REFERENCE NEWS:

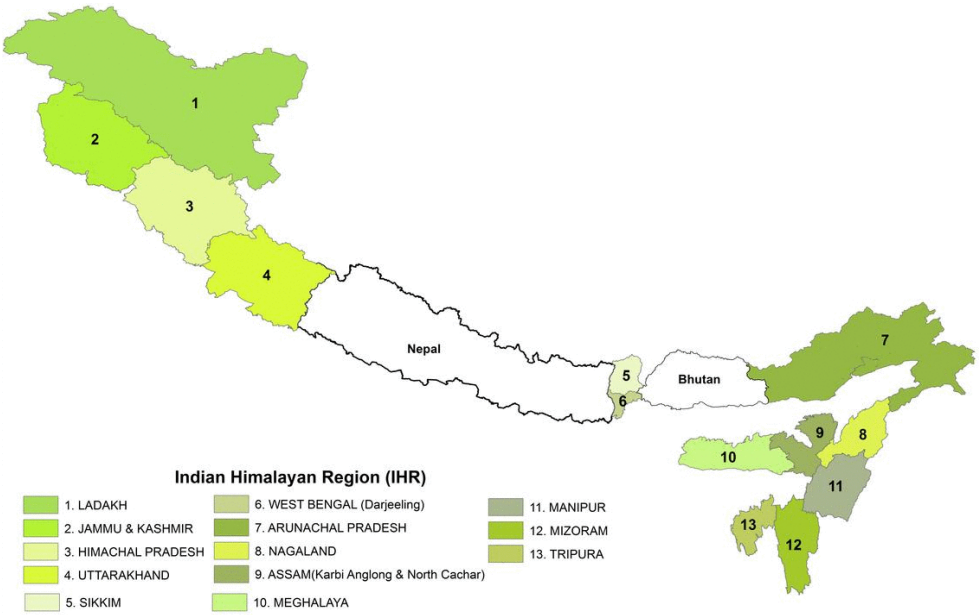
- Recently, an under-construction tunnel of the Char Dham all-weather highway project on the Yamunotri National Highway in Uttarakhand's Uttarkashi district collapsed, trapping 40 workers inside.

Char Dham project:

- Char Dham Expressway National Highway is a proposed **two-lane (in each direction)** express National Highway with a minimum **width of 10 metres in the state of Uttarakhand.**
- The proposed highway will **connect the four holy places of Chota chardham (**Yamunotri, Gangotri, Kedarnath, and Badrinath) in Uttarakhand **with nearly 900-km all-weather roads** .
- The places connected under the project will include **Badrinath, Kedarnath, Champawat, Pithoragarh, Gangotri and Yamunotri.**

ABOUT HIMALAYAN REGION:

- The Himalayas are **very fragile and the youngest mountain** chain on Earth, and these mountains are **still active.**
- They represent a highly **complex and diversified system** both in terms of biological and physical attributes**.** The region has a **discrete geographic and ecological entity**.
- It produces a distinctive climate of its own and influences the climate of much of Asia
- The Himalayan ecosystem is vital to the ecological security of the Indian landmass, through providing **forest cover, feeding perennial rivers** that are the source of **drinking water, irrigation, and hydropower, conserving biodiversity,** providing a rich base for high value agriculture, and spectacular **landscapes for sustainable tourism.**



IMPORTANCE OF DEVELOPMENTAL PROJECTS IN THE HIMALAYAN REGION:

- **Energy:**
    - The Himalayan region is a **hydropower hotspot**.
    - Exploitable **hydropower potential in India** has been estimated at about **84 GW.** The bulk of this potential lies in the Indian Himalayan states of **Arunachal Pradesh** (**26.76 GW**), **Himachal Pradesh** (**20.63 GW**), and **Jammu and Kashmir (7.49 GW).**
    - So, the con**struction of hydroelectric power stations** in the region is **crucial for the energy security of India**. At present almost **52% of hydropower in the country is dependent on the water from rivers originating in Himalaya.**
    - Also, hydropower is considered a **key to reducing poverty and promoting industrial growth** in the Himalayan region, as well as a way to mitigate and adapt to climate change **as a clean energy source.**
    - **India-Nepal Partnerships in Hydropower:**
- Nepal's significant hydroelectric potential remains underutilized despite its extensive Himalayan rivers. **India**, seeking to boost its economy and energy security**, is investing in Nepal's hydro sector**, with recent collaborations like the USD 1.3 billion **Lower Arun Hydropower Project.**
- **Infrastructure and connectivity:**
- **Socio-economic significance:**
- The new roads and connectivity projects **offer locals a new chance for livelihood and health** by bringing them **closer to bigger markets and medical facilities.**
- For example, tunnels under construction such as the **Z Morh and Zojila tunnels** will provide **seamless connectivity to Ladakh, Jammu and Kashmir during the extreme snowfall** in winter season.
- Extensive road network in the Himalayan region will **help in boosting the tourism sector in the region.**
- For example, **Char Dham highway project** will lead to **creation of over 900 km of roads**. Tourism will get a strong boost through the project.
- **Strategic significance:**
- Improved **connectivity across the Himalayan states** is a significant part of India’s **broader push for border infrastructure** in the last few years.
- It encompasses **all connectivity options, including roads, railways and airfields.**
- For instance, strategically-important **Atal tunnel** will **ensure faster transportation of rations, weapons and other logistics** all year round to the troops stationed in Ladakh. It will also help in faster deployment of personnel.
- **Connectivity in North East States :**
- India is speeding up its connectivity projects in the northeastern region to further **its Act East Policy** and efforts to **combat insurgency in the difficult terrain of the north-eastern Himalayan states.**

NEGATIVE IMPACTS OF DEVELOPMENTAL PROJECTS ON THE HIMALAYAN REGION

- **Proliferation of hydropower projects:**
    - Most of the hydroelectric projects in the region are planned **without proper assessment of the cumulative impact** of the hydropower **projects on the rivers and the mountains.**
    - Hydropower projects in the Himalayan region are at serious risk from **earthquakes and glacial lake outburst floods** and pose a grave threat to tens of thousands of people.
    - For instance, Sikkim’s biggest hydropower project, **Sikkim Urja** (formerly Teesta Urja), suffered **massive damage due to a flash flood.**
    - Hydroelectric projects on the Bhagirathi and Alaknanda rivers are **altering their flow, with 80% and 65% impacts**, respectively. Also, they affect aquatic biodiversity by disrupting fish migration and **reducing downstream water flow.**

- **Unscientific and indiscriminate road-building:**
  - Rapid road construction and expansion are being pursued in the region **without paying heed to the social and environmental consequences**.
  - **Frequent dynamite use, improper slope-cutting**, and haphazard muck dumping in road-building endanger lives and livelihoods.
  - Scientists recommend a maximum road width of **5.5 metres** in the Himalayas, a norm followed until 2018. The recent **expansion of the Char Dham road beyond 10 metres** has disrupted the crucial balance between road construction and environmental preservation in the hills.
- **Detrimental impacts of tourism:**
  - **Tourism has brought economic prosperity** to the Himalayan region, but **the environmental cost has been catastrophic.**
  - For example, tourism in the Himalayan region **generates around eight million tonnes of waste every year.** Added to this is the **one million tonnes of annual waste generated by the urban population.** By 2025, it is projected that **240 million tourists will visit the hill States** every year.
  - Also, managing **tourism within the limits of available civic amenities** and **infrastructural carrying capacity within the threshold** is a challenge for the Himalayan region.
  - For instance, as per the report available on the NGT site, **in Ladakh**, an area with water deficiency, individual **water consumption by a resident is 75 litres** per day on average, whereas a **tourist consumes about 100 litres per day.**

