture products in Africa.



Dr Nouala during his TILAPIA presentation

Dr Rohana provided a presentation based on “Aquatic animal health capacity and biosecurity in Africa: Experiences based on previous work in the African region”. Dr Rohana made reference to a specific STDF project in Bangladesh in which a number of small scale farmers desired access to markets, hence a need for better management practices and biosecurity. The STDF projects are focused at achieving better health management and biosecurity strategy plan in the region. In 2008, the FAO sent a questionnaire assessing aquatic biosecurity capacity of 9 countries. The feedback was that:

- There is a degree of variation between participating countries in aquatic biosecurity
- Other countries stood out in terms of good biosecurity measures
- Aquatic biosecurity not recognised in government policies
- Biosecurity appears in legislation and policies however implementation is poor
- Little coordination and collaboration between regional countries
- Government veterinary and fisheries (private) services are functionally isolated

Four elements of biosecurity framework include:

- National border control (reporting of disease for OIE, SPS agreement)
- Incidence response (EUS for wild species)- should be a Memorandum of Understanding between neighbouring countries
- Internal domestic biosecurity controls (stock management and on-farm biosecurity)

- General infrastructure (standards, record keeping, extension services, scientific research and capacity)

Missing gaps in state capacity development

- Farm level intervention and value chain analysis
- Trade competitiveness and market access aspects
- Regional institutional capacity building
- Rational for targeting (which countries to target)
- Trade regions/ sub-region/ country RECs
- Food safety

In his concluding remarks he mentioned that there is a need for risk assessment training and a better collaboration among government and private sector.



Dr Rohana proving presentation on TILAPIA project

4.2 Amendments and suggestion to the proposed TILAPIA project concept note

These were informed by lesson learnt from Bangladesh STDF funded project.

- Enlarge stakeholders participation
- Incorporate fish health issues
- Capacity building- training of veterinary in fish health
- Value chain inclusion- it was highlighted as a challenge as most products goes straight to the market
- Best practise model- use an example of West Africa intra-regional trade
- Link between fish trade and farmers. Biosecurity process integrates confidence in the products and value additions makes prices competitive.
- Integrates food safety
- Pesticides usage and implement Aquaculture Certification Guidelines and Marine Stewardship Council (MSC)
- Incorporate record keeping in fish trade

- Harmonise/ implement Africa's Eco-labelling Mechanism (AEM)

4.3 Outcomes of the TILAPIA proposal Working Groups

These were the main elements or building blocks for refining concept note of the proposed TILAPIA project. The participants were divided into three (3) working groups according to key result area, discussed and elaborated on the current status and future needs of the project as well as the activities of TILAPIA for implementation. The presentation of the outcomes from discussions by the working groups on the TILAPIA proposal were preceded by a brief presentation of Dr. Mohamed Seisay on the key provisions of the TILAPIA proposal.

WORKING GROUP 1:

RESULT AREA 1: Institutional and human resources capacity to prevent, detect and respond to aquatic animal diseases of economic or public health significance

The current status:

- Relevant national institutional capacities are inadequate to serve the emerging aquaculture industry and the aquatic animal health sector
- Relevant infrastructure and trained human capacity is seriously lacking
- No active surveillance, emergency preparedness, information sharing and coordination
- Inadequate planning for an emerging industry
- No regional aquatic animal health management plan
- No priority disease list
- Poor public health awareness

Activities for Implementation

- **Awareness-** there is a need to sensitise stakeholders about aquaculture and its potential and also sensitise governments to prioritise aquaculture and allocate budget for aquatic animal health activities.
- **Human capacity building-** this can be achieved by provision of 20 scholarships and incentives to scholars; training of Veterinary and Fisheries officers, Para-Veterinary officers, farmers, developing training programme for staffing the diagnosing laboratories. Support can be offered to a sub-regional twinning programme as recommended by OIE and also improve the curricula of veterinary students by including aquatic animal diseases.
- **Infrastructure development** can be enhanced by assessing current level of laboratories in 5 African regions; upgrading /establishing well-funded laboratories and diagnosing centres in high priority aquaculture countries/sub region. In addition relevant agencies (Veterinary and Fisheries services) can be strengthened in terms of providing equipment to carry out various responsibilities.
- **Diseases surveillance** by creating regional aquatic animal health strategic plan and producing a list of diseases that require regular surveillance, capturing data properly and communicate or disseminate data to other national centres.

