

Himalayan ecology and Char-Dham project

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Manifest pedagogy: Development and environmental conservation for a developing country is dichotomous. Striking the right balance is the key to success. This is an important area of preparation in mains. Current issues based on such dichotomy may be expected.

In news: A High powered committee has been constituted to study the impact of Chardham project on Himalayan ecology.

Placing it in syllabus: Important geographical features

Static dimensions:

- Himalayan ecology
- Threats to Himalayan ecology
- Development projects in Himalayas and its impact
- Environmental impact assessment

Current dimensions:

- Charm dham project
- Recent judgement

Content: Recently Supreme Court ordered the setting up of an independent committee to take a view on whether the Centre's ambitious 900 kilometre, ₹12,000 crore ambitious Char Dham project to improve road network connecting pilgrimage spots in Uttarakhand, needs to be "revised" to minimise its ecological damage.

Himalayan ecology:

The ecology of the Himalayas varies with climate, rainfall,

altitude, and soils. This diverse conditions support a variety of distinct plant and animal species.

On the Indo-Gangetic plain at the base of the mountains, an **alluvial plain** exists drained by the Indus and Ganges-Brahmaputra river systems. The **Northwestern thorn scrub forests** occupy the plains of Pakistan and the Indian Punjab. Further east lies the Upper Gangetic plains with **moist deciduous forests** of Uttarakhand and Uttar Pradesh and the Lower Gangetic plains with moist deciduous forests of Bihar and West Bengal. The Brahmaputra Valley has **semi-evergreen forests** which occupy the plains of Assam.

Above the alluvial plain lies the **Terai strip, a seasonally marshy zone of sand and clay soils**. The central part of the Terai belt is occupied by the **Terai-Duar savanna and grasslands**, a mosaic of grasslands, savannas, deciduous and evergreen forests that includes some of the world's tallest grasslands. Above the Terai belt is an upland zone known as the **Bhabhar, a zone of porous and rocky soils** made up of debris washed down from the higher ranges.

The Himalayan **subtropical pine forests** occupy the western end of the subtropical belt, with forests dominated by Chir Pine. The central part of the range is home to the Himalayan **subtropical broadleaf forests**.

Shivalik Hills is an intermittent outermost range of foothills extending across the Himalayan region through Pakistan, India, Nepal and Bhutan. supporting only **scrubby forests** upslope. The Inner Terai valleys are open valleys nestled between **Shivalik subranges called duns**. E.g DehraDun of Uttarakhand. Himalayan subtropical broadleaf forests grow here.

Lesser Himalayas is a prominent range 2,000 to 3,000 meters (6,600 to 9,800 ft) high formed along the Main Boundary Thrust fault zone. At the middle elevations of the range, the subtropical forests yield to a belt of **temperate broadleaf and**

mixed forests growing between 1,500 and 3,000 meters (4,900 and 9,800 ft), with the western Himalayan broadleaf forests to the west of the Gandaki River, and the eastern Himalayan broadleaf forests to the east.

Midlands form the 'hilly' region (Pahad), averaging about 1,000 meters immediately north of the Mahabharat Range, rises to about 4,000 meters. Above the broadleaf forests, between 3,000 and 4,000 meters are **temperate coniferous forests**. Along the border between Arunachal Pradesh and Tibet, the eastern **subalpine conifer forests** mix with the northeastern Himalayan subalpine conifer forests. East Himalayan Fir, West Himalayan Spruce, and Himalayan Hemlock are some important trees of these forests.

Alpine tundra lies above treeline. The areas above natural treeline is chiefly composed of annuals, which is differentiated into alpine grasslands and meadows. The steep slopes are mainly predominated by grasses whereas the meadows are dominated by herbaceous species. The shrublands are composed of junipers as well as a wide variety of rhododendrons. They also possess a remarkable variety of wildflowers. E.g Valley of Flowers National Park, Uttarakhand.

Threats to Himalayan ecology:

- Greater access to the global market has increased the demand for natural resources in the area.
- The steadily increasing population in the hotspot has led to extensive clearing of forests and grasslands for cultivation, and widespread logging on extremely steep slopes, resulting in severe erosion.
- The use of fire to clear land poses an additional threat to forest land, as fires sometimes spread out of control.
- The conversion of forests and grasslands for agriculture and settlements has led to large-scale deforestation and habitat fragmentation in Nepal, and in the Indian states

of Sikkim, Darjeeling, and Assam.

- Overgrazing by domestic livestock, including cattle and domesticated yak, is widespread in the lowlands and alpine ecosystems.
- The flora of fragile alpine meadows has been overexploited for traditional medicine.
- Fuelwood collection and non-timber forest product extraction, both for domestic consumption and export, has inflicted severe damage to some forest ecosystems.
- Unplanned and poorly managed tourism has led to environmental deterioration.
- Poaching is a serious problem in the Himalaya Mountains, with the Tiger and Greater One-horned rhinoceros hunted for their body parts for traditional Chinese medicine, while the Snow Leopard and Red Panda are sought for their beautiful pelts.
- Other threats include mining, the construction of roads and large dams, and pollution from agrochemicals.

Impact of developmental projects in Himalayas:

Himalayas are the world's youngest mountain range. They are prone to erosion, landslides and seismic activity and rainstorms lashed the region. Therefore, this region is vulnerable and fragile.

There is a clear link between climate change and changing rainfall patterns in the Himalayas. Scientists are now certain that rainfall in India will become more extreme. There are higher possibilities of **cloudbursts and "unprecedented" high rainfall** over the region.

