Groundwater Conservation

Why in News

India is **majorly dependent on** groundwater **for irrigation** and is pumping out the lion's share of the global volume of groundwater. Around **70% of food production in India** is done with the help of irrigation wells.

- However, this **over-dependence on groundwater** is leading to a groundwater crisis. There is a need for a holistic action plan for groundwater conservation.

Key Points

- **About:**
    - The **UNESCO** World Water Development Report, 2018 states that **India is the largest extractor of groundwater in the world.**
    - In India, construction of **irrigation wells does not require any clearance** and no records are maintained of abandoned wells.
        - Several hundred wells are constructed in India every day and even more are abandoned when they run dry.
    - The **contribution of groundwater to national** gross domestic product **is never measured.**
    - According to the **Central Ground Water Board** (CGWB, Ministry of Jal Shakti), with 230 billion metre cube of groundwater drawn out each year for irrigating agriculture lands in India, many parts of the country are experiencing rapid depletion of groundwater.
        - The total estimated groundwater depletion in India is in the range of 122–199 billion metre cube.
- **Reasons for Groundwater Depletion:**
    - **Increased demand** for water for domestic, industrial and agricultural needs and limited surface water resources.
    - **Limited storage facilities** owing to the hard rock terrain, along with the added disadvantage of lack of rainfall, especially in central Indian states.
    - **Green Revolution** enabled water intensive crops to be grown in drought prone/ water deficit regions, leading to over extraction of groundwater.
        - Frequent pumping of water from the ground without waiting for its replenishment leads to quick depletion.
    - **Subsidies on electricity** and high **MSP (Minimum Support Price)** for water intensive crops.
    - **Water contamination** as in the case of pollution by landfills, septic tanks, leaky underground gas tanks, and from overuse of fertilizers and pesticides leading to damage and depletion of groundwater resources.
    - **Inadequate regulation of groundwater** encourages the exhaustion of groundwater resources without any penalty.

    - **Deforestation, unscientific methods of agriculture, chemical effluents from industries, lack of sanitation** also lead to pollution of groundwater, making it unusable.
- **Role of Women vis-a-vis Groundwater Usage:**
    - Women **form the bulk of the farm labour force** in irrigated agriculture. But, they have **no decision-making role in investments on such wells.**
    - Further, **unaware** about their right to land, natural resources and access to banks, they do not have the required legal support to fight this injustice.
    - However, they have emerged as the **first respondents to the Groundwater crisis** and are responsible for overcoming drinking water shortages, finding alternative livelihoods and running the farm and family.
        - Their preference is for crops with a lower water footprint, farming integrated with animals, easy market access for vegetables/flowers/fruits, penchant for use of green water (rainwater that collects in soil) over blue water and building soil zones into a reservoir of moisture.
- **Government Initiatives for Groundwater Conservation:**
    - **Atal Bhujal Yojana**
    - **National Aquifer Mapping and Management Programme**

Way Forward

- **Increasing Role of Women in Groundwater Conservation:**
    - **Women's judgement** on crop plans, water demand and footprint of crops is **different from that of men.**
    - The contrasting values of women and men were **demonstrated during the** Chipko movement**.** Women settled for nothing short of a complete ban on the felling of trees to help protect the environment, while their male counterparts conceded to controlled logging in exchange for livelihood.
    - Chipko movement **galvanised women groups to speak out and confront the system/authorities on everyday concerns** linked to social justice, education, health, crime against women and other local issues.
- **Regulated Pumping:**
    - Capping groundwater pumping for each farm based on an approved crop plan.
    - Conducting annual groundwater audits at different units scaled up to the river basin.
- **Enforcement of Local Governance:**
    - Reinventing grass-root democracy, strengthening local institutions and exercising local governance will have a positive effect on groundwater conservation.
    - Organising small farmers in villages into registered bodies, federated at the district with equal participation of women responsible for managing the entire value chain.

Source: DTE