



Women at the water distribution point of the irrigation canal in the village of Samuti.

Photos: J. Boethling

# Protection is possible

The climate phenomenon El Niño has caused Africa's eastern and southern regions to suffer from extreme drought this year. Smallholders are particularly hard hit by failed harvests. But simple irrigation systems can prevent this, as an example from Malawi demonstrates.

This year, Africa has been hit by what could be the worst drought of the century. Dryness prevails from the Horn of Africa all the way down to South Africa. There, as well as in Mozambique, Zambia, Zimbabwe, Namibia and Malawi, this is already the second year with too little rain. In addition, parts of East Africa are having to cope with severe floods that destroy harvests and fields. Here, the El Niño climate phenomenon, which leads to extreme shifts in weather patterns every two to seven years, has struck double. This is why staple food prices have even risen strongly in South Africa, a major agricultural producer, which is inhibiting the country's capacity to export vital food supplies to

its neighbours. Alone in Southern Africa, the provision of food for 28 million people is threatened. Some of the countries in the region have therefore declared a state of emergency. Small subsistence farmers and their families are especially severely affected by the extreme weather. If one of their harvests fails, hunger will soon be knocking at the door.

## ■ Resisting climate change

However, simple irrigation systems can be a help in this situation, as a visit to smallholder John Chimwayi in the village of Samuti in southern Malawi demonstrates. It is an important day for the 56-year-old. The farmers take turns irrigating their fields, and it is his turn twice a week. With a plug made of straw and clay, he blocks the basin in the canal, along which the water flows, making a gurgling noise. The precious resource soon builds up,

and John Chimwayi diverts it to his field with a pipe. "This is the nicest part of the work," he comments. The smallholder smiles as he watches the water making its way down the slope through the small gullies and furrows that he has dug into the field with his hoe. The dusty soil around the plants gradually darkens.

This is how John Chimwayis' beans and tomatoes get enough water even though the rain everyone has been hoping for is taking time to come. Things used to be much more difficult. The irrigation system in John Chimwayis' village was only introduced two years ago. "Life used to be very tough for us before the system was built," he recalls. "Several weeks a year, we would only have one or two meals a day. And they consisted entirely of our Nisma maize porridge." John Chimwayi could only plant and harvest maize once a year – and the harvest was never certain.

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Eighty per cent of Malawi's population live on agriculture. Most of them are smallholders. Especially in the densely populated South of the country, the fields are particularly small, and are usually no bigger than a small allotment garden. But the survival of families with many members depends on them. Whether the farmers can bring in a harvest that the people can make it through the year with is a question of rainfall. More and more frequently, the rain is only light, or it comes too late. Or extreme downpours wash away the entire topsoil of the slopes with its seed and seedlings. Then people are threatened by malnutrition – or even have to go hungry.

"This used to be different," says John Chimwayi, who grew up in Samuti. His father also fed the family with his small farm. "The rain would always come in September or October." John folds his arms. "Now it keeps us waiting until November or even December." But this has not led to losses or failed harvests since he and 80 other farmers in the village were linked to the new irrigation system. On the contrary, they have all stepped up production and thus very much improved their living conditions. For example, irrigation can enable up to three maize harvests a year.

## ■ Improved food situation

Instead of only growing maize, as in the past, John Chimwayi now has additional crops of tomatoes, beans, peas, Chinese cabbage and many local varieties of vegetables. "Now I can eat as much as I want," he says. His family often used to be ill. John Chimwayi and his wife Elinet were too weak to work in the fields. Their children suffered from diarrhoea and were constantly absent from school. "Now the youngest one is getting on very well," the farmer remarks, and adds that the other two children have since completed school education.

John Chimwayi can buy what he does not grow himself at the market, where he above all earns money selling his tomatoes. Once or twice a



*Farmer John Chimwayi sells his products in the market in Bvumbwe.*

week, the menu consists entirely of meat or fish, eggs and fruit. "We are really thriving!" exclaims Elinet Chimwayi. Together with her husband, she starts going along the rows of tomato plants to remove little shoots from the stalks. "That strengthens the plants, and then they carry more fruit," says the 47-year-old. She planted the tomatoes in August, in the middle of the dry season. "They particularly need a lot of water at the beginning," she explains. Now she and her husband will soon be able to start harvesting. "If everything works out well, each plant will be bearing fifty or sixty tomatoes," the farmer maintains. In all, this could earn the family up to the equivalent of nearly ninety euros. This is spent not only on food but also on school fees for their daughter, which amount to 30 euros a year. Elinet and John Chimwayi have bought a couple of goats and a pig as a sort of four-legged savings bank as well. "If we need money, we can sell an animal," says John, squinting as he looks across the hills. The sun has reached its zenith, and the baked landscape is only interrupted by green spots along the irrigation canals – the little fields of the smallholders.