WORKING GROUP 2:

RESULT AREA 2: Policy/legal frameworks aimed at promoting legal trade, addressing unregulated international trade and encouraging investments in domestic production of safe aquatic commodities for human consumption

The current status:

- Obsolete, fragmented and weak policies and regulatory frameworks
- Overlapping and conflicting mandates among responsible agencies
- Ineffective penalties and weak law enforcement
- High tariffs
- Lack of support and incentives for the development of Small Medium Enterprises (SME's) aquaculture operators
- Lack of investment promotion agencies and business promotion councils

Activities for Implementation

- **Elaborate harmonised trade policies and legal frameworks-** this can be achieved by reviewing national policies and aligning with RECs. The national trade policy and legislation should be drafted and consistent with WTO/SPS and trade barrier to trade (TBT) with focus on biosecurity. A session/ workshop can be organised to validate draft trade policy and legislation.
- **Support empowerment of SME's** through creation of incentives, investment promotion council and credit facilities. This can be achieved by developing advocacy strategy document for SME's access to finance that will explicitly elaborate on insurance, risk sharing, soft loan, micro credit, tax exemptions, and establishment of dedicated agricultural (including aquaculture) development banks. A business skills training for SME's is very crucial for gaining entrepreneurial skills.
- **A value chain analysis for aquaculture products** needs to be conducted by carrying out a value chain mapping for tilapia and catfish (as the main aquaculture produced species in Africa) and support product development and market diversification.
- **Support establishment of regional market and trade information observatory** through supporting development of market and trade observatory and publishing of monthly trade news.

WORKING GROUP 3:

RESULT AREA 3: Private sector investment in aquaculture, with support services being developed along the value chain, leading to spill-over effects benefiting the small scale producers (health services, feed suppliers, seed suppliers, processors, traders, etc.)

The current status:

- **Production inputs:** there is a general lack of quality of feed (including fertilizers) and seed. The feed and seed costs are high and not necessarily available. The feed types and sizes are not suitable for all age groups and general lack of appropriate technology for conducive farming conditions.
- **Technical services-** limited R&D and training of extension personnel to provide practical farming advice and business oriented training and advice. Extension officers are not empowered in water quality monitoring exercises, nets handling and general husbandry practices. The extension officers lack materials that would enable them to perform duties.
- **Marketing-** there is a general lack of coordinated producer clusters (isolated producers) and lack of information in market requirements and competitiveness.
- **Producer associations-** there are weak associations and no strategies present to develop business oriented associations, no synergies between marketing and production, lobbying and advocacy.
- **Aquaculture zones-** lack of designated zones for aquaculture.
- **Processing-** little processing which is not organized and standardized.
- **Infrastructure-** inadequate development targeting aquaculture
- **Legislation and policy-** cost of compliance currently impede or burden farmers; lack of support

provided for vulnerable groups.

- **Finance-** lack of financial resources and poor record keeping.
- **Biosecurity-** no traceability programme and quality control, lack of quality standards across the chain

