Ring-basin infiltration pit with plantation of drought tolerant and high-value crops contributing effectively to the household's income (2017)

RING-BASIN INFILTRATION PITS IN SMALLHOLDERS' BACKYARDS TO ADAPT TO MOISTURE STRESS

Ring-Basin Infiltration Pits (RBIPs) contribute significantly to reducing the negative impacts of climate variability, especially the shortage and unpredictability of rainfall. The low-cost measure is an effective way to recharge and retain groundwater, and thus, to enhance soil moisture and improve soil quality. RBIP is a simple, innovative and multi-purpose water harvesting structure (developed by GIZ SUN Tigray in 2007 as an alternative to the more expensive water harvesting ponds). Since 2014, HELVETAS has further developed the design and promoted RBIPs along with homestead orchard development in the drought-prone Wag-Himera Zone.

Whilst a rainwater harvesting pond can only harvest run-off water until it is full, RBIPs harvest water with every rainfall event and releases it gradually into the surrounding soil (in-situ water harvesting); in other words, it is an ideal construction that profits from any possible rainfall.

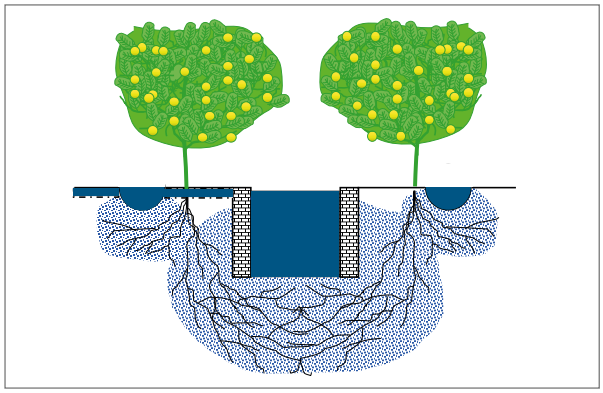
RBIPs allow households in semi-arid areas to produce vegetables, fruit trees and perennial cash crops – e.g. gesho (rhamnus prinoidesa, drought-tolerant shrub with high resistance of moisture; used to prepare local brews) garlic – even during dry seasons and periods with little rainfall. As a result of the interventions, beneficiaries are able to earn between 600 and 1,400 ETB (20 to 50 USD) in additional income during the first harvest year, and more than 2,000 ETB (73 USD) in the second year. The money can then be used for food consumption, school materials, etc. Beneficiaries also save the money for investing in small livestock and means of transport (e.g. goats, donkeys). Exchanges with beneficiaries also confirmed that they enjoy a better and more varied diet.

Some technical information:

High-value crops are planted between the ring basin and the infiltration pit as well as around the outer rim of the ring basin (see photo on page 2). Seedlings may require supplementary watering until the root system is developed. Thereafter, very little or no irrigation is required, depending on the plant varieties.

More than 31.4 m^3 water can be recharged to the soil profile per season without considering the water infiltrated in the external ring.

One RBIP costs approximately ETB 2,500 (90 USD). A series of RBIPs can be connected by a feeder ditch which supplies run-off water.



Source: HELVETAS adapted from GIZ (2014)

Ring-basin infiltration pit, Dehana woreda, Wag-Himera Zone (2014)

RBIP after a year of growth maturity, Wag-Himera Zone (2016)

In Ethiopia, adaptation to climate change must address the challenge of having enough water at the right time to sustain and improve household subsistence and income in coming years. The construction of RBIPs, which retain water in the soil, is an effective technology for coping with the unpredictability of rainfall. RBIP as a low cost and easily to replicate measure is a highly appreciated intervention among many beneficiaries. The spontaneous, independent replication by neighbouring farmers strongly confirms these observations. In sum, RBIPs significantly contribute to household income and thus improve the adaptive capacity at the household level. At the same time, RBIPs serve as a mitigation measure during a drought.

CONTRIBUTION OF RING BASIN INFILTRATION PITS 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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