PRACTICAL ACTION
Technology challenging poverty

technical brief

INFILTRATION PITS FOR RAINWATER HARVESTING

This brief describes the context of dryland farming in Chivi District, Zimbabwe and how a technology for rainwater harvesting was developed with the community.

Background

Chivi District is a drought-prone area of high population density. Average annual rainfall is 530mm with drought occurring, on average, 3 years in 5. Population density is up to 70 people per km^2. Average landholdings are 1.2 Ha per farmer. Subsistence agriculture is the mainstay of people's livelihoods. Other livelihood strategies include trading in clothes and food, sale of agricultural surplus, gold panning, crafts and pottery production. Remittances from migrant relatives are increasingly vital.

Wealth Rank	*Description (by community members)*	*% households*	
		Ward 21	Ward 4
1	Enough assets (cattle, ploughs, carts etc) for own use or to share	22	2
2	Enough assets for themselves but not to share	22	9
3	Some assets but no livestock for drought power - which they borrow	20	36
4	Own very few or no assets, considered "lazy" "helpless", "stupid"	36	53

Table 1: Wealth ranking of wards 21 and 4

Women-headed households are common, many of which fall into wealth rank 4.

Chivi District is divided into wards, administered by the Ward Development Committee. Each ward is made up of a number of administrative 'villages', run by the Village Development Committee. There is constant rivalry and sometimes conflict between these structures. They were established after independence and are commonly made up of younger men from immigrant families, with traditional leadership structures based around a liage system of sabhukas, headmen and chiefs. There are also a number of semi-formal groups, such as farmer's clubs, women's garden groups and church groups.

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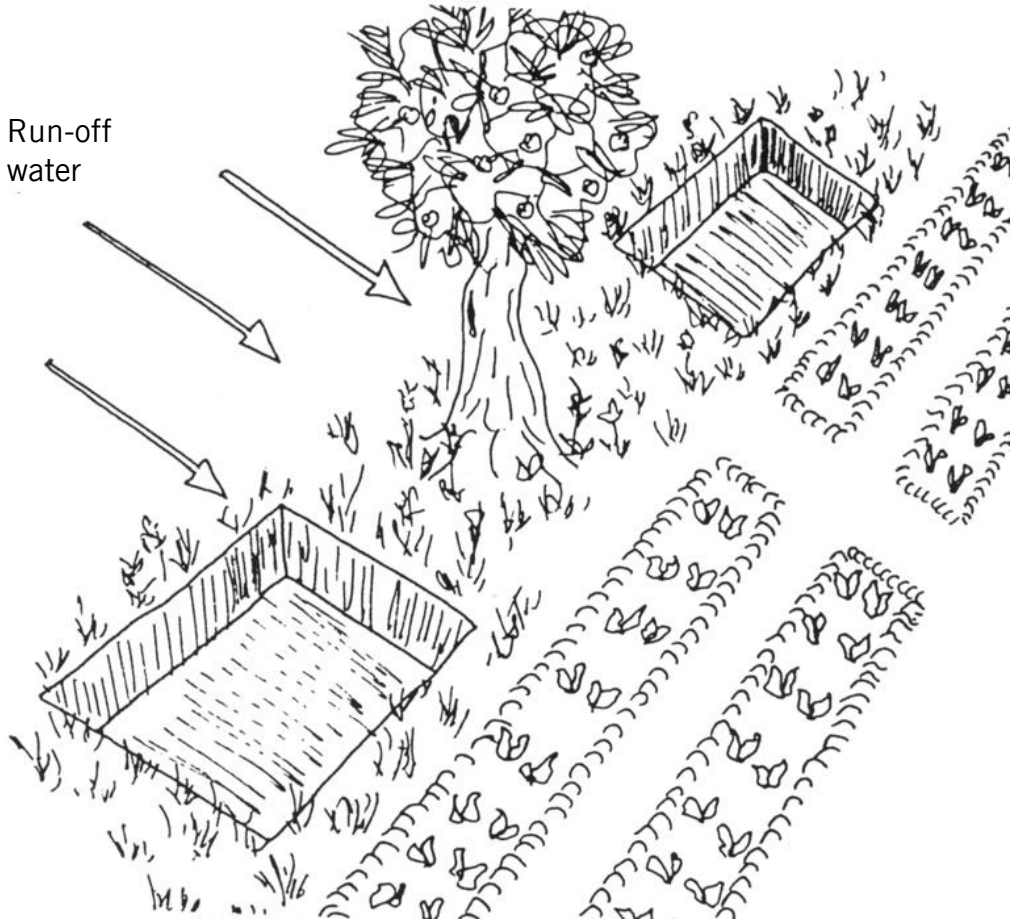

The Problem

The problem was highlighted as soil erosion due to water runoff during heavy rainfall.

Implementation

Infiltration pits were developed in Zimbabwe by the Zvishavane Water Project (ZWP). The ZWP was formed in 1988 by a farmer, Mr. Z Phiri, in order to help spread the innovative farming techniques developed on his own farm.

The pits are approximately 4m long, 2m wide and 1m deep, and are dug at intervals along the contour of the garden. Water collected in the pits soaks into the soil, building up groundwater, giving water to deep rooting crops such as trees and allowing more reliable water extraction from wells lower down the hillside. The only regular maintenance required is to dig out accumulated silt.

The Chivi Food Security Project facilitated exposure visits to the Zvishavane Water Project and infiltration pits. This was one of the techniques selected by farmer's clubs for testing within their own communities. The technique has had very high adoption rates, and has spread well beyond the project area.

Approximately 850 households implemented infiltration pits between 1991-1997 and yielded improved harvests as a result.

Lessons learned and follow-up

- It requires heavy labour input but low maintenance.
- It takes up a large area of land.

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Scaling-up and policy implications

Due to low initial cost, ease of maintenance and positive environmental this technique is considered to be highly sustainable. In a more recent Practical Action programme in Gwanda district, Matabeleland, the community developed a modification to the infiltration pits, to suit their own situation.

This brief was based on a case study by Rachel Berger and Kate Gold, Practical Action, 2004.

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