



Secure Fisheries
Secure Futures



REGIONAL TRAINING ON POST-HARVEST LOSS ASSESSMENT METHODOLOGY

Nairobi - Kenya



INDIAN OCEAN
COMMISSION



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Regional training on post-harvest
loss assessment methodology

Dar es Salaam & Mwanza
Tanzania

GCP/RAF/466/EC SmartFish Project

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Preamble

SmartFish is an Indian Ocean Commission programme for the implementation of a regional fisheries strategy for the Eastern and Southern Africa and Indian Ocean (ESA-IO) region. It is funded by the European Union under the 10th European Development Fund and aims to contribute to an increased level of social, economic and environmental development and deeper regional integration in the ESA-IO region through improved capacities for the sustainable exploitation of fisheries resources.

There are five main result areas to the programme: fisheries development and management; fisheries governance; effective monitoring, control and surveillance; fish trade; and food security. The Food and Agriculture Organization of the United Nations (FAO) jointly manages the programme, in particular on matters relating to SmartFish's Result 1 (fisheries development and management) and Result 5 (food security).

In addressing Result 5 during the implementation of the programme, FAO/SmartFish, in collaboration with the Fisheries Education and Training Agency (FETA) in Tanzania, organized a regional training workshop on 'post-harvest fish loss assessment', which took place in Dar es Salaam and Mwanza (The United Republic of Tanzania) from 28 January to 2 February 2013.

The main objective of the training workshop was the dissemination of technology-based post-harvest fish loss assessment techniques among key small-scale fisheries practitioners in the region. This activity is part of FAO/SmartFish initiatives to support beneficiary countries to reduce post-harvest losses and consequently improve the regional supply of fish and fish products.

Twenty-two participants from nine different countries took part in the workshop: Burundi, Djibouti, Kenya, North Sudan, Rwanda, South Sudan, Uganda, Madagascar and Tanzania. Resource persons were from FAO, SmartFish and FETA.

Acknowledgements

The Fisheries Education and Training Agency in the United Republic of Tanzania (FETA) wishes to thank all organizations and individuals for the moral and material support they provided, which made it possible to host the regional training workshops on post-harvest fish loss assessment in Dar es Salaam and Mwanza. FETA is hugely grateful to the FAO/SmartFish programme, funded by the European Union (EU), for providing funds, expertise and the required technical assistance. Additionally, thanks go to the FAO offices in Rome and Tanzania for their professional coordination of the training workshop.

The regional workshop was basically a field-based training, relying heavily on the active participation and cooperation of fishers. Hence, we wish to extend our heartfelt thanks to fishers at the Dar es Salaam Ferry fish market, Kariakoo market, Kabangaja landing site and at Kilumba International Fish Market for their time, enthusiasm and cooperation. Indeed, without their contribution the regional training would have had a different outcome. Similarly, we thank the local government authorities in Dar Es Salaam and Mwanza cities for their support and cooperation.

Executive summary

High post-harvest fish loss is one of the major challenges to small-scale fisheries, especially in Africa where malnutrition and food insecurity are rampant. Reductions in these losses have been hampered by a lack of data and compounded by existing complexities in small-scale fisheries, including the multiplicity of species, fishing gear and methods, as well as the number of landing sites.

Despite the numerous challenges, efforts have been made to develop methodologies to assess losses. Today, it is widely acknowledged that three loss assessment methods (IFLAM, LT and QLAM) can be used to collect adequate data and information on post-harvest fish losses for rational practical interventions. The efficiency and effectiveness of these three methods could be further improved with the use of Information Communication Technology (ICT) such as mobile phone technology.

It was with this in mind that the FAO/SmartFish programme, in collaboration with the Fisheries Education and Training Agency in Tanzania, planned, organized and implemented a regional training workshop on post-harvest fish loss assessment methodology, which was held from 28 January to 2 February 2013 in the United Republic of Tanzania.

The main objective of the training workshop was to disseminate technology-based post-harvest fish loss assessment methodology among key small-scale fisheries practitioners in the region. This activity is part of FAO/SmartFish initiatives to support beneficiary countries to reduce post-harvest losses and consequently improve the regional supply of fish and fish products.

This competency-based training workshop had two principle learning outcomes: participants are able to carry out post-harvest fish loss assessments in small-scale fisheries; are able to record and send data to the database through the use of a mobile phone. To facilitate greater practical demonstrations, the majority of the training took place in the field, at fish landing sites and markets.

Twenty-two participants from nine different countries took part in the workshop: Burundi, Djibouti, Kenya, North Sudan, Rwanda, South Sudan, Uganda, Madagascar and Tanzania. Resource persons were from FAO, SmartFish and FETA.

Résumé exécutif

L'importance des pertes de poissons après capture constitue l'un des défis majeurs de la pêche artisanale, surtout en Afrique où la malnutrition et l'insécurité alimentaire sont endémiques. Les tentatives de réduction de ces pertes ont été entravées par le manque de données et aggravées par la complexité ambiante dans ces pêcheries à petite échelle, comme la multiplicité des espèces, les engins et les méthodes de pêche, ainsi que le nombre de sites de débarquement.

Malgré les nombreux défis qui se posent, des efforts ont été entrepris pour développer des méthodologies d'évaluation des pertes. Aujourd'hui, il est largement reconnu que trois méthodes d'évaluation de pertes (IFLAM, LT et QLAM) peuvent être utilisées pour recueillir des données et des informations adéquates sur les pertes de poissons après capture afin de procéder à des interventions pratiques rationnelles. L'efficacité et l'efficience de ces trois méthodes pourraient être encore améliorées par une utilisation de la technologie de l'information et de la communication (TIC), comme la technologie de la téléphonie mobile.

C'est dans cet esprit que le programme FAO / SmartFish, en collaboration avec l'organisme d'éducation et de formation à la pêche en Tanzanie (Fisheries Education and Training Agency in Tanzania) a prévu, organisé et mis en place un atelier régional de formation sur la méthodologie d'évaluation des pertes de poissons après capture. Cet atelier s'est tenu du 28 janvier au 2 février 2013 en République-Unie de Tanzanie.

L'objectif principal de l'atelier de formation était de diffuser, parmi les principaux concernés de la pêche artisanale dans la région, la méthodologie fondée sur la technologie pour l'évaluation des pertes de poissons après capture. Cette activité s'inscrit dans le cadre des initiatives FAO / SmartFish pour aider les pays bénéficiaires à réduire les pertes après capture et, par conséquent, améliorer l'offre régionale en termes de poissons et de produits de la pêche.

Cet atelier de formation fondé sur les compétences a résulté en deux principaux acquis d'apprentissage : les participants sont en mesure de procéder à évaluer les pertes de poissons après capture dans les pêcheries à petite échelle ; ils sont en mesure d'enregistrer et d'envoyer des données à la base de données grâce à l'utilisation d'un téléphone portable. Pour faciliter de meilleures démonstrations pratiques, la plus grande partie de la formation s'est faite sur le terrain, sur les sites de débarquement du poisson et les marchés.

Vingt-deux participants ont pris part à l'atelier. Ils venaient de neuf pays différents : Burundi, Djibouti, Kenya, Madagascar, Ouganda, Rwanda, Soudan du Nord, Soudan du Sud et Tanzanie. Les personnes ressources étaient de la FAO, SmartFish et FETA.

