River Interlinking Debate Highlights India's Water Security Challenge, Inter-State Disputes and Cooperative Federalism

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Recent Developments:

- The **31st Southern Zonal Council meeting**, chaired by Union Home Minister Amit Shah at Mahabalipuram, Tamil Nadu, on **20 August 2026**, highlighted the need for faster resolution of pending water disputes among southern States through dialogue involving the concerned States, Ministry of Jal Shakti, Ministry of Home Affairs and the Inter-State Council.
- The Union Home Minister also proposed linking major rivers from the **Brahmaputra to the Godavari and Cauvery** as a long-term water-security approach, while arguing that interconnected waterways could also support transportation. This was a policy proposal, not the announcement of a single approved Brahmaputra–Cauvery project.
- The discussion gained significance because southern India continues to face disputes involving the **Cauvery, Krishna, Pennaiyar, Mekedatand Mullaperiyar** river systems, demonstrating that water scarcity is simultaneously a geographical, ecological, legal and federal issue.

Interlinking of Rivers: Concept and Objectives:

What is River Interlinking?

- **Interlinking of Rivers (ILR)** involves transferring water between river basins through canals, reservoirs, tunnels and diversion structures after assessing the water balance and requirements of the concerned basins.
- The underlying objective is to reduce **spatial and temporal variations in water availability** by transferring water from identified surplus basins to water-deficit regions.
- The approach seeks to expand irrigation, improve drinking-water availability, moderate floods and droughts, generate hydropower and support regional development. The National Water Development Agency estimates that the complete ILR programme could provide substantial additional irrigation and hydropower benefits.

Historical Evolution and Institutional Framework:

- The idea of large-scale river interlinking has evolved through several proposals, including **Sir Arthur Cotton's** nineteenth-century irrigation and navigation ideas and later proposals for inter-basin transfers.
- The Government formulated the **National Perspective Plan (NPP) in 1980** for transferring water between river basins and reducing regional imbalances. It has two components: **Peninsular Rivers Development** and **Himalayan Rivers Development**.
- The NPP identifies **30 links**, comprising **16 Peninsular links and 14 Himalayan links**.
- The **National Water Development Agency (NWDA)** was established in July 1982 to undertake surveys, water-balance studies and feasibility assessments for river-linking projects; its mandate was subsequently expanded to cover the Himalayan component and preparation of DPRs.

Major River-Linking Projects and Examples:

Existing or Operational Inter-Basin Transfers:

- **Mullaperiyar Project:** Water from the Periyar basin in Kerala is diverted towards the Vaigai basin in Tamil Nadu, supporting irrigation and drinking-water requirements in parts of Tamil Nadu.
- **Parambikulam–Aliyar Project:** This multi-reservoir system transfers water between river basins involving Kerala and Tamil Nadand demonstrates the importance of inter-State agreements in implementing complex water-transfer projects.
- **Krishna Water Supply Project:** Krishna-basin water is transferred to meet the drinking-water requirements of **Hyderabad**, demonstrating the role of inter-basin transfers in urban water security.
- **Indira Gandhi Canal:** Water from the **Sutlej–Beas system** is carried towards north-western Rajasthan, substantially expanding irrigation and agricultural activity in an otherwise arid region.

Current Priority Links:

- The **Ken–Betwa Link Project** is the first river-linking project under implementation under the NPP and is planned for completion by March 2030.
- The **Godavari–Cauvery Link Project** consists of three proposed link systems and has been under consultation among the concerned States; draft DPR and draft agreement processes have been undertaken.
- The wider Peninsular component envisages links involving the **Mahanadi, Godavari, Krishna, Pennar and Cauvery**, making it particularly relevant to southern India's long-term water-management debate.

Arguments Supporting River Interlinking:

Water Security and Regional Balancing:

- Inter-basin transfers can increase water availability in **drought-prone and water-deficient regions**, particularly where local water resources are insufficient to meet irrigation and drinking-water requirements.
- The proposed **Ken–Betwa Link** illustrates this approach by targeting irrigation and water-supply benefits in Bundelkhand, a region historically affected by water stress.

Agricultural and Economic Benefits:

- Additional irrigation can increase agricultural productivity, encourage **crop diversification**, reduce dependence on erratic rainfall and support rural incomes.
- Large infrastructure projects can also generate employment and stimulate associated activities such as construction, transport, irrigation services and hydropower.

Flood and Drought Management:

- Storage and diversion structures can potentially moderate **flood peaks** and transfer part of the stored water towards deficit regions.
- However, such benefits depend on basin-specific hydrology, reservoir capacity, ecological flows and the actual availability of transferable water.

Urban, Industrial and Navigation Benefits:

- Inter-basin transfers can supplement water supplies for **urban centres and industries** facing local shortages.
- Integrated water infrastructure can also support inland navigation where suitable waterways and storage systems exist.