Upstream from the fields, a small river has been dammed with a weir for the irrigation system. From there, the water flows along the canals with a

sufficient level of pressure. At the weir, women are doing the washing and cleaning pots, and children are splashing about in the water. John dampens his face and watches the scene. "We used to dam the river with sandbags, and we scooped the water out with watering cans that we then used to water the fields," John explains. This was painstaking and time-consuming work that he now no longer needs to do. Instead, John Chimwayi wants to cultivate even more land. And he is saving up to buy building material. He wants to build himself and his wife a bigger house at the farm. He already has a corrugated iron roof and a pile of fired bricks. He then wants to save up for a small motorbike. "I could use it to take my vegetables to the market or earn a little extra carrying goods for other people," he explains.

## ■ Ownership in practice

With the support of Germany's "Brot für die Welt", the non-governmental organisation Churches Action in Relief and Development (CARD) set up four irrigation systems in the region. Around 630 households are linked to the systems. "This number has to be multiplied by a big factor," says CARD's Director, Melton Luhanga. First the families are big, and several generations live on a sin-

gle farm. And secondly, the village inhabitants who are not linked up with the system also benefit from it. They can buy fresh vegetables or maize from their neighbours. Moreover, the increased income of the smallholders is often spent in the village, at the shop around the corner or at local artisans'.

John Chimwayi and the other farmers readily joined in with building the weir and the canals. They brought sacks of sand and cement, bricks and other building material and helped dig the foundations and the ditches. "This has made me very familiar with the system, and I know how to repair it or get rid of blockages," John Chimwayi says. The group of farmers participating in the irrigation system meet regularly to discuss what has to be seen to and who is allowed to irrigate on which days. "This works very well," maintains Pedro Rison, who looks after the field next to John's. "There is enough water for everyone." The farmers even plan to start a co-operative, for example to join up to sell their produce. There has never been any problem with Pedro being a Muslim and John a Christian. The village's different religious communities even bury the dead together in one cemetery. "We humans are all equal," says Pedro Rison, and John Chimwayi nods in approval.

"By taking part in installing the irrigation system, the users identify with the scheme," says Melton Luhanga. "And they are very familiar with this simple technology, so that they can carry out most of the repairs themselves. For instance, when heavy rain destroyed part of the weir at the beginning of the year, they immediately started to set it up again."

Even in the dry season, there is really enough water, in the rivers, the lakes or the waterholes that the smallholders have dug close to the rivers. But it is very difficult for them to make use of these sources without an irrigation system. In order for



*Esnart Miles in her maize and tomato field. Irrigation gives her the chance to have a healthy diet and to sell her surplus products on the market.*

them not to run short of the precious natural resource, the smallholders plant trees along the river and at its source, mainly mangos and bananas whose fruit they use. They also plant various varieties of forage grass as well as *Gliricidia Sepium*. This tree, with its feathery leaves, is a jack-of-all-trades. It offers shade, provides the soil with nutrients and loosens it with its roots. And if dung is added, the leaves can be used as a fertiliser into the bargain.

## ■ HIV/Aids is part of daily life

The new irrigation system in Samuti also offers protection to the weakest members of the community. "This work really wears me out," says 55-year-old Esnart Miles, putting the hoe down that she has carved furrows into the red soil with. For three years, Esnart Miles has been aware that she is HIV-positive. She gets medicine free of charge and feels alright given the circumstances. "After the diagnosis, I was almost relieved. I used to feel re-

ally awful and didn't even know why," she says. When her husband left her five years ago, he probably already knew that he was carrying the virus. He didn't tell his wife anything about it. He wanted to go to the capital, Lilongwe, to get a job. That was the last she heard of him, and she declares: "If he came back now, I would chase him off."

Thanks to the irrigation system, there have been many changes for the better in Esnart Miles' life. She can now look after her family and take care that she eats healthy food, such as the leaves of the marrow or indigenous medicinal herbs that also grow in her field. "I'm a fighter," she says and gets up to start irrigating. Some women drop by to say hello. Esnart Miles is not ostracised. HIV/Aids is often discussed, also at the meetings of the committee of farmers linked to the irrigation system. "Here, people don't see the disease as a punishment you deserve for a sinful life. Neither do they believe in any other rubbish," Esnart Miles says.

Back home, the farmer prepares dinner together with her daughter. They sort beans they want to cook with tomatoes and the leaves of some local vegetables. Of course Nsima will be served together with them. Soon her two grandchildren come up the dusty path, which looks as if the mid-day sun has baked it. School is out, and the children are very hungry. Esnart Miles stirs the pot over the wood fire with a wooden spoon. In a calm and friendly manner, she explains that the children will still have to be a little patient. Then she sits down on the veranda in front of her little house to have a rest.

A cactus growing next to her house towers several metres over the roof. Many people living in the villages believe that this plant shields them from evil. So does Esnart Miles. But it is in fact she herself who protects her family. And here, the irrigation of her field is a great help.