River Linking

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River Linking is project linking two or more rivers by creating a network of manually created canals, and providing land areas that otherwise does not have river water access and reducing the flow of water to sea using this means. It is based on the assumptions that surplus water in some rivers can be diverted to deficit rivers by creating a network of canals to interconnect the rivers.

Benefits

- **Irrigation**
- By linking the rivers, vast amount of land areas which will not otherwise be irrigated and are unusable for agriculture become fertile.

- **Flood prevention**
- During heavy rainy seasons some areas can experience heavy floods while other areas might be experiencing drought like situations. With network of rivers this problem can be greatly avoided by channeling excess water to areas that are not experiencing a flood or are dry.

- **Generation of electricity**
- With new canals built, feasibility of new dams to generate hydroelectric power becomes a possibility.

- **Navigation**
- Newly created network of canals opens up new routes and ways and routes of water navigation, which is generally more efficient and cheaper compared to road transport.

Issues and Concerns

- **Ecological issues**
- One of the major concerns is that rivers change their course in 70–100 years and thus once they are linked, future change of course could create huge practical problems for the project.
- **Aqua life**
- A number of leading environmentalists are of the opinion that the project could be an ecological disaster. There would be a decrease in downstream flows resulting in reduction of fresh water inflows into the seas seriously jeopardizing aquatic life.
- **Deforestation**
- Creation of canals would need large areas of land resulting large scale deforestation in certain areas.
- **Areas getting submerged**
- Possibility of new dams comes with the threat of large otherwise habitable or reserved land getting submerged under water or surface water.
- **Displacement of people**
- As large strips of land might have to be converted to canals, a considerable population living in this areas must need to be rehabilitated to new areas.

Kaveri River water dispute

The sharing of waters of the Kaveri River (also spelled as Cauvery) has been the source of a serious conflict between the two states of **Tamil Nadu and Karnataka.**

The Cauvery River and its tributaries form definitely the most contentious , if not the most important, **watershed in southern India.** About half of the watershed exists in Karnataka, the rest is in Tamil Nadu.

The genesis of this conflict, rests in two controversial agreements—one signed in 1892 and another in 1924—between the erstwhile Madras Presidency and Princely State of Mysore. The 802 km Kaveri river has 32,000 sq km basin area in Karnataka and 44,000 sq km basin area in Tamil Nadu.

The state **of Karnataka contends that it does not receive its due share of water from the river as does Tamil Nadu**. Karnataka claims that these agreements were skewed heavily in favour of the Madras Presidency, and has demanded a renegotiated settlement based on "equitable sharing of the waters".

Tamil Nadu, on the other hand, pleads that it has already developed almost 3,000,000 acres (12,000 km2) of land and as a result has come to depend very heavily on the existing pattern of usage. Any change in this pattern, it says, will adversely affect the livelihood of millions of farmers in the state.

The Government of India then constituted a tribunal in 1990 to look into the matter.

After hearing arguments of all the parties involved for the next 16 years, the tribunal delivered its final verdict on 5 February 2007.

In its verdict, the tribunal allocated 419 billion ft^3 (12 km^3) of water annually to Tamil Nadu

and 270 billion ft^3 (7.6 km^3) to Karnataka;

30 billion ft^3 (0.8 km^3) of Kaveri river water to Kerala and

7 billion ft^3 (0.2 km^3) to Pondicherry.

The dispute however, appears not to have concluded, as all four states deciding to file review petitions seeking clarifications and possible renegotiation of the order.

Mid 1870s – 1947 – Pre-independence era

The British controlled both Mysore and Madras in the mid-nineteenth century. During their regime, numerous plans were drawn up for the utilization of the Kaveri waters by both states.

In 1910, both Mysore and Madras planned to construct dams in Kannambadi and Mettur respectively. The British government then, permitted Mysore to build the dam for a reduced storage (11 TMC as opposed to planned 41.5 TMC), but during the construction, the foundation was laid to suit the earlier desired full storage, which resulted in rift from Madras

Mysore (now largely Karnataka)

Madras (now largely **Tamil Nadu**

1947 – 1980s – Post-independence developments

Independence and the reorganization of states in India resulted in new developments in this issue. In 1956, state boundaries were redrawn based on linguistic demographics. These changed the equations as Kerala and Puducherry also jumped into the fray, by claiming their right on one of their tributaries or the main river to some extent.

