



Sikkim Dam Disaster Raises Concerns for India's Bhutan Hydropower Projects

For Prelims: Teesta-III dam, [Glacial Lake Outburst Flood](#), [National Green Tribunal \(NGT\)](#)

For Mains: Related issues with the Dam Safety, Dams Construction and environmental challenges

Source: [TH](#)

Why in News?

The recent [glacial lake outburst flood \(GLOF\)](#) in Sikkim has washed away the 1200-MW Teesta-III dam.

- The [National Green Tribunal \(NGT\)](#) has issued notices to key stakeholders, including the **National Hydroelectric Power Corporation (NHPC)**, that previously dismissed any GLOF threats.
- The collapse of a dam in Sikkim has raised **concerns over the safety and feasibility of India's hydroelectric projects in Bhutan**, which are vital for meeting the energy needs of both countries.

Why Did NGT Issue Notices to Teesta-III Dam Stakeholders?

- The NGT has summoned three pivotal stakeholders (the Sikkim government, Sikkim Urja Limited (responsible for Teesta-III), and NHPC) to address the situation.
- NHPC had **previously downplayed the risk of GLOFs in the region**.
- In 2014, when NHPC's 520 MW Teesta-IV project faced a challenge to its **environmental clearance**, NHPC, in an affidavit to the NGT, said that projects below **Chungthang (Teesta-III)** faced no threat from GLOFs.
 - Apparently convinced, the NGT dismissed the appeal against Teesta-IV's environment clearance in 2017.

What is the National Green Tribunal (NGT)?

- **About:**
 - NGT is a specialized body set up under the **National Green Tribunal Act, 2010** for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
 - NGT has five places of sitting: **New Delhi (principal bench), Bhopal, Pune, Kolkata and Chennai**.
- **Structure:**
 - The Tribunal comprises the **Chairperson, the Judicial Members and Expert Members**.
 - The Chairperson is appointed by the Central Government in consultation with the [Chief Justice of India \(CJI\)](#).
 - A Selection Committee shall be formed by the central government to appoint the

Judicial Members and Expert Members.

- The total number of members in **NGT should not be less than 10 and not more than 20**. Each member holds **office for five years or until they attain the age of 70 years**, whichever is earlier and are not eligible for reappointment.

▪ **Powers and Functions:**

- It has the power to hear cases relating to various environmental laws, such as the [Water Act, 1974](#); the [Environment Protection Act, 1986](#); the [Forest Conservation Act, 1980](#); the [Biological Diversity Act, 2002](#); etc.
- It has the power to issue orders, directions or writs for enforcing any legal right relating to the environment or preventing or remedying any environmental damage.
 - It has the power to award relief or compensation to the victims of environmental harm or pollution.
 - It has the power to review its own decisions or orders.

What are the Key Facts about Teesta River and Teesta-III Dam?

▪ **Teesta River:**

- **Teesta river** is a tributary of the [Brahmaputra \(known as Jamuna in Bangladesh\)](#), flowing through India and Bangladesh.
- It originates in the [Himalayas](#) near Chunthang, Sikkim and flows to the south through West Bengal before entering Bangladesh.
 - Originally, the river continued southward to empty directly into the Padma River (main channel of [Ganga](#) in Bangladesh) but around 1787 the river changed its course to flow eastward to join the Jamuna river.
- Teesta river water conflict is one of the most contentious issues between India and Bangladesh.
- **Tributaries:** Zemu Chhu, Rangyong Chhu, Rangit River, Lachung Chhu, Chakung Chhu.

//

The Ganges-Brahmaputra Basin



▪ **Teesta-III Dam:**

- It is a **hydroelectric project built on the Teesta River** in Chunthang, Sikkim. India. It has an installed capacity of 1,200 MW. The dam was the highest in Sikkim.
- **Impact of the GLOF in Sikkim:**
 - The GLOF that occurred in Sikkim washed away the **1200-MW Teesta-III** and

caused severe damage to NHPC projects downstream, including the **510 MW Teesta-V and the under-construction 500 MW Teesta-VI.**

How Does Sikkim's Dam Disaster Affect India's Hydropower Projects in Bhutan?

- The Sikkim dam disaster raises significant concerns about the safety and viability of India's ongoing hydropower projects in Bhutan.
- The dam collapse has cast a shadow over two of three India-assisted, under-construction mega hydropower projects in Bhutan — the 1,200 MW **Punatsangchhu Stage-I (Puna-I) and the 1,020 MW Punatsangchhu Stage-II (Puna-II) on Punatsangchhu River.**
- These projects are part of a **2006 agreement between India and Bhutan to develop 10,000 MW of hydropower by 2020**, which was later **revised to 2027.**
- These projects are expected to **provide cheap and clean electricity to India**, which has a power deficit of about 10%, as well as generate revenue for Bhutan, which earns more than half of its GDP from hydropower exports to India.
- However, **these projects have also faced delays and cost overruns** due to geological challenges, technical issues and environmental concerns.
- Bhutan's Prime Minister, acknowledges the need to reevaluate the geological surveys.

Way Forward

- **Strengthen Safety Protocols:** Enhance safety measures and perform rigorous geological assessments for ongoing and future hydropower projects.
- **Collaborative Efforts:** India and Bhutan should work together to reevaluate geological surveys, possibly with the involvement of international experts.
- **Technical Expertise:** Invest in building technical expertise in addressing glacial lake outburst floods (GLOFs) and incorporate this knowledge into project planning.
- **Environmental Impact Studies:** Conduct comprehensive environmental impact studies for hydropower projects in ecologically sensitive areas like the Himalayas.
- **Regular Review:** Establish a framework for regular reviews and assessments of ongoing projects, ensuring lessons from past incidents are considered.

UPSC Civil Services Examination, Previous Year Question

Q. With reference to river Teesta, consider the following statements: (2017)

1. The source of river Teesta is the same as that of Brahmaputra but it flows through Sikkim.
2. River Rangeet originates in Sikkim and it is a tributary of river Teesta.
3. River Teesta flows into Bay of Bengal on the border of India and Bangladesh.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Ans: (b)

