# Environment & Ecology · GS - III

**Examine the environmental challenges associated with infrastructure development in fragile Himalayan ecosystems.**

| EXAM YEAR | PAPER | SUBJECT |
|---|---|---|
| DAILY PRACTICE 24/11/2026 | GS - III | Environment & Ecology |

| MARKS | WORD LIMIT |
|---|---|
| 15 | ~250 words |

## Answer Hint

**Himalayan ecology, slope instability, biodiversity loss, sedimentation, road connectivity, environmental impact assessment, sustainable development**

## Model Answer

### Introduction

The Himalayas provide vital ecosystem services, including water security, biodiversity conservation and climate regulation. However, their fragile geology and ecological sensitivity make infrastructure development particularly challenging.

### Major Environmental Challenges

1. **Slope instability:** Excavation, blasting and unplanned road cutting can weaken mountain slopes, increasing landslide susceptibility.
2. **Hydrological disruption:** Alteration of natural drainage channels can accelerate runoff, erosion and sedimentation in rivers and high-altitude lakes.
3. **Biodiversity loss:** Construction can fragment habitats and disturb sensitive wildlife and aquatic ecosystems.
4. **Cumulative impacts:** Multiple roads, tourism facilities and associated activities can collectively exceed local ecological carrying capacity.

5. **Disaster vulnerability:** Infrastructure poorly adapted to extreme rainfall, earthquakes and glacial hazards can increase disaster-related risks.

## Measures for Sustainable Development

1. Conduct rigorous environmental and geological assessments before approving projects.
2. Adopt slope-sensitive engineering, effective drainage and scientific muck disposal.
3. Protect wetlands, lake catchments and ecologically sensitive zones.
4. Strengthen monitoring through local communities, scientific institutions and environmental agencies.
5. Integrate carrying-capacity assessments into pilgrimage and tourism management.

## Conclusion

Himalayan infrastructure is essential for connectivity, livelihoods and strategic needs, but development must remain ecologically informed. A landscape-based approach can reconcile infrastructure requirements with long-term environmental security.

BECOME IAS
AI POWERED UPSC PREP