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# SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

## Training Of Community Based Artisans On Ahotor Oven Construction



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THE  
UNIVERSITY  
OF RHODE ISLAND  
GRADUATE SCHOOL  
OF OCEANOGRAPHY



**SNV** SMART  
DEVELOPMENT  
WORKS

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**Cover photo:** Group picture of facilitators and trainees during the training program (Credit: SNV)

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## **ACRONYMS**

CEWEFIA	Central and Western Region Fishmongers Improvement Association
DAA	Development Action Association
Daasgift	Daasgift Quality Foundation
EU	European Union
FC	Fisheries Commission
SFMP	Sustainable Fisheries Management Project
SNV	Netherlands Development Organization
USAID	United States Agency for International Development
NAFPTA	National Fish Processors and Traders Association

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## **BACKGROUND**

As part of the efforts to coordinate post-harvest activities towards the promotion of healthy fish production for the Ghanaian market – contribution to the food safety program, SNV collaborated with CEWEFIA and DAA to carry out a stove construction training on the Ahotor Oven for community based artisans along the coast. The training was intended to contribute to youth employment by equipping artisans with the relevant skill to construct the Ahotor oven as alternative livelihood option. On the other hand, this activity sought to increase the number of stove building artisans as means of re-enforcing the supply side of the market for the Ahotor oven. The community based artisans who benefited from the training will be available to maintain, retrofit and construct the Ahotor oven in and around their respective communities and will also intend create more demand as they prospect for job.

The training was used to educate the artisans on the benefits of switching to the new oven technology with much emphasis on the health benefits of the oven to the fish processor and the consumers as well. Participants appreciated the benefits and were interested in learning more about the technology.

The training was organized for community based artisans from across the four coastal regions of the country, namely; Volta, Greater Accra, Central and the Western Regions. In total the training was attended by 37 trainees, made up of 35 males and 2 females.

### **1.1 Training Objectives**

The objectives of the training program were to;

- Identify and train local artisans on the Ahotor stove construction and promotion.
- Control and protect the standards of the Ahotor technology by giving interested artisans the needed training.
- Increase the front of Ahotor oven promotion along the coast.
- Use the opportunity to create demand for the Ahotor oven.

### **1.2 Expected outcomes**

The training aimed to contribute to youth employment by equipping artisans with the relevant skill to construct the Ahotor oven as alternative livelihood option. It was also to help increase the number of stove building artisans as means of re-enforcing the supply side of the market for the Ahotor oven. The trained artisans would also help to promote the spread of the technology across the coastal regions as part of seeking job, by creating market for the Ahotor oven.

### **1.3 Training method**

The training was organized in two regions, with the first part organized in the Volta Region for artisans in the Volta Region, and the second part organized in the Central Region for artisans from the Greater Accra, Central and Western Regions.

The training method was in three parts; the first part was a theory session where participants were taken through the benefits of the Ahotor oven. Participants were also taken through the construction manual and some of the environmental factors to consider in choosing a site for the stove construction.

The theory was followed by a second part with practical session, where participants came together to construct the Ahotor oven with an instructor leading them. In this session, the participants were grouped into two and each group was tasked to construct one side of the double unit Ahotor oven.

The third session was a practical session where participants were divided into smaller groups of twos to construct an Ahotor oven as a group, making it more participatory and engaging. The trainings were carried out for three (3) days in both regions. On the end of the 3<sup>rd</sup> day, assessment of work done was made and marks were awarded to participants based on predetermined criteria. The training was facilitated by Emmanuel Kwarteng and Hopeson Eli Etsra (SNV), with support from CEWEFIA, Mr. Albert Morrison, Mr. Emmanuel Ahiatsi, Mr. Kofi Biney and the fisheries officer at Dzemeni, Miss Elizabeth Gagba.

#### **1.4 Venue**

The training program took place in two (2) regions; Volta Region and Central Region. In the Volta Region, the training took place at Dzemeni in the South Dayi District. The practical session was used to construct the Ahotor oven in the community for fish processors who had requested for the oven to be constructed for them.

The training in the Central Region took place at Elmina in the KEEA District, at the CEWEFIA processing center. The practical training session was carried out at Bantema by participants to construct and retrofit ovens for fish processors in the community.

#### **1.5 Attendance**

The Volta Region training was attended by 6 participants, all males, while the Central Region training recorded 31 participants, 29 males and 2 females. In total the training was attended by 37 trainees made up of 35 males and 2 females. In addition to participants who had not constructed the oven before, some participants are already into the oven construction but used the opportunity to have a refresher training on the stove construction to be abreast with the changes in the technology. One of the existing stove building companies, ISEES, sponsored 10 of its employees to take part in the training program. It served as training for new employees and refresher training for old employees who have been constructing the Ahotor oven.

