Environment & Ecology · GS - III

Examine the ecological and socio-cultural concerns associated with mega-hydropower projects in ecologically sensitive regions such as Arunachal Pradesh. Suggest measures to balance energy development with indigenous community rights and environmental sustainability.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 06/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~ 150 words

Answer Hint

Ecological impacts of dams, riverine biodiversity, displacement of indigenous communities, cultural heritage, environmental impact assessment, Gram Sabha participation, community consent, sustainable hydropower planning.

Model Answer

Introduction

Hydropower contributes to renewable energy generation and energy security. However, large dam projects in ecologically sensitive regions can create significant environmental and social challenges.

Ecological Concerns

Dams alter natural river flows, sediment transport and aquatic habitats. They may obstruct fish migration, affect biodiversity and increase risks associated with landslides and reservoir-induced environmental changes.

Socio-cultural Concerns

Indigenous communities may face displacement, loss of traditional livelihoods and disruption of sacred landscapes and cultural heritage. Opposition often reflects concerns about inadequate consultation and unequal distribution of project benefits.

Way Forward

Environmental impact assessments should examine cumulative impacts of multiple projects across entire river basins. Gram Sabha participation, recognition of forest rights, transparent public hearings and fair rehabilitation must be ensured. Authorities should consider ecological flow requirements, biodiversity protection and alternative energy options.

Conclusion

Hydropower development must follow a rights-based and ecosystem-centred approach. Energy security and economic growth should be pursued without undermining indigenous livelihoods, cultural heritage and ecological integrity.

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