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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Training Of Fish Processors On The Use And Maintenance Of The Newly Refurbished Compliance Facility



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THE
UNIVERSITY
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Cover photo: Participant at the training ground (ROSE AFFEL)

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ACRONYMS

CCM	Centre for Coastal Management
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CRC	Coastal Resource Center
CSLP	Coastal Sustainable Landscape Project
DAA	Development Action Association
DFAS	Department of Fisheries and Aquatic Science
DMFS	Department of Marine Fisheries Sciences
DQF	Daasgift Quality Foundation
FtF	Feed the Future
GIFA	Ghana Inshore Fishermen's Association
GIS	Geographic Information System
GNCFC	Ghana National Canoe Fishermen's Council
HM	Hen Mpoano
ICFG	Integrated Coastal and Fisheries Governance
MESTI	Ministry of Environment Science and Technology
MOFAD	Ministry of Fisheries and Aquaculture Development
NDPC	National Development Planning Commission
NGOs	Non-Governmental Organizations
SFMP	Sustainable Fisheries Management Project
SMEs	Small and Medium Enterprises
SNV	Netherlands Development Organization
SSG	SSG Advisors
STWG	Scientific and Technical Working Group
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development
WARFP	West Africa Regional Fisheries Development Program

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EXECUTIVE SUMMARY

A one-day postharvest loss training was organized for fourteen fish processors on Wednesday 21st March, 2018 at CEWEFIA's new fish processing facility. The objective of the training was to equip the fish processors with the skills of using and maintaining the facility, as well as the fish smoking technologies. These women will also serve as the first point of contact in the community for the use of the facility. The training deployed the use of discussions, demonstrations, questions and answers and hands-on practicals. The training started at 9:00am and closed at 4:00pm. The participants were shown the kind of activities to be carried out. Post-harvest value chain video show on improvement practices in other countries were shown during the training. Fish was processed on the new improved Ahotor oven as demonstration. At the end of the training the participants appreciated the fact that quality fish products sell, hence the statement "quality fish more income". The participants were entreated to observe all hygienic practices and shun from any form of unhygienic practices to obtain wholesome fish for profit. They should minimize as much as possible post-harvest losses. The training ended successfully.

SECTION 1 BACKGROUND/INTRODUCTION

Central and Western Fishmongers Improvement Association (CEWEFIA), a women-oriented organization is committed to improving the socio-economic status of rural fishmongers and women farmers, as well as the wellbeing of their children and community as a whole. CEWEFIA is one of the implementing partners of USAID/Ghana Sustainable Fisheries Management Project (USAID/Ghana/SFMP), which seeks to replenish Ghana's marine fish stocks through responsible fishing practices. One of the components of the project is Post-harvest value chain. This component seeks to improve the value chain of smoked fish from catch through to consumption by adopting best fish handling hygienic practices.

Elmina where CEWEFIA is located is a community which has vast fish landing sites that accommodate its indigenous fishers and migrants. Therefore, there is the need to introduce best fish handling practices for provision of wholesome fish to the communities.

CEWEFIA as part of its commitment built a shed for smoking fish which serves the fish processors especially; especially the migrants. Under the USAID/Ghana SFMP, the shed has been renovated to meet the basic compliance facility for hygienic fish to the local market. The facility has two main chambers: a wet and dry chamber. The wet chamber includes the receiving, changing and washing rooms whilst the dry chamber refers to the smoking, cooling, packaging and storage rooms. The wet chamber is separated from the dry chamber to avoid cross contamination.

The facility further serves as the training and demonstration site where trainings or courses on hygienic fish handling, packaging, and other value addition activities to fish products would be held.

To maintain the facility to serve its intended purpose, CEWEFIA trained 14 women fish processors on Wednesday 21st March, 2018 at the Processing Site at Ayisa-Elmina. These 13 members will be responsible for the use and maintenance of the facility in the community.

Attendance

Fourteen (14) women fish processors participated in the training. They were representatives from Elmina and Moree communities. Six (6) members were from Ayisa, three (3) from Nyiaye, three (3) from Bantuma and two (2) from Moree.

1.1 Training Objectives

The objectives of the training were to:

- Improve fish handling in the postharvest value chain.
- Equip fish processors with the skills of using and maintaining the facility, as well as the fish smoking technologies.