1990s

The Supreme Court then directed the government to constitute a tribunal and refer all disputes to it. A three man tribunal was thus constituted on 2 June 1990, and following were the demands by the concerned four states

- Karnataka – 465 billion ft^3
- Kerala – 99.8 billion ft^3 (2.83 km^3)
- Puducherry – 9.3 billion ft^3 (0.3 km^3)
- Tamil Nadu – 566 billion ft^3

Tamil Nadu demanded a mandatory injunction on Karnataka for the immediate release of water and other reliefs. Although initially dismissed by the tribunal, on the direction of Supreme Court, it considered TN's plea and released the interim award on 25 June 1991. They did it by calculating the average inflows over a period of 10 years (ignoring the outliers), and it came at a figure of 205 billion ft^3 which Karnataka has to ensure reached TN in a water year, to be dispersed on a monthly basis. Karnataka, again not satisfied with the order, issued an ordinance seeking to annul the award.

2000s

as pointed out before, since there was no clear formula for distress. In the summer of 2002, **things once again came to a stall when monsoon failed in both Karnataka and Tamil Nadu**. **Tamil Nadu demanded that Karnataka honour the interim award and release to Tamil Nadu its** proportionate share. Karnataka on the other hand stated that the water levels were hardly enough to meet its own demands and ruled out releasing any water in the circumstances that prevailed.

CRA and **Supreme Court intervened and ordered Karnataka to release 1.25 billion ft^3 of water every day** (which was reduced to 0.8 billion ft^3). Karnataka obeyed the order for a few days under the pressure of TN and the Supreme Court, but they stopped it again on 18 September

Even though the monsoons were good from 2003-2006, the court proceedings still didn't show any progress.

Finally, the Cauvery Water Disputes Tribunal announced its final verdict on 5 February 2007. According to its verdict, Tamil Nadu gets 419 billion ft^3 (12 km^3) of Kaveri water while Karnataka gets 270 billion ft^3 (7.6 km^3). The actual release of water by Karnataka to Tamil Nadu is to be 192 billion ft^3 (5.4 km^3) annually. Further, Kerala will get 30 billion ft^3 and Puducherry 7 billion ft^3.

As expected, Karnataka protested tribunal final award and observes state-wide bandh on the issue. Bangalore IT professionals protest against the “biased” award of the Cauvery Water Disputes Tribunal.

2010s

On 19 September 2012, Prime Minister Manmohan Singh, who is also the Chairman of the Cauvery River Authority, directed Karnataka to **release 9,000 cusecs of Kaveri water to Tamil Nadu at Biligundlu (the border) daily. But Karnataka felt that this was impractical due to the drought conditions prevailing because of the failed monsoon.**

Karnataka again defied the ruling, and upon TN's and Supreme Court's pressure, they started releasing water which led to wide protests and violence in Karnataka. The drama continued in October, where several Kannada Organisations, under the banner of **"Kannada Okkoota", called** a Karnataka bandh (close down) on 6 October in protest against the Kaveri water release. Finally on 6 December, the supreme court directed Karnataka to release 10,000 cusecs of water to Tamil Nadu.

Finally on 20 February 2013, based on the directions of the Supreme Court, the Indian Government notified the final award of the Cauvery Water Disputes Tribunal (CWDT) on sharing the waters of the Cauvery system among the basin States of Karnataka, Tamil Nadu, and Kerala and Union territory of Puducherry. The final award makes an annual allocation of 419 tmcft to Tamil Nadu in the entire Cauvery basin, 270 tmcft to Karnataka, 30 tmcft to Kerala and 7 tmcft to Puducherry.

tmcft: one thousand million cubic feet

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In a landmark verdict that casts a long shadow on southern politics, Tamil Nadu's share of water from the river Cauvery has been reduced by the Supreme Court and Karnataka will receive a bigger share. Karnataka will now release 177.25 TMC or thousand million cubic feet to Tamil Nadu instead of 192. Karnataka's increased share takes care of the drinking water problems of its capital Bengaluru.

MULTIPURPOSE RIVER VALLEY PROJECTS IN INDIA

- Multipurpose river valley project are basically designed for the development of irrigation for agriculture and electricity through the construction of dams.

- Dams were traditionally built to impound rivers and rainwater that could be used later to irrigate agricultural fields. Today, dams are built not just for irrigation but for:
- electricity generation,
- water supply for domestic and industrial uses,
- flood control,
- recreation,
- inland navigation,
- fish breeding etc.

