ISSUES OF UNSUSTAINABLE DEVELOPMENT IN HIMALAYAS - GS I AND III MAINS

Q. Enumerate the factors contributing to the devastation of the Indian Himalayan Region and suggest measures to bring out sustainable development of the region. (15 marks, 250 words)

News: *90% of Himalayas face year-long drought at 3 degrees global warming: study*

What's in the news?

- About 90% of the Himalayan Region will experience drought lasting over a year if global warming increases by 3 degrees Celsius, according to new research.

Key takeaways:

- It is a well-known fact that the **Indian Himalayan Region (IHR)** serves as both India's water tower and a vital provider of ecosystem goods and services. Despite this knowledge, there has always been a disconnect between specific development needs and the development paradigm advocated by the IHR.
- As the region's economy is dependent on the health and well-being of its natural resources, plundering them in the name of growth will almost certainly lead to the IHR's financial catastrophe.

Significance of the Himalayas:

- The IHR includes some of the world's highest peaks, including Kanchenjunga.
- The IHR, often known as India's "water tower," is the source of several important rivers, including the Ganges, Yamuna, Brahmaputra, and their tributaries.
- The region is critical to sustaining ecological balance and biodiversity and is home to a diverse flora and fauna, including several endemic and endangered species.
- It has various national parks, wildlife sanctuaries, and biosphere reserves, including Valley of Flowers National Park and Nanda Devi National Park.
- The IHR affects the Indian subcontinent's temperature and weather patterns by acting as a barrier to cold winds from Central Asia and influencing monsoon patterns.

Environmental Concerns in IHR:

1. Climate Change and Glacial Melting:

- Global warming is causing the Himalayan glaciers to melt fast, limiting the availability of water resources downstream.
- Changes in temperature and precipitation patterns destabilize local climates, affecting agriculture and livelihoods.

2. Soil Erosion and Landslides:

- Deforestation, uncontrolled development, and overgrazing all contribute to soil erosion.

- Landslides are common in the region, particularly during the monsoon season, inflicting property and infrastructure damage as well as fatalities.
- In 2021, glacial outburst floods created a major landslide in Uttarakhand's Chamoli area, causing enormous devastation to life and infrastructure.

3. Water Scarcity and Pollution:

- Many sections of the IHR confront water scarcity as springs and streams dry up.
- Pollution from agricultural runoff, untreated sewage, and industrial effluents damage water sources, endangering human health and ecosystems.

4. Developmental Projects:

- The development of several hydroelectric power plants damages river ecosystems, depletes fish populations, and uproots local inhabitants.
- Infrastructure developments frequently disregard environmental standards, resulting in ecological harm and increased disaster risks.

5. Air Pollution:

- Increased vehicle emissions, industrial operations, and biomass burning all contribute to poor air quality.
- The hilly environment can trap pollutants, causing health difficulties for people and reducing visibility.

6. Deforestation and Habitat Loss:

- Over 10,000 plant species, 300 mammal species, and 1,000 bird species call the IHR home, with many of them categorized as endangered.
- Large-scale deforestation for agricultural, urban, and infrastructure developments destroys habitats and reduces biodiversity.

Measures to Develop Sustainable Development in IHR:

1. Climate Resilient Infrastructure:

- Adopt earthquake, landslide, and flood-resistant construction codes and practices.
- Invest in green infrastructure like permeable pavements, green roofs, and bioswales to help manage rainwater and prevent urban heat islands.

2. Integrated Land Use Planning:

- Develop land use plans that clearly define zones for conservation, agriculture, residential, and industrial uses.
- Use GIS and remote sensing to effectively plan land use and monitor environmental changes.

3. Water Resource Management:

- Encourage the establishment of rainwater collection devices in both cities and rural regions.

- Restore and manage springsheds to preserve the long-term viability of water sources for local people.

4. Forest Conservation:

- Launch large-scale reforestation efforts to rehabilitate degraded land and increase biodiversity.
- Enable local communities to manage and safeguard forest resources through collaborative forest management programs.

5. Sustainable Agriculture:

- Encourage organic farming practices to reduce chemical use and preserve soil health.
- Develop micro-hydropower projects that have less environmental impact than huge dams. Integrate trees and shrubs into agricultural systems to increase biodiversity, reduce erosion, and boost crop yields.

6. Eco-Friendly Tourism:

- Conduct carrying capacity studies to limit the number of tourists while minimizing environmental effect.
- Create eco-tourism initiatives that encourage sustainable practices while providing economic benefits to local communities.

7. Monitoring and Research:

- Set up effective environmental monitoring systems to track changes and evaluate the effects of development operations.
- Support research projects that focus on sustainable development strategies, climate change adaptation, and biodiversity conservation.

8. Education and Awareness:

- India and other affected countries educational curricula should include fundamental knowledge of Himalayan geology and ecology.
- When children learn about their surroundings, they will feel more connected to the land and more conscious of its pulse.

In lieu of the recent Supreme Court decisions and the recognition of the fundamental right to be protected from the negative effects of climate change, it is critical that people, particularly those in the Indian Himalayan Region (IHR), have access to a sustainable development model that is consistent with the region's ecological carrying capacity. The route forward should not only protect the environment, but also promote the long-term prosperity and well-being of IHR communities, with a focus on balancing development and environmental sustainability.