



**Global
Water for
Sustainability**
PROGRAM

Project Brief:

Integrated Water Resources Management in the Wakal River Basin, India



The story of the Wakal River begins in the folds of the Aravalli Hills in southern Rajasthan state, one of the driest regions of India. The Wakal basin drains a mosaic of croplands, where rice and corn are grown by individual farmers for whom agriculture provides the main source of income. Like other rivers and streams in this part of India, the Wakal is a seasonal river that dries up for a few months during most years. Its winding course joins the larger Sabarmati River, which flows through Gujarat state to the Arabian Sea.

At Issue

Providing year-round, dependable water for humans and agriculture is a challenge in the Wakal Basin. Meeting human needs while conserving fragile ecosystems is even more complex. The region's climate is very seasonal, and nearly all rain falls during the monsoon season (Jun-Sept). During the monsoon, the Wakal is full of water and green vegetation covers the basin's rolling hills. This is in stark contrast to the rest of the year with dry earth and leafless trees. Marked seasonality and scarce water resources mean basin residents must develop creative approaches to water management. Most water for drinking and other household uses comes from ground water; however there is little control over how much water is extracted and little information as to whether current rates of withdrawal are sustainable. To provide water for agriculture, age-old techniques of rainwater harvesting have been implemented throughout the basin to store water from monsoon rains for drier periods of the year. These techniques involve the construction of dams and other structures that modify water courses.

Partners

To achieve sustainable, integrated water resources management in the Wakal River Basin, GLOWS is collaborating with several partners, including:

- Action for Food Production (AFPRO)
- Foundation for Ecological Security
- Local universities in Udaipur, Rajasthan

Implementing Partners

- World Vision India – Navprabhat ADP



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Project Goals

GLOWS and its partners are working toward a future for the Wakal River Basin that is characterized by equitable access to and sustainable use of water resources. A main goal of our Wakal River Basin project is to facilitate communication and collaboration among stakeholders, while building capacity of basin residents and local governments in water resources management. Our key activities are featured below.

Stakeholder collaboration: Because it is a scarce resource, water is a central issue on the agenda of politicians, aid organizations, and scientists in the Wakal River Basin. GLOWS is working to facilitate communication and collaboration among these groups and basin residents, as a means for promoting more equitable access to and more participatory management of water resources. In May 2006, GLOWS launched the first in a series of workshops that bring stakeholders together to discuss challenges to management of water resources in the basin.

Science for water management: Rainwater harvesting structures are frequently constructed to capture water runoff from the landscape and increase groundwater recharge. However, little is known about the optimal locations and optimal structures for maximizing groundwater recharge. To examine the effectiveness of different rainwater harvesting structures and locations, GLOWS is using established scientific methods to measure rates of ground water recharge at several places in the basin.

Capacity building: In the Wakal River Basin, water is typically managed at a household or village level and there is little coordination of water users at a basin level. There is a strong need to build awareness of the interconnectedness of water resources at a basin level and the influence of human uses of water on upstream and downstream areas. GLOWS is working with local partners to sponsor training sessions for local governments (known as *Panchayats*) and state-level representatives on topics in integrated water resources management. The goal of these sessions is to provide leaders with the tools to make more informed decisions about water management in the Wakal River Basin.

Biodiversity Action Plan: Terrestrial biodiversity is thought to be high in several parts of the Wakal Basin, including the Phulwari Moll Reserve, which harbors hundreds of species of plants and was recently declared one of India's *Important Bird Areas* by Bird Life International. Little is known about aquatic biodiversity, as few collections have been made from the basin's surface water resources. However, as one of the last bodies to contain water late into the dry season, the Wakal River is thought to serve as a refuge area for aquatic biota, especially during drought periods. GLOWS is working with local ecologists to document aquatic biodiversity and develop strategic actions for protecting biodiversity in the basin.

Water Quantity and Quality: Water quality and quantity data are essential to water management planning and implementation. In the Wakal Basin, ground water provides the primary source of drinking water and is obtained from village water pumps or privately-owned open wells. Hundreds, if not thousands, of such pumps and wells are located throughout the basin and are largely unregulated. In 2006, GLOWS began collecting data to assess quality of groundwater resources and current groundwater levels. This information will be used to develop a hydrologic model of the basin that examines current uses of groundwater and makes predictions about future water availability.

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