

# Transfer of Solar Drying Technology to Sweet Potato Farmers in Gairo Division in Kilosa District for Sustainable Food Security and Income Generation

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## Location of Project

The project area is Gairo Division in Kilosa District, Morogoro region in central Tanzania. The area covers about 100,000 hectares and is divided into four wards of 27 villages 11,587 households.

## The Problem Statement

Sweet potato is grown by 80% of the households. The crop is both a food and cash crop in these villages. In the past years, the division experienced losses of up to 50% due to the perishable nature of the crop. The selling of sweet potato is exploitative as most traders prefer buying a plot (crop in the field) rather than harvested roots. Where farmers harvest the roots, the traders select the big ones leaving small ones to rot in the field. The sale of harvested roots is by volume. Packaging is strategic, by over-filling the bags, referred to as *rumbesa*.

## Objective of the Project

The objective of the project is to reduce losses and extend the shelf life of the harvested roots using affordable preservation technology to improve household food security and farmers' incomes.

## Partnership

The project is implemented by the following five collaborating partners each with specific function depending on expertise:

- **Sokoine University of Agriculture (SUA)**, who are responsible for the management of funds and transfer of technology
- **AMKA**, an NGO from Dar-es-salaam experienced in constructing solar dryers and marketing of the dried products
- **TAWLAE**, an NGO dealing with sensitization of women to adopt new technologies
- **District agricultural extension officers**, who are responsible for identifying farmers, follow-up and assisting them in adopting the technology
- **Farmers**, who are the beneficiaries of the technology

## The Technology

The technology being transferred is solar drying of sweet potato. Solar drying is cheap, environmentally friendly and can be carried out at household level. The dryer is called Kawanda, and is composed of a box covered with visqueen (a special plastic) with compartments titled with fitted trays. Drying of the produce takes 2-3 days depending on the type of product and the intensity of the sun. The dried products can be kept for up to 1 year if stored under cool dry conditions.

The cost of construction depends on size but varies from TSh. 50,000 - 250,000. The amount of dried sweet potato per kilogram of fresh produce ranges between 400 and 500g.

## Methodology

The following steps were used to implement the project:

1. Farmers were mobilized through open meetings and focus group discussions in each village and organized into groups. Sixteen groups were formed from three villages (Ibuti, Mtumbatu and Kibedyo) composed of 105 women and 100 men. Sixteen group leaders were chosen (14 of them women)

## **Solar Drying Technologies for Sweet Potato Farmers, Tanzania**

2. Each group was trained on leadership and entrepreneurship skills and solar drying of sweet potatoes, vegetables and tomatoes. Local artisans were also trained on construction of solar dryers
3. The groups were mobilized to form a union of farmers involved in solar drying of sweet potatoes, UWAVIMKI, a community based organization (CBO)
4. A revolving loan fund was established for project sustainability after the two years grant period
5. Regular monitoring and evaluation of the project activities was carried out by the project implementing team

### **Achievements**

The following have been achieved to-date:

- increase in cultivation of sweet potato by the farmers involved in the project
- construction of nineteen solar driers already in use
- training of six artisans to construct solar dryers in the three project villages
- registration of UWAVIMKI and rented an office for one year
- establishment of a revolving loan fund to be operated by the CBO
- production and distribution of four types of leaflets to group members
- distribution cutting machines, weighing scales and other basic equipment for running the project activities to group members
- about 206 farmers have adopted and are practicing the technology in the three villages
- approximately 1 63 kg of different types of vegetables have been dried and stored while 117 kg of sweet potato and 56 kg of tomatoes were dried and used by farmers last season

### **Technological Impact and Spill-over in the Community**

The following are immediate positive impact of the project in the community:

- Some groups are drying other products, which were not in the project including yams and chillies
- The demand for this project is high and non project members have approached some of the groups to learn and practice the technology
- Other groups are ready to rent-out the dryers as a source of income when they are not being used by their members
- Farmers use the preserved sweet potato and tomatoes for food during lean periods early in the year

### **Constraints /Challenges**

The project encountered the following challenges and constraints:

- Weather pattern over the past two years has not been reliable hence very low production of sweet potato during the last season
- The reporting format was not available at the beginning of the project
- Farmers requested for information on HIV/AIDS, which was not in the project objectives

### **Reasons for Success**

The following factors contributed significantly to the success of the project:

- working closely with the groups
- co-operation from local government and project partners
- continuous monitoring and evaluation
- farmers' willingness to accept and work with the project

### **Lessons Learnt**

The success of this project emphasized that working with local groups facilitates faster adoption of technology.

### **Recommendations on Sustainability**

To ensure sustainability of the project after the two year grant period, the following needs to be done:

- continuous mobilization, formation and maintenance of groups
- training more artisans to construct solar dryers in the project villages
- establishing a revolving loan fund, which will keep the project viable