



P.L.RAJ IAS & IPS ACADEMY

Building Bureaucrats Since 2006

6. Centre Restricts Hydroelectric Projects in Upper Ganga Basin – Ecological Conservation Priority – Environment

1. Why in News

1. Centre informed Supreme Court no new hydroelectric projects should be permitted in upper Ganga basin of Uttarakhand
2. SC examining ecological impact of hydroelectric projects in Alaknanda, Bhagirathi basins since 2013 Kedarnath disaster
3. Union Government stated no new projects allowed except seven already commissioned or in advanced stages
4. Decision reflects ecological fragility of Himalayan region, need to maintain environmental flows, cumulative environmental impacts

2. Issue Before Supreme Court

Examination of Hydropower Projects

1. SC examining ecological impact of hydroelectric projects in upper Ganga basin (Alaknanda, Bhagirathi basins) since 2013 Kedarnath disaster

Centre's Stand

1. No new hydroelectric projects allowed except seven projects already commissioned or in advanced stages (including Tehri Stage-II, Tapovan Vishnugad)
2. Restriction due to substantial physical, financial progress of these seven projects

3. About Environmental Flows (E-Flows)

Definition

1. Quantity, quality, timing of water flows required to sustain river ecosystems, biodiversity, dependent human livelihoods

Components

1. **Instream flows** – Water flows maintained within rivers, streams supporting aquatic ecosystems, ecological processes
2. **Freshwater inflows** – Flows reaching estuaries, coastal ecosystems maintaining salinity balance, marine biodiversity
3. **Subsistence flows** – Very low flows during drought conditions essential for minimum ecosystem survival
4. **Pulse flows** – Short-term high-flow events (heavy rainfall) helping nutrient transport, sediment movement
5. **Base flows** – Regular flow levels occurring most of year sustaining normal riverine ecological functions

4. Reasons Behind Centre's Decision

Ecological Fragility of Himalayan Region

1. Upper Ganga basin lies in geologically fragile Himalayan regions vulnerable to landslides, earthquakes, flash floods

Importance of Headstreams of Ganga

1. Alaknanda, Bhagirathi rivers critical headstreams supporting biodiversity, nutrient flow, ecological balance in Ganga River system

Need to Maintain Environmental Flow (E-flow)

1. Government stressed uninterrupted river flow necessary for maintaining aquatic ecosystems, river health

Cultural and Religious Significance

1. Ganga holds immense religious, cultural importance requiring special ecological protection measures

Cumulative Environmental Impacts

1. Centre argued earlier expert reports underestimated combined ecological impact of multiple hydropower projects

5. About Upper Ganga Basin**Location**

1. Himalayan headwater region of Ganga River system mainly covering Alaknanda, Bhagirathi basins in Uttarakhand

Origin of Ganga River

1. River Ganga originates at Devprayag where Alaknanda, Bhagirathi rivers merge forming main Ganga River

Important Tributaries

1. **Bhagirathi River** – Originates from Gangotri Glacier at Gaumukh; principal headstream
2. **Alaknanda River** – Originates near Satopanth Glacier; joins Bhagirathi at Devprayag
3. **Mandakini River** – Originates from Chorabari Glacier near Kedarnath; joins Alaknanda at Rudraprayag
4. **Pindar River** – Originates from Pindari Glacier; merges with Alaknanda at Karnaprayag

Environmental Concerns

1. Large hydropower projects can alter river flow, damage forests, fragment habitats, increase disaster risks in mountain ecosystems

Seismic Vulnerability

1. Upper Ganga basin falls within Seismic Zones IV and V (highly prone to earthquakes, geological instability)

6. Previous Recommendations and Decisions**Ravi Chopra Committee (2014)**

1. Concluded hydropower projects aggravated 2013 Kedarnath disaster
2. Recommended cancellation of several projects

Vinod Tare Committee (2015)

1. Observed certain projects with prior clearances could still pose serious ecological threats

B.P. Das Committee (2020)

1. Recommended allowing 28 hydroelectric projects in Alaknanda, Bhagirathi basins

Government's Revised Position

1. Centre later restricted approval to only seven projects after inter-ministerial consultations, expert review

7. Significance of Decision

Himalayan Ecological Conservation

1. Reflects growing recognition of ecological sensitivity of Himalayan river systems

Promotes Sustainable River-Basin Management

1. Prioritizes long-term environmental sustainability over short-term infrastructure expansion

Highlights Climate and Disaster Resilience Concerns

1. Acknowledges increasing climate-induced disasters in fragile mountain ecosystems

Balance Between Development and Ecology

1. Underlines need to reconcile renewable energy goals with biodiversity, ecological protection

Precedent for Other Ecologically Sensitive Regions

1. Sets template for balancing development with conservation in fragile ecosystems

8. Conclusion

Centre's stand restricting new hydroelectric projects in upper Ganga basin marks significant shift towards ecologically sensitive development, stronger conservation of fragile upper Ganga Himalayan ecosystem. Decision based on ecological fragility (vulnerable to landslides-earthquakes-flash floods), importance of Alaknanda-Bhagirathi headstreams supporting biodiversity-nutrient flow, need maintaining environmental flows for aquatic ecosystems, cultural-religious significance of Ganga, cumulative environmental impacts underestimated by earlier reports. Only seven projects (including Tehri Stage-II, Tapovan Vishnugad) permitted due to advanced physical-financial progress. Previous committees—Ravi Chopra 2014 (projects aggravated Kedarnath disaster), Vinod Tare 2015 (ecological threats), B.P. Das 2020 (recommended 28 projects)—informed revised position. Significance includes Himalayan ecological conservation, sustainable river-basin management prioritizing long-term environmental sustainability over short-term infrastructure expansion, climate-disaster resilience concerns in Seismic Zones IV-V, balancing renewable energy goals with biodiversity-ecological protection ensuring sustainable development reconciling energy needs with environmental conservation.

Source - <https://www.thehindu.com/sci-tech/energy-and-environment/centre-tells-supreme-court-no-new-hydel-projects-should-come-up-in-upper-ganga/article71002375.ece>