COOLING OFF WITH THE SUN: A SMART-FOOD COLD CHAIN ON KENYA’S LAKE VICTORIA SHORES

An effective cold chain can unlock the competitiveness of small-holder farmers, small traders and other value chain actors. Water and Energy for Food in East Africa and We! Hub Victoria Ltd (WeTu) are working together to use innovative solar-powered cooling technologies and demand-oriented business models to bring cooling solutions to the shores of Lake Victoria in Kenya.

Background
Fisheries and horticulture play a key role for food security, income, and employment around Lake Victoria, locally known as Nam Lolwe. It is estimated that the region contributes over 80% of the country’s fish production each year. Lake Victoria also offers significant potential for small-scale irrigation.

Nevertheless, post-harvest loss and food waste among smallholder farmers and fisherfolk is estimated at 30-40%, mainly during the handling and storage of food.

In order to come up with market-driven solutions, the WE4F East Africa Regional Innovation Hub (EA RIH) and WeTu are piloting an integrated solar-cooling solution on the shores of Lake Victoria. WeTu’s ability to maintain and strengthen its role in delivering clean energy solutions, better mobility, and creating business opportunities for the region’s rural communities aligns well with WE4F’s strategic goal of improving smallholder farmers’ livelihoods through greater agricultural productivity and more sustainable practices for natural resource use.

Project Description
The project seeks to support smallholder farmers and fisherfolk in Western Kenya, by supporting access to cooling technologies for improved food chains. Coupled with an e-mobility concept, the partnership will offer support to value chain actors by:

1. Demonstrating the feasibility and technical viability of an off-grid solar-powered food cold chain. This is expected to boost incomes by reducing post-harvest losses associated with the lack of an efficient cold chain, especially in resource-constrained rural areas.

2. Designing and testing a sustainable business model in the cold value chain that is socially responsible and addresses the needs of smallholder farmers, traders, and other value chain actors.

3. Conducting effective skill transfer on business development to expand income opportunities for smallholder farmers, traders, and other value chain actors.

FACTS

- Lake Victoria contributes 80% of Kenya’s inland fisheries
- 30-40% of food produced in Kenya is lost post-harvest
A solar icemaker has been procured and is currently being shipped to the installation site.

WE4F is working with a team of co-designers to create a community-focused, collaborative process to develop business cases for the solar icemaker. "Co-design" refers to a participatory approach to designing solutions, in which community members are collaborators.

The project partners will further develop the different energy services provided by WeTu, such as cooling solutions combined with water provision and e-mobility.

Combining these services with a tailored business model will create opportunities for WeTu as well as the fishing and agricultural producers around the lake, especially women and youth.

Business development services through short term trainings will primarily support the pool of micro-businesses that are run by women and youth in the area.

Documentation of project impact will contribute to knowledge management that can be shared and upscaled in other similar contexts to further improve livelihoods.

### Anticipated Impact

Solar-powered cooling and cold storage solutions are still highly underdeveloped in most parts of Western Kenya. There is great potential to create business opportunities in: a) providing cooling services, and b) using these services in the fishing and horticulture sectors. Ultimately, this will contribute to improved incomes and livelihoods, owing to rapid access to lucrative markets and longer shelf lives of perishable produce.

### What has been achieved so far?

- A solar icemaker has been procured and is currently being shipped to the installation site.
- WE4F is working with a team of co-designers to create a community-focused, collaborative process to develop business cases for the solar icemaker. "Co-design" refers to a participatory approach to designing solutions, in which community members are collaborators.

### Looking Forward

1. The project partners will further develop the different energy services provided by WeTu, such as cooling solutions combined with water provision and e-mobility.

2. Combining these services with a tailored business model will create opportunities for WeTu as well as the fishing and agricultural producers around the lake, especially women and youth.

3. Business development services through short term trainings will primarily support the pool of micro-businesses that are run by women and youth in the area.

4. Documentation of project impact will contribute to knowledge management that can be shared and upscaled in other similar contexts to further improve livelihoods.

### End Users

People in a rural area who have increased their income because of GIZ’s contribution. Smallholder farmers and other end-users using energy or water efficient WE4F innovations in their activities.

### Capacity Development

Multipliers that are informed about potentials of climate friendly, energy and/or water efficient innovations.

### Business Model

Sustainable business models for the marketing of climate-friendly, energy and/or water efficient innovations have been developed by new or already established innovators.

### Demo Measures

Solar icemakers show WeTu customers the potential of climate-friendly, energy and/or water efficient innovations to increase productivity and income.

### TARGETS AT A GLANCE

- A fully functional off-grid solar cooling system installed for fish and horticulture preservation
- A sustainable business model for the provision of on-demand cooling services developed, viability documented and implemented
- Information and training materials for the solutions developed and being used by customers
- Business opportunities along the cold chain are identified, documented and implemented with the local communities

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**Photos:**
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More about the global initiative Water and Energy for Food (WE4F) Grand Challenge: [https://we4f.org/](https://we4f.org/)

Further information about the project: [https://we4f.org/](https://we4f.org/)

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