SIMPLE FISH-DRYING RACKS IMPROVE LIVELIHOODS AND NUTRITION IN BURUNDI

WORKING FOR Lake Tanganyika fishers, processors, retailers and consumers

WORKING TO improve processing and marketing of lake catches

WORKING WITH Burundi Fisheries and Aquaculture Department

WORKING THANKS TO FAO Technical Cooperation Programme

Raised wire-mesh racks, covered with small, silver lake fish drying in the sun, stretch across the Burundi shore of Lake Tanganyika near the small fishing village of Mvugo. While simple in design, these drying racks have made an enormous contribution both to local nutrition and the local economy. Before the racks were introduced by an FAO project in 2004, women dried the *Stolothrissa tanganyikae* fish, a sardine-like variety known locally as *ndagala*, on the sand. Not only was this unhygienic, there were also significant post-harvest losses due to slow drying time and exposure to contamination on the ground. The short-term project ended in 2005, but the local community continued to use the newly acquired knowledge, building more raised racks and increasing the area along the shore devoted to fish drying from one to five hectares. With rack-dried fish fetching more than double the price of sand-dried, this new drying technique has significantly increased producers' incomes and generated new employment opportunities. Additionally, it has enabled producers to expand their markets and sell this nutritious fish to consumers in a much wider area.

In recent years, the amount of processed fish entering the markets from the eastern shore of Lake Tanganyika in southern Burundi has significantly expanded. Yet this increased production has not put greater pressure on the lake's resources. In fact the amount of fish being taken from the lake has remained relatively stable. The reason: local fishing communities have adopted an extremely efficient and low-cost fish-processing technique – drying racks raised a metre above ground – which means communities do not need to increase their fishing efforts to make up for post-harvest losses.

With air circulation, this rack system reduces drying time from three days to eight hours, which means producers can dry multiple batches in the same day during peak seasons. It also keeps the fish away from insects, animals and contaminating materials on the ground, enables the driers to cover the fish during the rainy season, and is much less labour-intensive.

This improved drying technique was introduced in 2004 by an 18-month FAO project, during which a small pilot centre was constructed near Mvugo fishing village. The centre offered training in rack-drying techniques, introduced tools and distributed leaflets on how to build the racks. The local people who

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went through the training not only adopted the techniques with enthusiasm, they also continued to disseminate their knowledge after the project ended. From an average of 500 women who dried fish on the sand in 2004, today there are some 2 000 people directly involved in the improved drying operations in Burundi, an increase of 300 percent. It is estimated that over 12 000 family members are fed from this income generation.

Improved production has also increased opportunities for dealers who buy the dried *ndagala* and re-sell it in other locations around the country. Additionally, small-scale industries have sprung up to provide materials and build racks. The small premises built by the project now serves as a pilot centre for training and advisory services, sustainably managed by a local fisher-based organization.

NATIONAL NUTRITION AND CONSUMER SAFETY

The ability to export the dried fish to the inland areas of the country has also contributed to consumer nutrition and food safety in Burundi. Rack-dried fish are certainly more hygienic than fish dried on the sand and offer a great improvement in taste and texture. From the food safety aspect, the rack-dried fish processes faster and more completely than sand-dried, thus making it less prone to contamination and other types of spoilage.

But equally important is the nutrition that the fish offer to the people of Burundi. According to its National Agriculture Investment Plan, Burundi has a 60 percent protein deficiency. Because of the lack of infrastructure, there is little possibility of inland consumers having access to fresh fish. However, the nutritious and high-protein *ndagala* now has a much longer shelf-life, thanks to the improved rack-drying method, which enables its transport to inland markets.

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CHANGE IN PROCESSING DEMOGRAPHICS

When the project began in 2004, almost all the fishers were men who sold their fish to the driers, 80 percent of whom were women. Today, with fish-drying becoming a significantly more profitable economic activity, these numbers have changed, with men now investing more and more in the sector. It is estimated that men, who own larger racks, now comprise 30-40 percent of the business.

Although the improved methods have greatly contributed to the economy of the region without putting any further pressure on fish resources, the fishing communities also recognize there is still progress to be made. This includes improvements such as developing a better-designed crate to store catches, and introducing microcredit schemes to ensure that women maintain their position in the drying business as competition increases.

As can be seen from the lakeside covered with drying racks, a small investment in time and materials from an 18-month FAO project continues to support these Burundi fishing villages nine years later.