1.2 Expected outcomes

Expected outcomes of the workshop were:

- The members will be equipped with skills to use the facility to meet compliance.
- There would be more improvement in the handling of fish and fish products.
- The participants will appreciate the need to maintain fish quality for increased income.

SECTION 2 TRAINING OUTCOMES

2.1 Opening

The training was facilitated by CEWEFIA program team. It was opened at 9:00am with a prayer by a participant which was followed by self-introduction of participants led by Miss Josephine Opare Addo (Project Officer W/R). Using a ball exercise, the ball is thrown to a person who mentions her name and the programs or activities she had benefited from CEWEFIA since inception of USAID/Ghana SFMP. After the introduction, Mr. Nicholas Smith also gave an open remark on behalf of the Executive Director (CEWEFIA), Mrs. Victoria Churchill Koomson. He further gave the objective of the training.

Goodwill messages were also received from the other team members to create better atmosphere for learning. The members were asked to feel free to ask any questions they wanted.



Figure 1. A cross section of participants at the training with Josephine Opare Addo (Arrowed) (Project Officer W/R) opening the training.

2.2 Methodology

The training deployed the following methodology in delivering the training:

1. Discussion.
2. Demonstration.
3. Group work.
4. Hands-on Practicals.

2.2.1 Materials

The materials used for the training to enhance its output:

1. Ice blocks.
 2. Insulated containers.
 3. Fuel wood.
 4. Fish.
 5. Washing basin.
- Flip chart, pens etc.

2.3 Post-Harvest Improvement Cycle Guide

This guide focuses on the postharvest improvement cycle; a cycle which illustrates the process under which fish is transformed from capture to the final consumer. Below is the diagrammatic representation of the postharvest improvement cycle.

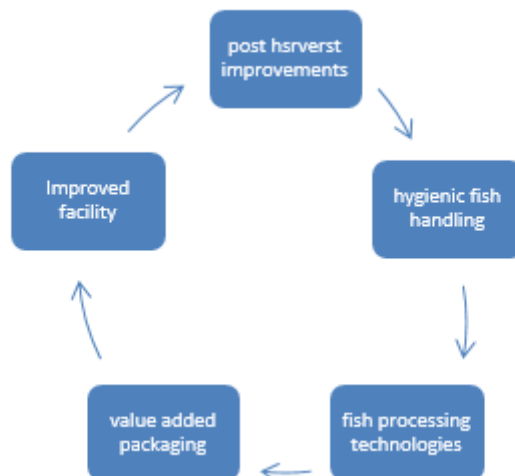


Figure 2. Postharvest improvement cycle

SECTION 3 TRAINING MODULE

There are four modules which lead to enhancement of quality fish. These modules focus on the postharvest improvement cycle. The participants were taken through these four modules to better enhance fish handling skills for the task ahead.

Module 1: Hygienic Fish Handling

Hygienic fish handling was the first module to consider. Fish are easily subjected to pathogenic contamination which result from unhygienic conditions during handling (Lokuruka, 2016). Consumers are on high risk of contracting foodborne diseases through microbial and chemical contamination of fish handled under unhygienic conditions. This means that hygiene must be considered first when handling fish. In view of that the participants were taken through a step by step approach in handling fish.

The fish handling steps treated were:

1. Use of ice block by fishermen to cool the fish in ice boxes to a temperature of about 0 degrees Celsius immediately after capture.
2. Fish processors use ice blocks to cool the fish in an insulated container during processing to prevent the fish from spoilage.
3. The iced fish should be thoroughly washed before processing to keep the fish clean and healthy.
4. Keep clean all other materials used in contact with processing of fish.

A video on Postharvest improvement was shown to enhance understanding and also learn what others are doing.

Module 2: Improved Fish Smoking Technology

Smoking is one of the most common methods used to process fish in Ghana. This is because it gives the fish longer shelf life. In Ghana, the Chorkor smoker is the most widely used fish smoking technology. This technology puts the processor at high risk of contracting health problems as a result of large amount of smoke production.

To improve the small scale fisheries postharvest sector in Ghana, the call for adoption of an improved fish smoking technology to produce safe, healthy fish for consumption and sale is relevant. The Netherlands Development Organization (SNV) in collaboration with the

Fisheries Commission, Council for Scientific and Industrial Research, under USAID/Ghana/SFMP, has developed a new fish smoking technology locally called Ahotor oven which is an improvement over the Chorkor. It emits less smoke and thus low PAH levels in the fish as compared to the Chorkor. The oven also uses less fuelwood, thereby contributes to management of climate change by reduction in deforestation.