Multipurpose projects, launched after independence with their integrated water resources management approach, were thought of as the vehicle that would lead the nation to development and progress. But in the recent years, multipurpose projects and large dams have come under great scrutiny for a variety of reasons:

IMPACTS

•Regulating and damming of rivers affects their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir, resulting in rockier stream beds and poorer habitats for the rivers' aquatic life.
•Dams also fragment rivers making it difficult for the aquatic fauna to migrate, especially for spawning.
•The reservoirs that are created on floodplains also submerge the existing vegetation and soil leading to its decomposition over a period of time.
•In geologically unstable areas, development of large dams can destabilise the land. The 2013 Uttarakhand Floods triggered a debate on whether the hydropower projects operational in Uttarakhand were responsible for the floods that killed more than 1000 people.
•Inter-state water disputes are also becoming common with regard to sharing the costs and benefits of the multipurpose projects.

NARMADA RIVER

- Narmada River is one of the longest river in Indian subcontinent, flows entirely within India. It originates from small kund known as Narmada Kund in Amarkantak and draining through the Gulf of Khambhat into the Arabian Sea, near the Bharuch city of **Gujarat**. It is one of only three major rivers that run from east to west, the Tapti River and the Mahi River are the other two.

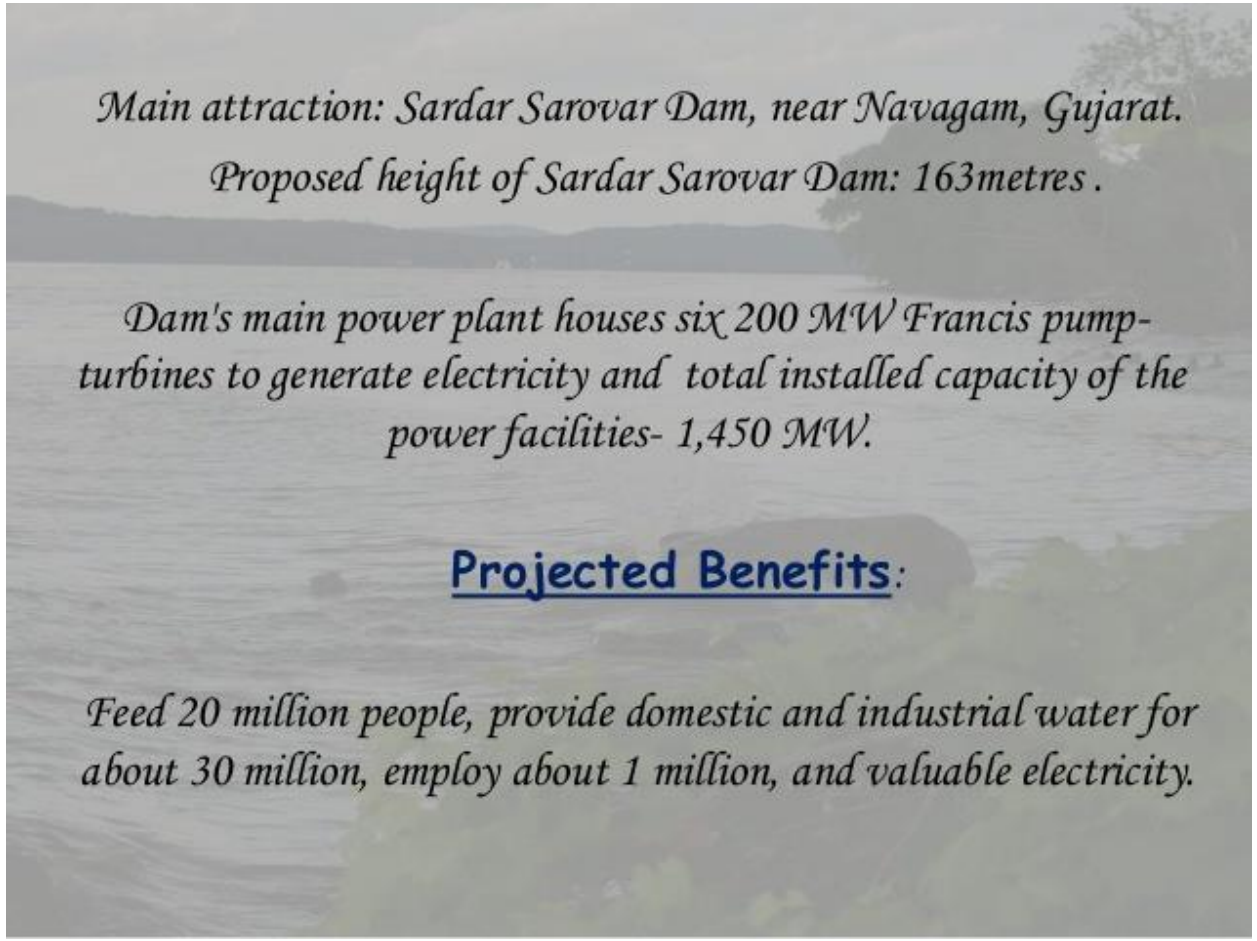
Sardar Sarovar Dam

The Sardar Sarovar Dam is the part of the Narmada Valley Project and one of the Five Biggest Dam of India, located near Songadh in Gujarat. Sardar Sarovar Dam is a 163 meters high gravity dam across the Narmada River with the Installed capacity of 1,450 MW. It is one of the most controversial dam project of India in terms of environmental impact,Height and Rehabilititation.

1979

on 12 December 1979, after ten years of investigation, the decision as given by the tribunal, with all the parties at dispute binding to it, was released by the Indian government.

As per the tribunal's decision, 30 major, 135 medium, and 3000 small dams, were granted approval for construction, including raising the height of the Sardar Sarovar dam



- *Irrigate land spread over 12 districts, 62 talukas and 3393 villages(75% of which is drought prone areas) in 'Gujarat' and 730km2 in the arid areas of 'Barmer' and 'Jalore' districts of Rajasthan*
- *Set against the futures of about 70,000 project affected people.*
- *The ratio of beneficiaries to affected persons 100:1.*
- *In 1987 after construction of dams the injustices of the government's relocation program were exposed.*
- *Consequences: Laid the foundation of "Narmada Bachao Andolan"(NBA) or "Save Narmada Movement"*

Most Powerful Mass Movement

- **Narmada Bachao Andolan-** Social movement (tribal people, *adivasis*, farmers, environmentalists and human rights activists) against the Sardar Sarovar Dam being built across the Narmada river, Gujarat, India.
