



Residents of Kotha Jahangir budget the village's water before rabi and kharif to ensure crop cultivation is in tune with the availability

Every drop counts

In drought-prone Marathwada region, 14 villages have managed to counter water shortage by budgeting the resource

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SHARDA AGALE cannot forget the days when she had to walk several miles multiple times a day to fetch drinking water. Her village Kotha Jahangir is in Jalna district of Maharashtra's Marathwada region—a semi-arid landscape with recurring droughts. Water tankers supplied water to the village from January till the monsoon arrived in June. Though Sharda and her husband owned over 2 hectares (ha), they were forced to migrate in search of work during the rabi (winter) crop season because there was no water to irrigate the land. Same was the

story in almost all the 350 households of the village.

That was a decade ago. Now, a variety of kharif (monsoon) and rabi crops flourish in the village. When *Down To Earth* visited Kotha Jahangir in August 2024, its farms were lush with soybean, chilli, cotton, groundnut, maize, tomato, ladyfinger, brinjal and green chillies that are exported to Bangladesh. The remarkable transformation is the result of water budgeting introduced around 2014.

"Twice a year, the residents of Kotha Jahangir do water budgeting to ensure crop cultivation is in tune

with the amount of water available, both through rainfall and groundwater. It is like the grocery budget or the monthly household budget we prepare to ensure we do not overspend," says Shyam Padulkar, regional manager in Aurangabad division of Watershed Organization Trust (WOTR), a Pune-based non-profit involved in training farmers on water stewardship and water budgeting. "In May, water budgeting is done for the kharif season, and the exercise is repeated in October when water budgeting is done for the rabi season," he adds. The village has formed a 17-member Village Water Management Team that carries out the budgeting with participation from all the villagers, including the 30 landless families in the village. The committee has 5-6 gram panchayat members, an ex-sarpanch and five women members.

"Just before kharif, farmers take stock of the available water, including the groundwater table, water in their dugwells, percolation tank, and the forecast of southwest monsoon rainfall that year. The village has a rain gauge to monitor the rainfall it has received in a particular year," explains Padulkar. Thereafter, it is jointly decided which crops the farmers will cultivate in the coming kharif season, and on how much land a crop would be sown. There are individual calculations for each crop and how much water it consumes per acre, based on which total water consumption in a season is calculated.

At the entrance to Kotha Jahangir, opposite the village temple, is a large wall with the water budget painted on it, with calculations of water available, and the area-wise

crop selection for that season. This ensures transparency and greater participation in the exercise of water budgeting.

"Before allocating water for farming, 55 litres per person per day of water is set aside for drinking purposes based on the village's total population. Water allocation is also done for cattle," says Padulkar.

According to farmer Datta Agale, in April and May, the majority of the farmlands in the village are left fallow and sowing of kharif crops takes place after the water budgeting is complete and the monsoon arrives in June. "Earlier most farmers in our village cultivated cotton and maize, both of which require a lot of water. We now promote mixed farming of soybean and toor," says the farmer.

THERE ARE CALCULATIONS FOR HOW MUCH WATER EACH CROP CONSUMES, BASED ON WHICH THE TOTAL WATER CONSUMPTION IN A SEASON IS CALCULATED

By the end of September or early October, the monsoon withdraws and water budgeting for the rabi season begins. "For rabi, we look at the rainfall received in the monsoon [June to September], and how much water was used for kharif. Water requirement for rabi season is a little less since fewer crops are cultivated, with a focus on *chana* and *jowar*," says Padulkar.

SECURING WATER

"Till about 2014, we did not have sufficient water for irrigation. Whatever rain we received was washed away in no time," recounts Ramdas Iche, former sarpanch of Kotha Jahangir. It is then that water and soil conservation activities were promoted in the village and

residents offered *shramdan* (voluntary labour). A number of activities were carried out to capture rainwater and recharge the groundwater, says Datta. "For two years, 2014 to 2016, compartment bunding, nullah deepening, cleaning of dugwells, construction of check dams and introduction of drip irrigation were carried out in the village. This helped capture the rainwater, which led to groundwater recharge and revival of all our dugwells," he says.

