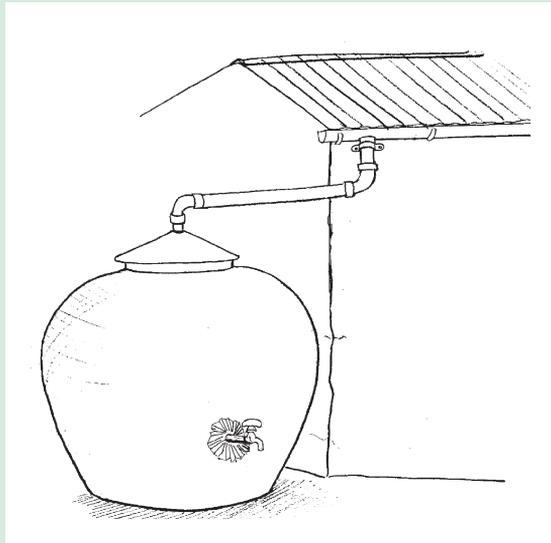
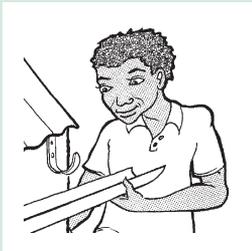


# Rainwater harvesting for domestic use



**Agrodok 43**

**Rainwater harvesting  
for domestic use**

Janette Worm  
Tim van Hattum

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# Foreword

The publishers and the Rainwater Harvesting Implementation Network (RAIN) are pleased to present this long-awaited Agrodok on rainwater harvesting (RWH) for domestic use that supplements Agrodok No. 13 on RWH for agricultural purposes.

This booklet explains how to collect, store and purify rainwater for direct use at household level. It is a practical guide to creating a rainwater harvesting infrastructure from design to implementation that is illustrated with pictures, tables and examples from RAIN's experience. However, it is by no means comprehensive, since there are numerous specialised RWH techniques determined by local circumstances such as rainfall, culture, materials and costs.

We hope this Agrodok will be helpful to households as well as to community-based organisations, NGOs, local government staff and extension workers in both rural and urban areas.

Agromisa and CTA are grateful to ICCO and AIDEnvironment who made it possible to publish this Agrodok.

We would like to thank Jo Smet (IRC), Willem Boelhouwer (IRCSA) and Joep Blom (Practica Foundation) for their valuable comments on the draft document. Our thanks also go to Liesbeth Worm and Barbera Oranje, who kindly provided illustrations.

Janette Worm and Tim van Hattum

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# 1 Introduction

Millions of people throughout the world do not have access to clean water for domestic purposes. In many parts of the world conventional piped water is either absent, unreliable or too expensive. One of the biggest challenges of the 21<sup>st</sup> century is to overcome the growing water shortage. Rainwater harvesting (RWH) has thus regained its importance as a valuable alternative or supplementary water resource, along with more conventional water supply technologies. Much actual or potential water shortages can be relieved if rainwater harvesting is practised more widely.

People collect and store rainwater in buckets, tanks, ponds and wells. This is commonly referred to as rainwater harvesting and has been practised for centuries. Rainwater can be used for multiple purposes ranging from irrigating crops to washing, cooking and drinking.

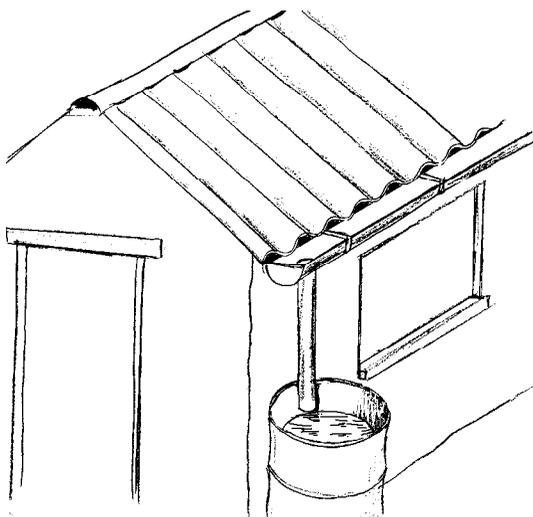
Rainwater harvesting is a simple low-cost technique that requires minimum specific expertise or knowledge and offers many benefits. Collected rainwater can supplement other water sources when they become scarce or are of low quality like brackish groundwater or polluted surface water in the rainy season. It also provides a good alternative and replacement in times of drought or when the water table drops and wells go dry. One should, however, realise that rainfall itself cannot be managed. Particularly in arid or semi-arid areas, the prevailing climatic conditions make it of crucial importance to use the limited amount of rainfall as efficiently as possible. The collected rainwater is a valuable supplement that would otherwise be lost by surface run-off or evaporation.

During the past decade, RWH has been actively reintroduced by local organisations as an option for increasing access to water in currently underserved areas (rural or urban). Unfortunately decision-makers, planners, engineers and builders often overlook this action. The reason that RWH is rarely considered is often simply due to lack of informa-

tion on feasibility both technical and otherwise. During the past decade the technology has, however, quickly regained popularity as users realise the benefits of a relatively clean, reliable and affordable water source at home.

In many areas RWH has now been introduced as part of an integrated water supply, where the town water supply is unreliable, or where local water sources dry up for a part of the year. But RWH can also be introduced as the sole water source for communities or households. The technology is flexible and adaptable to a very wide variety of conditions. It is used in the richest and the poorest societies, as well as in the wettest and the driest regions on our planet.

This Agrodok discusses the potential of rainwater for local communities at household and community level. It strives to give practical guidance for households, CBOs, NGOs, local government staff and extension workers in designing and applying the right systems, methods and techniques for harvesting rainwater on a small scale (varying from 500 – 60,000 litres). It explains the principles and components of a rooftop rainwater system for collecting and storing rainwater. It also strives to guide the process of planning, designing and actual construction.



*Figure 1: Rainwater harvesting system*