



## Mains Practice Question

**Q.** How and to what extent would micro-irrigation help in solving India's water crisis? (150 Words)

30 Mar, 2022 GS Paper 3 Economy

### Approach

- Start with writing about micro-irrigation technology.
- Discuss the significance of micro-irrigation in solving India's water crisis.
- Discuss some of the limitations of micro-irrigation.
- Conclude suitably.

### Introduction

Water is a scarce natural resource but the major requirement in the agricultural sector. The efficient use of available water for irrigation is a major challenge. A nation with annual water availability of below 1,700 kilolitres per head is considered water deficient. India's per capita water availability is estimated at 1,428 kilolitres per year.

Micro-irrigation is a modern method of irrigation by which water is irrigated through drippers, sprinklers, foggers and by other emitters on the surface or subsurface of the land. Sprinkler irrigation and drip irrigation are the commonly used micro-irrigation methods.

### Body

#### Significance of micro-irrigation

- Micro-irrigation ensures water use efficiency. It applies water directly to the root zone, the practice reduces loss of water through conveyance, run-off, deep percolation and evaporation.
- Water savings in comparison with flood irrigation are to the tune of 30-50%.
- Electricity consumption falls significantly, as being water efficient it requires less water to be pumped.
- The localised water application in micro-irrigation prevents fertilizers from washing away, and so reduces nutrient loss or leaching. The micro-irrigation system can also be effectively used to apply fertilizers (fertigation) in a targeted way so as to prevent weed growth.
- Micro-irrigation, by virtue of localised water application, avoids soil erosion. It does not require land leveling and can irrigate fields that are irregularly shaped, making it much less labor-intensive and less costly.

#### Nevertheless, micro-irrigation also has certain limitations

- Expense especially initial cost is high mainly for marginal and small farmers.
- Maintenance cost for the tubes, sprinklers may go out of pocket for small farmers.
- The lifetime of the tubes used in drip irrigation can be shortened by the sun causing wastage.
- It needs more awareness and a higher rate of adoption in water stressed areas.

### Conclusion

The future revolution in agriculture will come from precision farming. Micro-irrigation can, indeed, be the stepping stone for achieving the goal of making farming sustainable, profitable and productive.

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