

# Improving Access to Water on India's Deccan Trap Plateau



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[Photo: Villagers in Manhere using rooftop water harvesting system during monsoon.]

Life in the Akole Taluka tribal area of central India had long been marked by hardship and deprivation, exacerbated by a lack of water. Poverty, disease, and low agricultural productivity were common in the area, where hope was as scarce as rain in February. In the dry season from February to May, women and children spent most of each day collecting water for domestic use, venturing farther from their villages as available water dwindled.

Though challenges remain, the mood in Akole Taluka is considerably brighter now thanks to a new water management strategy developed with support from the International Development Research Centre (IDRC). The strategy — a joint effort of the BAIF Development Research Foundation based in Pune, India, the [Department of Earth Sciences](#) at the University of Windsor, Ontario, and the people of Akole Taluka — has literally turned life around in this once-infertile wasteland.

## **Year-round access**

Some communities in the region now have water readily available virtually year-round. As a result, people are healthier, morale is better, and income-earning opportunities have increased. Remarkably, this transformation is largely the result of a variety of simple techniques that make the most of surface and groundwater resources. These strategies also offer new hope for other regions plagued by water shortages. Through BAIF's ongoing programs in five Indian states, the techniques developed in Akole Taluka will be tested and adapted for other hydrogeological areas and agroclimatic conditions.

Key to the success of this project has been local knowledge and participation. "The villagers contributed knowledge of their own terrain," explains [Professor Frank Simpson](#) of the University of Windsor, one of the principal researchers. "They knew which locations retained ponded water for longer periods of time, and they had a good appreciation of localized spring discharges."

## **Deccan Trap Plateau**

The research took place in three watersheds on the Deccan Trap Plateau encompassing the villages of Ambevangan, Manhere, and Titvi, which typically experience heavy rains and floods during the monsoon season from mid-June to early October. Here, rainwater quickly runs away due to the

rugged, hilly terrain and poor permeability of the underlying basaltic rocks. The result is acute water shortages in the summer.

At first glance, the prospect of a water management project in such a dry area seemed daunting. But the presence of *Ficus glomerata* or "umber" trees was a positive omen. Among the tribal and rural people of the Akole Taluka, umber is revered as a reliable indicator that groundwater may be found close by. This and other local, water-related knowledge were combined with high-technology tools, basic hydrogeological field work, bedrock fracture analysis (aided by satellite imagery), and meteorological data (rainfall, temperature, humidity, wind, and evaporation) to help develop the strategy.

### **Demonstration sites**

Demonstration sites were then set up to test the effectiveness of various water conservation methods. Many of the techniques were essentially designed to slow down the flow of water, thereby reducing erosion and encouraging water to pond and eventually infiltrate the soil and natural bedrock aquifers.

In addition, 26 rooftop harvesting systems and storage tanks were built in the villages — a measure that has proven useful in the dry season as well as during the monsoons, when it is difficult for women to fetch water from wells located in the valleys. In winter, the water is used for drinking, washing, and watering kitchen gardens, among other things. These tanks can be refilled until late October, when the post-monsoon rains end — stored water then lasts about another month. The tanks are subsequently refilled with water delivered from available sources by bullock cart, eliminating daily forays for water.

### **Uncertainty gone**

At the beginning of this project, the village of Ambevangan enjoyed the most reliable water supply, because of a spring that yielded water virtually year-round. Well-water was available in Manhere until the middle of the pre-monsoon season. But after that, water was delivered by tanker truck. The village of Titvi was worst off, lacking any water except when it rained. "Today, there aren't many differences between the three villages in terms of water availability, and most people in the area agree that the uncertainty related to water supply has been removed," says Dr Simpson.

Even more encouraging is that many villagers are embracing the ideas and techniques developed during the project. "One of the local primary school teachers bought a house at the top of a hill, built terraces, and planted an orchard," says Dr Simpson. "He installed a rooftop water harvesting system, and in 1995 he produced enough mangoes to give to his immediate and extended families, plus several hundred to distribute around the village of Manhere." Another significant, and sweet, measure of success.

*Karen Twitchell is an Ottawa-based writer and editor. [Photo: From REFLECTIONS: Aphorisms on international development with explanatory words and pictures, an exhibit by Dr F. Simpson.]*

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### **Resource Persons:**

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**Links to explore ...**

[Water Conservation Methods in Deccan Trap, India](#)

[Combating Desertification: Rainwater Harvesting in Jordan](#), by Leila Deeb

[Promoting Local Water Management in Nepal](#), by Lionel Lumb

[Seeking Sustainability in Rural Egypt: Linking Scientific and Indigenous Knowledge](#), by Kirsteen MacLeod

[The Greening of Tumkur](#), by Deepak Thapa

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