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"Resilience of agricultural systems against crises"

Water Spreading Weirs: Improving Resilience in Dry Areas

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Abstract

The Sahel is characterised by adverse climatic conditions and degraded natural resources. Due to a rising population density and unsustainable cultivation practices, degradation of natural resources, particularly of soils, is progressing. Additional challenges result from the effects of climate change: the probability of dry spells and heavy rainfalls increases, and the repartition of rainfalls changes. Rural households in such fragile contexts are seriously affected by food insecurity and poverty.

Various soil and water conservation measures have been introduced over the past decades to combat land degradation and desertification. They can ensure a more effective use of natural resources, if they are integrated in a systems approach, considering the various types of uses, *e.g.* for agriculture, livestock husbandry, and forestry.

German development cooperation has extensive experience in the rehabilitation of degraded land, both individually and community owned. A relatively new technology for the rehabilitation of degraded inland valleys are water spreading weirs, which have been introduced in the late nineties.

Water spreading weirs are masoned constructions that extend from one side of the valley to the other, usually built in a series to stabilise the entire valley. The weirs permit spate flows to overflow and flood the inland valleys. Due to the reduced speed of the water flow, fertile soil is deposited, and water infiltrates into the ground, thereby lifting the water table. This allows farmers to grow crops all year round (rainfed and irrigated), even on formerly degraded land, thereby contributing to food security and resilience.

In order for water spreading weirs to be successful and sustainable, they need to be planned participatively with the local population, and they need to be integrated in the relevant land use planning instruments. Land rights need to be clear, and local maintenance structures need to be created and trained.

Water spreading weirs are now widely implemented in Burkina Faso, Niger and Chad, and have the potential for further upscaling.

Keywords: Desertification, land degradation, resilience, Sahel, soil and water conservation, sustainable use of natural resources, water spreading weirs

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