Small Hydro Power (SHP) in India

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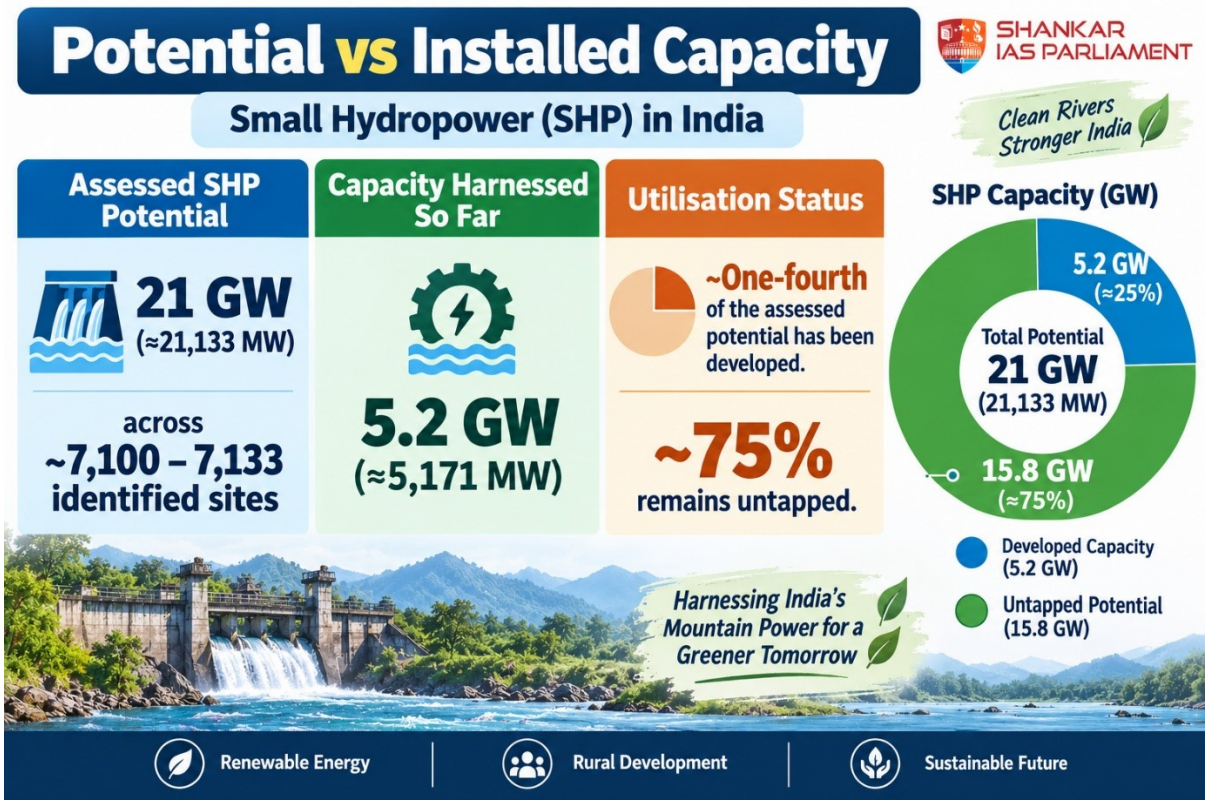
Why in News?

The Union Ministry of New and Renewable Energy (MNRE) has highlighted the role of Small Hydro Power (SHP) in India's clean-energy transition, especially in remote and geographically challenging regions.

- **Small Hydro Power (SHP) –** It is a renewable energy system that generates electricity using the natural flow of water from rivers, streams, or canals, typically with an installed capacity of up to 25 megawatts (MW).
- **Operational Principles**
- **Water Flow –** The system harnesses the kinetic or potential energy of moving water.
- **Absence of Large Dams** – Most small hydropower (SHP) systems employ a run-of-the-river design, diverting a limited portion of water through a turbine without constructing large reservoirs.
- **Electricity Generation –** The movement of water rotates the turbine, which is connected to a generator that produces renewable electricity.



Small Hydro Power Development Scheme
• **Implementation Period –** Fiscal Year 2026–27 to Fiscal Year 2030–31 (five years). • **Nodal agency –** Ministry of New and Renewable Energy (MNRE) • **Total Financial Outlay –** Rs.2,584.60 crore • **Implementing/Financing agencies** - The Indian Renewable Energy Development Agency (IREDA) serves as the primary financing institution. - Coordination occurs with banks and multilateral institutions, such as the Asian Development Bank (ADB) and the World Bank, to secure patient capital. • **Small Hydro Database –** It is prepared by the Alternate Hydro Energy Centre (AHEC) at IIT Roorkee, maps the potential for small hydropower (SHP) projects. • **Objective –** To achieve an additional 1,500 MW of new small hydro power (SHP) capacity through projects ranging from 1 MW to 25 MW • **Capacity addition –** Provide financial support to develop approximately 1,500 **MW** of SHP through eligible projects. • **DPR pipeline –** Incentivize States to prepare **Detailed Project Reports (DPRs)** for approximately **200 SHP projects**, establishing a pipeline for future investment. • **Geographic focus –** Priority will be given to hilly states and the North-Eastern region.

- **Challenges**
- **Extended development timelines –** Hydropower projects typically require several years to complete.
- **Clearance –** Delays in obtaining forest, environmental, and right-of-way approvals impede project execution.
- **Financial need –** Significant capital expenditure and extended gestation periods increase the demand for limited long-term patient capital.

Reference

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