- Focus of the movement - saving the trees and the fauna, rehabilitation of the poor people living around the area.
- Movement started in **1986** when the World Bank lent India **$450 million** for the Sardar Sarovar project.
- Movement started by a social worker named **Medha Patkar**

Benefits

- Narmada has the potential to supply drinking water to the towns and cities of Gujarat, to irrigate the dry parts of Gujarat.
- To raise agricultural growth rates to high levels over the next decade.
- Provide valuable peak electric power in an area with high unmet power demand.
- It will also provide flood protection.

Advantages

- Considerable revenue for government
- One could expect **production of 1450 MW** of electricity.
- More pure water to meet the needs of about **40 million people** or so from about 1000s of villages and towns.
- Sardar Sarovar dam alone would **irrigate almost 1.8 million hectares** of land in Gujarat and an additional **73,000 hectares** in the dry neighboring state **of Rajasthan**
- Providing potable water to over **8,000 Gujarati villages** and **135 urban centers**

Problems!!

- **Displacement of 2,50,000 people** from their land in three states
- Rehabilitation and resettlement of people
- **Loss** of agricultural land and forest(approx. 37,000 hectares)
- **Destruction** of flora and fauna

Proponents

- Medha Patkar
- Baba Amte
- Dalits and Adivasi (indigenous people).
- Arundhati Roy
- Contributions from art and film world (to mention Aamir Khan)

Medha Patkar, NBA activist

- **"If people like you who consume not more than 40 liters of water a day don't get access to it, then the Governmen has no right to be in power".**

- **Medha Patkar** is one of India's most well-known environmental and human rights activists. As leader and co-founder of **Narmada Bachao Andolan** (Save Narmada Movement), she has been spearheading the movement against the building of the **Sardar Sarovar Dam** on the Narmada river in **Gujarat**, giving particular attention to the rehabilitation of the poor who are being displaced by the project.

How did they do it??

- **60,000 people rally** against destructive development Jan 1990
- **5,000 people marched** on the Narmada Valley Development authority offices forcing them to close
- March 1990 – **10,000 protesters** blocked the highway from Bombay for two days May 1990 – 2,000 people staged a sit-in outside the prime ministers house in Delhi
- Media campaigns

- Christmas Day 1990 – **Long March – 3,000 people walked**, 100km, which took a week to the dam site, once they got there Medha Patkar and 6 others went on **a hunger strike** demanding the government suspend work on the dam and hold an independent review. It lasted 22 days until they broke fast – this made Narmada an international issue.
- garnering support of celebrities from the art and the film world and other such methods

The leading activists of the movement – Medha Patkar and Baba Amte, together received the Right to Livelihood Award in 1991 for their contribution to the **Narmada Bachao Andolan**.