



## Interlinking of Rivers

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# 1 Introduction

The average rainfall in India is about 4,000 billion cubic meters, but most of India's rainfall comes over a 4-month period – June through September. Also, the rain across the nation is not uniform. India also sees years of excess monsoons and floods, followed by below average or late monsoons with droughts. This geographical and time variance in availability of natural water versus the year round demand for irrigation, drinking, and industrial water creates a demand-supply gap. Hence, the **National River Linking Project (NRLP)** is claimed to be the answer to India's water problem through conservation of the abundant monsoon water, store it in reservoirs, and deliver this water using rivers inter-linking project to areas and over times when water becomes scarce. Beyond water security, the project is also seen to offer potential benefits to transport infrastructure through navigation, as well as to broadening income sources in rural areas through fish farming.

The Inter-link project has been split into **three** parts: a **northern Himalayan** rivers inter-link component, a **southern Peninsular** component and starting 2005, an **intrastate** rivers linking component. The project is being managed by India's **National Water Development Agency (NWDA)**, under its **Ministry of Water Resources**. NWDA has studied and prepared reports on 14 inter-link projects for Himalayan component, 16 inter-link projects for Peninsular component and 37 intrastate river linking projects.

## 2 Recent Developments

The idea had been around since half a century. It got a push in **1982** when **NWDA was established**. However, not much progress was made later. In **2002**, it got huge fillip when government decided to study the feasibility and devised concrete layout to implement it. However, with the change in government the project was put on hold owing to inter-state disputes and opposition from farmers, tribal groups, civil society and environmentalists.

In **2012**, Supreme Court directed the Ministry of Water Resources to constitute an experts committee to pursue the matter with the state governments. However, it left the implementation of project on centre's discretion citing it to be the executive's purview.

The new government is keen to carry forward the project. The linking of **Godavari and Krishna** was completed in 2015. The next project being taken up is **Ken-Betwa** link.

The government aims to complete the pan India river interlinking projects in less than a decade.

## 3 The Debate

There has been fierce debate in political and academic circles over the project. There have been arguments from both the sides. They are as follows:

### 3.1 In Favor

- The country receives most of its annual rainfall during the four monsoon months of **June to September**, while the quantum of rain varies widely across different regions. If interlinking of rivers is implemented by connecting through canals, then such uneven water flow in different river basins will get balanced.
- India will require about 450 million tonnes of foodgrains per annum to feed the population of over 1.5 billion in 2050. To meet this requirement, the country needs to expand its irrigation potential to 160 million hectares for all crops by 2050. This can be made possible through the interlinking of rivers.
- Floods are a recurring feature, particularly in the large parts of the Ganga-Brahmaputra-Meghna basin, affecting Assam, Bihar, West Bengal and Uttar Pradesh. On the other extreme, a number of western and

peninsular states such as Rajasthan, Gujarat, Andhra Pradesh, Karnataka and Tamil Nadu face recurring droughts. NRLP will transfer excess water from flood-ravaged states to water-scarce regions. By this, it will provide irrigation to about 35 million hectares in water-scarce western and peninsular regions.

- India currently stores only 30 days of rainfall, while developed nations strategically store 900 days worth of water demand in arid areas river basins and reservoirs. India also relies excessively on groundwater, which accounts for over 50 percent of irrigated area. Proponents of the project suggest India's water situation is already critical, and it needs greater reliance on surface water and minimize groundwater usage for sustainable development.
- India needs infrastructure for logistics and movement of freight. Using connected rivers as navigation is a cleaner, low carbon footprint form of transport infrastructure, particularly for ores and food grains.
- It will create food security, employment, boost crop output and farm income, and multiply benefits through backward and forward linkages. NRLP is also expected to generate **additional hydropower of about 34 GW**.
- Interlinking of rivers is not new and has been attempted with success in the past both in India and outside. Past examples in India include **Beas-Sutlej** link and **Periyar-Vaigai** link. International projects include **Rhine–Main–Danube Canal** , **Illinois Waterway system**, **Tennessee–Tombigbee Waterway** etc.
- NRLP will increase India's utilizable surface water by 25%. For example, currently only a quarter of Brahmaputra's renewable water resources are utilizable within the basin.
- Will prevent flow of fresh river water into sea. For example, the Godavari-Krishna project will lift Godavari waters that now flow into the sea, and divert it towards Krishna river in the neighboring Krishna district which would be diverted to the parched Rayalaseema region.

### 3.2 Against

- The current cost of the project is Rs **11 lakh crore**, twice the estimate of 2002 which the government is putting forward. This huge fund will be mobilized through cutting on social sector spending as the government cannot increase taxes and duties that can hamper economic growth.
- The feasibility of the project has not been studied in detail, nor have its economic, social and ecological implications. There is no social impact assessment done on the displacement of people and on the livelihood of the people who are living in these areas. When we build dams, we displace too many people. They will migrate to towns and land up in slums. Local bodies and communities have not been engaged while taking decisions. For instance, in the **Ken-Betwa project**, the core area of the **Panna national park** will be affected.
- Loss of biodiversity and forests downstream of a donor river will occur. For example the **Tagus-Segura link in Spain** has resulted in reduced flow in Tagus and worsened the threats to endangered fish species. Also, unsustainable water use has also been observed in recipient river basins.
- It has been argued that there is no concept of deficit and surplus. A river has a natural course and for years it has been following that. The river will carry as much as it can. A river isn't a pipe that we can control. If there is a surplus and flood, the river needs that and that is how the natural ecosystem works which we can't block.
- First we should exhaust all options and potentials before concluding that river-linking is the best alternative. Exhaust options such as watershed development, rainwater harvesting, ground water recharge, optimising existing infrastructure and cropping methods have not been explored fully.
- Regime of river pairs like Ken-Betwa and Godavari-Krishna are almost same as they receive rainfall at same time and flow through similar region. Thus if one is dry or flooded then at the same time other will also be. Hence, interlinking of such rivers is not intelligent. For instance, the **Marathwada region in Maharashtra** belongs to the Godavari basin. But, we want to divert water from Godavari to Krishna. It doesn't make sense to transfer water in such case.

- A canal is not a river and it cannot support an ecosystem. When water flows, there are a number of factors associated with it. There are micro organisms and there are marine lives. It will be impacted by building dams and diverting water for something that is not natural.
- There is a big problem of **desilting** and there is no clarity on where the silt be actually dumped. Whether it will be farms and what will be the impact of dumping are the points on which there is no clarity.
- The water flowing into sea is not wastage but performs a key ecological function.
- A major issue in India vis-a-vis river-linking is that **water is a state subject**. States that have surplus water are not ready to give it to other states and there is a huge logjam which is cropping up time and again because of this. Even though the government is thinking of **intra-state** river-linking processes the environmental issues relating to these projects are very huge.
- The Himalyan component calls for building dams in **Bhutan**. In at least some inter-link projects, neighboring countries like **Bangladesh** may be affected. This will need international collaboration and thus huge potential for logjam.

**Misra et al.** in their 2007 report, claim inter-linking of rivers initially appears to be a costly proposition in ecological, geological, hydrological and economical terms, in the long run the net benefits coming from it will far outweigh these costs or losses. However, they suggest that there is a lack of an international legal framework for the projects India is proposing.

Hence, before implementing the proposal on a large scale, a sound scientific and technical assessment needs to be undertaken to make it techno-economically feasible. This is a Herculean task and would involve considerable amount of time. Meanwhile, policy-makers can propagate better water resource management and encourage whatever small initiatives the states undertake towards solving their water-related woes.

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