

## Case Study:

### Fresher, longer, further: using motorcycle cool boxes to distribute fisheries products in Indonesia



#### Overview

In Indonesia's Nusa Tenggara Timur province the Regional Fisheries Livelihoods Programme (RFLP) introduced motorcycle cool boxes made from fibre glass to help maintain the quality and food safety of fresh aquatic products, including fish. The cool boxes were made by young disadvantaged people from coastal communities who had received vocational training from a joint RFLP-International Labor Organization (ILO) initiative.

This pilot activity has shown the benefits fish traders can gain from using better suited and more hygienic equipment to carry fish. However, it also reveals the need for any equipment to be able to withstand local conditions and for repair skills/facilities to be locally available.

#### Key Lesson Learned

- Fish traders can derive almost immediate income benefits from the use of appropriately designed equipment to carry aquatic products.
- Fish products can be delivered over longer distances and in better quality
- Equipment needs to be able to withstand local conditions
- Repair facilities/skills must be available locally for any equipment provided

## Context

Most of the coastal people in Rote-ndao (Nusa Tenggara Timur Province, Indonesia) understand the importance of using cool boxes to maintain the quality of aquatic products including fish. However, being an expensive item for poor fisher households, people often use other cheaper items that can be adapted for use as a cool box, despite not initially being designed for that purpose. For example, fishers often transform broken *kulkas* (household refrigerators) and use them as cool boxes to store the catch on their fishing boats, while fish sellers often use jerry-cans to transport aquatic products.

Broken refrigerators or *kulkas* are fine to use as long as the door is still in good condition, but once the rubber door seal is broken, heat easily enters and so the cooling function is lost. Jerry-cans are definitely unsuitable for keeping catch cool as they provide minimal thermal insulation and do not maintain the cool temperature needed to keep the catch fresh. Despite this, people in Rote-ndao continue using jerry-cans to transport fish, even though fish begins to spoil after only three hours, and trips are often longer than that. Mounting broken refrigerators on motorcycles for transportation around Rote-ndao island is unfeasible. This situation limits the supply of fish to the inland areas, and results in aquatic product spoilage and reduced profits.

## The Initiative

During 2011 RFLP collaborated with the International Labour Organization (ILO) to provide vocational training courses for 100 unemployed youth from coastal Communities. One of the skills taught was the fabrication of fibre-glass products. After the training, a local NGO named Suara Flobamora, gathered together some of the trained youths and established a fibre-glass workshop for them to work from. Provided with guidance and materials, the alumni made a number of demonstration pannier cool boxes, specifically designed to be fitted for use on motorcycles.

They used fiber-glass as the main construction material, which was a new idea not previously seen in this region. Fibre-glass technology was commonly used to make water tanks however hard-plastic materials were generally used for cool boxes. RFLP ordered the cool boxes used in the demonstration pilot from the youths. By doing so it not only helped support the improvement of aquatic product quality but also the livelihoods options of coastal youths. Eighteen pairs of fibre-glass cool boxes units were constructed and distributed under this project to motorcycle fish traders. This initiative was carried out thanks to a partnership arrangement and good collaboration among the Rote-ndao District Marine Affairs and Fishery Office (DKP) and RFLP.



before

after

Initially, RFLP planned to implement this activity in all pilot districts, but due to budget constraints, it was necessary to limit the scope and so only one district was selected. As the number of cool boxes that could be provided was limited, it was decided that Rote-ndao would better demonstrate results, and this good practice would easily be appreciated by the many other mobile fish traders in Rote-ndao that use motorcycles to transport catch for sale in interior villages. Rote-ndao is smaller than other RFLP districts, so by distributing the cool boxes equally between East Rote and West Rote, the entire district was covered.

Before delivery of the cool boxes, a survey was conducted by the RFLP national consultant for post-harvest and marketing, with the support of the district coordinator. The results of the survey were presented to the RFLP trained post-harvest alumni, and they jointly decided on the beneficiary selection criteria, with the support and advice from RFLP. The main selection criteria were that the beneficiaries were fish sellers who owned a motorcycle and who bought and transported aquatic products over long distances.

The distribution of the cool boxes was carried out by the Marine Affairs Agency (DKP) to ensure that the correct beneficiaries received them. The mobilization of DKP was also aimed gaining their interest in replicating this initiative in other sub-districts. RFLP took this opportunity to raise awareness on better handling, distribution and transportation practices for

aquatic products, and cool box maintenance, by putting stickers with key messages printed on them on the outside of the cool boxes.

## Results and Impacts

The beneficiaries were extremely pleased to be given the cool boxes by RFLP, because through them they could improve their business. They used the cool boxes to transport aquatic products from their suppliers to their houses, and to transport aquatic products to be sold to their neighbours, and even to people living in other villages nearby.