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Acronyms and abbreviations

BMU	Beach Management Unit
CEO	Chief Executive Officer
DIFMC	Dar es Salaam Integrated Fish Market Complex
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FETA	Fisheries Education and Training Agency
ICT	Information Communication Technology
IFLAM	Informal Fish Loss Assessment Method
KIFK	Kilumba International Fish Market
LT	Load Tracking
MDGs	Millennium Development Goals
MLFD	Ministry of Livestock and Fisheries Development
NDG	Nokia Data Gathering
PHFL	Post Harvest Fish Loss
PHFLA	Post Harvest Fish Loss Assessment
SOFIA	State of World Fisheries and Aquaculture
SSF	Small-Scale Fisheries
SSI	Semi-Structured Interview
QLAM	Questionnaire Loss Assessment Method
URT	United Republic of Tanzania

1. Introduction

The continuing underdevelopment of Small-Scale Fisheries, especially in Sub-Saharan Africa, is not caused by unfavourable natural conditions but by the failure of the various stakeholders to adopt more appropriate policies and practical measures. The situation is exacerbated by a lack of adequate data and information for cost-effective and rational decision-making with regards to ideal interventions.

Consequently, small-scale fisheries (SSF) are characterized by a host of challenges notably; over-fishing, over-capacity, illegal fishing, habitat degradation and, of even greater importance in relation to the training workshop, high post-harvest fish losses. These vices have indeed trapped small-scale fishers into poverty, ruining their chances to sustain their livelihood from the otherwise rich fisheries.

However, it is widely believed that with the appropriate policies and practical intervention the situation can be reversed, turning SSF into a viable industry with a host of benefits, as articulated in the Millennium Development Goals (MDGs). Potentially, if things are perfected, small-scale fisheries could contribute to eradicating extreme poverty and hunger, improving maternal health, reducing child mortality and promoting gender equity, as well as empowering women in fishing communities.

In this context, the need for fisheries data in order to generate adequate information for policy formulation and practical intervention to mitigate the challenges cannot be overemphasized. With regard to post-harvest fish losses there has been a contention that the dispersed nature of many small-scale and less developed fishing operations makes it virtually impossible to make definitive estimates of post-harvest losses in all but a short time frame and in a relatively small sample of a larger fishery. In this case, measuring losses accurately could be an extremely long and complicated process, which may not justify the expense involved.

Fortunately, remarkable efforts made by various stakeholders have made it possible to develop three assessment methods that can be applied in measuring post-harvest fish losses in small-scale fisheries. The methods - IFLAM, LT and QLAM - have been applied in a number of countries where very useful data and information on post-harvest fish losses have been generated. However, the application of these methods can be time consuming and costly, especially in situations where data needs to be collected from numerous sites at different times or seasons.

Although the complexity may be somewhat daunting, it is nonetheless possible to resolve the issue by using Information Communication Technology (ICT) such as mobile phones to enhance the efficiency and effectiveness of loss assessment methods.

Mobile phone technology has already been applied successfully in the traceability of livestock diseases and thus it has the potential to be equally useful in post-harvest fish loss assessments.

It was with this in mind that the FAO/Smartfish programme, in collaboration with the Fisheries Education and Training Agency in Tanzania, planned, organized and conducted a regional training workshop on post-harvest fish loss assessment methodology. The training focused on the application of IFLAM and the use of mobile phone technology in collecting post-harvest data and information to be sent to a central database, where analysis could be conducted efficiently. This report briefly presents the way the training workshop was planned and conducted.

2. Planning and administration

Planning of the regional training workshop was carried out based on a situation analysis and a training needs assessment generated from a number of technical consultation meetings in the region, as well as on experience from the FAO's post-harvest programme of 2006.

2.1 Institutional arrangements for the training

The training workshop was organized by FAO/SmartFish in collaboration with the Fisheries Education and Training Agency in Tanzania (FETA). SmartFish is a programme applied by Indian Ocean Commission for the implementation of a regional fisheries strategy for the Eastern and Southern Africa and Indian Ocean (ESA-IO) region. It is funded by the European Union under the 10th European Development Fund and aims to contribute to an increased level of social, economic and environmental development and deeper regional integration in the ESA-IO region through the sustainable exploitation of fisheries resources.

The programme has five main result areas: fisheries development and management; fisheries governance; effective monitoring, control and surveillance; fish trade; and food security. The Food and Agriculture Organization of the United Nations (FAO) co-manages the programme, specifically, Result 1 (fisheries development and management) and Result 5 (food security).

The role of the FAO/SmartFish programme in the regional training workshop was to lead the process by outlining the learning outcomes, training objectives, content and delivery of the training, including recruitment of resource persons for the training.

The Fisheries Education and Training Agency in Tanzania was the host institution, responsible for overseeing the logistics, planning and implementation of the training workshop both in Dar es Salaam and Mwanza.

2.2 Organization of the training workshop

The training workshops took place in Dar es Salaam and Mwanza, in the United Republic of Tanzania. The essence of this arrangement was to provide orientation on both marine and freshwater post-harvest fish loss scenarios to meet the varied training expectations of participants from the different countries.

2.3 Funding

The FAO/SmartFish programme provided a total of US \$10,000 to cover the training expenses, including six days accommodation for 22 participants, lunch, interpretation services and local transport costs. At the same time, however, FETA had to inject in-kind contributions to meet other training expenses (see Annex 9).

2.4 Opening ceremony

The opening ceremony, including day one activities, took place at the Dar Es Salaam Courtyard Hotel. Top officials from the Ministry of Livestock and Fisheries Development in the United Republic of Tanzania and the FAO Country Representative attended the opening ceremony.

The main message delivered during the opening ceremony was the fact that, post-harvest fish losses limit the availability of and access to food, and constitute a loss in income, particularly for the poorer and more vulnerable communities, which consist mainly of women. This situation is unacceptable, particularly in regions known for food insecurity and increasing poverty.

In certain areas data shows that post-harvest losses in artisanal fisheries in Africa range from 30–40 percent and sometimes more. Hence, there is a need to consolidate a sustainable strategy to reduce these losses. It is important to address this issue with consistency whilst using an approach that is centred around those experiencing the losses, and produce robust data on the true extent of the situation, its root causes and any other additional information in order to conceive realistic and feasible interventions.

Based on this background information, the FAO/SmartFish programme, in collaboration with FETA in Tanzania, decided to organize the regional training workshop. The aim was to build capacity within the region to be able to carry out loss assessments along different fish value chains in the respective countries, through an innovative new methodology based on the use of mobile phones for data collection and transfer. Some of the speeches and a press cutting are appended to this report.

3. Training programme

The regional training workshop was organized in such a way that participants were able to learn the practical aspects of assessing post-harvest fish losses in both marine and freshwater scenarios. Hence, the training took place in Dar es Salaam (marine water) from 28 to 30 January 2013 and in Mwanza (Lake Victoria, freshwater) from 31 January to 2 February. The detailed training programme can be found in Annex 2.

4. Resource persons

The regional training was based on practical elements and focused on imparting psychomotor skills with regard to the use of mobile phone technology in collecting post-harvest fish loss data and information. To make it work, the workshop had to adopt a participatory mode of teaching-learning process where participants were encouraged to share their experiences of collecting data through interviewing fishers, fish merchants, transformers and traders of fish products from artisanal fisheries.

Nevertheless, some traditional lectures were also delivered in order to provide basic frames of reference on the subject matter. A list of the resource persons can be found in Annex 1.

5. Delivery of training

Day one of the training workshop was devoted to introducing the basic frames of reference associated with post-harvest fisheries, loss assessment and the new methodology for assessing losses. For the remaining days, training sessions were organized in such a way that each day began with a theoretical perspective and a simulation of what had to be done in the field on that specific day. Participants then went out to the field to collect data and information on post-harvest fish losses before returning for a review session.