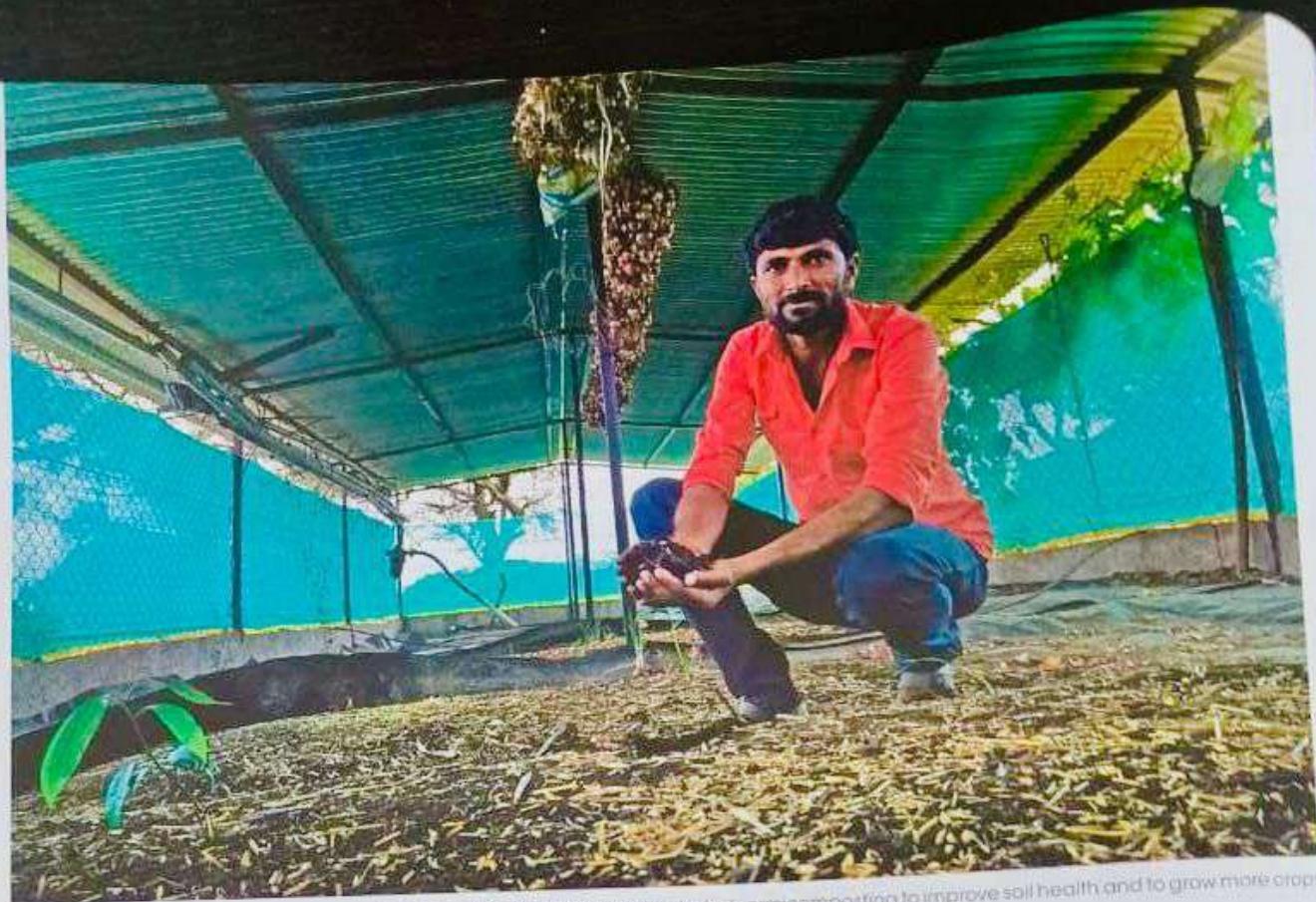
Once the water became available for irrigation in Kotha Jahangir, WOTR introduced water stewardship and water budgeting. In 2018, the non-profit trained villagers to take ownership of their water resources and treat it like a "common" and plan for its long-term use for sustainability. The village now has

65 farm ponds, 10 cement-nullah bunds, one large percolation tank, 400 ha of compartment bunding and 5-6 km of nullah deepening. Fifteen years ago, about 30 per cent of the total

670 hectares (ha) farmland in Kotha Jahangir was fallow. "Today, 99 per cent of its total land is cultivated. Earlier our dugwells went dry by December-January, but now they have water till March-April. We rarely summon a water tanker," says Iche.

SAVING WATER

"Irrigation through borewells is banned in our village and only dugwells, which are about 15 m deep, are used for irrigating crops. Drip irrigation and sprinklers have to be used," says Datta. "To ensure no wastage of water, a farmer can grow soybean only using a sprinkler system. Also, 70 per cent of farmers have drip irrigation. All chilli cultivation has to be done using plastic



Farmers of Kotha Jahangir have started vermicomposting to improve soil health and to grow more crops

mulching to save soil moisture content. We also promote mulching and vermicomposting," says Iche.

Farmer Sunita Gajanan Shalke once cultivated cotton on her nearly 5 ha farm. But when water became available, she switched to growing green chilli and soybean. "The cost of production of cotton is high and there are huge risks involved including pest attacks. Cotton takes eight months to get ready. In contrast, chilli is a two- to three-months crop and for every half acre of crop, I earn a profit of ₹50,000," she says.

SHARING AQUIFER

Kotha Jahangir and 13 other villages in Bhokardan block share a common aquifer. The villages are Kosgaon, Wadala, Mohalai, Relgaon, Malegaon, Kolegaon, Walsa Wadala, Borgaon (Jahagir), Tadkalas, Godri, Warud, Wadshed, and Nimbola. Each village prepares its own water budget and together shares the Malegaon aquifer named after Malegaon village.

"When work started to work in Kotha Jahangir, it initiated work in some other villages in the block. Groundwater mapping was done, 3D maps were prepared and 14 villages were found sharing the same Malegaon aquifer," says Padulkar.

"Water budgeting has helped us reconnect with our water sources and the neighbouring villages, as the health of our aquifer depends on all the 14 villages," says Bhagwat Gawande of Kolegaon village. "If there is any inter-village conflict over the use of groundwater, we solve it amicably. And now we also have an Aquifer Management Committee," he says.

The Malegaon Aquifer Management Committee was formed with 15 members from across the 14 villages and registered under the Bombay Public Trusts Act, 1950. These include members of the gram panchayat, village development committee and self-help groups.

The Aquifer Management Committee shares and discusses the plans and decisions made by Village

Water Management Teams (VWMTs) in the 14 villages. Once the plans are approved, they are set into motion. Since execution requires public participation, a 20-member advisory committee has also been set up in each of the 14 villages to assist the respective VWMTs.

But there are challenges, too. "Representation of women in various village-level committees remains low. We want 50 per cent committee members to be women but have not been able to achieve it," he admits.

Iche points out how the village has been trying to bring in a rule of *kulhadbandhi* (ban on felling of trees) but has been unable to implement it as trees are being cut for the widening of roads.

"To safeguard our water resources, we also need to save our trees," he says. www.downtoearth.org.in

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