Bench terrace allocated to landless youth in Dehana, Wag-Himera Zone (2014)

REDUCING CLIMATE IMPACTS AND AVOIDING NEW RISKS WITH INTENSIVE HILLSIDE FARMING

The North of Ethiopia, where HELVETAS is operating in the Tigray Region and in the Wag-Himera Zone of the Amhara Region, is an area where severe environmental degradation has taken place along with other factors, mainly due to inappropriate agricultural practices, including the ploughing of steep slopes. A prominent feature of the topography is the rugged landscape, which ranges from 1,400 to 3,000 meters above sea level. Annual rainfall is between 500 and 750 mm. Aside from the low precipitation, which often results in droughts, land degradation is the major reason for the areas' low agricultural productivity, persistent food insecurity, and rural poverty. The causes of land degradation are complex and diverse. For instance, in the Wag-Himera Zone only 17 % of the land is suitable for crop production, and the majority of the farmers produce their crops on very steep slopes. Consequently, the zone is chronically food deficient; over the last three decades about 43 % of the community is depending on food aid.

Applying improved soil management and water conservation measures helps to break the vicious cycle of chronic food insecurity and poverty under the challenging conditions in Northern Ethiopia. With the support of HELVETAS, various watersheds were rehabilitated and steep slopes hillside were turned into arable land for agriculture production with improved soil and water management.

The projects by HELVETAS in Tigray and Amhara regions have promoted excavated bench terraces (radical terraces) which are carried out at once through the cut and fill process, which stands in contrast to the developed bench terraces that gradually develop through the action of erosion, cultivation, and deposition.

In the Wag-Himera Zone, with the support of HELVETAS, the construction of 160 km of bench terraces (64 ha) for landless people was achieved between 2013 and 2015. Likewise, treating the upper catchment of the hillside through graded hillside terracing, bench terracing and other appropriate techniques have reduced flooding of farmlands (e.g. in Gaquew, Wag-Himera Zone).

However, despite all the benefits and opportunities created, there remains the challenge of small landholdings. For instance, in the Wag-Himera Zone, the project insisted to promote the allocation of 0.25 ha per user as a means of prevalent livelihood base; however, due to the high number of landless youth, the size had to be reduced to 600 m^2, which makes earning a living from the land quite challenging.

The new arable land has multi-purpose benefits:

- Transforms gullies and hillsides into farmland.
- Enables to reduce the risk of losing farmland due to gully formation and expansion.
- Conserves water from run off and retains moisture content of the soil.
- Retains the top fertile soil from being washed away due to runoff.
- Can be used to grow both perennial and annual crops.

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Bench terrace constructed in Dehana village, owed by landless youth in the Wag-Himera Zone (2014)

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Degraded hillside before HELVETAS intervention, Wag-Himera (2011)

Institutionalizing Bench Terraces in Wag-Himera

A zone-wide experience sharing visit to South Wollo Zone and Tigray Region was conducted in 2013, led by HELVETAS with representatives of the Wag-Himera Zone. Church leaders, farmers, development agents, woreda and Zone experts as well as office heads participated in this field exposure. Numerous consultative meetings, led by the Zone Administrator, Head of Zone Agriculture and Natural Resources Office, resulted in the promotion of bench terracing in the Wag-Himera Zone. In 2013, pilot bench terraces were constructed in some model watersheds in five districts in the Wag-Himera Zone (except in Abergele district).

In 2014 the Amhara Bureau of Agriculture examined the significance and relevance of the technology and planned for 600 km of bench terraces. A total of 296 km was constructed in the fiscal year in the Wag-Himera Zone.

Currently, bench terraces in the Zone and Region have gained wider acceptance not only as an appropriate measure to improve land productivity, but also as the best option for future crop production by the rural community in the area.

In conclusion, with the construction of bench terraces, steep slopes are converted into arable land for agricultural production with improved soil conditions and water and moisture availability. Thus, intensive hillside farming offers communities new perspectives by granting them access to cultivable land. It also contributes to youth self-employment and thus increases the transformative capacities of farmers at the household and community level. When it comes to transformative capacities at the institutional level, some accomplishments could be achieved. Watershed User Association has been institutionalized; this process was initiated and facilitated by HELVETAS over the last five years. At the same time, such ecosystem-based measures are key instruments for avoiding the occurrence of new risks such as landslides, land degradation and soil erosion, and they will become even more important when we consider future climate trends for Ethiopia (increases in temperature, unpredictability of rainfall).

CONTRIBUTION OF INTENSIVE HILLSIDE FARMING TO CLIMATE RESILIENCE

Sustainable Land Management	Access to Water	Benefit at Household Level	Climate Resilience	Disaster Risk Management
☑ Recharge of ground water ☑ Retention of water ☑ Soil fertility ☑ Increase in biodiversity	☐ Drinking ☐ Irrigation	☑ Increase in income ☑ Diversification in production	☑ Absorptive ☑ Adaptive (☑) Transformative	☑ Prevent ☑ Reduce ☑ Prepare / Respond

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