All participants attended the sessions in full.

### **TRAINING CONTENT**

#### **2.1 Theoretical session**

The training program started with the theory session where participants were given an overview as to what the whole program would entail and the need to take active part in all activities undertaken during the sessions. Participants were educated on the health implication of smoke to the fish processor and the consumer of the processed fish. Participants were surprised at the health risks associated with processing and eating smoked fish. Participants agreed to the fact that the smoke from fish smoking is dangerous to the fish processors and consumers alike. Some of the questions raised by participants during the theory session included, 'Where does the smoke go to?' and 'Where does the fluid from the fish go to?' The questions were used as an opportunity to explain the various components of the oven by the facilitator.



**Figure 1 Participants being taken through the technicalities behind the Ahotor oven**

The various components of the Ahotor oven and their functions were explained to participants. Although most participants said they had not seen the Ahotor oven before, they were impressed with the technology. Participants who had seen the oven in use before also talked about the fact that it does not produce smoke as compared to the former technology.



**Figure 2 Facilitator explaining the various components of the oven to participants**

During the discussions, participants who had constructed some Ahotor ovens before shared some of the experiences they had with some of the fish processors. They said some of the women were very difficult and always wanted the stove to be constructed their way. It was explained that if the standards of the oven would not be compromised, then builders should try as much as possible to satisfy the customer, but if the standards will be compromised, then the artisan must patiently explain the need for observance of the standards.



## 2.2 Practical session with instructor

The second part of the training was a practical session led by an instructor. Participants were divided into two main groups and with assistance from the instructor, each group was to construct one side of a double unit Ahotor oven.

Participants were taken through the technicalities of every component of the oven and how they affect the efficiency of the oven. The session was started with demarcations of the various dimensions of the oven on the floor. The various measurements of the oven were marked on the floor, and participants were asked to demarcate on their own in their respective groups. After the demarcation, the bricks were laid according to the markings on the ground. This made construction of the oven easier, since the positions of the bricks and blocks are predetermined. Both groups started building their sides of the double unit under the instruction of the instructor.



**Figure 3** Participants demarcating the Ahotor oven dimension on the floor before construction

Some fish processors have been complaining about the stove height either because the ceiling of their kitchen is shorter or they want to be able to stack enough trays during the smoking session. In view of this, participants were trained on how to set up the platform about 6 inch into the ground before constructing the oven on it. By so doing the height of the oven is reduced and the processor can use it comfortably.



**Figure 4 Demonstrator illustrating how to lay the bricks and blocks on the demarcated lines to participants**



**Figure 5 Participants constructing a platform about 6 inch into the ground**

### **2.3 Constructing the Ahotor oven by participants in smaller groups**

After the practical session with the instructor, the third session of the training involved taking participants to the field so that they construct the oven for processors who had shown interest in the Ahotor oven. During this session, participants were made to construct the Ahotor oven in groups of minimum 2 and maximum 3, on their own. This was to help in assessing participants to see if they could construct the Ahotor oven on their own.

In assigning participants into groups for this session, it was ensured that no two people from the same town or organization went into the same group (some participants came as

individuals, others as companies while others also came as a group under other partners of the project). This session helped participants to build team work and also allowed them to have hands on experience of constructing the oven. By having hands on approach, participants would better appreciate the work involved in constructing the stove and can easily remember the steps in constructing the oven better. Some participants constructed new Ahotor ovens while others had to work on retrofitting a Chorkor stove into an Ahotor oven. Some participants, upon the desires of the processors, also had to breakdown Chorkor stoves and construct an Ahotor oven. All these exposures gave the participants real field situations of issues associated with constructing the Ahotor oven.

During this session, the instructor went from group to group, supervising and helping participants to correct their mistakes, if any had been committed. On the last day of this session, facilitators went round to inspect work done by participants and marks were awarded to participants. Participants were ranked based on the following criteria;

- Level of participation,
- Accuracy of dimensions,
- Precision of technical components and
- Stove outlook.

Based on the ranking, the following new companies and individuals were added to the existing Ahotor oven building companies.

