



INITIATIVE ON
Gender Equality

Local Fabrication and installation of Improved Fish Drying Racks to Promote Women's Participation

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Acronyms

EMEDO	Environmental Management and Economic Development Organization
TAWFA	Tanzania Women Fish Workers Association
RFO	Regional Fisheries Officer

Executive Summary

This detailed activity report outlines the comprehensive approach taken to construct drying racks. This technology can promote women's fish processors' participation in the fisheries value chain and their economic resilience to the economic impacts of climate change in the sector. The technology was selected based on a study on women's fisherfolk's resilience

Introduction

The goal of HER+ is to build the economic resilience of women to climate change challenges in agri-food systems (AFS) through gender equality and social inclusion. In February 2023, the HER+ team studied how gender norms constrain women's economic resilience to climate change challenges among fisherfolk in Muleba district of Kagera region in Tanzania. Following the completion of the study, WorldFish and AWFISHNET Tanzania Chapter (TAWFA) and Environmental Management and Economic Development Organization

Activity Objective

The construction of drying racks aims to enhance the economic resilience and climate change adaptation of women involved in the fisheries industry by providing them with infrastructure to dry and preserve their fish products effectively.

Since the project is in its piloting phase, we selected a group of women to receive the drying technology and then, over time, train them and mentor them on the use of the technology, business skills, and leadership skills, then measure the empowerment potential of a combined suite of interventions. We selected the Akina mama na maendeleo group.

to the impact of climate change and subsequent stakeholder workshops showing the importance of technologies that can promote women's adaptation and resilience.

The report summarizes the steps taken to fabricate, install and handover the technology to women in Muleba District, Kagera. The document narrates the activities on needs assessment, design and planning, material procurement, construction phase, launching of the racks, success, and challenges—the activity began on 10th -19th December 2023. The report was prepared by the EMEDO team and further reviewed by the WorldFish team.

(EMODO) partnered to disseminate and validate research findings and identify leverage points to transform gender norms and make women economically resilient to the impacts of climate change in the fisheries value chain. During the initial workshops and the dissemination of study findings, one of the key leverage points identified to promote women's economic resilience in the fisheries sector was to promote processing technologies that ensure their involvement in the sector and profitability. Women dominate the processing sector. So, fish drying racks, a low-cost technology that could enhance profitability for women and reduce post-harvest losses, were identified for promotion

Women Group Profile

Akina mama na maendeleo means Women in development, is a women group in small scale fisheries located at Magata/ Kalutanga ward in Muleba district, Kagera region. The group was formed in 1998 but officially registered by the Community Development department in 2013. The group is composed of twelve (12) members who are fish traders and processors mainly on the silver fish. As a group they work in consortium with other women groups in small scale fisheries in the area in the effort to link more opportunities for women in the sector. The groups that work along with "akina mama na maendeleo" includes mtoto kwanza (10 members), wakina mama twekome (8 members) and wakina mama kanoni (8 members), the members have also benefited in various opportunities such as financial grant, exhibit products in regional markets as consortium members to the group.

Key Activities

Needs Assessment

A meeting was conducted with the local women's group of Wanawake na Maendeleo, involved in fisheries and members of TAWFA, the village chairperson, the executive officer, was conducted to understand their current drying and preservation methods. The results indicated the following.

- The current racks used by women are made of wood from trees. This technology is not sustainable since every year, women need to replace some of the wood attacked by ants or which rots during the rainy season.
- The current racks can only serve 5-6 buckets of dagaa, hence making women use duty rosters on using them, reducing the amount that can be dried at a time, resulting in women experiencing high post-harvest losses.
- The nets used on the racks are of low standards and easy to tear adding to the cost of maintenance and repair.

Environmental Assessment

- The team assessed environmental conditions to determine space availability for the construction of drying racks.
- The area needed to be fenced to ensure the safety and security of dagaa from animals such as dogs when placed on the racks to dry.

Management Plan

- Women proposed a sustainability plan involving opening a bank account (Chanja akaunti) to save the money collected from women using the racks. It was agreed that an amount of 1,000 TZS would be charged per bucket of fish. This money will be used to repair racks and make other site developments.

- Visitors to the area who come to learn would contribute 500 TZS to the Chanja akaunti. The money collected is intended to serve for maintenance and other operations of the racks.

Design and Planning

- The EMEDO team engaged a local architect selected by the women group members to design the drying racks based on the community's specific needs and the type of fish being processed.
- EMEDO developed a materials list and construction schedule in collaboration with the construction team.

