

Time to act!

Fostering the restoration and productive management of (semi-)arid rain-fed areas through rainwater harvesting and efficient water use



Elaborated by


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This booklet is dedicated to all those farmers around the world who, often under challenging frame-conditions, have created on their own initiative impressive examples of more sustainable natural resource management schemes.

It's time that government, donor and implementing agencies invest more sincere efforts in learning from existing positive land use practices on the ground, and in promoting their application on a wider scale.



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1. Introductory remarks

Around the world vast areas of (semi-)arid land exist, where land use is constrained not by a real lack of precipitation- but rather by its highly uneven distribution throughout the year. In such areas times of water abundance or even excess of water alternate with prolonged periods of low precipitation. In degraded areas decreasing water infiltration- and increased water run-off rates tend to further complicate the situation by triggering increased soil erosion and imbalances of the hydrological cycle.



In many (/semi-)arid areas, times of abundance or even excess of water...



...alternate with long periods of drought

By bridging the gap between periods of water abundance and scarcity, improved rainwater management represents an excellent option to support land restoration and sustainable land use intensification in (semi-)arid regions. For best results, efforts directed to maximize local rainwater infiltration/-storage need to be accompanied from the onset by activities to foster efficient water utilization and the (re-)establishment of appropriate vegetative structures.

Before mentioned topics furthermore represent essential elements to enhance climate change resilience in regions that are likely to be affected in the future by increasing temperatures, more irregular rainfall patterns, reduced precipitation and/ or melting glaciers.

A lot of -including comparatively simple and inexpensive- techniques for improved rainwater collection/ storage and -utilization exist to foster more sustainable land management initiatives at individual-, community- and wider catchment level. Active engagement in improved rainwater management of semi-arid lands is therefore not in first place a question of the availability of lots of funds, but of sincere interest and commitment to put improved resource management into practise.



In many (semi-)arid regions of the world the potentials to substantially improve natural resource management via the more efficient use of available precipitation water are still greatly underutilized. Time to act!

This small booklet provides in a condensed form essential information for improved, integrated (rain-) water management in semi-arid areas for irrigation and domestic purposes. Rather than focussing on the description of expensive, sophisticated technical approaches which might be very efficient in theory but difficult to replicate at a wider scale among many smallholder (-communities), emphasis is laid on the presentation of technical options, that are comparatively simple and inexpensive.

2. Fundamental aspects to be considered for sound natural resource management in (semi-)arid areas

2.1 Structural characteristics of the original vegetative cover

Originally most (semi-)arid areas were covered by a diverse vegetation, which apart from species with an annual development cycle included drought tolerant trees, shrubs and/or other (semi-)perennial species of varying density and composition. The mix of shallow-, medium- and deep rooting species supported: (a) high water infiltration, (b) minimization of soil and water losses with (c) comparatively high biomass production.

However, in many (semi-)arid areas different human activities such as overgrazing, indiscriminated tree cutting and the application of inappropriate agricultural practices have led to a substantial deterioration of the vegetative cover and advancing soil erosion. Such developments contribute to both: a reduction of the soils' water infiltration- and storage capacity. Under such conditions,

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