

Water resources management: traditional technology and communities as part of the solution

J. HUSSAIN¹, I. HUSAIN² & M. ARIF³

1 Central Groundwater Board, North Western Region, Ministry of Water Resources, Chandigarh, India
drjakirhussain@gmail.com

2 Public Health Engineering Department Laboratory, Bhilwara, Rajasthan

3 Department of Chemistry, Banasthali University, Tonk, India

Abstract Rajasthan, the largest State in India, has one of the most critical water statuses. Rajasthan, with more than 10.4% of the country's geographical area, supports more than 5.5% of the human population and 18.70% of the livestock, but only has 1.16% of the total surface water available in the country. More than 60% of the state is a part of the Great Thar Desert, and of the total 142 desert blocks in the country, 85 blocks are in the state of Rajasthan. The per capita annual water availability in the state is about 780 m³, compared with the minimum requirement of 1000 m³. It is feared that the availability would fall below 450 m³ by the year 2050. Thus, increasing population coupled with erratic rainfall further aggravates the water crisis. It is possible to harvest and augment water resources through the construction of small water harvesting structures called johads and the implementation of local water governance. This has been amply demonstrated by the successful experience of local communities in Alwar District in Rajasthan. Since 1985, 8600 johads have been built in 1086 villages. This has resulted in the rise in water levels in the shallow aquifer, increase in the area under single and double crops, increase in forest cover and drinking water supply security. The water collected in a johad during the monsoon penetrates into the sub-soil. This recharges the groundwater and improves the soil moisture in vast areas. The water in the johad can be used directly for irrigation, drinking water by animals, and other domestic purposes. The other advantage of this structure is that it checks soil erosion, mitigates floods, and ensures water availability in wells or boreholes used for drinking water supply, even for several successive drought years. Also, during the dry season when the water gradually recedes in the johad, the land inside the johad itself becomes available for cultivation.

Key words Thar Desert; groundwater; traditional water harvesting; johad; Rajasthan, India