Day 1

5.1 Introduction to post-harvest fish loss assessment

Davide Signa, from the FAO/SmartFish programme, introduced the training workshop by highlighting an urgent need to reduce the high post-harvest fish losses that occur in small-scale fisheries in Africa. He emphasized, however, that collection of adequate data and information on post-harvest losses is a precondition for tackling the challenge effectively.

He went on to outline some of the efforts that have been made in searching for appropriate methods for assessing fish losses in small-scale fisheries. He specifically referred to the Informal Fish Loss Assessment Method (IFLAM), Load Tracking (LT) and Questionnaire Loss Assessment Method (QLAM), which have been applied with a certain degree of success.

However, he conveyed that experience suggests that the use of these three methods is both time consuming and costly, hence the need to enhance rapid collection and analysis of the data by using ICT, in particular especially the mobile phone technology, which is widely used even in remote areas. The use of this technology has been extremely successful in livestock disease traceability.

5.2 Post-harvest fish loss assessment in Tanzania

Alhaj Yahya Mgawe from FETA presented a case study on post-harvest fish loss assessment in Tanzania. He started by giving an overview of the profile of the fisheries industry in Tanzania before going on to outline the major challenges currently being faced and how the country is trying to mitigate them. Regarding post-harvest fish losses, he suggested that most of the loss occurs in low value small pelagic fisheries including marine and freshwater sardine fisheries. He provided data to reinforce his contention, for example, based on the study carried out at the Lake Victoria sardine fishery it was found that losses are caused by a variety of factors, as outlined in Table 1 below.

Table 2: Fish losses in Lake Victoria sardine fishery in Tanzania

Cause of loss	% loss	Fresh weight (Tonnes)	Dry weight equivalent (Tonnes)
Physical damage during fishing	0.9%	1,775	621
Animal predation	2.0%	3,944	1,380
Discarded after prolonged rain	4.0%	3,155	1,104
Theft	0.1%		35
Sinking sacks during transportation	0.7%		520
Presence of by-catch	2.5%		1,750
Quality degradation due to rain	11.0%	22,400	7,840
Change in colour before being sold	30.0%		21,000
Fragments/drying grass	8.0%		5,600

Mr Mgawe went on to suggest that in financial terms, the itemized losses (Table 1) could add up to more than 45 billion TSh. (approx. US \$30 million), which is substantial by any standard. He pointed out that various interventions have been made to reduce post-harvest losses, including training and raising awareness amongst operators. On the technological side, the focus has been placed on the construction of improved fish processing methods such as smoking kilns and drying units at some landing sites.

Mgawe concluded that the three post-harvest fish loss assessment methodologies (IFLAM, LT and QLAM) have been field-tested and proved to be effective in assessing post-harvest fish losses, although that does not preclude the need to improvise and make them more efficient and cost-effective.

5.3 The application of mobile phone technology in PHFLA

This module was presented by IT specialist, Phil Fong, from the FAO. He started by emphasizing that mobile phone technology is not meant to *replace* the post-harvest fish loss assessment methodologies in place but rather to make the whole process more efficient and cost effective. He underscored the fact that nowadays mobile phones are used in almost all households throughout Africa, suggesting that it is indeed an appropriate technology for the region.

He went on to give a brief description on how the system works. First of all, the user must have the appropriate knowledge and skills in post-harvest data collection otherwise the mobile phone technology is meaningless. The mobile phone itself must be programmed with in-built survey forms that have been completed by a skilled data collector (see Annex 4).

He outlined important features of the mobile phone to be used in post-harvest data collection across the region, including the following:

- 2 GB card required;
- Use of Nokia Data Gathering (NDG) software - no cost software;
- GPS available;
- High resolution camera;
- 'Symbion' operating system for Nokia;
- Touch screen.

Thus, using the mobile phone, the data collector would be able to enter data directly into the survey form, take high-resolution photographs and transfer everything to a central computerized database.

5.4 Simulation of PHFLA using the mobile phone

This module was delivered by Phil Fong, with assistance from Jackson Kangethe from the FAO office in Kenya. They pointed out important steps in the process of data collection and transfer when using the mobile phone methodology. More specifically, the steps are:

- Planning and preparation;
- Group meetings and identification of key respondents;
- Recording of data using paper survey and photographs;
- Entering data into a mobile phone;
- Transfer of data from a mobile phone to a central computerized database.

Much time was spent demonstrating how to enter data into the mobile phone. Participants split into five groups to complete an assignment on planning for PHLA, conducting group meetings, identifying key informants, collecting data and simulating the use of mobile phones.

Day 2

As previously outlined, the second day of training concentrated on practical fieldwork carried out in a variety of places. In the field, post-harvest data were generated using semi-structured interviews (SSI) and for practical reasons, the data were first collected on paper before being transferred into similar forms in mobile phones.

5.5 Practical sessions at Dar es Salaam Integrated Fish Market Complex

Dar es Salaam Integrated Fish Market Complex (DIFMC) is the largest fresh fish market in Tanzania. It receives fresh fish supplies from almost all of the country's coastal fishing zones. It is also becoming an important selling point for increasing volumes of imported frozen fish. There are about 2,000 registered and thousands of unregistered traders carrying out a variety of business at the DIFMC. It is estimated that over 10,000 people visit the market on a daily basis. The facility receives an average of 4,000 – 5,000 tonnes of fish per month, more than half of this being sardines.

In summary, the DIFMC offers direct and indirect employment to thousands of people who serve over a million customers along the supply chain in the most commercial city of Tanzania. Dar es Salaam itself is estimated to have over 4 million inhabitants. The DIFMC facility consists of a landing site, an auction area, fish stalls, a frying area, a sun drying area, cold storage facilities, restaurants and a berth for canoes.

Training at DIFMC included a preliminary site visit to allow for an overview of the venue and to identify local co-operators and key informants, planning for the practical work and checklist preparation. The actual practical work involved interviewing different groups of operators at the market, data collection, and data entry into mobile phones.

Day 3

The third day began with a recap of the previous day's field experience. Discussions were thorough and it was unanimously agreed that the survey forms should be revised to accommodate the lessons learned from the DIFMC. Likewise, the DOs and DON'Ts were highlighted, particularly with regard to the use of mobile phones. A strong warning was echoed that sim-cards should not be removed from the mobile phones for any reason. As doing so requires the entire set-up to be reconfigured. Similarly, to avoid technical disruption, participants were also warned against putting other sim-cards in the phones.

5.6 Practical session at Kariakoo Market

Kariakoo Market is the largest mixed-goods market in Tanzania, serving the millions of people residing in Dar es Salaam and nearby towns. The market is located in the city centre and is easily accessible by both retailers and whole-sellers.

At Kariakoo, traders sell a variety of products including agricultural produce, fish, both fresh and cured fishery products and other merchandise.

Fish and fishery products sold at the market include fresh fish and cured products from almost all water bodies in Tanzania. For example, there are Tilapia and Nile Perch from Lake Victoria, freshwater sardines from Lakes Tanganyika, Victoria and Nyasa, and a host of other different types of fish from both marine and other freshwater sources. The volume of fish received at this market is substantial, estimated at 10 tonnes of dried weight per day.

Workshop participants had the opportunity to have a tour round the market before splitting into smaller groups to interview key informants. At the end of the day, the groups were able to share their experiences from the market.

