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# Tungabhadra River Water Dispute: Cooperative Federalism, Constitutional Framework and Sustainable Basin Management

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## Recent Developments:

- The **Union Government** has proposed constituting a **High-Level Committee** to facilitate an amicable resolution of the long-pending **Tungabhadra Basin water-sharing dispute** among **Karnataka**, **Andhra Pradesh** and **Telangana**.
- The proposal follows a rare display of **cooperative federalism**, where the three States jointly inaugurated **33 newly installed spillway gates** at the **Tungabhadra Dam** and agreed to work collectively for the protection of farmers' interests and sustainable water management.
- The discussions also covered **desiltation of the reservoir**, conservation of storage capacity and other long-term measures to improve water availability across the basin.

## About the Tungabhadra River:

- The **Tungabhadra River** is a major **perennial right-bank tributary** of the **Krishna River** and constitutes one of the most important river systems of the **Deccan Plateau**.
- The river is formed by the confluence of the **Tunga** and **Bhadra** rivers, both originating in the **Western Ghats** near **Varaha Parvatha** and **Gangamoola** in Karnataka.
- The two rivers meet at Kudli to form the Tungabhadra River.
- Flowing for nearly **531 km**, the river traverses Karnataka, forms parts of the **Karnataka–Andhra Pradesh** and **Andhra Pradesh–Telangana** boundaries, and finally joins the Krishna River at Sangameswaram.
- The combined waters ultimately drain into the Bay of Bengal at Hamsaladeevi.
- The river supports **irrigation**, **drinking water supply**, **hydropower generation**, **fisheries**, **religious tourism** and **regional ecological balance** across southern India.

## Tungabhadra Reservoir Project:

- The **Tungabhadra Dam** was commissioned during the **1950s** near Hosapete in the present-day **Vijayanagara district**.
- It is an important **inter-State multipurpose river valley project** jointly serving Karnataka, Andhra Pradesh and Telangana.
- The reservoir provides irrigation to more than **16.38 lakh acres** while also supporting drinking water supply, industries and hydroelectric generation.
- Following the **2024 crest gate failure**, all **33 spillway gates** have been replaced and modernised to improve dam safety, flood regulation and operational efficiency.

## Historical Evolution of Water Sharing:

- Water sharing was originally adjudicated by the **Krishna Water Disputes Tribunal-I (KWDT-I)** constituted in **1969** under the chairmanship of **Justice R.S. Bachawat**.

- The Tribunal allocated Tungabhadra waters broadly in the ratio of **65:35** between **Karnataka** and the then **undivided Andhra Pradesh**.
- The implementation and regulation of allocations are carried out through the **Tungabhadra Board**.
- Following the bifurcation of Andhra Pradesh in **2014**, **Telangana** received an allocated entitlement of **15.9 TMC** from the Tungabhadra system.

**Present Water Sharing Issues:**

***Siltation of the Reservoir:***

- Decades of heavy **sedimentation** have substantially reduced the reservoir's effective storage capacity from its original design capacity.
- Reduced storage has adversely affected irrigation reliability, flood moderation and downstream water availability.
- Periodic desiltation has emerged as an important long-term requirement for restoring storage efficiency.

***Rajolibanda Diversion Scheme (RDS):***

- The **Rajolibanda Diversion Scheme** is an inter-State irrigation project shared by Karnataka and Telangana across the Tungabhadra River.
- Water is diverted through a canal network of nearly **143 km** to irrigate drought-prone regions of Karnataka, Telangana and Andhra Pradesh.
- Infrastructure deterioration has restricted Telangana's ability to utilise its allocated share, limiting actual utilisation to nearly **5–6 TMC** despite a higher entitlement.

***Upper Bhadra Project Dispute:***

- Karnataka's **Upper Bhadra Lift Irrigation Project** has generated concerns among downstream States regarding reduced river flows.
- In **2023**, Andhra Pradesh filed an original suit before the **Supreme Court** contending that the project may adversely affect downstream reservoirs such as **Srisailam**.
- The dispute highlights the growing challenge of balancing upstream development with downstream water security.

**Constitutional and Legal Framework:**

***Distribution of Legislative Powers:***

- **Entry 17 of the State List** places **water**, water supply, irrigation and canals under the legislative competence of the States.
- **Entry 56 of the Union List** empowers Parliament to regulate and develop **inter-State rivers and river valleys** whenever it is declared expedient in the public interest.