The facilitator introduced the Ahotor oven to the participants, and the need to use it to meet compliance. Further demonstrations were used.

Hands-on Practicals:

A hand-on practicals were done to demonstrate their understanding. The participants were made to smoke fish on the Ahotor oven using the skills acquired so far.



Figure 3. Some participants at the washing room in the facility preparing fish for smoking



Figure 4. Participants setting up fire for smoking fish on the Ahotor oven

Module 3: Value added Packaging

Studies have revealed that poor packaging of fish among small-scale fish processors contributes to postharvest losses. To avert this, good packaging of fish must be considered. Materials for packaging fish also play important role in preventing contamination. In light of this, the participants were entreated to use improved packaging technologies to maintain fish quality. Packaging materials such as brown paper, insulated containers etc. were recommended to be used. Participants were entreated to desist from using unwholesome packaging materials. Fish packed should be well labeled to attract customers.

Module 4: The Improved Fish Smoking Facility

Good smoking facility also plays a significant role in postharvest value chain. In this module, focus was drawn on the chambers in the CEWEFIA fish processing facility. The participants were taken through all the chambers (rooms) of the facility, and the activity to be carried out there with its requisite hygienic practices.

The chambers were:

1. Ice Box Room: This is a room where fresh fish are received and iced in an ice box till it is processed.
2. Dressing/Changing Room: The changing room is where the fish processors change into a prescribed outfit (clean aprons, safety boots, head gears, gloves etc.) for processing fish, and also to remove accessories such as jewelry.
3. Reception Room: This is a room where clean fish is received for smoking on the stove. This requires that clean and well-dressed fish processors must be ready to receive the fish.
4. Hand washing Room: A chamber where fish processors must wash their hands with soap and clean running water before and after processing.
5. Washing Area: It is where iced fish are washed thoroughly with clean water before it is smoked. It is a place where all knives, pans and any other objects for washing must be cleaned and well-kept to avoiding contamination.
6. Smoking Area: Fish is smoked here. This is also called a dry area. The participants were educated that after smoking, all equipment including ovens, wire mesh etc. must be cleaned and freed from pests.
7. Cooling and Storage Room: Where processed fish is cooked and stored. The fish must be protected from pests, mold/fungus. Materials for storage must be kept clean.
8. Packaging Room: after the fish is cooled it is packaged nicely in the packaging room, awaiting to be sent to the market. All packaging materials should be well stored and labeled. It was recommended that fish should be weighed and recorded at each area of activity to guide pricing.



Figure 5. Participants at the cooling room

Challenges

1. Unavailability of some packaging materials such as brown paper at the market.
2. Some of the participants were of the view that smoking large quantities of fish attracts more income despite the quality.
3. Others still opined that the Ahotor oven cannot smoke large quantities of fish as compared to the Chorkor smoker.

Recommendations:

Some recommendations were made by the participants to improve the facility to meet compliance. Some of the recommendations were:

1. The rooms should be clearly labeled for easy identification.
2. There should be additional sinks to receive fresh fish.
3. The floor between the wash room and the smoking area where fish is received unto the stove should be tiled to facilitate easy cleaning.
4. Big baskets should be available to be used to drain water from the fish before smoking.
5. It was proposed that the fish processors should follow up with training their laborers/workers on hygienic fish handling.
6. Funding donors should support fish processors with protective gears (eye glasses, nose and ear masks) to reduce effect of heat on their eyes and nose.
7. Packaging materials, especially brown paper should be made available at the market where fish processors in Elmina and other fishing communities can easily have access to.

Lesson learned

The training approach used helped the participants feel ownership of the facility which will guarantee its proper use and maintenance.



Figure 6. A participant (Beatrice Tay) making contribution at the training

SECTION 4 CONCLUSIONS

The participants were very happy about the training. They were entreated to apply the skills gained in their individual business. They should be able to make their processing shed meet the basic compliance facility. One participant added that it is not about smoking large quantities of fish that guarantee more income but rather ensuring good quality of the fish. Hence the better quality the fish is, the more profit. After the training, most members came to the conclusion that the quality of the fish must be considered first before the quantity. The training ended successfully with members poised to adopt the experience gained.

REFERENCES

Lokuruka, 2016

Training manual

APPENDIX 1



Figure 7. Fish on Ahotor oven