Activities for Implementation

- **Production inputs-** there is a need for R&D in feed processing, distribution, storage; quality control and labelling. A need arises for establishment of accredited (certified) hatcheries to ensure availability of quality broodstock and seed and also to build technical capacity in hatchery and farm management. There is a need for adopting/implementing appropriate technology for different production scales. This would enable farmers to be more market oriented and capture information on economic performance (i.e Feed conversion ratio and specific growth rates etc.).
- **Increased capacity of extension services-** there is a need to train personnel on extension services (aspects of fish farming) and business oriented services. Farmers association can be used as a break through to train personnel.
- **Marketing-** there is a need to set up associations to aid marketing, lobbying and advocacy.
- **Producer Associations-** requires a more coordinated approach that can enhance capacity for service delivery.
- **Aquaculture zones-** in order to create an enabling environment there is a need to identify best areas for production (site suitability and environmental considerations, including climate change adaptation) that can be accompanied by suitable production systems and best management practices.
- **Processing-** there is a need to focus on value addition on the products that incorporates processing and traceability.
- **Infrastructure-** this activity is related to aquaculture zone in which there is a need for basic infrastructure in the aquaculture facilities such as road, utilities, pumps, water quality monitoring and control.
- **Legislation and policy-** a systematic approach and simplified bureaucracy (one stop shop) is required that can make provision of input and technical support for vulnerable groups in aquaculture enterprise development.
- **Finance-** credit services from government or private sectors must be created perhaps with exemptions and incentives. Government funding channelled through financial institutions is required which will encourage PPPs. Availability of financial assistance made available and profiles required.
- **Biosecurity-** there is a need to establish HACCP across the value-chain and strengthen capacity building to ensure appropriate implementation and cost-effective procedures.

5. SESSION PRESENTATION AND WAY-FORWARD

The proposed way-forward is as follows:

- i. AU-IBAR will finalise the technical report for TILAPIA project and distribute for inputs
- ii. AU-IBAR will report to SDTF on the 4th January 2015
- iii. AU-IBAR will facilitate stakeholders workshop/ roundtable conference in Nairobi and discuss draft TILAPIA proposal
- iv. Full comprehensive report completed and request for support

6. CONCLUSION

The workshop successfully achieved its main objectives of :

- i. Identifying critical issues and relevant actions to that would adequately address the three stated results

- areas of the TILAPIA project
- ii. Reaching consensus on the building blocks (elements) for the formulation of the full TILAPIA project proposal

The working group session on TILAPIA Project Way-forward facilitated by AU-IBAR and with 47 participants tackled major issues and discussed current status, future needs and actions under three major output headings:

- i. Improved institutional and human resources capacity to prevent, early detect and respond to aquatic animal diseases of economic or public health importance. **The working group identified the following areas of aquatic animal health that require attention: awareness, human capacity building, infrastructure development, disease surveillance, research and coordination.**
- ii. Developed/improved policy/legal frameworks aimed at promoting good governance of fisheries and aquaculture through trade-related measures which address unregulated international trade and encourage investments in domestic production of safe aquatic commodities for human consumption. **The working group identified the following activities that require specific attention: support empowerment of small and medium-sized enterprises (SMEs) (incentives, investment promotion council and credit facilities), elaborate harmonized trade policies and legal frameworks, support establishment of a single window (one-stop shop) for trade formalities, conduct value chain analysis for aquaculture products, and support establishment of regional market and trade information system.**
- iii. Enhanced private-sector investment in aquaculture, with support services being developed along the value chain (animal health practitioners, feed suppliers, transporters, processors, cold chain, HACCP, etc.), leading to spill-over effects benefiting the small-scale producers. **The working group identified a number of key activities under nine areas that require attention: production inputs, marketing, producer associations, aquaculture zones, processing, infrastructure, legislation and policy, finance and biosecurity.**

7. CLOSING REMARKS

In the closing remarks, Dr Mohamed Seisay on behalf of Director- AU- IBAR expressed gratitude for good collaboration and excellent relationship realised in achieving objectives of this workshop. Dr Takavarasha the FAO Representative in South Africa, expressed appreciation on the proceedings of the workshop. Dr Letshwenyo requested participants to utilise OIE services in setting standards, addressing compliance and certification to access markets. Dr Rohana, on behalf of FAO, acknowledged engagements that produced tangible tools and highlighted that FAO made provision for capacity building and technical back-stopping or support for countries in need. Dr Hlatshwayo, on behalf of SADC and South African Government, thanked everyone for their participation and looking forward to future fruitful discussion in addressing aquatic animal health management and biosecurity.