Day 4

Day 4 began at 04.00 hours with the whole group setting off for Julius Nyerere International Airport in Dar es Salaam to board a plane to Mwanza, the largest city in the Lake Victoria zone.

Lake Victoria, with an area of approx. 68,900 km², is the largest lake in Africa and the second largest fresh-water lake in the world (after Lake Superior in the USA). Tanzania occupies 49 percent of this lake, whilst Uganda and Kenya share the remaining portion, 45 and 6 percent respectively.

The Lake Victoria fishery is the most important in Tanzania in terms of quantity of fish landed, which is estimated at approx. 200,000 tonnes per annum. It employs over 100,000 fishers in primary production and over a million in allied industries. Over the past three decades the fishery of Lake Victoria has experienced substantial changes mainly owing to the rapid proliferation of an exotic Nile Perch (*Lates niloticus*) species. Changes occurred in the historical species assemblages, which not only brought ecological changes but also led to technical and socio-economic transformations. Indeed, species composition has been reduced to remain largely within three dominant species; the Nile Perch itself; Tilapia (*Oreochromis niloticus*) and the Lake Victoria Sardine (*Rastrineobola argentea*).

Following the Nile Perch boom, the market for this species shifted from the domestic to the export market. International fish trade developed exponentially, making Nile Perch fillets and its by-products one of Tanzania's major export commodities, with the EU representing its largest market.

On the other hand, Tilapia (*Oreochromis niloticus*) is mainly sold on the domestic market, whereas the Lake Victoria Sardine, locally known as 'dagaa' (*Rastrineobola argentea*), is sun-dried before being sold to both domestic and regional markets. Tanzania has established a very strong regional market for this fish, especially in the Democratic Republic of Congo, Rwanda and Burundi.

5.7 Practical session at Kabangaja fish landing site

After checking-in at the Hotel LaCairo in Mwanza, the group proceeded to Kabanganja fish landing site to continue with practical training on data collection.

Kabangaja is one of the major landing sites for the Lake Victoria Sardine, a species commonly known as *dagaa* in Tanzania, *omena* in Kenya and *mukene* in Uganda. The site consists of over 300 fishers who land and sun-dry the sardines for domestic and regional fish markets.

Sardine sun-drying operators simply spread their produce on the ground to dry it, a practice which has been in place since time immemorial and which is commonplace all over the lake. As a result, fish loss is considered to be very high in this fishery due to several factors including contamination, insect infestation, theft and predation from birds, amongst others.

Unfortunately, the field visit took place on a moonlit night, a time when no sardine fishing is carried out. However, this allowed enough time to conduct thorough interviews with key informants. Indeed, participants seized the opportunity to practice data collection in a situation where different languages are being spoken.

From Kabangaja, the group proceeded to the FETA-Nyegezi Campus in Mwanza to see some of the initiatives being taken to reduce high post-harvest fish losses. Interventions include improved processing techniques and production of value added products from the Lake Victoria Sardine. At the end of day 4, the group reviewed their experiences from the field and planned for day 5 activities.

Day 5

With day 5 being the last day of the training, the agenda was full and included a practical session at the Kilumba International Fish Market (KIFM); review of experiences gained; and planning for the way forward once the participants were back in their respective countries. It also included budgeting, a closing ceremony and the departure back to Dar es Salaam.

5.8 Practical session at Kilumba International Fish Market

Kilumba International Fish Market (KIFM) is probably the largest cured fish market in the Eastern, Central and Southern Africa region. The selection of this gigantic fish market, as one of the areas for practical training was based on the fact that huge volumes of cured fish are transacted there. It is estimated that more than 45,000 tonnes of dried sardine are traded at the market each year. Additionally, 500,000 to 600,000 units of salted Nile Perch and about 350,000 units of smoked Nile Perch are sold at the market annually. The fish and fish products are brought to the market, mostly by on-board transport canoes and trucks and are then distributed to the domestic and regional markets mainly by trucks.

Data available at the market suggests that half of the products are sent to border destinations. It is strongly believed that sending huge quantities of cured fish to border towns is a way to unofficially export the product through cross-border trade. The remainder of the products from KIFM, is mostly exported to the regional marketplace including the Democratic Republic of Congo, Rwanda, Burundi, Kenya, Uganda and Zambia.

Participants had the opportunity to conduct interviews at the KIFM, though rainfall somewhat disrupted the usual daily market activities.

6. Planning for the way forward

Later on day 5, participants were trained on how to plan and budget for post-harvest fish loss assessments in their respective countries. Mobile phones were also provided to participants for them to use for the collection and dissemination of post-harvest fish loss data in their respective countries. It was agreed that once back home, participants would prepare plans and budgets for submission to FAO/SmartFish for further action. The idea is to have a collaborative fish loss assessment in the region facilitated through the use of the mobile phones provided by the programme.

7. Evaluation and closing of training

A summative evaluation was conducted at the end of the training workshop. Overall, the results indicate that the participants were satisfied with how the training programme was organized and managed (see Annex 3). Teaching materials, methodology and tutorage were all highly rated, with trainees excited about the use of mobile phones in post-harvest fish loss data collection. On the other hand, however, it was noted that the time allocated for the training was rather short for the participants to be able to take in all of the necessary frames of reference on the subject matter. Hence, it was strongly recommended that more time should be allocated for such an important training. Other recommendations included:

- the need to improve the questionnaire by removing repetitions;
- questionnaires should be translated into local languages to facilitate data collection;
- the need for another training workshop post implementation of data collection using mobile phone technology in the respective countries.

In conclusion, both the formative and summative evaluations suggested that the teaching-learning process was successful in imparting the intended knowledge and skills. The training ended with a strong commitment from all participants to keep on using the mobile phones methodology in PHLA as an outcome of the regional training workshop.

As there was no other business, certificates of attendance were issued and the training workshop was officially closed by Alhaj Yahya Mgawe, the Chief Executive of FETA, who thanked all participants for their commitment and outstanding performance during the workshop. He wished those from outside Tanzania *bon voyage* back home.

Annex 1. List of participants

Name	Title	Location	Country	E-mail	Telephone
Seraphin Niyonsenga	Livestock Extension Specialist	Kigali	Rwanda	niseraphin@yahoo.fr	+250 78 856 90 37
Gregoire Dusabemungu	Head of Fisheries and fish farming Program	Kigali	Rwanda	gregoiredusabe@yahoo.fr	250 730 355920
Sara Bawaye	Fisheries Inspector	Entebe	Uganda	sbawaye@yahoo.co.uk	+256 772 665626
James Mulamba	Senior Fisheries Inspector	Entebe	Uganda	muljames@yahoo.co.uk	+256 772 515780
Juma Muzamiru	Fisheries Officer	Buikwi	Uganda	anatseba@yahoo.com	256 779 294717
Mujwala Musoke	Fisheries Officer	Mukono	Uganda	mujwalamusoke@gmail.com	
Zbigniew Kasprzyk	Consultant Individuel	Antananarivo	Madagascar	ocean.bis@moov.mg	+261 320781838
Alain Jaosedy	Chef Service Regional de la Peche a Sofia	Antananarivo	Madagascar	jaosedyalain@yahoo.fr	+261 326585199
Emmanuel Mondoka	Principal Fish Technologist	Mwanza	Tanzania	emondoka@yahoo.com	+255 786 830827
Prosper Gilimwa	BMU Member	Dar Es Salaam	Tanzania	j.gilimwa@yahoo.com	255 755 485204
Charles Rwekaza	Fisheries Technologist	Mwanza	Tanzania	ctrwekaza@yahoo.com	255 754 440898
Evariste Rumbete		Bujumbura	Burundi	evru2002@yahoo.fr	257 794 75777
Joseph Ndikumana		Bujumbura	Burundi	ndukumana2008@yahoo.fr	+257 77 780 553
Khamis Kellei	Inspector for fishing gears technology	Juba	South Sudan	killeijohn113@yahoo.com	+211 911396013
Woja Juma Kenyi	Inspector for Fish limnology	Juba	South Sudan	fjumalomude@yahoo.com	+211 913445141
Albert Mwangi	Consultant	Siaya	Kenya	albmwangi@yahoo.com	+254 722 658470
Ronald Ndeche	Assistant Fisheries Officer	Ukunda	Kenya	ronald.deche@gmail.com	254 735 242421
Mwakiraa Mwakiraaa	BMU official	Vanga	Kenya		+254728 968676
Edward Oremo	BMU suba beach	Homa-bay	Kenya	edwardoremos@yahoo.com	+254 725 101706
Mohamed Hamadou	Fisheries Technician		Djibouti	djidarar@hotmail.com	+253 7775 1918
Mamduh Ahmed	Fisheries Officer	Port Sudan	North Sudan	mamduhahamed@yahoo.com	+249 918178159
Mohammed Adam	Fisheries Officer	Khartoum	North Sudan	m2sulieman@yahoo.com	+249 129181894

