Environment & Ecology · GS - III

Large hydropower projects in the Eastern Himalayas involve a complex trade-off between energy security, strategic interests, ecological sustainability and the rights of indigenous communities. Critically examine with reference to the proposed Siang Upper Multipurpose Project.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 21/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Himalayan hydropower, Siang-Brahmaputra river system, renewable energy, strategic significance, seismic vulnerability, biodiversity, indigenous rights, cultural heritage, Gram Sabha consultation, environmental impact assessment, rehabilitation and disaster resilience.

Model Answer

Introduction

The proposed 11,200 MW Siang Upper Multipurpose Project in Arunachal Pradesh highlights the strategic and developmental importance of Himalayan hydropower alongside concerns regarding ecological fragility and community rights.

Potential Benefits

1. **Energy security:** Hydropower can provide renewable electricity and support grid stability.
2. **Strategic importance:** Infrastructure development in border regions can strengthen connectivity and regional preparedness.

3. **Economic development:** Construction, employment and infrastructure investment can benefit local communities.
4. **Water management:** Multipurpose infrastructure may contribute to flood moderation and water-resource management, subject to project design.

Major Concerns

- **Ecological vulnerability:** Large dams can alter river flows, sediment transport and aquatic biodiversity.
- **Seismic risks:** The Eastern Himalayas are highly tectonically active, requiring rigorous geological and seismic assessment.
- **Indigenous rights:** Land acquisition and displacement may affect customary land rights, livelihoods and cultural practices.
- **Cumulative impacts:** Multiple projects across a river basin can intensify ecological and downstream risks.

Way Forward

Project planning must ensure transparent environmental and social impact assessments, meaningful consultation with affected communities, protection of customary rights, fair rehabilitation and independent disaster-risk evaluation. Alternatives with lower ecological footprints should also be assessed.

Conclusion

National development and strategic security must be pursued without compromising ecological integrity or indigenous rights. A participatory, science-based and basin-level approach is essential for sustainable Himalayan infrastructure.

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