

Augmenting Groundwater Resources by Artificial Recharge (AGRAR)

A project funded by the British Department for International Development (DFID) and led by the British Geological Survey (BGS) in collaboration with other organisations.

Duration: July 2002 to July 2005

Background

Groundwater is the main source for rural water supplies in many developing countries. Over recent years, increasing abstraction to meet rising demand for domestic supplies and irrigation has raised concerns for the sustainability of the resource and the livelihoods it supports. To address these concerns, considerable emphasis is being given to the augmentation of natural recharge by both traditional and modern techniques. Some of these techniques have been employed for centuries ranging from simple check bunds in gullies to complex diversion and infiltration structures as well as injection wells. Recently there have been considerable renewed effort and investment to maintain and restore such traditional facilities as well as building new structures. However there has been little systematic assessment of the effectiveness of these schemes.

Phase 1 of AGRAR undertook a review of methodologies and controls on effectiveness and identified the benefits, constraints and uncertainties associated with aquifer recharge.

Phase 2 of the project will investigate the effectiveness of artificial recharge structures at study sites near Coimbatore, TN., the Kolwan Valley near Pune, Maharashtra, and near the Aravalli Hills in Gujarat. In addition, reviews of aquifer recharge activities in Rajasthan and the Kathmandu Valley, Nepal, will be undertaken. The studies will monitor hydrological aspects over a two-year period and will also assess the institutional and socio-economic effectiveness of the structures.

Aims of the project

The project will aim to facilitate governments, donors and NGOs to make informed decisions on the role of artificial recharge in rural water supply and groundwater management projects and programmes.

The approach taken will be to provide:

1. Improved knowledge of the impacts of AR in different physical and socio-economic settings. This output is concerned with collecting and interpreting data on the types of AR schemes

being supported in different areas with different management and support approaches.

2. Guidance on scope and effectiveness of AR for implementers, funders and policy makers. The aim here is to synthesize knowledge generated into guidance on the types of AR that are likely to be 'effective', in terms of:

- impacts on the water cycle, in particular groundwater storage;
- management approaches and institutional arrangements; and
- their contribution to supporting and strengthening livelihoods

3. Dissemination of knowledge throughout project life. Dissemination will occur throughout the life of the project, enabling others to contribute to the learning process (through feedback), and increasing exposure of findings. International dissemination will make use of existing networks of researchers and institutions, publications and conferences as well as the project website

Collaborating organisations

- Advanced Centre for Water Resources Development and Management (ACWADAM) Pune. (Dr. H Kulkarni)
- Vikram Sarabhai Centre for Development Interaction (VIKSAT), Gujarat. (Mr S. Mudrakartha)
- Tamil Nadu Agricultural University (TNAU) Coimbatore. (Dr K Palanisami)
- Institute of Development Studies (IDS-Jaipur), India. (Prof M S Rathore)
- Nepal Water Conservation Foundation (NWCF), Nepal. (Dr A Dixit)
- Institute for Social and Environmental Transition (ISET), Nepal & USA. (Dr M Moench)
- UNESCO New Delhi Office. (Dr R Jaykumar) and Paris Office (A Aureli)
- International Association of Hydrogeologists (IAH)
- Central Groundwater Board (CGWB), Govt. of India.
- Department of Drinking Water Supplies (DDWS), Govt. of India

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