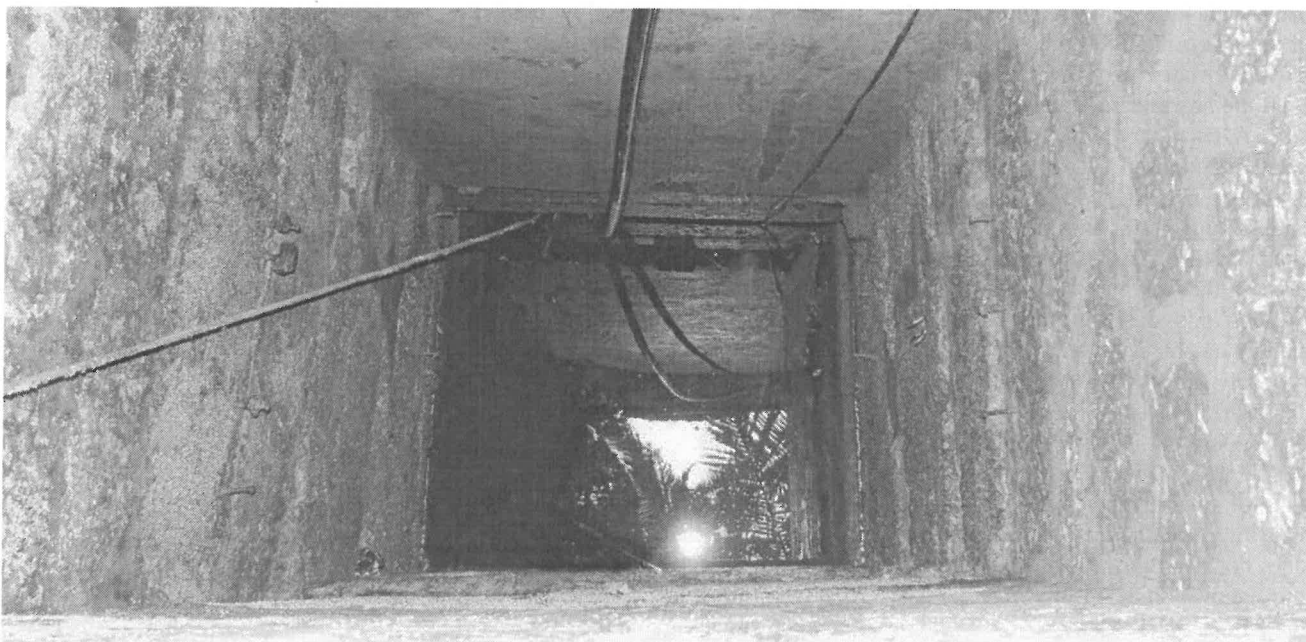


A two-in-one well

The coastal village of Velneshwar in Maharashtra, west India, is home to a unique well that doubles up as a rainwater storage tank. Shree Padre finds out more about this novel dual-purpose structure.



The well and water tank at Bhakta Niwas showing the rainwater tank and the suction pipe for drawing water from the well.

Credit Shree Padre

Can an open well double up as a rainwater tank? The very concept may sound whimsical to many, but not so in the coastal village of Velneshwar. Such a well - maybe the country's first two-storied well - has been in function for four years. This unique well is the brainchild of Dr Chandrashekhar Gadgil and Ravindra Nene, both from nearby Pune.

The picturesque village of Velneshwar derives its name from a deity of the same name, whose temple is located here. Bhakta Niwas, the dormitory of Velneshwar temple, provides shelter and food to pilgrims. Within its premises is a 26-year-old well. Some years ago, the well became dry by April. As no sweet water was available nearby, Bhakta Niwas had to be closed till the well started to fill up again.

"Since it is vacation time for schools, Velneshwar sees many visitors during summers," says manager Gopalkrishna Gokhale. "They enjoy taking a swim in the sea and then again require sweet water for bathing. Since we had no water, we were compelled to inform them not to visit Bhakta Niwas."

Many of the wells in this area are dry by April. Since the village is close to the sea, borewells yield only salt water. Out of about 35 borewells in the village, only three to four have sweet water. During summer, the taste of the well water also changes. Though the administration provides tanker water, it is not reliable. As such some villagers have to walk two kilometres to fetch water for drinking and cooking.

Four years ago, to increase the water availability, the Bhakta Niwas well was deepened. At this time, the Ram Chandra Dattatreya Pratishtan, a family trust, chose this village to carry out social work. Dr Chandrashekhar Gadgil, ex-professor from the College of Engineering at Pune and a key member of the trust, came to study the water situation at Bhakta Niwas.

In most open wells, only a very small part holds water, and this area goes on decreasing over the years as the water table drops. Gadgil wondered if the large 'dead' storage area could be put to use. He wondered if there were any chances of converting it into a rainwater storage tank.

When the well at Bhakta Niwas was

deepened by 13 feet, a new side wall had to be constructed. Gadgil came up with two ideas: one was to change the shape of the inner wall from the original square to round. The round shape would also add strength to the well. This round wall would be pushed slightly off-centre, so that it would give space for a side vent. The original big and square shape of the well would now become round with a small rectangular vertical side vent. Gadgil's second innovative idea was to convert the upper portion of the well into a rain storage tank. And for this four metres of the top portion of the well were raised by another four metres.

Gadgil's friend from Pune, Ravindra Nene, an architect and structural engineer, gave technical guidance to construct this innovative structure. There was no model that could be copied, so the work was experimental.

At about 13 feet up from the bottom of the well, a slab was constructed. This served as the bottom of the upper storey, which would house the rain tank. The side vent would be used for two important tasks - to remove the wooden props used to support the tank

during construction, and secondly to allow a suction pipe to reach the well water below.

The wall of this four-metre tank is made with ferro-cement. The capacity of the tank is 72,000-litres, and it cost only one rupee per litre. Roof water from the nearby terrace drains into the tank. A temporary covering of corrugated galvanised sheets has been provided. The water in the well lasts until about April, and that is when Bhakta Niwas starts using the rain water in the tank.

Was this decision to make two storeys out of a single well taken for economy measures or due to space shortage? "For both," replies Gokhale. Nene points out, "This sort of alteration to the well is better done during the time of well digging itself. For areas with low rainfall, where the water level does not rise to a considerable height, this innovation is ideal. More so, if there is shortage of space."

When digging a new well, how would one know to what maximum level the water would rise? "That's not a problem," assures Nene. "You arrive at a level observing some wells around. In the monsoon, even if the water table rises above the bottom level of the rain water tank, it won't harm the tank structure. The well owner, as they go on drawing water, will get the water as it will eventually flow into the well."

Four seasons have passed since the Bhakta Niwas well was modified. "We are fully convinced about the concept now," avers Gokhale. "The stored water remains clean and safe. We haven't encountered any problem so far." He is now considering putting a permanent roof on the tank.

Dr Ajit Gokhale, a Mumbai based rainwater harvesting (RWH) expert who runs a technical consultancy firm for nature conservation, chanced upon this two-in-one well recently. He says, "I keep tracking various ways of

harvesting water, modern as well as traditional. This is the first time I have come across usage of empty space in the well for creating a rain tank. This is certainly novel."

Does this innovation have scope for replicating? "Yes," hopes Ajit Gokhale, "It will be handy to cater to the RWH needs in dense population areas where wells have idle storage space. Roof water from nearby can be diverted and stored in such a cistern created within and above the well."

Shree Padre is a journalist with many years of experience in agricultural reporting. He is the author of several books, including one on rainwater harvesting, published by Altermedia.

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Sunil Bhide standing beside his rainwater tank/well.

Credit Shree Padre