***Dispute Resolution Mechanism:***

- **Article 262** empowers Parliament to provide for adjudication of **inter-State river water disputes**.
- Parliament exercised this power through the **Inter-State River Water Disputes Act, 1956**.
- The Act permits the establishment of specialised tribunals for adjudication of river water disputes.
- The **Inter-State River Water Disputes (Amendment) Bill, 2019** proposed a **single permanent tribunal** with multiple benches for faster dispute resolution, although it has not yet been enacted.

***Judicial Precedent:***

- In the **Cauvery Judgment (2018)**, the **Supreme Court** held that **inter-State rivers are national assets**.

- The Court rejected the doctrine of exclusive State ownership and emphasised **equitable and reasonable utilisation** of shared river waters.

**Importance of the Tungabhadra Basin:**

- Supports food security through irrigation across drought-prone districts.
- Provides drinking water to millions of people in three States.
- Supports hydroelectric generation and industrial development.
- Sustains riverine biodiversity and local livelihoods.
- Holds significant cultural and historical importance because of the **Vijayanagara civilisation** and the riverfront heritage around **Hampi**.
- Acts as a critical component of the larger **Krishna River Basin**.

**Major Challenges:**

***Inter-State Water Conflicts:***

- Competing irrigation demands frequently create disputes between upstream and downstream States.
- Delayed implementation of tribunal awards often prolongs conflicts.

***Declining Reservoir Capacity:***

- Continuous siltation has reduced live storage and weakened drought resilience.
- Climate variability has increased uncertainty in annual river flows.

***Infrastructure Constraints:***

- Ageing dams, canals and diversion structures require modernisation and regular maintenance.
- Operational inefficiencies increase transmission losses and reduce irrigation efficiency.

***Governance Challenges:***

- Multiple agencies with overlapping responsibilities often delay coordinated decision-making.
- Data sharing, reservoir operation protocols and real-time monitoring remain inadequate.

***Environmental Concerns:***

- Sand mining, pollution and catchment degradation have affected river health.
- Reduced environmental flows threaten aquatic biodiversity.

**Way Forward:**

***Integrated River Basin Management:***

- Adopt basin-wide planning involving all riparian States through a collaborative institutional framework.
- Strengthen the role of the **Tungabhadra Board** with greater technical and financial capacity.

***Strengthen Cooperative Federalism:***

- Institutionalise periodic meetings among basin States for joint planning and conflict prevention.
- Operationalise the proposed **High-Level Committee** with scientific, legal and administrative representation.

***Reservoir Modernisation:***

- Undertake large-scale desiltation to restore storage capacity.

- Modernise canal systems, spillway infrastructure and dam safety mechanisms.
- Promote micro-irrigation and water-use efficiency to reduce pressure on river water.

***Technology and Data Sharing:***

- Establish real-time hydrological monitoring using remote sensing, telemetry and GIS.
- Develop transparent data-sharing mechanisms among all basin States.

***Ecological Sustainability:***

- Protect catchment areas through afforestation and watershed management.
- Ensure minimum environmental flows for sustaining river ecology.
- Integrate climate adaptation measures into basin planning.

**Conclusion:**

- The recent consensus among **Karnataka**, **Andhra Pradesh** and **Telangana** represents an important example of **cooperative federalism** in India's water governance.
- A sustainable resolution of the **Tungabhadra dispute** requires balancing **equitable water sharing**, **ecological conservation**, **dam safety** and **scientific basin management**.
- Strengthening institutional cooperation, modernising infrastructure and adopting integrated river basin governance can transform the Tungabhadra Basin into a model for resolving future inter-State river disputes.

**Value Addition for UPSC:**

***Important Constitutional Provisions:***

- **Article 262** – Adjudication of inter-State river water disputes.
- **Article 131** – Original jurisdiction of the Supreme Court in disputes between States.
- **Entry 17, State List** – Water, irrigation, canals and water supply.
- **Entry 56, Union List** – Regulation and development of inter-State rivers and river valleys.
- **Article 48A** – Protection and improvement of the environment.
- **Article 51A(g)** – Fundamental duty to protect the natural environment