

# SUPPORTING IRRIGATION FOR FOOD SECURITY IN MALAWI

*Better water management will be essential if small-scale farmers in Malawi are to face the challenges that climate change poses for agricultural productivity and food security. This case study describes Oxfam's work in supporting community-based irrigation schemes in Malawi. Testimony from participants demonstrates the impacts that irrigation has made on their productivity and income.*

## INTRODUCTION

Malawi is a country of small-scale producers farming tiny plots of land. Traditionally, they grow maize and other crops using rainwater. But as climate change intensifies, rains in Malawi are becoming erratic and less predictable.

Malawi has abundant freshwater resources. Thirteen perennial rivers and three lakes cover almost 20 per cent of the area of Malawi. Despite this, only a small proportion of agricultural land is irrigated. In 2005, crops failed on a devastating scale due to drought, while millions of cubic metres of water continued to flow out of the country.

Improving smallholder agriculture is a major focus of Oxfam's programme in Malawi. This case study describes how Oxfam has supported the development of community-based irrigation systems in support of greater productivity and food security.

## BACKGROUND AND CONTEXT

In 2005, drought in Malawi caused a major food emergency affecting some five million people. Since then – partly thanks to a government programme of fertilizer subsidies – food production has recovered, and Malawi has harvested several bumper crops of its staple food, maize. In 2007 Malawi even became a regional exporter of surplus maize. Despite these achievements, 80 per cent of smallholders are still net buyers of maize (Makombe *et al.* 2010), and 60 per cent of the population is food insecure on a year-round basis (Oxfam International 2009).

More than 90 per cent of Malawians rely on subsistence-level rainfed agriculture for their food supply. However, agricultural land is scarce in Malawi, and 70 per cent of small-scale farmers farm less than one hectare of land. Estates farming tobacco, tea, sugar and other crops for export own much of the best land (IRIN 2008). This, in combination with declining soil fertility, use of low-yielding seed varieties, limited access to inputs, credit or training, and poor water management, has greatly limited smallholder productivity.

Moreover, Malawi has one of the highest rates of HIV/AIDS in the world, with 11 per cent of 15–49 year olds estimated to be HIV-positive (World Development Indicators 2009). Many households care for orphans who have lost their parents to the disease; many older people continue farming to support grandchildren. For family members who are HIV-positive, having enough nutritious food is important for keeping healthy. All of this makes it additionally difficult for farming households to produce enough to feed everyone.

Small-scale farmers in Malawi traditionally grow maize. Other important smallholder crops include cassava, sweet potatoes, rice, sorghum, groundnuts (peanuts), pulses, and tobacco. Rainfed farming relies on good rainfall. But because of changes in the climate, rainfall in Malawi is becoming increasingly erratic. Farmers are experiencing more frequent and severe droughts and destruction of crops, as well as soil erosion when the rains are intense and unpredicted.

Given the small farm sizes of most Malawians, improving agricultural productivity is essential for improving food security. Irrigation offers the potential to move to year-round cropping, generating higher annual yields from a single plot, and

allows farmers to diversify and plant alternative cash or food crops. For the best results, irrigation should be combined with other measures to improve crop diversity, crop yield, soil management, support for market access, and the development of crop and seed banks.

## COMMUNITY-BASED IRRIGATION

Oxfam works with poor communities across Malawi to support better agricultural productivity and improved livelihoods. One part of Oxfam's programme is the development of community-based irrigation schemes. These schemes support communities to develop, build, and manage their own irrigation network.

The Mnembo irrigation scheme was created in 2004. It has helped to improve the lives of 900 families by transforming their traditional low-yield crops into year-round, high-volume harvests that provide continuous food and a source of income, greatly improving their level of self-sufficiency. The irrigation system took seven months to construct and covers 60 hectares of land.

With initial support from Oxfam, people of the farming village of Mnembo in southern Malawi pooled their labour to harvest and sell their produce in bulk. In addition to bigger and better maize harvests, the newly irrigated land has enabled the community to diversify and grow new crops. They now grow wheat, rice and tomatoes.

Tomatoes are the most profitable crop. The community harvests the tomatoes twice a year and sell as a cooperative to the Mulanje Peak Foods Canning Factory (which sells canned tomato juice and tomato puree to supermarkets throughout Malawi). Last year, the community harvested 53,000 tonnes of tomatoes, and made enough profit to really start changing their lives.

### How community irrigation scheme works – Oxfam's approach

- Working with an interested village or community, the first step is to identify a suitable location. This should be somewhere flat, close to a river or natural water source, and with fertile soil – and close to where the community lives.
- The next step is to create an initial committee, drawn from within the participating community, to help to set up the project, and to generate the necessary interest and commitment from within the community.
- Oxfam then supports the community to negotiate a reasonable annual rent from the owners of the land to enable them to farm the fields that will be irrigated by the system
- Anyone can join the scheme, provided that they can raise enough money to pay a small amount of rent to the landowners – the equivalent of about 80 pence initially, then about £6 per year.
- Oxfam pays individual community members to construct a network of cement irrigation canals to channel the water from the river to the fields. As well as providing a source of income, this offers the community total ownership of the system, and valuable construction knowledge in case they need to make any repairs in the future.
- Starter packs of seeds and fertiliser are provided, along with training in farming techniques and market access support.

