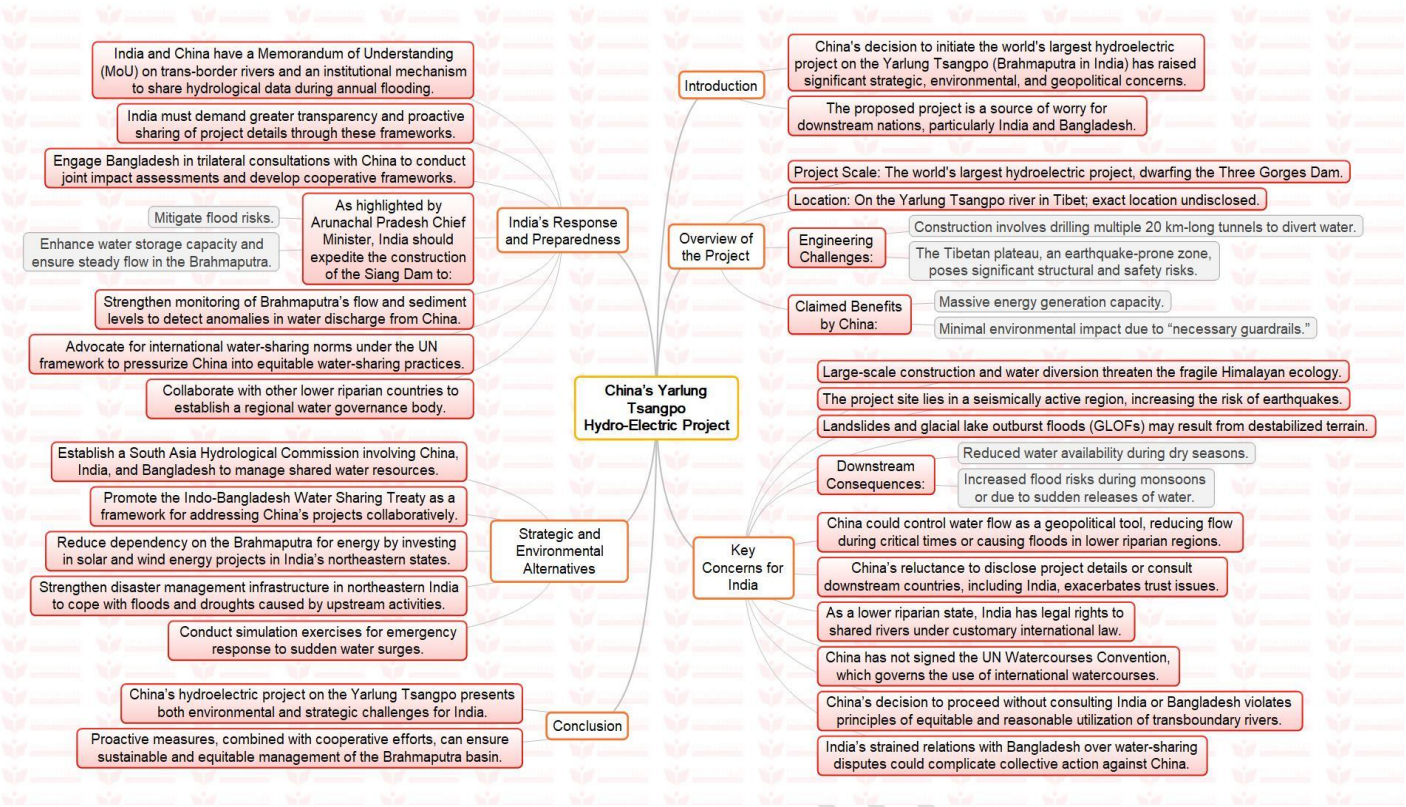

General Studies-2; Topic: India and its neighbourhood- relations.

China's Yarlung Tsangpo Hydro-Electric Project

Introduction

- China's decision to initiate the world's largest hydroelectric project on the **Yarlung Tsangpo** (Brahmaputra in India) has raised significant strategic, environmental, and geopolitical concerns.
- The proposed project is a source of worry for downstream nations, particularly India and Bangladesh.

Overview of the Project

- **Project Scale**: The world's largest hydroelectric project, dwarfing the Three Gorges Dam.
- **Location**: On the Yarlung Tsangpo river in Tibet; exact location undisclosed.
- **Engineering Challenges**:
  - Construction involves drilling multiple 20 km-long tunnels to divert water.
  - The Tibetan plateau, an earthquake-prone zone, poses significant structural and safety risks.
- **Claimed Benefits by China**:
  - Massive energy generation capacity.
  - Minimal environmental impact due to "necessary guardrails."

Key Concerns for India

- Large-scale construction and water diversion **threaten the fragile Himalayan ecology**.
- The project site lies in a seismically active region, increasing the **risk of earthquakes.**
- **Landslides and glacial lake outburst floods (GLOFs)** may result from destabilized terrain.
- **Downstream Consequences**:
  - Reduced water availability during dry seasons.
  - Increased flood risks during monsoons or due to sudden releases of water.
- China could control water flow as a geopolitical tool, **reducing flow during critical times or causing floods in lower riparian regions.**

- China's reluctance to disclose project details or consult downstream countries, including India, **exacerbates trust issues.**
- As a lower riparian state, India has legal rights to shared rivers under customary international law.
- **China has not signed the UN Watercourses Convention**, which governs the use of international watercourses.
- China's decision to proceed without consulting India or Bangladesh violates principles of equitable and reasonable utilization of transboundary rivers.
- India's strained relations with Bangladesh over water-sharing disputes could complicate collective action against China.

India's Response and Preparedness

- India and China have a **Memorandum of Understanding (MoU)** on trans-border rivers and an institutional mechanism to share hydrological data during annual flooding.
- **India must demand greater transparency and proactive sharing of project details** through these frameworks.
- **Engage Bangladesh in trilateral consultations with China** to conduct joint impact assessments and develop cooperative frameworks.
- As highlighted by Arunachal Pradesh Chief Minister, India should expedite the construction of the **Siang Dam** to:
    - Mitigate flood risks.
    - Enhance water storage capacity and ensure steady flow in the Brahmaputra.
- Strengthen monitoring of Brahmaputra's flow and sediment levels to detect anomalies in water discharge from China.
- Advocate for **international water-sharing norms** under the UN framework to pressurize China into equitable water-sharing practices.
- **Collaborate with other lower riparian countries** to establish a **regional water governance body**.

Strategic and Environmental Alternatives

- Establish a **South Asia Hydrological Commission** involving China, India, and Bangladesh to manage shared water resources.
- Promote the **Indo-Bangladesh Water Sharing Treaty** as a framework for addressing China's projects collaboratively.
- **Reduce dependency on the Brahmaputra for energy** by investing in solar and wind energy projects in India's northeastern states.
- Strengthen disaster management infrastructure in northeastern India to cope with floods and droughts caused by upstream activities.
- Conduct simulation exercises for emergency response to sudden water surges.

Conclusion

- China's hydroelectric project on the Yarlung Tsangpo presents both environmental and strategic challenges for India.
- Proactive measures, combined with cooperative efforts, can ensure sustainable and equitable management of the Brahmaputra basin.