

Transforming livelihoods through farm ponds

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They can be an effective tool for rainwater harvesting

With an increased variability of monsoons and rapidly depleting groundwater tables, large parts of India are reeling under water stress. A number of peninsular regions like Bundelkhand, Vidarbha and Marathwada have been facing recurring drought-like situations. Given the enormity of the crisis, at a recent NITI Aayog meeting, Prime Minister Narendra Modi explicated the need to implement innovative water management measures, stressing particularly the importance of [rainwater harvesting](#) both at the household and community levels. Here, one intervention that has been tried out in various States, and perhaps needs to be taken up on a bigger scale, is the construction of farm ponds. Farm ponds can be cost-effective structures that transform rural livelihoods. They can help enhance **water** control, contribute to agriculture intensification and boost farm incomes. However, this is possible only if they act as rainwater harvesting structures and not as intermediate storage points for an increased extraction of groundwater or diversion of canal water. The latter will cause greater groundwater depletion and inequitable water distribution. In a recent study on farm ponds in Jharkhand and West Bengal, we found that they aided in superior water control through the harvesting not just of rainfall but also of surface run-off and subsurface flows. Some of them functioned exclusively as recharge points, contributing to groundwater replenishment. They also helped in providing supplemental irrigation in the kharif season and an enhanced irrigation coverage in rabi. The yield of paddy, the most important crop in kharif, stabilised, thus contributing to greater food security. **Retention of water** Farm ponds retained water for 8-10 months of the year; thus farmers could enhance cropping intensity and crop diversification within and across seasons. The area used to cultivate vegetables and other commercial crops also increased. Further, figures indicated that the ponds were also a financially viable proposition, with a fairly high Internal Rate of Return, of about 19%, over 15 years. However, in parts of peninsular India, the idea of a farm pond as an *in-situ* rainwater harvesting structure has taken a complete U-turn. Here, some of them are benefiting farmers at an individual level, but not contributing to water conservation and recharge. They are being used as intermediate storage points, accelerating groundwater depletion and increasing evaporation losses as the groundwater is brought to the surface and stored in relatively shallow structures. Need for inlet, outlet provisions In Maharashtra, the State government is promoting farm ponds under a flagship programme that aims to dig over one lakh structures by offering a subsidy of up to ₹50,000 per farmer. However, most of them are being constructed without inlet and outlet provisions and their walls are raised above the ground level by only a few feet. They cannot arrest the excess run-off as there is no inlet, and therefore they cannot be used effectively for rainwater harvesting. Further, farmers line them at the bottom with plastic, restricting seepage and converting the ponds into intermediate storage points. Such farm ponds have an adverse impact on the water tables and accelerate water loss. The usual practice here is to lift water from a dug well and/or a borewell, store it in the pond and then draw it once again to irrigate the fields, often using micro-irrigation. While offering secure irrigation facility, this intensifies competition for extraction of groundwater from the aquifer, which is a common pool resource. In such cases, in the command area of the irrigation project, farmers fill up their farm ponds first when the canal is in rotation and then take it from the pond to the field. This can impede circulation of water. During canal rotation, the aquifer will get recharged because of the return flow of water coming from the irrigated fields. This return flow benefits all, as most of the farmers access water through wells in this command. But if canals fill up the farm ponds first, it restricts their benefits only to the pond owners and, in the long term, reduces the overall return flow at the system level. Overall, farm ponds can act as effective harvesting structures and also yield healthy financial returns. But if they are promoted merely for on-farm storage of groundwater and canal water, they could accelerate, rather than reduce, the water crisis in the countryside. First published by [The Hindu](#) on 1 Aug. 2019