

# Methods of Rainwater Harvesting in the Urban and Rural Areas

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## Introduction

Water is vital for all life and is used in a variety of ways. It is also a component of the wider ecosystem on which the reproduction of bio diversity is dependent. Fresh water shortage is not restricted to dry climatic zones; even in countries with abundant supplies, access to safe water is becoming a crucial issue. Limited water storage capacity, low infiltration, higher interannual and annual changes in precipitation, and high evaporation demand all contribute to a lack of water. The phrase "water harvesting" was most likely coined by Geddes of the University of Sydney. He defined water collection and storage as the collecting and storage of any type of water, whether runoff or creek flow, for agricultural purposes.

Meyer's of the USDA, USA defines it as the process of collecting water from an area that has been treated to maximise runoff from rainfall. Currier, USA recently described it as the practise of collecting natural precipitation from prepared watersheds for beneficial use. Water harvesting has now become a catch-all word for collecting and storing runoff water or creek flow caused by rain in soil profiles and reservoirs both above and below ground. Previously, this was only utilised in dry and semi-arid locations, but it has since been expanded to sub-humid and humid regions as well. In India, water harvesting entails exploiting irregular monsoon rains to grow decent crops in arid tracks while conserving surplus runoff water for drinking and recharging.

## About the Study

People have lived in locations where there are few rivers and where direct rainwater collecting from roofs, paved courtyards, hillsides, or rock surfaces is one of the best possible options for assuring a water supply throughout history. Early civilizations practised agriculture far deeper into the semidesert areas of Arabia, Sinai, North Africa, India, and Mexico by extending this concept to provide water for crops than has been practicable in current times - and this is not explainable by changes in temperature. Agriculture in the Old World began in climatically arid parts of the Middle East and may have relied on rainfall running off neighbouring hills to some extent nearly from the beginning.

However, evidence does not exist until a later age, when some of the most notable uses of rainwater gathering were connected to food cultivation in the Negev Desert between 200 BCE and AD 700. One method would be to excavate a canal across a hillside to catch water that runs downslope during storms. The water would be channelled into fields that had been meticulously levelled and surrounded by bunds in the Negev (an embankment or dike). Morocco employed steeper hillsides further west, with farming on flat terraces

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constructed behind stone retaining walls. Fruit trees were observed being cultivated at the downslope end of tiny bunded rainwater catchment areas, or microcatchments, in Tunisia by French visitors in the eighteenth century.

In India, one typical strategy is to simply create a bund across a gently sloping slope, allowing runoff flows from rainfall to pool behind the bund, where water is allowed standing until the crop's planting date approaches, at which point the soil is drained and the crop sowed. This land behind the bund that is flooded annually and subsequently planted with a crop is called as an Ahar in Bihar and a Khadin in Rajasthan. Although some Ahars are merely one hectare in size and have a 100-meter-long bund, others are much larger and account for 800,000 hectares of agriculture in Bihar. There are several Khadins of 20 acres or more in Rajasthan's desert areas [1-5].

## Conclusion

In North America, research on the modern potential of runoff farming methods has been sparked by the realisation that prior to European settlement, people living in what is now Mexico and the southwestern United States had methods of directing rainwater from hillsides onto plots where crops were being grown, allowing productive agriculture in an otherwise unpromising semiarid environment. Fields were largely on alluvial valley soils below slopes or gullies from which water could flow to the crops during rainstorms on Hopi and Papago territories in Arizona. The locations were chosen with the goal of requiring as little earthwork as possible to disseminate the water throughout the fields. These were spreader dikes, which were small sections of bund.

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