

# Desertification Mitigation and Water Harvesting based on Sustainable Land Management

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Traditionally, desertification research has focused on degradation assessments, whereas prevention and mitigation strategies have not sufficiently been emphasised, although the concept of sustainable land management (SLM) is increasingly being acknowledged. SLM strategies are interventions at the local to regional scale aiming at increasing productivity, protecting the natural resource base, and improving livelihoods. The global WOCAT initiative and its partners have developed harmonized frameworks to compile, evaluate and analyse the impact of SLM practices around the globe.

Recent studies within the EU research project DESIRE developed a methodological framework that combines a collective learning and decision-making approach with use of best practices from the WOCAT database. In-depth assessment of 30 technologies and 8 approaches from 17 desertification sites enabled an evaluation of how SLM addresses prevalent dryland threats such as water scarcity, soil and vegetation degradation, low production, climate change, resource use conflicts and migration. Among the impacts attributed to the documented technologies, those mentioned most were diversified and enhanced production and better management of water and soil degradation, whether through water harvesting, improving soil moisture, or reducing runoff.

Water harvesting offers under-exploited opportunities for the drylands and the predominantly rainfed farming systems of the developing world. Recently compiled guidelines introduce the concepts behind water harvesting and propose a harmonised classification system, followed by an assessment of suitability, adoption and up-scaling of practices. Case studies go from large-scale floodwater spreading that make alluvial plains cultivable, to systems that boost cereal production in small farms, as well as practices that collect and store water from household compounds. Once contextualized and set in appropriate institutional frameworks, they can form part of an overall adaptation strategy for land users.

More field research is needed to reinforce expert assessments of SLM impacts and provide the necessary evidence-based rationale for investing in SLM. This includes developing methods to quantify and value ecosystem services, both on-site and off-site, and assess the resilience of SLM practices, as currently aimed at within the new EU CASCADE project.