GOVERNMENT INITIATIVES:

- **National Mission on Sustaining Himalayan Ecosystem:**
  - It is **one of the eight missions** under the **National Action Plan on Climate Change (NAPCC).**
  - It aims to **assess the vulnerability of the Himalayan ecosystem** and **formulate policies to protect the fragile ecosystem** based on the scientific study.
- **SECURE Himalaya project:**
  - It covers the **high Himalayan Ecosystem** spread over Uttarakhand, Sikkim, Jammu & Kashmir and Himachal Pradesh.
  - This project is collaboration between the **MoEFCC and the UNDP.**
  - The objective of the project is **to secure people's livelihood, restore, conserve and use sustainably the high range ecosystems of the Himalayas.**
  - The key focus of the project is **on improving the enforcement to ensure the reduction in wildlife crime, protection of snow leopard and other endangered species** and ensuring a secure livelihood to the people in the region.
- **Campaigns:**
  - Uttarakhand officially declared **September 9** as **'Himalaya Diwas'** – a day which would be celebrated across the State to spread the message of conservation of the Himalayan ecosystems.
- **Chopra Committee recommendations:**
  - The committee studied the **impact of receding glaciers on hydroelectric power projects (HEPs)**
  - It has in its report **objected to the construction of HEPs in regions between 2,200 to 2,500 metres above the sea level** (paraglacial regions).
- **National Institute of Disaster Management (NIDM) :**
  - The National Institute of Disaster Management (NIDM) addresses disaster risk in the Himalayas through training, policy implementation, alignment with international frameworks, and educational collaborations.

WAY FORWARD:

- **Rethinking about the hydro power developments:**
    - The government must **acknowledge the delicate Himalayan ecosystem** and prioritize projects that align with the region's potential, local wisdom, and community aspirations. Focus should shift to **low-impact run-of-the-river hydro projects** instead of large, damaging dams and reservoirs in the Himalayas.
- **Detailed pre-construction studies:**
    - **More time needs to be spent on studies** before starting the construction of developmental projects, especially in the fragile Himalayan region. For instance, **the design and construction of a tunnel project are currently done simultaneously**, including the recent tunnel that collapsed in Uttarakhand.
- **Town planning and adoption of architectural norms**
    - Urgent action is needed to **stop unplanned settlement growth** in fragile mountain areas. Focus should shift to consolidating existing urban areas, guided by **land-use planning in municipal master plans**. State authorities must enforce regulations considering local ecosystem characteristics, including **seismic risks.**
- **Green Road Construction**
    - Roads are the lifeline of this remote and inaccessible region. However, the construction of roads must fully take into account the environmental fragility of the Himalayan region.
    - **Environmental Impact Assessment should be made mandatory for the construction of all state and national highways**, and expressways of more than 5 km length.
- **Ensure local community participation:**
    - There should be a **mechanism for providing incentives to mountain communities for managing Himalayan ecosystems**.
- **Building environmental awareness**
    - **Local festivals and fairs** should be platforms **for environmental awareness,** linking it to regional customs. Governments should organize an annual Himalayan festival celebrating local cultures and sustainable living practices, promoting harmony with the region's pristine nature.
- **Regulating tourism:**
    - **Homestead tourism** could be promoted in this area and commercial hotel tourism of the three- to five-star variety discouraged or prohibited
    - Recognizing the adverse impact on Himalayan ecology of unrestrained expansion in vehicular traffic, each state should impose an **entry tax for vehicles entering important hill towns**

CONCLUSION:

- The Himalayas require development, including essential amenities and employment, but **not at the expense of the environment**. Sustainable growth is crucial, **ensuring the region's economic future without increasing its vulnerability to hazards.**

PRACTICE QUESTION:

Q. "Development cannot come at the cost of the environment, not in any region of the country but particularly not in the Himalaya". Discuss the statement with reference to the developmental projects in the Himalayan region. (10 marks, 150 words)