Resource persons

Resource person	Module	Responsibility	Telephone	E-mail
D. Signa	Introduction and Module 3	Presentation of the SmartFish project and introductions to the training programme / Introduction to the new PHLA methodology		davide.signa@fao.org
Y. Mgawe	Module 1	Introduction to PHLA: Tanzania case study	255 755 492988	ymgawe@yahoo.com
Phil Fong	Module 2	Mobile phones technology and its application in PHLA		Phillip.Fong@fao.org
J. Kangethe	Module 4	PHLA methodology	254 736 700102	jackson.kangethe@fao.org
A. Simtoe	-	Overall coordination	+255784 443566	ambakisyes@yahoo.com

Annex 2. Workshop agenda

Day 1

Registration
 Pre-learning test
 Opening ceremony
 Introduction to PHFLA
 PHFLA: Tanzania case study

- Application of mobile phone technology in PHFLA
- Simulation of mobile phone technology

Day 2

Planning and checklists for field work
 Group meeting
 Simulation
 Ferry to fish market, site visits and group session
 Feedback from the field
 Entry and transfer of data collected using mobile phones
 Group exercise 1
 Revision of DOs and DON'Ts

Day 3

Recap of day one
 Briefings on key informant interviews
 Kariakoo fish market, key informant interviews and data entry using mobile phones
 Feedback from field
 Review of data entered
 Open discussion
 Group exercise 2
 Revision of the survey form and adaptation to national context

Day 4

Travel to Mwanza
 Visit new fishing village Kabangaja
 Key informant interviews and data entry – fishermen
 Visit to Nyegezi Campus, dagaa processing units
 Feedback from the field
 Review of data entered
 Open discussion

Day 5

Participatory review of the training materials
 Visit to Kirumba International Fish Market
 Group meeting and data entry – processors
 PHLA planning, budgeting and configuration of mobile phones for in-country work
 Post-learning test
 Training evaluation
 Closing ceremony
 Travel back to Dar es Salaam

Agenda for Day 1

Day 1 - Monday 28 February – Protea Hotel		
08:30 - 09:00	Registration of participants	Secretariat
Session 1: Opening remarks and Introduction		
09:00 - 10:30	Welcoming address by FETA	Alhaj Yahya Mgawe CEO-FETA
	Welcoming address by FAO	Ms Diana Tempelmann, FAO representative in Tanzania
	Opening speech by the Government of Tanzania	Dr. Charles Nyamrunda, Permanent Secretary MLFD
10:30 - 11:00	<i>Coffee break and group photo</i>	
Session 2: Introductory presentations		
11:00 - 11:30	Introduction of the SmartFish project and workshop objectives	Davide Signa, Key Expert Food Security, FAO SmartFish project, Mauritius
11:30 - 12:00	Introduction to post-harvest losses, Tanzanian case study	Yahya Mgawe, CEO FETA
12:00 - 12:30	Introduction to new PHLA methodology	Davide Signa, Key Expert Food Security, FAO SmartFish project, Mauritius
12.30 - 13.00	Mobile phone technology and its application in PHLA	Phil Fong, Data Information Officer, FAO Emergency Office for Africa
13:00 - 14:00	<i>Lunch</i>	
Session 3: PHLA methodology		
14.00 - 15.30	Step 1: Planning and preparation Step 2: Data collection Step 3: Data entry and transfer	Davide Signa, Phil Fong, Training Team, FAO Jackson Kangethe
15:30 - 16:00	<i>Coffee break</i>	
16.00 - 16:45	Simulation exercise	Training Team, FAO
16:45 - 17:00	Wrap up and closure of the first day	Yahya Mgawe, CEO FETA

Annex 3. Training evaluation

Course evaluation (average score and comments)

AREA/LIKERT SCORE	1 (Poor)	2 (Fair)	3 (Good)	4 (Very Good)	5 (Excellent)
Overall impression of the teaching materials	-	18%	18%	59%	5%
Time allocated for the whole programme	5%	38%	38%	14%	5%
Tutorage and practical arrangements	-	5%	56%	39%	-
Quality of training aids	-	-	31%	60%	9%
Food and refreshments	-	5%	26%	64%	5%
Balance between practical and theories	-	5%	68%	22%	5%
Use of smart phone in data collection	-	7%	48%	33%	12%
Future improvements Time allocated for the training was too short for the new technology to be fully mastered. Allocate more time for practical sessions especially when training involves new technology.					
Did training meet your expectations? 1. Expected outputs: <u>Average 96%</u> 2. The training will improve my work: <u>Average 91%</u>					
Any other comments Improve the questionnaire and form to be filled in the smart phone (they do not match in some categories). Consider a pre-learning evaluation in the future. Include time for sightseeing in the timetable. There should be another training to evaluate acquired competencies.					

Annex 4. Sample survey form

	<h2 style="margin: 0;">Post Harvest Fish Loss (PHFL) Data Collection Form v1</h2>		
1. Site Assessment			
Reporting Officer:	<input type="text" value="SURNAME, FIRST NAME"/>	Date of Assessment:	<input type="text" value="DD"/> / <input type="text" value="MM"/> / <input type="text" value="YYYY"/>
Contact Person:	<input type="text" value="SURNAME, FIRST NAME"/>	Phone Number:	<input type="text" value="Cell Number +9999 99 9999 999"/>
District:	<input type="text"/>	Site Name:	<input type="text" value="Locality/Village"/>
Type of Locality: (check all that apply)	<input type="checkbox"/> Fishing <input type="checkbox"/> Processing <input type="checkbox"/> Storage <input type="checkbox"/> Wholesale <input type="checkbox"/> Retail <input type="checkbox"/> Other <input type="text" value="Specify"/>		
List a maximum of the 5 most important infrastructure types and status (take a picture of each infrastructure listed)			
1	<input type="text"/>	Status:	<input type="text" value="1"/>
2	<input type="text"/>	Status:	<input type="text" value="1"/>
3	<input type="text"/>	Status:	<input type="text" value="1"/>
4	<input type="text"/>	Status:	<input type="text" value="1"/>
5	<input type="text"/>	Status:	<input type="text" value="1"/>
Select a number between 1 to 5 to describe the status: 1 Excellent 2 Good 3 Average 4 Poor 5 Bad 6 Not Functional			
Other Observations or Comments (no more than 250 characters)			
2. PRA Meeting			
1. Rank all the activities that apply to this site by importance/ relevance, with 1 being the most important in the first column. In the second column, capture the number of people link to that activity. In the third column, capture the percentage of people that are women.			
	Activity	Rank	People
	Fishing	<input type="text" value="1"/>	<input type="text" value="1"/> %
	Processing	<input type="text" value="1"/>	<input type="text" value="1"/> %
	Storage	<input type="text" value="1"/>	<input type="text" value="1"/> %
	Wholesale	<input type="text" value="1"/>	<input type="text" value="1"/> %
	Retail	<input type="text" value="1"/>	<input type="text" value="1"/> %
	Other	<input type="text" value="1"/>	<input type="text" value="1"/> %
	<input type="text" value="Specify"/>		
2. List the methods used for the 3 most important activities above.			
Activity 1	<input type="text"/>		
Activity 2	<input type="text"/>		
Activity 3	<input type="text"/>		