Materials Procurement

- The team sourced materials such as round and square steel pipes, stainless steel nails, brown shade mesh, wire fence, paint to prevent rust, cement, thin sized timber, grain sand, pebbles and woods from local vendors to support the community and promote local businesses.

Construction Phase

- EMEDO, in collaboration with local women, mobilized local carpenters and construction workers to construct the drying racks and fence the area.
- EMEDO supervised the process and implemented quality control measures to ensure that the construction adhered to the design specifications and local building codes. The design was adjusted to fit the landscape area and available building materials.
- EMEDO closely monitored the process and addressed issues during the construction phase.

Figure 1. Members of women group (L) with EMEDO's officers (R) during the needs assessment.



Figure 2. The old drying racks made of wooden poles were eaten by ants, reducing sustainability in climate change.



Figure 3. The contractors and some community members during the construction phase.



What EMEDO and WORLD FISH are doing for these women is a powerful initiative to support all women fish processors and traders in this village.

- Mr. Juston, the man who gave out his family land to allow his wife and her group members to use for fish processing including setting up the drying racks

The Constructed Design of the Drying Racks

SN	Item	Description/Specification	Remarks/Actual Measures Used
1	Size	<ul style="list-style-type: none"> Dimensions: 30 m*1.9 m (30m length, 1.9 m width) for a total area of 57 square meters 1 meter high for the outside post of the drying rack 1 meter Middle (center) poles (Ridge) Metallic support for the top is placed every 1.5 m to avoid sagging of the top under the weight of fish Space between the rows 1-1.5 m to create adequate working space Length can be reduced based on available space but cumulative surface area for drying fish should be maintained (The total length of a single rack is suggested as 30 m. But the actual length of the rack is to be determined by site layout and local processor requirements) 	<ul style="list-style-type: none"> Dimensions: 59 m*5.5 m (59 m length, 5.5 width) for a total area of 58 square meters. 1 meter high for the outside post of the drying rack, 1 meter Middle (center) poles (Ridge), Metallic support for the top placed every 1.5 m to avoid sagging of top under the weight of fish. Space between the rows 1-1.5 m to create adequate working space. The actual length was extended to 59 m because of the available area to fit processors requirements of size.
2	Floor/ground	<ul style="list-style-type: none"> Do all required excavation and filling works to obtain a zero levelled ground under the requested racks, watered and compacted properly. 	<ul style="list-style-type: none"> The area has deep rocks this made the excavation process difficult, and the process would require more funds, manpower and time.
	Shape Front elevation	<ul style="list-style-type: none"> Small angle of elevation with middle poles set at 1.1 m high and outer poles at 1 m. 	<ul style="list-style-type: none"> The shape front elevation used round pipes metal set at 1.1 m high and outer poles at 1m.
3	Frame	<ul style="list-style-type: none"> Constructed of Metallic frame with raised poles/post embedded in the ground to a minimum of 0.4m depth using concrete. The joints strongly welded to support weight. Post hole concrete mix of 1:2:3 (Portland cement: sand: aggregate) Horizontal angle iron bar notched or welded across and between verticals as support for plastic drying mesh at 2m intervals 	<ul style="list-style-type: none"> Outside verticals of 40 mm x 40 mm x 5 mm mild steel angle iron 1.4 m in length with 1.0 m above ground level and 0.4 m embedded in concreted post hole of dimensions 150 mm x 150 mm x 400 mm deep. Central verticals of 40mm x 40mm x 5mm mild steel angle iron 1.5 m in length with 1.1 m above ground level and 0.4 m embedded in concreted post hole of dimensions 150mm x 150mm x 400 mm deep. The pipes are welded together at horizontal angle with iron round pipe bars to make the structural framework.
4	Top Material	<ul style="list-style-type: none"> Coffee tray lead material of 5-8mm mesh size The material is resistant to rust and does not peel off or stick on the fish. Easy to clean 	<ul style="list-style-type: none"> A high-quality brown shade mesh net sized 2.4 m wide was used (to cover both sides of the rack) stitched to frame using 3mm diameter UV resistant polypropylene twine.
5	Site setting	<ul style="list-style-type: none"> A set of adequate racks Constructed in rows at every site. The lay out can be changed based on available area 	<ul style="list-style-type: none"> A set of 4 drying racks were constructed in rows to fit the available area.

Figure 4. Modern drying racks made of steel, constructed to improve the processing of dagaa for women and sustain in the climatic shocks.