There is a **link between the disaster** and the manner in which **"development"** has been carried out in this ecologically fragile region. E.g hydropower projects. Currently, there are roughly 70 projects built or proposed on the Ganga. Hence the river would be modified through diversion to tunnels or reservoirs to such an extent that 80 per cent of the

Bhagirathi and 65 percent of the Alaknanda could be “affected”.

The construction itself would have devastating impacts on the mountains – because of blasting to build tunnels and barrages. Also construction is carried out without the necessary precautions, thus the risk of landslides increases. The situation is the same when it comes to the building of roads, buildings or mining for minerals. Cases of illegal mining and construction are becoming familiar.

Tourism is being considered as the major engine driving the economy of Himalayan states which has provided valuable economic and livelihood opportunities to the locals and profits for the state governments. On the other hand, air and noise pollution, overbooked hotels, increasing and unregulated tourist footfall, urbanization, haphazard infrastructure non-availability of parking places, and local water and energy security are becoming recurrent problems.

Over exploitation of natural resources, food insecurity, ill-planned urbanization, loss of indigenous culture, natural disasters, increase in municipal sewage are impacting the Himalayan ecology. Cold climate in the mountains also restricts faster decomposition of garbage, thus often leading to their draining into rivers.

This contaminates aquatic life downstream and degrades the quality of the river water on which depends a large population. Places like Shimla are already battling with water crisis and outbreak of waterborne hepatitis because of improper sewage and garbage management

Chardham project and recent judgement:

- The project proposes the widening of single lane roads into double lanes by up to 10 metres (880-km all-weather roads) developing highways in Uttarakhand and thereby improving access to the **Char Dham (four shrines)** –

Yamunotri, Gangotri, Badrinath and Kedar Nath and part of the route leading to Kailash Mansarovar yatra.

- The total cost of the project is estimated at Rs 11,700 crore.
- The project was earlier scheduled to be completed by March 2020.
- Seven stretches have been identified for development under the Char Dham highway project.
- All of these four sites are devoted to a specific deity. Gangotri is dedicated to the Goddess Ganga, Yamunotri is dedicated to the Goddess Yamuna, Kedarnath is dedicated to Lord Shiva and is one of the 12 jyotirlingas and Badrinath, is dedicated to Lord Vishnu.



- The project evoked widespread concern among environmentalists and has been challenged in the courts.
- Environmentalist groups, led by the Dehradun-based Citizens for Green Doon, had filed petitions last February in the **National Green Tribunal (NGT)** contending that the project was proceeding without environmental clearances and debris was being disposed haphazardly.
- The fragile Himalayan hills slopes were being cut open indiscriminately and the project posed an environmental threat.
- On September 26, 2018, the NGT ruled that an environmental clearance wasn't required and allowed the project to proceed but with several caveats.
- But it stated the project would cause irreversible damage to regional ecology.
- A seven-member committee of experts led by a former judge of the Uttarakhand court was to ensure that an environmental management plan would be in place and properly adhered to.
- Supreme Court on technical grounds stayed the NGT nod for the project.

- On August 8, 2019, the Supreme court backed portions of the Tribunal's order allowing the project to continue **with assessment by an independent committee.**

Judgement:

- The order has modified portions of the earlier NGT order regarding the constitution of the High Powered Committee (HPC).
- Instead of being headed by a judge, it would be led by Ravi Chopra, Director of the Dehradun People's Science Institute.
- It would also have representatives from the Department of Space, the Wildlife Institute of India, Dehradun, and a representative from the Ministry of Defence.
- Mr. Chopra has been strongly critical of the Char Dham project because of the likely impact of large hydropower projects and constructions on the Himalayan ecology.
- The Chopra committee is expected to make assessments and give recommendations to the Road Transport Ministry within four months.
- It would consider the "**cumulative and independent impact**" of the Char Dham project on the Himalayan ecology.
- The HPC will give directions to conduct an Environmental Impact Assessment (EIA) by the Ministry of Road Transport and Highways (MoRTH).

Environmental impact assessment (EIA):

EIA can be defined as the study to predict the effect of a proposed activity/project on the environment. A decision making tool, EIA compares various alternatives for a project and seeks to identify the one which represents the best combination of economic and environmental costs and benefits.

EIA systematically examines both beneficial and adverse consequences of the project and ensures that these effects are

taken into account during project design. It helps to identify possible environmental effects of the proposed project, proposes measures to mitigate adverse effects and predicts whether there will be significant adverse environmental effects, even after mitigation is implemented.

Environmental assessment has many benefits, such as protection of environment, optimum utilisation of resources and saving of time and cost of the project. Properly conducted EIA also lessens conflicts by promoting community participation, informing decision makers, and helping lay the base for environmentally sound projects.



The petition in Chardham project claimed that it violated the EIA notification, 2006 and the ongoing construction work was “blatantly illegal”. MoEF uses **Environmental Impact Assessment Notification 2006** as a major tool for minimizing the adverse impact of rapid industrialization on the environment and for reversing those trends which may lead to climate change in the long run.

EIA 2006 was issued on 14th September 2006, in supersession of EIA 1994, except in respect of things done or omitted to be done before such supersession. The Notification is issued under relevant provisions of the Environment (Protection) Act, 1986.

During the hearing, the MoRTH told NGT that as per the EIA notification, construction on highways less than 100 km do not require environmental clearance. The government conveniently segregated the project into 57 parts, making each part less than 100 km. Clearly, the segregation was done to circumvent the EIA process. The bench criticised the government for its action and ordered a stay on tree felling. It also asked the ministry and the state government to file affidavits regarding dumping of debris.