Annex 5. Template of certificate issued



Annex 6. Speeches from the opening ceremony

Welcoming address: Mr Yahya I. Mgawe

CEO - Fisheries Education and Training Agency (FETA),
The Acting Permanent Secretary for the Ministry of Livestock and Fisheries Development;
Madame Theresa Mghanga,
FAO Representative in Tanzania; Madame Diana Tempelman,
Board Chairperson of FETA; Prof. Henry Laswai,
FAO/SmartFish program manager; Mr Davide Signa,
Director of Fisheries Research and Training; Dr. Mohammed Bahari,
Distinguished guests, esteemed participants,
Ladies and Gentlemen:

I have the honour to welcome you the regional training on post-harvest fish loss assessment in small-scale fisheries, a regional training workshop on a very important topic for fisheries development.

Honourable guests, ladies and gentlemen, before presenting the theme of this training workshop, please allow me to take a minute of your time to introduce our Fisheries Agency because it is a relatively new institution though it already has several decades of experience in fisheries development. In short, the Fisheries Education and Training Agency is a Government Executive Agency in the United Republic of Tanzania which was established, a few months ago, by merging two fisheries training institutes in the country; the Mbegani Fisheries Development Centre in Bagamoyo and Nyegezi Freshwater Fisheries in Mwanza. These two institutes have had a lot of experience in fisheries education and training dating back to the 1960s. The aim of merging the two institutes is to have one strong fisheries education and training institution to promote fisheries development and management.

Ladies and gentlemen, regarding the role of FETA in small-scale post-harvest fisheries assessments: since 1991, the work of Mbegani and Nyegezi, the predecessors of FETA, was focused on assessing post-harvest fish losses in small-scale fisheries, as a precursor to appropriate policy formulation and practical interventions to reduce losses. FETA has indeed inherited this noble assignment aimed at promoting fisheries development and sustainable livelihoods for communities.

I don't want to enumerate all the work that we have done over the past years because you will be hearing a lot more about us in detail over the next few days. However, it would be a lack of appreciation not to mention the fact that, over the years of our work on post-harvest fisheries, we have had received considerable help, in the form of financing, sponsorship and technical support from the Food and Agriculture Organization of the United Nations (FAO). FAO assistance has indeed built our institutional capacity to meet the human resource challenges in our country and beyond. Mrs Tempelman, we really thank you and your organization for your continued support.

Ladies and gentlemen, the training course that is about to start, is going to provide you with a new method of assessing losses by using Information Communication Technology, more specifically, mobile phone technology! The applicability and effectiveness of this technology would certainly dispel the old dogma that *"the dispersed nature of many small-scale and less developed fishing operations makes it virtually impossible to make concrete estimates of post-harvest losses in small-scale fisheries."*

Ladies and gentlemen, this important training is being supported by the FAO/SmartFish project, which is funded by the European Union. I know that you will wish to join with me in thanking the Food and Agriculture Organization of the United Nations, the SmartFish project and the European Union for their generous financial assistance and for their technical support and encouragement at every stage of our planning. We are most grateful that they have made this event possible and we are honoured to have many knowledgeable participants from Burundi, Djibouti, Kenya, Madagascar, North Sudan, Rwanda, South Sudan, Tanzania, and Uganda.

We would like to express a sincere wish that you find this coming week interesting, enjoyable and stimulating and that you will all, at the end of the training, feel that you know and understand the loss assessment methodology better than before. To those of you who are on your first visit to Tanzania, we extend a special welcome (*or as we say in our own language 'Karibuni sana'*) and hope that you will experience true Tanzanian hospitality.

In introducing Madame Diana Tempelman, the FAO Representative in The United Republic of Tanzania, who will welcome you on behalf of the FAO/SmartFish project, I wish to extend my personal welcome and that of the Fisheries Education and Training Agency (FETA) to you, our distinguished guests, esteemed participants and to all of you gathered here today. *Madame Tempelman, I would like to invite you to take the floor.*

Opening address by Dr. Charles Nyamrunda

Permanent Secretary, Ministry of Livestock and Fisheries Development, The United Republic of Tanzania.

FAO Representative in Tanzania; Madame Diana Tempelman,

FETA Board Chairperson; Prof. Henry Laswai,

FAO/SmartFish program manager; Mr. Davide Signa,

Director of Research and Training MLFD; Dr. Mohammed Bahari,

Chief Executive of Fisheries Education and Training Agency (FETA); Alhaj. Yahya Mgawe,

Distinguished guests, Participants,

Ladies and Gentlemen:

On behalf of the Government of Tanzania, I wish to welcome those of you who have travelled from different countries and places to Dar es Salaam, the “*heaven of peace*”. I also wish to express my appreciation for the honour of opening this very important regional training workshop today.

Indeed, it is with great pleasure to learn that this regional training workshop aims to provide basic frames of reference on the latest knowledge available with regard to post-harvest loss assessment methodology in small-scale fisheries. This is the first step in planning ways to reduce these losses and in so doing will enable fishers to secure greater post-harvest benefits from fisheries activities.

Ladies and gentlemen, high post-harvest fish loss is one of the major challenges in small-scale fisheries in our region. The other challenges are: overcapacity, over-fishing, illegal fishing and habitat destruction. The magnitude of these challenges is ever greater as time goes on, due to an increased demand for fish to feed a growing human population, and at the same time global fish supply is dwindling.

FAO Statistics, produced annually through the State of World Fisheries and Aquaculture (SOFIA), suggest that global fish production from capture fisheries has stagnated at about 100 million metric tonnes per annum over the past two decades. Although the same statistics show slight developments in aquaculture production it is also true that the industry consumes large amounts of fishmeal to produce high value culture species. Needless to say, this reduces the amount of fish for direct human consumption, especially when one considers the fact that global human population will reach seven billion people very soon.

The scenario in Sub-Saharan Africa is rather complex; in some areas the potential seems to be relatively higher than actual production. However, even in these areas, production has stagnated due to a number of challenges including low levels of technology, inadequate capital, and mismanagement. As if this is not enough, our region is recording high post-harvest fish losses in general.

For example, the most recent study conducted in our country, with the assistance of FAO, revealed that in Lake Victoria Sardine Fishery (*Rastrineobola argentea*) we are losing over 5 percent in terms of physical loss and incurring a quality loss of over 27 percent. Financially, we are losing over 45 billion Tanzanian Shillings annually from such losses in this fishery alone.

