

## **GROUNDWATER MONITORING NETWORKS - TOWARDS BETTER GROUNDWATER MANAGEMENT IN WATERSHED DEVELOPMENT PROGRAMMES**

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Watershed development is being implemented on microwatershed scales (areas less than 15-20km<sup>2</sup>) especially in the hard-rock regions of India. It is on such scales that the hydrogeology of the watershed (and problems of groundwater) takes a backseat to various socio-economic issues. Watershed development programmes currently attempt only to enhance recharge and thereby maximize groundwater use instead of seeking to optimize the groundwater resources from a sustainability angle.

Watershed development is considered to be able to address many complexly linked issues, both in the natural resources and the socio-economic frameworks. A simple yet fruitful beginning to streamlining inputs to groundwater resources in each watershed development programme is through hydrogeological monitoring. A simple yet effective monitoring network is proposed here which will? help understand the physical system of groundwater occurrence (geology, geomorphology, mapping etc.)? correctly conceptualize the groundwater system in the watershed ? model water level behaviour? evaluate hydrogeological parameters and variation therein (rainfall, storage and transmission capabilities of the aquifers, groundwater abstraction, recharge etc.)? note changes in water levels, recharge, groundwater abstraction patterns etc.

This monitoring network will help take better decisions at various levels of a watershed programme namely, feasibility evaluation, implementation and impact assessment. Finally, such monitoring will lead to more practical and realistic groundwater policies in India and other developing countries, considering the quality of real-time and real-world data that will be available through the monitoring network.