# STRENGTHENING HARVESTS

## Soil and water conservation practices strengthen harvests in Tanzania highlands.

### High rainfalls in mountainous agricultural regions trigger a need for intervention to help farmers confront food insecurity and restore and protect their soil.

Makete, in the south-west of Tanzania, is a district crossed by both the Livingstone Mountains and the Kipengere Range. Much of the landscape is hilly and at high altitude, providing diverse temperatures and heavy rainfalls.

Despite the challenging terrain and climate, agriculture is the primary livelihood of those who live in the area. Local small-scale farmers grow wheat, potatoes, pumpkins, and beans. Besides traditional crops, some grow fruit trees such as peaches and apples for extra income, others grow bamboo for making the famous local wine, Ulanzi.

*Agriculture and land use officer Mr. Simon Mbilinyi (first on the left) demonstrating to farmers in Nkondo Village on how to make terraces (Picture by Ezron)*

## A simple solution to heavy rainfall

However, intense rainfalls cause excess water to run through and off the arable land, damaging harvests in its wake and causing extreme soil erosion and degradation.

In a bid to combat these effects and make the land more manageable, the Department of Agriculture for Makete enlisted six villages — Luwumbu, Utanziwa, Nkondo, Matenga, Ilungu and Mlengu — to take on new agroecological practices that could rehabilitate the farmland. The plan was to implement measures that would primarily ensure food security and secondly generate greater incomes for these local farmers.

## Trenches catch rainfall on the hillsides

The project focuses on utilising the heavy rainfalls to the farmers' advantage. By building Fanya Chini terraces — long ditches that curve across the top of the farmland — farmers can catch the rain before it floods their crops. The ditches then allow water to seep gently into the soil to increase soil moisture. To fortify the terraces, border grass is planted along the ridges to reduce erosion and slow the water; also providing fodder for livestock.

On the primary farmland, bench terracing — cutting steps into the hillside to create level beds — maximises the amount of land available for cultivating crops. Intercropping is vital here, and incorporating legumes alongside other crops improves soil structure and fertility.

**"Before the project, we used to cultivate beans; however, almost half our crops were eroded by strong runoff due to heavy rainfall each year. Since the introduction of bench terraces, we have not experienced crops being washed away."**
**— Aidani Santa, Luwumbu**

## Success is the greatest motivation

Creating the terraces and ridges is hard work and time-consuming. It is not an easy endeavour and does not make the project very attractive to the average farmer, who already works long hard hours. However, as the yields of those involved began to accelerate, the project started to attract more and more attention.

With success evident, project leaders began to address the specific needs of each community. Once the first stages were underway, field officers invited community leaders to the agriculture department to share their experiences and challenges. It allowed room to adjust the project according to each village's needs, which motivated more farmers to adopt the practices.

**"At the beginning it was difficult to prepare the terraces, but then the whole family came out and worked together because they were sure of the benefits, and they know that once done it is not something we need to do repeatedly."**
**— Filipo Mashak, Nkondo**

## Opportunities to grow if funding can be found

However, insufficient funding has limited the number of farmers that the project can reach. So for now the scope is restricted, but the field officers have faith that the scheme could be much more widely adopted. The landscape in the Southern Highlands of the country is similar, and the same techniques could prove vital to improving food security there too.

**"We have seen the improvement of soil in terms of structure and the level of fertility. The yield has improved almost double the previous amounts; farmers can utilise the land which before was deemed unsuitable due to soil erosion from runoff. These interventions have improved their lives significantly." — Mr Simon Mbilinyi, Agricultural Field Officer**

## Working with nature, not against it

The project has proven that hilly terrain should not be a barrier to food security and viable agricultural livelihoods. The significant success of simple practices such as terraces and ridge cultivation has dramatically improved yields and created greater environmental stability.

By working with nature and managing the land more sustainably, farmers take back control and gain their independence while protecting and improving their soil, preparing their land for many fruitful harvests to come.

*Beans grown in the field containing pears trees using bench terraces in Mlengu village-Makete (Picture Simon Mbilinyi)*

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