Given such a situation, we have no option but to focus on strengthening our fisheries management regimes, promote aquaculture development and reduce high post-harvest fish losses occurring in our small-scale fisheries. As a matter of fact, we need to build our institutional capacities to meet the challenges. This is why I find the continued contribution of FAO in this aspect, including helping us to organize this important regional training, quite invaluable.

Ladies and gentlemen, the importance of this kind of training, on post-harvest loss in fisheries, cannot be over-emphasized. Nowadays, the need to increase food sources to cope with global food shortages is common all over the world. Hence, this regional training comes at a time where there is growing recognition of the crucial contribution that reduction of post-harvest fish losses can play in augmenting food supplies and boosting lagging nutritional standards, especially among fisher communities in our region.

Post-harvest fisheries losses have a worldwide interest, as can be seen by the broad spectrum of our audience here today. Our scope of interest is to reduce losses in order to improve food security, secure greater post-harvest benefits and ensure sustainable livelihoods. It is in this context that the FAO and SmartFish deserve to be commended for taking the initiative to contribute to addressing one of the major challenges in small-scale fisheries.

Ladies and gentlemen, please allow me be honest, I was expecting to see more women than men in this room but this is not the case! However, the organizers have assured me that in the coming five days you will be working with a great number of fisherwomen in the field. I should emphasize that women are key participants in the post-harvest small-scale fisheries sector in our region as millions of them derive income from fish handling, processing and trade. Nobody can deny the fact that engaging greater numbers of women has multiple benefits in achieving various Millennium Development Goals. It promotes gender equity and empowers them to deal with other salient issues such as maternal health, child mortality, child education and HIV/AIDS.

For many years we, in Tanzania, have carried out government policies designed to address issues that affect or hinder women's active participation in fisheries activities. One such issue is the high post-harvest losses occurring in small-scale fisheries. Our quest is to reduce these losses through improved fisheries products utilization and their marketability. We fully believe that once losses are reduced, community fishers will secure greater post-harvest benefits leading to sustainable livelihoods.

To get there, however, we need to improve the availability, accessibility and exchange of fisheries information. We need to facilitate production and dissemination of information designed to meet the needs of the user groups; scientists, policy makers, planners, and more importantly community fishers. It is for this reason that I am indeed pleased to note that the organizers have structured this training in such a way that the focus is placed on using communication technology such as mobile phones for data collection, analysis and dissemination.

On the ground, there is a growing pool of useful local ecological knowledge and experience we can draw on. The fishers in communities hold this treasure and I am extremely grateful to learn that you have invited some of the members of the Beach Management Unit (BMU) from fishing communities to participate in this training. This is remarkable since we will be able to tap into their local ecological knowledge adding value to the results. But once again, I plead with you to not ignore the women in fisheries because they are the drivers of post-harvest aspects.

Ladies and gentlemen, let me assure you that the United Republic of Tanzania is willing, as this training shows, to share its expertise and development experience with others. Our experience will show, I suspect, that in resolving post-harvest fisheries losses, it is not enough to only deal with the purely scientific, technical and economic aspects. Equally, important is to give the training a social or human orientation, so that fishers in communities also benefit from shared knowledge and skills. Ultimately, this social concern translates itself into adoption of sound fish handling, processing and marketing practices.

I am really happy to learn that in this training you will concentrate on learning practical skills on how to assess losses rather than spending a lot of time making speeches in hotel rooms. I need not emphasize that the approach you have chosen is one of the most effective means of imparting knowledge and skills related to the subject of post-harvest fish loss. I believe that fishers in our various landing beaches and fish markets that you have planned to visit are going to participate in your teaching-learning process and will thus benefit through the sharing of experiences from different countries.

I want to emphasize, once again, that the willingness to exchange knowledge, skills and experience will make the training fruitful. I assure you that the Government of Tanzania is pleased to provide assistance and to cooperate in this vitally important effort that is beneficial to all of us in the region. I would also like to take this opportunity, on behalf of the government, to thank the FAO for their continued assistance in building the institutional capacity of our Fisheries Education and Training Agency (FETA) to meet the human resources development challenge both in our country and the region. We assure you, Mrs Diana Tempelman, that the government will ensure FAO's contribution has not been made in vain.

May I repeat once again, **ladies and gentlemen**, that our ambitious objective in the region is to develop small-scale fisheries into a more viable industry.

To reach this objective, however, great concerted team efforts of all concerned is imperative. It is with this thought and expectation that I wish all participants the best of health and spirit and wish you a pleasant training to hasten the attainment of our noble goal - the reduction of post-harvest fish losses - so that we can contribute to eradicating extreme poverty and hunger in our region.

In conclusion, I would like to, once again, express my sincere thanks to FAO, the SmartFish project and the organizers for giving us the opportunity to host this very important regional training. I am told that, as part of this training, several days will be spent in Mwanza where participants will have the opportunity to learn more about fisheries development around Lake Victoria, this is excellent, and I wish you a pleasant stay with us. I will leave you in the good hands of Professor Henry Laswai, an expert in food science and technology, and more importantly the Chairperson of FETA, to take care of you during your stay with us.

With those remarks, I now declare this regional training on post-harvest loss assessment in small-scale fisheries open. Thank you for your attention.

Annex 7. Press cuttings

Over 45bn/- lost due to poor fish storage

By Sikwese Austin

THE Lake Victoria Sardine fishery loses over five per cent in physical loss incurring quality losses over 27 per cent losing over 45 billion Tanzania shillings annually out of this single fishery alone.

This data comes as the Food and Agricultural Organisation statistics reveal that global fish production from capture fishery has stagnated at about 100 million metric tonnes per annum for the past two years.

The revelations were made on Monday by Director of Administration and Human Resources Management Theresa Mghanga who was speaking on behalf of the Permanent

Secretary for the Ministry of Livestock and Fisheries at the opening of training on post-harvest loss assessment in small scale fisheries.

Attended by most of the SADC countries, Rwanda, Burundi, Kenya, Southern Sudan, Sudan among others, the Regional Training on post-harvest loss assessment in small scale fisheries was organised by FAO-SmartFish in collaboration with Fisheries Education and Training Agency (FETA) and is expected to equip participants with best practices and methods to reduce post-harvest losses in the region.

High post harvest fishery losses are a major challenge for the small-scale fisheries in the region due to lack of proper and adequate storage facilities coupled with over

fishing. The magnitude of these challenges is mounting over given increased demand of fish to feed the exploding population and the fact that the global fish supply is rapidly dwindling.

Providing some local stats, the Chief Executive Yahya Mgawe for Fisheries Education and Training Agency (FETA) said small scale fisheries harvest some 30,000 tonnes out of Lake Nyasa and another 30,000 tonnes from local rivers and dams while 60,000 tonnes come from Lake Tanganyika as Lake Victoria tops the production list at 200,000 tonnes per year.

These impressive harvests are undermined by lack of storage facilities and in order to fight against the loss Mgawe advices that strategic plans to strengthen

the fisheries management regimes and promotion of aquaculture development.

"...if we are to reduce the high post harvest fish loss we need to build institutional capacity to meet these challenges..." he made clear.

Dusabemungu Gregoire, Head of Fish Farming and Fisheries in Rwanda shared the sentiments

"...we lack skilled labour in our fishing industries particularly when it comes to processing and value addition..."

Commenting on the training he had the following to say "...it has given us new skills on how to assess the post harvest fish to reduce loss...including internet data collection on post harvest fish management..."

