

Building Equity and Livelihood Resilience by Applying Renewable Energies in Indonesian Small-Scale Tuna Fisheries by Yayasan IPNLF Indonesia



Throughout the Developing World small-scale fisheries lack reliable access to electricity, technical knowledge on food safety and fish handling, and facilities to maintain a cold-chain, which ultimately maximise the value and shelf-life of the fisheries harvest. These constraints have an undeniable impact upon the quality of fish the community can produce, its economic value, and the market opportunities that the fishery can generate. In Indonesia, it's said that

about 60% of the value of large yellowfin tuna harvested by traditional handline fishers are lost due to long or inefficient supply chains, lack of infrastructure, poor harvest handling practices and other inadequate systems that compromise fish quality. This project seeks to address these issues through demonstrating the potential of deploying innovative, off-the-grid, solar-powered ice making machines in remote fishing communities in East Indonesia. The solution would enable these fisheries to produce quality yellowfin tuna for supplying to high-value markets. The initiative is combined with upskilling fishers through workshops and training to improve handling practices, cold chain, financial literacy, asset management and other capacity building as required to enable local fishery stakeholders to commercialise and manage these facilities beyond this project's timeline.

The project started in July 2022 and planned to be completed by end of June 2024.

Current status and achievements

- Discussions with GIZ and AIREF (Solar system company) started to capture lessons learned from their previous project, particularly with regard to site selection of the Solar system
- Developed criteria and procedures for selecting and preparing sites to install solar ice-makers in remote areas in Eastern Indonesia
- Developing the report on the baseline socio-economic surveys for pre- and post-harvest actors in the supply chain
- Conducting series of meetings and discussions with possible site partners and gathering information to complete site selection analysis
- Finalized the site selection and prepared a technical report on the selected site specifications
- Started negotiations with AIREF (the solar system provider) to agree on the specifications, cost, and timing to fully implement the solar ice-machine in the selected site

Target outputs and outcomes by end of project

- Demonstrate feasibility of using climate-friendly ice production in a commercial setting to support small scale tuna fisheries and their value chains in remote Indonesia.

- Understand critical control points and implement necessary corrective actions to maintain cold chain, reduce spoilage and fishery losses, and improve overall fish value and quality
- Upskill fishers and supply chain actors to maximise harvest quality and potential value through training and capacity building events.
- Demonstrate and promote the business value proposition and scalability for off-grid solar ice makers in remote small-scale tuna fisheries

Through the effective implementation of this initiative, there will be positive impacts in a variety of areas as follows:

- An improvement in post-harvest cold chain management and handling practices resulting in higher quality fish entering the market and thus increased income as Fishers can expect to achieve better prices for their fish. This has implications for further opportunities that allow fishers to invest in the education of their children and improving daily nutrition of their families.
- The project will offer employment in developing and remote regions across Indonesia and the upskilling of local women as technicians and operators will be prioritised, resulting in greatly improving household income.
- The project also aims to remain as environmentally sustainable as possible. Operating on solar power and using only natural refrigerants, we can limit the negative impacts on the environment and reduces the carbon emissions using the solar system.

The project will run for two years and acts as an innovative, proof-of-concept development that will pave the way for replication and upscaling going into the future. With a 100% off grid design and no main battery storage, the system is designed to operate with minimal infrastructure and/or financial inputs. The project can be sustained into the future by providing a replicable model for the private sector and/or local fishery cooperatives the opportunity to become owners of the ice makers whilst abiding by conditions provided regarding the project objectives.

Clear incentives to carry on the project indefinitely will become prominent through the benefits that the users will gain from the development of such system. These benefits not only environmental, but also economical through the increased market opportunities that will come with providing higher-quality fish, better cold chain management and minimizing post-harvest losses. This would ultimately lead to improving the users bottom line at minimal cost to them or the environment. The support of the OIC will help Yayasan to design and execute a promotion campaign on the project benefits to encourage other communities to develop similar system.