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Challenges in the use of a solar ice production and drying systems in Kenya

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Abstract

In February 2023 the SolCoolDry - solar ice production and drying system has been officially inaugurated and handed over to the Beach Management Unit (BMU) Mwazaro, at the south coast of Kenya. The cooperation project of partners from Germany and Kenya and the realised system is financed by funding from the German Ministry for Food and Agriculture. More than one year of operation accompanied by tests and analyses concerning hygienic and quality aspects reveals the main advantages by the use by the local community but also shows the still challenges between interest and real use.

The flake ice machine in Mwazaro is currently the only ice machine in the wider area that still produces high-quality ice. Despite the high demand for flake by the fishermen and fish traders in principle the ice sells never reached the production capacity. Minor technical problems that arose during operation were resolved remotely by the BMU's technical staff. However, it has not yet been possible to create reserves for major repairs.

The solar tunnel dryers are under regular use, but also far below it's capacity. This is partly due to the lack of raw materials and partly because potential users are not yet sufficiently convinced of the benefits of the systems. Traditional drying of Kimarawali (small sardines) on the ground, directly on the landing sites, is still the preferred procedure. Due to the current economic conditions in Kenya, hardly any added value can be achieved on the market for a better quality of dry products, so that the additional work involved has not yet paid off. This is particularly true for the fishermen of Kimarawali. In addition, the fishermen still only dry products that cannot be sold as fresh fish on the market. In opposite, the dryers are more and more used by the local farmers depending on the seasonal harvest.

As part of the EU-funded INNOECOFOOD project, the above-mentioned solutions for solar ice production and drying are being integrated directly into special fish farms with RAS technology. A regular and efficient use of the technologies is expected under these specific boundary conditions.

Keywords: Fishermen, flake ice production, food preservation, solar drying