Environment & Ecology · GS - III

Examine the ecological significance of the precautionary principle in regulating infrastructure development in fragile Himalayan regions.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 26/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Precautionary principle, fragile ecosystems, alpine biodiversity, environmental impact assessment, carrying capacity, sustainable pilgrimage, intergenerational equity

Model Answer

The Himalayas are ecologically sensitive because of their fragile geological formations, steep slopes, rich biodiversity and dependence on glacial and seasonal water systems. Infrastructure expansion in these regions can create environmental consequences that are difficult to reverse.

Significance of the Precautionary Principle

The precautionary principle requires preventive action where there is a credible threat of serious or irreversible environmental damage, even if complete scientific certainty is unavailable. It shifts environmental governance from damage control towards risk prevention.

1. **Protection of biodiversity:** Restricting unnecessary construction helps conserve alpine habitats, endemic species and ecological corridors.
2. **Geological stability:** Road cutting, blasting and slope modification can increase landslides, erosion and sedimentation.
3. **Hydrological security:** Construction near lakes, streams and glaciers can disturb natural drainage and affect downstream water systems.

4. **Control of tourism pressure:** Improved accessibility without carrying-capacity assessment may increase waste, pollution and pressure on fragile landscapes.

Governance and Developmental Balance

The Supreme Court's environmental jurisprudence, including the precautionary principle and public trust doctrine, provides an important basis for preventive environmental protection.

However, ecological safeguards need not imply complete abandonment of infrastructure development. Authorities should prioritise existing road maintenance, environmentally sensitive transport, scientific slope stabilisation and rigorous environmental assessment.

Pilgrimage management should incorporate visitor limits where scientifically justified, waste-treatment facilities, emergency services and continuous ecological monitoring.

The Sheshnag Lake issue highlights the need to reconcile religious access and regional development with ecological limits. In fragile Himalayan landscapes, preventing irreversible damage must remain central to infrastructure planning.

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