**Johads of Alwar** – Subhajyoti Das, Bangalore. Email: subhajyoti_das@hotmail.com

Johad is a traditional water harvesting structure. Constructed by the people using their own skill, resource and indigenous knowledge, these have revolutionized life in rural Alwar, Rajasthan. These have helped the farming communities from abject poverty to prosperity, a miraculous transformation under the leadership of Tarun Bharat Sangh and its leader Rajendra Singh, the Water Man. Fondly called Rajendra Bhaiya in every household of Alwar, he has brought to life Anil Agarwal’s “dying wisdom”, reviving our rich traditional system of water harvesting.

The occasion for highlighting the importance of Johads was the National Seminar on “Changing Geohydrological Scenario and its Environmental Impact”, held at Bhikampura in Alwar district. Participants were taken on a pilgrimage to these temples of rural Rajasthan in the watersheds of Bhagani and Tilda in the Arvari river basin, venerated by Self Help, Unity and Will Power of people in their quest for water and food security. It was the peak summer of July 2009. Alwar had not received a drop of rain as yet, so were the last three years. But the johads or check dams held stock of water stored in the last rainy season, with lush green fields all around, smiling faces and water in wells. Shortage of drinking water was a thing of the past - in this parched land of Rajasthan – in sharp contrast to the conditions existing a decade ago. Farmers were tilling the soil, preparing for cultivation. There was no dearth of soil moisture. Wet lands beckoned cranes. Streams were flowing with crystal clear water, aquatic life thriving, pilgrims taking holy dips - a scene of peace, tranquility and prosperity.

UN-Inter Agency Working Group on Water and Environmental Sanitation in its publication “Johad” (1998) has documented this fascinating story and the spectacular efforts of a community in rainwater harvesting. These are simple, low cost earthen structures, constructed with the participation of the community, and hence have gained immense popularity, being the focus of a popular movement in the country. Nearly 8600 johads have been constructed in Alwar district alone wiping out the scourge of water crisis and bringing about an economic and ecological revolution.

The story revolves round Tarun Bharat Sangh and its committed band of workers who vowed to mobilize people for conservation, protection and optimal use of water resources. Water is a key element in the livelihoods of the people. Hence it became a rallying point for the villagers for their own common good. The story thus weaves through various stages of community participation like decision making, designing, construction and management. Participatory approach was initiated through discussions, meetings, and demonstration. This led to the formation of ‘gram sabhas’ including representatives of all households who were party to all decisions on site selection, design of johad, its construction and management.

Design and construction of the structure is the cornerstone of its success. The design is simple and cost effective. These are mud barriers, concave-shaped, built across the slopes to arrest rainwater runoff. The design is decided by the villagers’ intuitive knowledge (“gut feeling”) depending upon

A Johad in Arvari catchment in Alwar district, Rajasthan.
the amount of flow on rough estimation, no physical measurements involved. The capacity of johad is based on the maximum possible runoff from the catchment. The water storage area varies from 2 ha to 100 ha. The optimal storage created was 1000-1500 m$^3$ per hectare of cultivated area. The cost of created storage varied from Rs.0.2 to Rs.1.50/m$^3$ with an average of Rs.0.95/m$^3$ (G.D. Agarwal, 1996, An Engineer’s Evaluation of Water Conservation efforts in Alwar district). The villagers shared the cost, supplied labour and materials like stone, sand and lime which were locally available, and contributed 70-90% of the total cost. The distinctiveness of these structures lay in the low cost, simple design, easy construction and maintenance. These indigenously designed structures stood the test of time and the ravages of heavy rainfall.

The Johads have proved to be a regenerative force for ecology and environment. The water collected in a johad in monsoon percolates into the sub-soil, recharges groundwater and improves soil moisture. The water in the johad is also directly used for irrigation, drinking and other domestic purposes. It helps to check soil erosion, and ensure water in wells even in years affected by drought. In dry season, the johad land becomes available for cultivation. Agricultural production has prospered, and due to availability of fodder, cattle rearing increased milk production. The water level in wells has risen by 6 m to 15 m. The cultivated land increased from 20% in 1985 to 100% in 1995. The average productivity of wheat increased from 720 kg/acre to 1500 kg/acre. It is estimated that for per capita investment of Rs.100 on johad, the economic production is enhanced by Rs.400 annually. Fisheries, too, developed as important source of livelihood. A significant social impact has been emancipation of the status of women in decision making. The most spectacular achievement is the rejuvenation of the Arvari and Ruparel rivers through rainwater harvesting and groundwater recharge. Johad has become a force to mobilize people, optimize social cohesion, promote self reliance and emotive bonding of the community, and activate the community for common good (Rajendra Singh, 2005, Community Driven Decentralised Water Management. Talk in Parliament Forum on Water Conservation and Management, Dec 2005, New Delhi).

Water and vegetation are common pool resources. More than one village in the river basin has access to the use of this resource. This prompted the community centered water management based on river basin approach through formation of village councils and Arvari River Parliament to fulfill the objectives of conserving water resources, equitable sharing and resolving all conflicts.

Arvari has set a shining example of community management of water resource. This has effected a change in perception from narrow profit making approach to broad basin level community development. Such village or basin level institutions need to be legally empowered to become a force in water management. The notion of community ownership of water resources is a means to secure water rights and conserve the resource for sustainable use. A linkage of village/ community institutions with district administration, banks, and govern-ment schemes needs to be developed.

This is the story of Johad. The UN publication has enshrined this as golden institution and an example for others to follow.

Evening has cast its long shadow over the fields under a grey sky. Breeze is cool, whistling in the leaves of trees. Setting sun peeps through the foliage canopy. Birds are flying back to nests in half circles, lending melody to the still air. Our sojourn ends in the land of Arvari with a vision of resurgent India – free from dearth of water, food and fodder, shackles of poverty. Here Johads have unified man, nature and water in a unique embrace.

This is Arvari, – oasis in the desert, – a saga of water resource development.