ANNEXES

List participants for TILAPIA session

1. Dr Bernard Mbeha- Botswana
2. Dr Moetapele Letshwenyo- Botswana
3. Dr Divine Tombuh- Cameroon
4. Dr Hiver Boussini- Kenya
5. Dr Peter Ziddah- Ghana
6. Prof Emmanuel Kaunda- Malawi
7. Ms Alda Silva- Mozambique
8. Mr Jivis Deve- Mozambique
9. Ms Victoria Mumba- Namibia
10. Prof Falaye- Nigeria
11. Mr Peter Ramollo- South Africa
12. Mr Qurban Rouhan- South Africa
13. Dr Lindsey Squires- South Africa
14. Ms Mammikele Tsatsimpe- South Africa
15. Dr Magatte Ba- Senegal
16. Dr Hamisi Nikuli- Tanzania
17. Mr Matale Namafuka- Zambia
18. Ms Coulibaly Nesson Desire- Burkina Faso
19. Dr Divine Ngala Tombah- Cameroon
20. Prof Adel Shaheen- Egypt
21. Ms Wora Flone- Gabon
22. Dr Amadou Tall- Ivory Coast
23. Mr Obinna Anozie- Kenya
24. Ms Hellen Moepi- Kenya
25. Ms Christine Kalui- Kenya
26. Ms Zoelys Raboanarijaona- Madagascar
27. Dr Steve Donda- Malawi
28. Ms Laureutina Cossa- Mozambique
29. Ms Khumo Morake- South Africa
30. Mr Keagan Halley- South Africa
31. Ms Dietana Nemudzivhado- South Africa
32. Dr Sloans Chimatiro- Zambia
33. Dr Bothwell Makodza- Zimbabwe
34. Ms Ilda Lucas- Angola
35. Mr Ngongalah Ngwa Roger- Cameroon
36. Mr Jacob Ainoo-Ansah- Ghana
37. Mr Aubrey Lesperance- Seychelles
38. Nelly Isjayi- London
39. Ms Betty Matebesi- South Africa
40. Mr Lomas Mavulwana- South Africa
41. Ms Pontsho Sibanda- South Africa
42. Ms Rirhandzu Mkhari- South Africa
43. Mr Vusi Mthombeni- South Africa
44. Ms Zandile Moloi- South Africa
45. Mr Boy R. Mavuso- Swaziland
46. Mr Paul Mwera- Zimbabwe
47. Mr Vasco Schmidt- Zimbabwe

2. List of members of three TILAPIA Working Group members

GROUP 1

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Dr Peter Ziddah- Ghana
Prof Emmanuel Kaunda- Malawi
Ms Alda Silva- Mozambique
Mr Jivis Deve- Mozambique
Ms Victoria Mumba- Namibia
Prof Falaye- Nigeria (Chairperson)
Mr Peter Ramollo- South Africa
Mr Qurban Rouhan- South Africa
Dr Lindsey Squires- South Africa (Rapporteur)
Ms Mammikele Tsatsimpe- South Africa
Dr Magatte Ba- Senegal
Dr Hamisi Nikuli- Tanzania
Mr Matale Namafuka- Zambia

Ms Pontsho Sibanda- South Africa
Ms Rirhandzu Mkhari- South Africa
Mr Vusi Mthombeni- South Africa
Ms Zandile Moloi- South Africa
Mr Boy R. Mavuso- Swaziland
Mr Paul Mwera- Zimbabwe
Mr Vasco Schmidt- Zimbabwe (Rapporteur)

GROUP 2

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Dr Divine Ngala Tombah- Cameroon
Prof Adel Shaheen- Egypt
Ms Wora Flone- Gabon
Dr Amadou Tall- Ivory Coast
Mr Obinna Anozie- Kenya
Ms Hellen Moepi- Kenya (Rapporteur)
Ms Christine Kalui- Kenya
Ms Zoelys Raboanarijaona- Madagascar
Dr Steve Donda- Malawi (Chairperson)
Ms Laureutina Cossa- Mozambique
Ms Khumo Morake- South Africa
Mr Keagan Halley- South Africa
Ms Dietana Nemudzivhado- South Africa
Dr Sloans Chimatiro- Zambia
Dr Bothwell Makodza- Zimbabwe

GROUP 3

Ms Ilda Lucas- Angola
Mr Ngongalah Ngwa Roger- Cameroon
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Mr Aubrey Lesperance- Seychelles
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