**Table 1: List of companies and individuals approved for Ahotor oven construction**

<b>NAME</b>	<b>ORGANISATION</b>	<b>COMMUNITY</b>	<b>REGION</b>
Kofi Biney	Biney Construction Company	Accra	Greater Accra
Philip Ballow	PhilTech Engineering	Kumasi	Ashanti
Carlos Owusu	Individual	Hohoe	Volta
Akpalu Komi Mawuena	Daasgift	Agona Nkwanta	Western
John Ametatsro	CEWEFIA	Bantema	Central
Robert Yaw Adzaklo	CEWEFIA	Anlo Beach	Central
Anthony Quaicoo	CEWEFIA	Elmina	Central
John Atitsogbe	Individual	Dzemeni	Volta
Paa Kwesi	CEWEFIA	Elmina	Central
Benjamin Kobina	CEWEFIA	Elmina	Central
Kofi Nyarko	DAA	Apam	Central
Kobina Odoom	DAA	Mumford	Central
John Odoom	CEWEFIA	Sekondi	Western
Nana Kofi	CookClean	Accra	Greater Accra
Stephen Amoah	CEWEFIA	Moree	Central
Augustine Ahiadu	Individual	Ketu	Volta
Felix Amudzi	Individual	Keta	Volta

The other beneficiaries will be monitored and further supported under the various companies to perfect the skill before allowed to construct on their own

## **2.4 Raising awareness and demand for the Ahotor oven**

The team used the training period as an opportunity to raise awareness and demand for the Ahotor oven by meeting and interacting with prospective customers. These meetings were to further create awareness on the Ahotor oven and aggregate demand. Participants at the meeting were educated on the health implications of using the old technology of fish smoking as well as the benefits of using the Ahotor oven.

In the Volta Region, the team met with fish processors at Dzemeni. The meeting was held in the kitchen of one of the processors who uses the Ahotor oven, while she was smoking fish. Participants at the meeting acknowledged the fact that if, she was using the Chorkor at the kitchen, we couldn't have been able to have the meeting there because of the smoke it produces. They testified to the fact that the Ahotor oven produced less smoke which makes it advantageous to the user most especially. Participants were informed about how to get the oven constructed for them and the terms of payment. Participants were also taken through the requirement of the Class 1 Certification Scheme, which seeks to promote the production of healthy fish for the Ghanaian market while ensuring premium markets for the certificate holders.

The second meeting in the Volta Region was held at Kpeve Tornu between the team and the Fish Farmers' Association in that area. The meeting was upon the request of the fish farmers' association, who had heard about the oven and therefore invited the team to give them firsthand information about the stove and the terms of acquiring one. The team met with the executives of the association to talk to them about the benefits of using the Ahotor oven. The executives expressed concerns that sometimes after harvesting the fish, buyers wouldn't give them good price and since they can't put the fish back in the pond, they sell them to the buyers at a lower price. However, if they construct the stoves, they can smoke the fish after harvesting if the price quoted by the buyers is not good for them. Some of the fish processors said they were interested in smoking the fish for export to other countries so the fact that fish smoked with Ahotor oven had lower PAH level was good for them.

They were also impressed that the Class 1 Certification can enable them to sell their processed fish to the Malls and Super Markets. The executives said they would discuss the outcomes of the meeting with the general members of the association and get back to the team as to if/when they are ready to construct. Two members of the association expressed interest in building the Ahotor oven and two beneficiaries of the training program were assigned to construct the ovens for them.

In the Central Region, the team met with Fish Processors Association at Moree during the program. The fish processors were taken through the benefits of the Ahotor oven and the means of acquiring one. The members were also informed about the Class 1 Certification Scheme. Members said they were impressed with the benefits of the new technology because they have been suffering from the smoke inhalation, however their major challenge with acquiring the Ahotor oven was the cost of constructing it which they said is high for them.



**Figure 6 Team explaining the importance of the Ahotor oven to Fish Processors Association at Moree**

As part of raising awareness and demand for the Ahotor oven, the team participated in the CEWEFIA weekly radio program on Ahomka FM to speak on the topic “Development in Fisheries Sector” linking it to the emergence of improved fish smoking technologies – Ahotor oven for fish smoking. The program was used to talk about SFMP and the need to switch to the new technology.



**Figure 7 Team on Ahomka FM talking about development in the fisheries sector**

During the call in session, some callers agreed with the fact that there is the need for change to bring about development while others were of the view that they don't see the need for change since the fish processors had been smoking with the old technology for many years now. The panel members explained that though the old technology has been in existence for many years now, some of its health implications cannot be immediately felt and by the time the symptoms are noticed it could be too late. The platform was also used to talk about the Class 1 Certification Scheme to educate the people on the benefits of the certification.

## **CONCLUSIONS**

The quality of stoves constructed by participants after the training indicated that the training program was successful. Participants were able to construct their ovens to the right specifications.

Interactions with the fish processors showed that they really appreciated the benefits of the Ahotor oven, considering the fact that they have been feeling dizzy, they experience eye burns and they sometimes have cough and difficulty breathing because of the effects of the excessive smoke to their eyes and lungs. They would like to switch to the Ahotor oven to be free from these effects but their major challenge was the cost involved with constructing the oven.

The Ahotor oven technology is receiving more attention in the Volta Lake basin and among aquaculture farmer groups than in the coastal areas.