

INNOVATION FUND
Upgrading of Silver Cyprinid (*Rastrineobola argentea*) value chain through multi-stakeholder partnerships and novel climate-smart postharvest processing technologies and practices for improved rural livelihoods
Parent project: Strengthening agricultural knowledge and the innovation ecosystem for inclusive rural transformation and livelihoods in Eastern Africa (AIRTEA)
PROJECT COORDINATOR


Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya

PARTENAIRES

 Marine and Fisheries Research Institute (KMFRRI), Kenya
 JKUAT Enterprises Ltd (JKUATES), Kenya
 Dunga Beach Management Unit, Kenya
 Marenga Omena Beach Management Unit, Kenya

LOCATION


Kenya

PERIOD


March 2022 – August 2024

EU FUNDING


EUR 250,000

SECTOR

Agriculture, blue economy, fisheries

KEYWORDS

Silver cyprinid (omena), postharvest, solar drying, value-addition, multi-stakeholder partnerships, value chain, agribusiness

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CHALLENGE

In Kenya, harvesting, handling and processing of fish is a source of livelihood, income, employment and food security to millions of people living along the coastal region and on the shores of inland freshwater reservoirs such as Lake Victoria. In 2019, the total quantity of fish landings from Kenyan waters was 146,543 metric tonnes valued at about US\$ 23.7 million; the catch from fresh water sources was 120,873 tonnes, of which Lake Victoria accounted for 75%.

There are four fish species of common commercial importance across the riparian countries of Lake Victoria, namely: Nile perch (*Lates niloticus*), silver cyprinid (*Rastrineobola argentea*, also known as 'dagaa' or 'omena'), Nile tilapia (*Oreochromis niloticus*) and *Haplochromis* spp (also known as 'fulu').

The biomass of small pelagics like silver cyprinid has tended to increase at the expense of the larger fish species (i.e. Nile perch).

In Kenya, like other East African countries, less than 30% of silver cyprinid is utilised as human food with the major portion serving as raw material for the manufacture of feeds for poultry, fish and livestock.

Postharvest losses, bitter aftertaste, low value addition, and low social esteem (i.e. silver cyprinid is regarded as a poor man's food) are some of the factors contributing to low usage of silver cyprinid as human food despite its high nutritional value - high protein, ash and lipid content.

Postharvest quality loss of silver cyprinid fish in Kenya is estimated at around 20% per tonne per year. Apart from reduced marketability due to microbial deterioration and discoloration, insufficiently dried silver cyprinid fish also exposes consumers to adverse health consequences as they are susceptible to contamination with aflatoxigenic fungi during storage.



Project sites

PERSPECTIVES

The project focuses on upgrading the silver cyprinid value chain with the application of new and appropriate technologies and practices at specific value chain nodes to improve production processes and resulting product attributes that meet desired quality and safety standards as well as market needs. With agricultural innovation system principles that foster multi-actor linkages and communicative interactions, the project promotes cooperation across the silver cyprinid value chain actors in Kenya on sustainable postharvest technologies.





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JUSTIFICATION

Upgrading of the silver cyprinid value chain is expected to significantly contribute to achieving the development objectives of Kenya's Big Four Agenda and the National Agricultural Investment Plans (NAIP) in terms of improved processing technologies, employment creation through rural-based small-scale enterprises, improved incomes through product diversification and access to high-value markets, and improved nutrition.

METHOD

The project designs tests and validates and upscales sustainable silver cyprinid postharvest processing technologies in collaboration with men, women and youth engaged in the silver cyprinid (omena) value chain, including boat crew (fishermen), boat owners, traders, processors, transporters and beach management units (BMUs), through:

- Creation and strengthening of multi-stakeholder partnerships to address technical challenges that contribute to loss and wastage of silver cyprinid fish and its use as human food.



AIRTEA SILVER CYPRINID CONSORTIUM, KENYA



- Co-innovation and adaptation of novel climate-smart postharvest value addition technologies for landed silver cyprinid fish for improved storage and marketing (solar biomass drying, cooling).
- Development of innovative value-added products from silver cyprinid fish to promote access to high-value markets and its significance in the diets of Kenyans.
- Upscaling of novel climate-smart postharvest processing technologies and value-added products from silver cyprinid for enhanced food and nutrition security and increased incomes (business models for adoption of technologies).



Solar-Biomass Hybrid Dryer installed at Dunga, Kisumu County.

INNOVATIVENESS

Multi-stakeholder partnerships play a vital role in providing a collaborative platform that connects all silver cyprinid value chain actors and addresses issues of postharvest losses, limited income, product perceptions, and involvement of all value chain actors (especially women and youth), while also providing a channel for inclusive knowledge and technology transfer.



Trial omena-based extruded products.

EXPECTED RESULTS

Impact

- Improved rural livelihoods of the fishing communities in the North-Eastern part of Lake Victoria in Kenya.

Outcomes

- Active engagement of cyprinid value chain actors in Innovation Platforms.
- Novel climate-smart postharvest value addition technologies adopted by fisher folks.
- Supply of silver cyprinid value-added products to local markets.

Outputs

- Innovation Platforms around the Cyprinid value chain created and strengthened.
- Adapted solar drying and cooling systems introduced in the identified fishing communities.
- Prototype cyprinid value-added products developed for the identified fishing communities.

AIRTEA is implemented by FARA in partnership with ASARECA and EAFF. AIRTEA fosters an inclusive research and innovation environment towards sustainable agrarian livelihoods and rural transformation, through: strengthening the production, processing and marketing capacities of youth and women in East Africa's multi-stakeholder value chain innovation platforms and linking them to practical solutions within national, regional and global food systems; facilitating the transfer of technologies, knowledge and innovations, and their uptake through multi-stakeholder learning routes; and improving profitability and employment opportunities along agricultural commodity value chains by establishing national and regional Agricultural Business Learning Alliance (ABLA) platforms, business development services and mentorship.

AIRTEA supports 11 projects in Kenya, Rwanda and Uganda that focus on agricultural production, processing, marketing, agricultural digital application development, and extension (mainly aquaculture, dairy, and horticulture).

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