Due to the high demand for this kind of cool box, some people started sharing the use of their cool box with other fish sellers. For example, Nofri Haudale of Londalusi, East Rote, shared the use of his cool box with his brother, Yudi Haudale. If one day Nofri used the cool box for transporting small fish from his supplier in Ba'a (the capital of Rote-ndao), then, the next day Yudi would use the cool box to take aquatic products from his supplier in East Rote nearby and sell them to his costumers.

Other beneficiaries from the western part of Rote-ndao island used the cool box to pack aquatic products for longer periods. With the box being so well thermally insulated they were able to store fish in the cool box for up to two days and it was still fresh enough to sell.



*Inspecting the motorcycle cool boxes*

As aquatic product freshness could be maintained for longer, they were able to sell fish in villages of other sub-districts much further away and on average spent around six hours each day selling fish. Berdi Mbura of Lalukoe village stated that with the cool box he could now sell fish to villages in South Rote which was around 30 km away from his village.

Previously when using the jerry-cans to transport aquatic products they typically made only around Rp. 30,000 to Rp. 50,000 profit (approximately US\$ 3 to 5) in a day. While using the cool box however they were able to store and sell more. Furthermore, the boxes used less ice which lasted longer. As a result they could make Rp. 80,000 to Rp. 100,000, (approximately 8 to 10 US\$) per day. This increase of income was a significant contribution to their household finance and well-being.

Mr. Paulus Pah from Lalukoe village of western Rote, used his additional income from using the cool box to invest in a broken refrigerator or *kulkas* which he used as a cool box to store more fish at his house. This meant that now he could buy more fish and bigger fish to sell to his neighbors resulting in greater income generating opportunities for his household.

The impact of this RFLP supported pilot cool box demonstration has been extremely positive for the selected beneficiary households. A local Kupang politician, on learning of the success of the RFLP cool boxes, saw it as an opportunity to promote himself with the electorate. So, he has since procured 20 similar cool boxes, placed his own advertising stickers on the side and then donated them to selected fish traders around Kupang district.



*A participant of the RFLP-ILO vocational training programme puts the finishing touches to fibre glass cool boxes*

## Constraints

After using the cool boxes for some weeks and/or months, the degradation of the quality of the cool boxes started to show, mainly through the appearance of cracks and holes which ice melt water leaks from. According to the fish sellers, the leaks mostly happened because the fibre-glass was too thin to bear the burden that was sometimes carried. Also if the fish traders laid the cool boxes on rocky ground, sharp rocks pierced and damaged the cool box. "The cool box looks thick, but actually it isn't. It has many micro leaks" says Melkianus Henukh, a fish trader from Lalukoe village.

Some fish sellers have made efforts to stop the leaks by putting on home-made patches, but these patches do not last long and need to be replaced often. Some fish traders have stopped using the cool boxes they received altogether, and have gone back to using jerry-cans instead. But this has again reduced their daily income back to the previous level before the cool boxes.

If there was a fibre-glass workshop in Rote-ndao or the quality of the cool boxes was better, then, this could potentially inspire other fish sellers to use cool boxes and would have a positive impact on their household income, fish supply and aquatic product safety. The longer these fish sellers gain benefits from the fibre-glass cool boxes, the greater will be the impact of this demonstration and the likelihood that other fish traders will adopt this improved cold-chain practice.

## Lessons learned

- The cool boxes should be made with thicker fibre-glass layers in order to carry the weight of fish to be transported.
- Two fish traders from East Rote did not receive their cool boxes, even though their names were on the beneficiary list. It is therefore important to double check procedures when equipment is donated. It should be mandatory for beneficiaries who receive donated equipment to bring their ID-cards in order to confirm their identity.



*Unused cool box due to leaks*

## Recommendation

- DKP or other stakeholders need to consider developing a fibre-glass workshop in Rote-ndao as in the future the needs for fibre-glass-based products are likely to increase. Such a facility could make and repair fibre-glass cool boxes for RFLP supported fish sellers. This should be done in collaboration with the life skills youth alumni that were trained by RFLP in collaboration with the ILO that have the capacity to produce fibre-glass-based products.



*Transporting pelagic fish using the motorcycle cool box to preserve freshness and quality*

This case study was written by Marvel Ledo with inputs from Akhmad Rikhun, Agoes Hekso, and Aminudin Salka RFLP Indonesia, Don Griffiths, RFLP Chief Technical Adviser and Steve Needham, RFLP Information Officer, with editorial and layout support from Angela Lentisco, RFLP Case Study Developer.

### **About RFLP**

The Regional Fisheries Livelihoods Programme for South and Southeast Asia (RFLP) sets out to strengthen capacity among participating small-scale fishing communities and their supporting institutions in Cambodia, Indonesia, the Philippines, Sri Lanka, Timor-Leste and Viet Nam. The four-year (2009 – 2013) RFLP is funded by the Kingdom of Spain and implemented by the Food and Agriculture Organization of the United Nations (FAO) working in close collaboration with the national authorities responsible for fisheries in participating countries.