Launching of the Drying Racks

Launching of drying racks for women processors and traders of Wanawake na Maendeleo group was a significant step towards enhancing the post-harvest processing capabilities of women involved in fishing

activities. Introducing these drying racks aimed to improve women processors' efficiency, hygiene, and overall productivity, thereby contributing to their economic empowerment and the quality of fish products. The launching event was attended by community members from the area, members from nearby districts and villages, village councilors, local government authorities, village authorities, regional government officers, and journalists from various media houses.

Opening remarks by Regional Fisheries Officer Mr. Ephraim Mkama

The Regional Fisheries Officer (RFO) officiated the launch and thanked WORLD FISH and EMEDO for their empowering initiative in supporting women in fisheries. He thanked EMEDO for the invaluable partnerships and collaborations that have played a pivotal role in shaping

the development and success of the installation of the drying racks. Furthermore, he added that it is through these alliances that incorporating sustainable innovative drying racks is aligned with environmental responsibility. And lastly, he called on organizations such as EMEDO and WorldFish to support more women with innovative and climate-smart technology for the sector. He then handed over the racks by cutting the symbolic ribbon on the fence.

Remarks from Jovitha Juston the chairperson of Wanawake na maendeleo group

The chairperson of Wanawake na maendeleo group Ms. Jovitha, thanked WorldFish and EMEDO on behalf of the women's group. She expressed her gratitude for the generous donation of drying racks for dagaa processing. She emphasized that the support would significantly impact women's ability to process and preserve the dagaa. She stated that with the drying racks, women are now better equipped to enhance the quality and efficiency of processing activities. She noted that the drying racks would also increase productivity, especially during the rainy season when dagaa is plenty. They can still process dagaa since they can cover up the dagaa when it rains and uncover it when the rain stops for continued processing. She expressed her happiness that the nets on their drying racks would not be destroyed by dogs since there was also a security fence. Lastly Ms. Jovitha noted that the fish drying racks empowered women in the group and contributed to the community's economic development..

Figure 5. Mr. Ephraim Mkama (RFO) giving his opening remarks and official launch of the racks.



Impact

Introducing of drying racks for women fishers is expected to have several positive impacts, as some were stated by members as stated below.

- Improving the quality and safety of dried fish products, leading to increased market demand and better prices for women's goods.
- Empower women by providing them with the tools to control the post-harvest processing phase, increasing their participation in the value chain and contributing to their economic independence.
- Promote the adoption of sustainable fishing practices and effective fish preservation techniques to maximize the benefits of the drying racks.
- Improve women fish processors' efficiency, hygiene, and overall productivity, thereby contributing to their economic empowerment and the quality of fish products.
- Increase production, the modern racks can support 7-8 buckets (basins) of dagaa simultaneously. This means more women will be served, elevating their economic livelihood, and reducing fish post-harvest losses.

Outcomes

- Completion of 4 (four) drying racks tailored to the needs of the women processors and traders.
- Empowerment of local women through improved fish preservation methods, leading to increased economic resilience and better adaptation to climate change impacts.
- Enhanced collaboration and knowledge sharing within the community, contributing to sustainable fishing practices and economic growth.

“ The racks will contribute in improving the quality and safety of dried fish products will lead to increased market demand and better prices for the goods produced by women who process the fish.

- A woman fish processor.

- Transformation of gender norms through the husband who donated the land to allow the construction of racks for his wife and group members.
- Being the only drying racks in the village, it is ensured to support more women fish processors with processing and increase their capacity.

Challenges

- Weather-related delays (heavy rains) during the construction phase necessitated adjustments to the timeline.
- Power shortages also delayed the welding process.

Lesson Learned

- The involvement of women, community leaders such as village leaders and using local knowledge in the design and implementation of the project facilitated the project's smooth operation.
- Flexibility and adaptation to local conditions and unforeseen challenges during construction and implementation are important to project success. The construction sometimes worked extra hours to compensate for the time lost during power outages.

Recommendations

- There is a need for continued support for capacity building and training to ensure the long-term sustainability of the project's benefits.
- Scaling up the project's innovative technologies should be considered for more women groups in other fishing communities to benefit.
- There is a need to explore opportunities for value addition to fish products to enhance the economic impact on the community.

“ Additionally, the project will empower women by providing them with the tools and knowledge to take control of the post-harvest processing phase, thereby increasing their participation in the value chain and contributing to their economic independence

- Regional Fisheries officer

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