TRANSFORMING LIVELIHOODS THROUGH FARM PONDS

Context:

- The recent NITI Aayog meeting that stressed upon rainwater harvesting and innovative water management techniques to fight against drought like situations in the country.

Introduction

- 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, there has been an explication about 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 perhaps needs to be taken up on a bigger scale, is the construction of farm ponds.

What are Farm Ponds?

- A farm pond is a large hole dug out in the earth, usually square or rectangular in shape, to harvest rainwater and store it for future use.
- It has an inlet to regulate inflow and an outlet to discharge excess water.
- The size and depth depend on the amount of land available, type of soil, the farmer's water requirements, cost of excavation, and the possible uses of the excavated earth.
- Water from the farm pond is conveyed to the fields manually, by pumping, or by both methods. Farmers build ponds for many reasons: irrigation, water for livestock, fire protection, erosion control, aquaculture, wildlife value, recreation and aesthetics.

Benefits of Farm ponds:

- Farm ponds can be cost-effective structures that transform rural livelihoods. They can enhance water control, contribute to agriculture intensification and boost farm incomes.
- In a recent study on farm ponds in Jharkhand and West Bengal, it has been found that they aided in superior water control through the harvesting not just of rainfall but also of surface run-off and subsurface flows.

- They even function 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 season. The yield of paddy, the most important crop in kharif, can be stabilised, thus contributing to greater food security.
- Farm ponds can retain 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 will also be increased.
- Ponds will also be a financially viable proposition, with a fairly high Internal Rate of Return, of about 19% over 15 years.
- 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.

Outcomes of the harvesting technique:

Long- term outcomes:

- To strengthen the rural economy, which continues to be largely agriculture-driven.
- Improve farmer income by addressing the basic problem pertaining to availability of water for farming or irrigation purposes.
- Reducing water scarcity in villages that have limited natural supply.
- Improving in risk management or becoming drought resilient and improving water availability through effective management.

Short- Term Outcomes:

- Reduction in the run-off water and diverting it to some kind of storage.
- Increasing water storage capacity.
- Increasing the rate of groundwater recharge.
- Enhancing soil fertility and ultimately, improving farm productivity.

Rise of Ill-structured Farm Ponds:

- In parts of peninsular India, the idea of a farm pond as an in-situ rainwater harvesting structure has taken a complete U-turn.
- 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.
- Here some of the ponds are benefiting farmers only at an individual level, but not contributing to water conservation and recharge.

- Most of the ponds 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.

Inappropriate use of Farm Ponds:

- The normal practice 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 though 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.
- 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.

Way Ahead:

- In a country like India where ground water contributes to 80-90% of water requirement and 50% of irrigation requirement, water harvesting should be given due importance to make it an sustainable one. It is be noted that Maharashtra state government has taken the lead in promoting farm ponds under a flagship programme “Jalyukta Shivar” that aims to dig over one lakh structures by offering a subsidy of up to ₹50,000 per farmer.
- It is important to acknowledge that climate change is a major problem and that water in the days to come will continue to be a scarce resource.
- Thus farm ponds can prove to be an meaningful step forward to capture and hold rain water in a distributed manner, which farmers can locally implement.
- So governments, NGOs, and other stakeholders must come forward and support our farmers in construction of farm ponds and other rainwater harvesting techniques both at the household and community levels.