8

NIPASHE

Jumanne Januari 29, 2013

HABARIKITAIFA

Serikali yapoteza Sh. bilioni 45 kila mwaka sekta ya uvuvi

Na Leonce Zimbandu

SERIKALI imekuwa ikipata hasara ya Sh. bilioni 45 kila mwaka katika sekta ya uvuvi.

Asilimia tano ya hasara hiyo husababishwa na upotevu wa samaki kabla ya kufika sokoni na asilimia 27 kutokuwa na viwango vinavyotakiwa kimataifa.

Kauli hiyo iliitolewa na Katibu Mkuu wa Wizara ya Mifungo na Uvuvi, Dk. Charles Nyamrunda alipokuwa akizungumza na waandishi wa habari

jijini Dar es Salaam jana.

Hata hivyo, alisema hakuna njia ya kufanya zaidi ya kuangalia uwezekano wa kujenga uwezo wa kupunguza hasara inayotokana na mavuno ya samaki yanayosababishwa na wavuvi wadogo wanaotumia vifaa duni.

"Tunathamini mchango wa Shirika la Chakula Duniani (Fao) kwa kutusaidia kutoa mafunzo ya kukabiliana na kupunguza hasara inayotokea baada ya uvunaji wa samaki" alisema Dk. Nyamrunda.

Alisema katika mafunzo hayo

alitgemea kuwakuta wanawake wengi zaidi kuliko wanaume, lakini hali ilikuwa tofauti na matarajio yake.

Alisema angenda mafunzo hayo ya siku tano yawahusishe na wanawake kwa kuwa ni wadau wakubwa wa kuvuna samaki kwani wengi wao wanaendesha maisha yao kwa kuza samaki nchini.

Naye mwakilishi wa Fao nchini, Diana Tempelman, alisema lengo la mafunzo hayo ni kuwaongeza ujuzi maafisa samaki (bwana samaki) jinsi ya kukusanya taarifa na kuziainisha kwa ajili ya kupunguza hasara inay-

otokana na wavuvi wadogo.

"Kwa upande wa bara la Afrika inadaiwa serikali za nchi hizo hupata hasara ya asilimia 40 katika sekta ya uvuvi, hii ni hasara kubwa sana kwa nchi zinazoendelea kwa hiyo sisi tumeona tutoe elimu ili kugunguza hasara hiyo," alisema Tempelman.

Kwa upande wake, Mwakilishi kutoka Tume ya Indian Ocean wanaoendesha mafunzo hayo, Davide Signa, alisema taarifa zote zitapatikana kwa haraka kwa kutumia ujumbe mfupi wa maneno katika simu ya viganjani.

"Elimu itakayotolewa itamsaidia

afisa anayehusika kupata takwimu kutoka kwa wavuvi na kuzituma kwa wataalam ili kuzifanyia kazi, taarifa zitahusisha kujua idadi ya samaki waliovunwa na kuuzwa kwa siku," alifafanua Signa.

Alizitaja nchi zitakazonufaika na mpango huo wa Fao kuwa ni Tanzania, Burundi, Comoro, Djibouti, Jamhuri ya Kidemokrasia ya Kongo, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius na Rwanda.

Nyingine ni Shelisheli, Somalia, Sudan Kusini, Sudan, Swaziland, Uganda, Zambia na Zimbabwe.

PICHA: MFIGAPICHA WETU

MSISITIZO

Annex 8. Funding provided by FAO/SmartFish to FETA

BANK OF TANZANIA

RDH DATE : 01/03/2013

PAGE : 24

Statement of Account
SYMBOLS*NOSTRO VOSTRO/GE

STATEMENT DATE & TIME : 01/03/2013 06:09:44

NAME OF ACCOUNT HOLDER : FETA MBEGANI CAMPUS

ADDRESS : FETA MBEGANI CAMPUS

ACCOUNT NUMBER : 9931209461
ACCOUNT DESCRIPTION : FETA MBEGANI CAMPUS
STATEMENT OF ACCOUNT FROM : 01-FEB-13 TO 28-FEB-13

BRANCH : 001
CURRENCY : USD - US DOLLAR
ACCOUNT TYPE : V - VOSTRO
SEQUENCE NO : 1

DATE	RELATED REF NO.	REFERENCE	DESCRIPTION	AMOUNT (DR)	AMOUNT (CR)	BALANCE
						10,000.00 CR
			AVAILABLE BALANCE :		10,000.00 CR	10,000.00 CR

TOTAL NUMBER OF TRANSACTIONS : 0 (*** No Transactions for the period ***)

----- End of Report -----

Annex 9. Summary of expenditure of FAO/SmartFish funding

Summary of expenditure report

Name **FAO/SMARTFISH Regional Training on Post-Havest Loss Assessment**

Prepared by: *Sixtus Joseph*

Department: **Short Courses**

Certified by: *Ambakisye Simtoe*

Date	Invoice/Receipt	Act. Ref.	Description & Quantities	Client/Vendor name	Client/ Vendor Contract	Amount in Tsh	Amount in US \$	Remarks
28.01.2013	176	1.1 a	Venue with coffee & lunch, DSM	The Coutyard Hotel Ltd.	Box 542 DSM	2,560,000	1,620	PV 51/2
31.01.2013		1.1 a	Venue with coffee & lunch, Mz	Lakairo Hotel		1,886,000	1,194	Rec. No. 0262, 14415, 1881
29.01.2013	12386	1.1 b	Bed & breakfast, DSM	Durban hotel Ltd.	225 22 2135964	6,912,000	4,375	PV 2/2
31.01.2013	14407	1.1 b	Bed & breakfast, Mwanza	Lakairo Hotel		1,390,000	880	
29.01.2013		1.1 c	Interpretation services (Dar)	David Loserian		970,000	600	
29.01.2013 - 03.02.2013		1.1 d	Bus - Dar es Salaam	FETA		1,002,000	633	
01.02.2013 - 02.02.2013	262	1.1 d	Bus - Mwanza	Lakesh transport		500,000	316	
28.01.2013 - 02.02.2013		2.2 c	Fuel for government vehicle	Lump sum		580,000	367	T/Inv. 6937, 28111, 3784, 773
			Total Expenditure			17,066,000	9,985	

Note: Average exchange rate used 1 USD:1,580= Tsh

The balance is US \$15; in-kind contributions including interpretation services in Mwanza, media costs, photocopying and payment for local collaborators have not been taken into account.

SmartFish is a regional fisheries project managed by the Indian Ocean Commission, funded by the European Union and co-implemented by the Food and Agriculture Organization of the United Nations. SmartFish, which operates in 20 countries throughout the East and Southern Africa - Indian Ocean region, focuses on fisheries governance, management, monitoring, control and surveillance, trade, and food security.

High post-harvest fish loss is one of the major challenges to small-scale fisheries, especially in Africa where malnutrition and food insecurity are rampant. Reductions in these losses have been hampered by a lack of data and compounded by existing complexities in small-scale fisheries, including the multiplicity of species, fishing gear and methods, as well as the number of landing sites.

With this in mind, the SmartFish programme (FAO), in collaboration with the Fisheries Education and Training Agency in Tanzania, planned, organized and implemented a regional training workshop on post-harvest fish loss assessment methodology. The main objective of the workshop was to disseminate technology-based post-harvest fish loss assessment methodology among key small-scale fisheries practitioners in the region to reduce post-harvest losses and consequently improve the regional supply of fish and fish products.



Funded by
*European
Union*