GS-III: Transforming livelihood through farm ponds

Context

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. One intervention that has been tried out in various States, and needs to be taken up on a bigger scale, is the construction of farm ponds.

Background

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.

Benefits 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. A recent study on farm ponds in Jharkhand and West Bengal 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.
- **Water retention**: 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.
- Figures indicate that the ponds were also a financially viable proposition, with a fairly high Internal Rate of Return, of about 19%, over 15 years.

Challenges

- In parts of peninsular India, the idea of a farm pond as an in-situ rainwater harvesting structure has taken a complete U-turn. 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.
- 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. This intensifies competition for extraction of groundwater from the aquifer, which is a common pool resource.
- 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.
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.