Leyla Kayere describes how before beginning the scheme in Mnembo, Community members went to see a similar scheme in a different community:

‘Before we started, Oxfam took us to see a place where the community was already using an irrigation scheme to grow rice and tomatoes. I realised at the very first moment that we could see that we would make a lot of money if we had that scheme.

‘We started by digging the channels. Oxfam paid us to do the work. There were many of us digging. It took us two months to finish. Then we mobilized ourselves into a club so that we could pool our labour to cultivate large pieces of land. That way we can grow more and attract better customers – like the Mulanje canning factory.’

At harvest time, the canning factory sends collectors who weigh the tomatoes that the farmers have grown. They record the quantity of tomatoes that each farmer has been able to harvest. The farmers are then paid according to the weight. The community has requested to be paid in monthly instalments for the tomatoes. For many of them, like Leyla, accustomed to subsistence farming, the sums of money involved are impressive.

‘I remember the first time I sold all my tomatoes.... It felt so good when I had all that money in my hand. I look back to that time as being my proudest moment. I used that money for the walls of my house. I was paid in three instalments over a two month period ... I sent my grandson to Limbuni on his bicycle to buy iron sheets for my roof.’

### **All-year-round agriculture in Mnembo**

The irrigation scheme has brought new sources of food and income to Mnembo. Because water is available all year round, farmers are able to harvest several crops in a year. Charles Kenani explains:

‘We started this irrigation scheme because we were facing problems with the climate. We were finding it hard to grow enough food all year round. It's impossible to harvest enough for the whole year when you have to rely on the rain.

‘Now that we have access to water during the dry months we are able to plant several crops in a year... We no longer see the problems other people face. Because of our irrigation system we are protected.

‘The irrigation system has enabled us to cultivate different crops all year round so we can make more money. We grow rice, wheat and tomatoes. Tomatoes are the most profitable. We sell tomatoes to Mulanje canning factory twice a year.

### **What impacts is irrigation having for the people of Mnembo?**

The improved productivity and diversification resulting from the Mnembo irrigation scheme is allowing villagers to make investments in their homes and businesses. A bit of extra money can make all the difference in ensuring that children can go to school, or in buying healthcare when someone in the family is sick.

Charles has used his profits from the tomato sales to build a new house. ‘I have been able to build a new brick house using the money I have made from selling tomatoes to the canning factory.’

He also describes how the increased income is allowing more children to go to school: ‘Most of the children in the village have been able to go to secondary school because we have been able to pay fees.’

He has long term plans to create a grocery shop and a tearoom in his new house.

Anthony Mokowa was also able to use his profits to make important improvements for himself and his family. 'I grew tomatoes twice last year and I got enough money to buy a bicycle, some land and build a house,' he says.

For Loveness Sikiya and her granddaughter Vanessa, the irrigation scheme has been literally life-saving:

'The wheat harvest saved my granddaughter's life. Last year, Vanessa was very sick with malaria. She was admitted to hospital for four days. We took her as far as we could by bicycle and walked the last bit. Luckily we had just harvested so we had some money to pay the fees. If we had not sold the wheat she would most likely have died.'

## LOOKING FORWARD: THE FUTURE OF FOOD JUSTICE IN MALAWI

The irrigation scheme in Mnembo was established over a period of three years, from 2004–2007. Nine hundred families who were involved in the scheme are now completely self-sufficient. Oxfam in Malawi is now replicating this irrigation scheme in a number of different regions: Chiradzulu, Phalombe, Thyolo, Balaka and Blantyre. An additional 6000 families will benefit from this expansion.

Poor small-scale producers farming tiny plots form the backbone of food production in Malawi. Food security for the majority of poor Malawians will only be achieved by investing in the productivity of small-scale farming. Although only a proportion of Malawi's land is suitable for irrigation, everyone can benefit from better water management techniques. As the Government of Malawi and other donors invest in large-scale schemes to increase irrigation and to subsidise fertilisers, it is important to ensure that these initiatives target and meet the needs of subsistence farmers as well as those of large-scale commercial agriculture.

Leyla understands that better farming techniques will be the key to the future of farming in her community:

'I was born here and I have lived here all of my life. When I was growing up, agriculture was not as advanced as it is now. We didn't know anything about irrigation. We only used to grow cassava and millet – to eat, not to sell. There were occasionally wild tomatoes but we had no method for growing them. I couldn't live without tomatoes now...

'If anyone else was thinking about setting up an irrigation system I would encourage them to go for it. If they do they will surely have a better future.'

### **At a glance: how much does it cost to...**

#### ***Build a community irrigation system?***

It depends on the size of the scheme. The scheme in Mnembo cost about \$164,000.

#### ***Pay a farmer to construct an irrigation system?***

\$0.54 a day for six months.

#### ***Buy a bag of cement?***

\$11.45

#### ***Buy a starter pack of seeds, fertiliser, and manure?***

About \$31 per pack.

Seeds cost \$1.65 a kilogram, fertilisers cost \$33 for 50 kilograms, and manure is free.

A farmer gets about 5kg of seeds and 35kg fertiliser in the starter pack.

#### ***Train a farmer in new crop production techniques?***

\$24: \$8 per day per farmer for three days

#### ***Train an irrigation committee in marketing and market access?***

\$245: ten farmers are trained at a cost of about \$8 per day, for three days

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