

Ingenious Traditional Water Harvesting System used in Jharkhand

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Gada daadi method of water purification by tribes from Jharkhand. (Gada – river, Daadi – water collecting site).

A-C: Small circular structures are constructed near the riverbank (A). These are dug out approximately at distance of 2-5 ft (B) and up to 1-2 ft in depth (C).

D: The pre-existing water which is not clean is first taken out and then after about 10-20 minutes, the Daadi gets fresh water from the river, through infiltration.

E, F: Since, the riverbed consists of rocks, pebble, coarse and fine sand which act as filtering agents, the water collected is clean (E). This horizontal infiltration of water is because of the capillary movement of water due to the potential difference between the gada (river) and daadi (the collecting hole) in the riverbank.



Some traditional techniques of water harvesting

WATER is nature's gift to humanity. However, today the distribution of this resource is highly skewed. The per capita water available in different countries depends on various factors: population, physiography, vegetation, climate, and biodiversity. There is a need today for judicious utilisation of the water resources.

Perhaps there is also a need to look at traditional systems of managing water resources that have stood the test of time. In India, traditional techniques such as johads, jhalars, kuls, baolis, sars, bandhas, talavs, tals, and tonks have served as efficient and sustainable water storage and water harvesting systems in different parts of the country for ages.

Another traditional system that has been overlooked and has only passing references in literature is the traditional practice of water conservation as adopted in Jharkhand — known as Daadi. The state of Jharkhand in Central India has many rivers flowing across. However, in the last few years, the state is feeling the heat because the taps run dry in urban areas, the groundwater is highly polluted, and water bodies are running out of water. This has resulted in migration of people and a shift from farm economy, putting opportunities of rural livelihood at stake. People are therefore once again looking at traditional, low-cost and sustainable methods of water harvesting such as Daadis.

Daadis are small cylindrical holes carved out or constructed near the riverbank approximately at 2-5 feet. These are strategically dug out up to 1-2 feet so that sufficient water is collected. Many such holes can be dug on the river floodplains in each season.

The holes in Daadis work in two ways: i) horizontal movement of water from the adjacent river into these holes through the sand deposited on the shore; ii) capillary movement of water due to the potential difference between the gada (river) and daadi (the collecting hole) in the riverbank. The tribals dig many such holes near the periphery of their community lands and harvest the water from these holes when needed. The riverbed consists of rocks, pebbles, coarse sand, and fine sand which act as a filtering agent.

The harvesting of water also is easy as women can use the containers used in homes for taking up water without relying on any pumps and power-driven tools. However, with advancements in science and engineering tools, one can get deeper and go up to 20 feet.

The water can be used for irrigation, for feeding cattle and other domestic chores without any processing. However, for drinking purposes, the natives use layers of fine cloth and filter it. The locals also use some native herbaceous plants to decontaminate the water from harmful pathogens and improve its quality so that it is suited for cooking.

There are lessons to be drawn from the sustainable water harvesting technique practised by the tribals in Jharkhand.

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