Sustainable Water Management

Why in news?

The theme for World Food Day (October 16) 2023 '*Water is Life, Water is Food'* calls for urgent action in managing water wisely.

Water Stress in India
• **Water stress**- India has 18 % of the world's population, but only *4 % of its water resources*, making it among the most water-stressed in the world. • The NITI Aayog report predicts that the country's water demand will be twice that of the available supply by 2030, leading to around *6 % loss* in the country's GDP. • **Food insecurity**- The World Resources Institute's Aqueduct Water Risk Atlas states that India is one of the top countries that could face extreme water stress in the coming years. • **Droughts** are becoming more frequent and India's rain-dependent farmers are already facing a crisis with 53 % of agriculture in India being dependent on the rains. • **Groundwater resources** - Accounting for 40 % of the water supply, it is being depleted at unsustainable rates. • **Mortality**- As per Niti Aayog available water stands the risk of contamination leading to nearly *200,000 deaths each year*.

What are the concerns with water management?

- **Water stress**- Countries face severe challenges such as drought, floods, unseasonal rains and prolonged dry spells.
- Availability or a lack of water has become more critical with increasing climate extremes.
- **Rainfed agriculture**- Rain and soil moisture variations can severely affect food and nutrition security.

Irrigated agriculture accounts for 72% of global freshwater withdrawals.

- **Water degradation**- It is due to decades of poor water management, pollution, and the climate crisis.
- **Land degradation**- About 40% of the planet's total land area is degraded, leaving farmers with less productive land.
- **Food scarcity**- Extreme weather events and variability in water availability are severely affecting agricultural production, changing agro-ecological conditions and shifting growing seasons.

What steps were taken for sustainable water management in agriculture sector?

- **Crop forecasting framework-** Food and Agriculture Organization (FAO) is piloting a model in certain States to aid rainfed farmers in making informed decisions.
- **Irrigation-** It is an effective measure to make agriculture more resilient, and enable farmers to transform their livelihoods by growing, consuming and selling high-value crops such as nutritious fruits and vegetables.
- **Soil conservation**- The World Food Programme (WFP) supports soil and water conservation through building or fixing of irrigation canals, dams, ponds, and dykes, as well as flood barriers through food assistance in exchange for labour.
    - In 2021 alone, 8.7 million people across 49 countries benefited directly from such support.
- **Policy framework**- International Fund for Agriculture (IFAD) supports States in leveraging the Mahatma Gandhi National Rural Employment Guarantee Act scheme to ensure that micro-irrigation infrastructure is environmentally sustainable and financially viable.

Steps taken by States to Conserve Water
• **Uttar Pradesh**- FAO supports the farmer water school programme in the state which helped smallholder farmers that resulted in improved water use efficiency. • **Andhra Pradesh**- It launched Farmer Managed Groundwater Systems project that reached out to 638 habitations in 7 drought-prone districts along with a hydrological monitoring programme. • **Odisha**- WFP is collaborating with the state to develop solutions for smallholder farmers, focusing on women.

What steps need to be taken for effective management of water?

- **Two pronged strategy-** India needs to adopt a two-pronged strategy with respect to water in agriculture.
    - **Supply side**- Augment buffer stocking of water during the monsoon season in its reservoirs, recharge groundwater through check dams and watersheds, etc.
    - **Demand side-** Ensure more rational allocation and efficient use of water across crops.
- **Water productivity**- There is a need to shift from land productivity to water productivity.
    - Punjab land productivity of rice is one of the highest, its irrigation water productivity is the lowest.
    - Drip irrigation will save half the water in the water guzzling crops like sugarcane.
- **Sustainable farming practices**- Direct seeded rice, Alternate wet and dry irrigation, zero till, etc., can be rewarded as they will save water.
- **Political will**- There is a need of political commitment to achieve global food and nutrition security.
- The state governments should charge for the electricity involved in groundwater irrigation.
- **Use of technology-** There is an urgent need to adapt to climate change by promoting technologies and practices that make rainfed production more resilient and

sustainable.

- **Foster investment**- There is a need to attract private sector investments in reservoirs and canal network.
- **Sustainable development**-With less than 7 years left to achieve UN Sustainable Development Goals (SDGs), FAO, IFAD, UN's WFP, lay stress on the need to adopt innovative approaches for improved management and conservation of scarce water resources.

References

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2. Indian Express- India can minimise climate change risk in agriculture
3. India Water Portal- Past and present water policies

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