Major Concerns and Limitations:

Ecological and Hydrological Risks:

- River ecosystems depend on natural flow regimes, sediment transport, seasonal flooding and ecological connectivity; altering these processes can affect **aquatic biodiversity, wetlands, groundwater recharge and downstream ecosystems**.
- The concept of a permanently "surplus" basin is also increasingly questioned because river flows vary seasonally and are affected by climate variability.
- Climate change can alter **rainfall patterns, drought frequency, glacier behaviour and river discharge**, making long-term water-balance assumptions uncertain.

Inter-State Water Disputes:

- River waters are shared resources, and transferring water across basins can create new disputes if the source or recipient States disagree over the definition of surplus water.
- The **Pennaiyar dispute** illustrates the difficulty of resolving questions concerning historical agreements, water utilisation and tribunal mechanisms.
- The **MekedatProject**, proposed by Karnataka on the Cauvery, has faced opposition from Tamil Nadbecause of concerns over downstream water availability.

Federal and Legal Challenges:

- Water is primarily a **State subject**, but inter-State rivers require institutional coordination between States and the Union Government.
- **Article 262** provides the constitutional framework for adjudication of disputes relating to waters of inter-State rivers and river valleys.
- The **Inter-State River Water Disputes Act, 1956** provides for adjudication through water disputes tribunals when disputes cannot be settled through negotiations.
- Delays in negotiations, tribunal processes, implementation and compliance can prolong disputes and reduce confidence in large inter-State projects.

Social and Rehabilitation Challenges:

- Large dams, reservoirs and canals can require substantial land acquisition and may affect **tribal communities, farmers, forests and settlements**.
- Rehabilitation and resettlement must therefore address not only physical displacement but also livelihood loss, common-property resources and cultural ties with land.

Financial and Technical Constraints:

- River-linking requires extensive **capital investment, land acquisition, engineering infrastructure and long-term maintenance**.
- Long gestation periods and complex clearances can increase project costs and delay expected benefits.

Demand-Side Management: The Missing Complement:

Why Supply Augmentation Alone Is Insufficient:

- India's water challenge is not simply a shortage of physical water; it also involves **inefficient irrigation, groundwater depletion, pollution, leakage, uneven distribution and weak demand management**.
- Large inter-basin transfers should therefore complement, rather than replace, **water conservation and efficient utilisation**.
- Priority measures include **micro-irrigation, rainwater harvesting, watershed development, groundwater recharge, wastewater reuse and restoration of traditional water bodies**.

Basin-Level Water Governance:

- Water planning should increasingly move from isolated projects towards **Integrated River Basin Management**, considering surface water, groundwater, ecological flows, agriculture, urban demand and climate risks together.
- NWDA itself undertakes basin-level water-balance studies to determine whether water can be transferred after meeting the reasonable needs of the source basin.

Way Forward:

Strengthen Cooperative Federalism:

- The **Zonal Councils** provide an institutional platform for dialogue on common inter-State and Centre–State issues and can support political consensus before disputes become prolonged legal conflicts.
- Regular joint meetings involving States, the **Inter-State Council, Ministry of Jal Shakti and technical institutions** can improve information sharing and facilitate negotiated settlements.

Adopt a Scientific and Climate-Resilient Approach:

- Every proposed link should undergo rigorous **hydrological assessment, environmental impact assessment, climate-risk analysis and cumulative basin-level assessment**.
- Transfer decisions should be based on scientifically established water availability rather than static assumptions of permanent surplus and deficit.

Combine Supply-Side and Demand-Side Solutions:

- River linking should be integrated with **watershed management, groundwater regulation, efficient irrigation, rainwater harvesting and wastewater reuse**.
- The objective should be to improve water productivity and resilience rather than merely increase the volume of water supplied.

Ensure Participatory and Equitable Governance:

- Affected States, local communities, farmers, environmental experts and other stakeholders should participate in project planning.
- **Rehabilitation, ecological-flow protection and benefit sharing** should be treated as integral components of project design rather than post-project measures.

Conclusion:

River interlinking can provide **location-specific benefits** for irrigation, drinking water and regional water security, but it cannot by itself resolve India's complex water crisis. The Brahmaputra–Godavari–Cauvery idea has renewed attention on large-scale inter-basin transfers, while disputes such as Pennaiyar, Cauvery and Mekedatdemonstrate that water security also depends on **cooperative federalism, legal certainty, ecological sustainability and efficient demand management**. India's long-term strategy therefore requires a balanced combination of carefully assessed water-transfer projects, conservation, groundwater management and basin-level governance.

Value Addition for UPSC:

- **GS-I:** Drainage systems, river basins, monsoon variability, droughts, floods and regional geography.
- **GS-II:** Cooperative federalism, Article 262, Inter-State River Water Disputes Act, Zonal Councils and Centre–State relations.
- **GS-III:** Irrigation, water-resource management, climate change, environmental impacts and sustainable agriculture.
- **Prelims Facts: NPP — 1980; NWDA — 1982; 30 NPP links — 16 Peninsular + 14 Himalayan; Ken–Betwa — first NPP link under implementation.**

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- **Core UPSC Insight:** *India’s water-security challenge is not only about moving more water; it is also about managing existing water more efficiently, equitably and sustainably.*