

10– 09 – 2024

News: Bharatmala Pariyojana

- Nearly 50% of the **Bharatmala Pariyojana Phase-I**, a flagship road network expansion program, has been completed as of 31st March 2024 and is expected to be completed by 2027-28.

Bharatmala Pariyojana

- Bharatmala Pariyojana is an **umbrella program** for the highways sector envisaged by the **Ministry of Road Transport and Highways**.
- Under Phase-I of Bharatmala Pariyojana, **implementation of 34,800 km of national highways in 5 years (from 2017 to 2022)** has been approved at an estimated outlay of **Rs. 5, 35,000 crores**.
- **The first-phase of Bharatmala was announced in 2017 and was to be completed by 2022, but it could not be completed due to slow implementation and financial constraints.**
- **National Highways Authority of India (NHAI)** has mandated the development of about **27,500 km of national highways under Phase-I**.
- Phase-II envisages around **48,000 km of road network across India by 2024**.

- With about 52.32 lakh km of road network comprising National Highways, State Highways and other roads, **India has the second largest road network in the world.**
- **Bharatmala, Sagarmala, dry/land ports, and other infrastructure projects have been incorporated under PM Gati-Shakti Plan to enhance connectivity and logistics efficiency.**

Objectives

- To **optimize the efficiency of freight and passenger movement across the country** by bridging critical infrastructure gaps through effective interventions.
- The effective interventions include the **development of economic corridors; inter corridors and feeder routes, national corridor efficiency improvement, border and international connectivity roads, coastal and port connectivity roads and greenfield expressways.**
- **Economic Corridors:** These **are integrated networks of infrastructure within a geographical area** designed to stimulate economic development.
- **Greenfield Projects:** They **lack constraints imposed by prior work** on the site. Typically, it entails **development on a completely vacant site** and architects start completely from scratch.

- **Brownfield Projects:** They carry constraints related to the current state of the site and might be contaminated or have existing structures that architects must tear down or modify in some way before the project can move forward.
- To generate many direct and indirect employment opportunities in the construction and infrastructure sector and also as part of the enhanced economic activity resulting from better road connectivity across the country.
- To connect 550 districts in the country through national highway linkages.
- Improvement in the efficiency of existing corridors through the development of Multimodal Logistics Parks and elimination of chokepoint. Multimodal Logistics Parks are a key policy initiative of the Government of India to improve the country's logistics sector by lowering overall freight costs, reducing vehicular pollution and congestion, and cutting warehousing costs. A chokepoint is a single point through which all incoming and outgoing network traffic is funnelled and hence, leads to congestion and traffic.
- Enhance focus on improving connectivity in North East and leveraging synergies with Inland Waterways.
- Emphasis on the use of scientific and technological planning for Project Preparation and Asset Monitoring.
- Satellite mapping of corridors to identify upgradation requirements.

- Delegation of powers to expedite project delivery for successful completion of Phase I by 2022.

Key Features

- **Economic Corridors and their Efficiency Improvement:** Bharatmala focuses on enhanced effectiveness of already built infrastructure, multi-modal integration, bridging infrastructure gaps for seamless movement and integrating National and Economic Corridors.
- It aims to develop about 26,000 km of economic corridors, along with the Golden Quadrilateral (GQ) and North-South and East-West (NS-EW) Corridors, to carry the majority of the freight traffic on roads.
- **Inter-State Corridor and Feeder Routes:** This would ensure first mile and last mile connectivity.
- About 8,000 km of interstate corridors and about 7,500 km of feeder routes have been identified for improving the effectiveness of these corridors.
- **Border and International Connectivity Roads:** Better border road infrastructure would ensure greater manoeuvrability, while also boosting trade with neighbouring countries.

- **Coastal and Port Connectivity Roads:** Port-led economic development is further boosted through connectivity to coastal areas, encouraging both tourism and industrial development.
- **Green-Field Expressways:** Expressways have higher traffic configuration and choke points would benefit from green-field expressways.

Funding Mechanism

- The Bharatmala project is being funded from various sources including Central Road and Infrastructure Fund cess, remittances, additional budgetary support, monetisation of national highways, Internal and Extra Budgetary Resources, and private sector investment.

Status

- As of March 2024, Bharatmala Pariyojana Phase-1 has successfully awarded contracts for the construction of 26,425 km of roads and completed 17,411 km, with a total expenditure of Rs 4.59 lakh crore.
- The project covers 34,800 km across 31 states and UTs and over 550 districts.

News: National Glacial Lake Outburst Floods Risk Mitigation Programme (NGRMP)

- The National Disaster Management Authority (NDMA) has taken up expeditions to glaciers at an altitude of 4500m and above to map their vulnerability to Glacial Lake Outburst Flood (GLOF).

National Glacial Lake Outburst Floods Risk Mitigation Programme (NGRMP)

- National Glacial Lake Outburst Floods Risk Mitigation Programme (NGRMP) is an initiative launched by the Government of India to address the risks posed by Glacial Lake Outburst Floods (GLOFs).
- 16 teams went out for expedition out of which 15 teams completed their expedition. Another seven expeditions are underway.
- Of the 15 expeditions completed, 6 were in Sikkim, 6 in Ladakh, 1 in Himachal Pradesh, and 2 in Jammu and Kashmir.
- Teams on expeditions assess the structural stability and potential breach points of glacial lakes, gathering relevant hydrological and geological samples and data, measuring water quality and flow rates, identifying risk zones and making downstream communities aware.

Objective

- To assess hazards, install automated monitoring and early warning systems, and implement lake-lowering measures to mitigate glacial lake outburst flood (GLOF) risks.
- Lake-lowering measures are techniques used to reduce the volume of water in a glacial lake to mitigate the risk of a GLOF.
- NDMA is focussing on ground-truthing of selected 189 “high-risk” glacial lakes.
- Ground-truthing is the process of validating and verifying data collected through remote sensing or other indirect methods by comparing it with direct observations made on-site.

Methodology to Prevent GLOF: Three activities are planned to be executed simultaneously.

- Placement of automated weather and water level monitoring stations and early warning systems.
- Digital elevation modelling and bathymetry.
- Assessing best means to reduce the risk of that lake including by lake-lowering.

Need of the Study

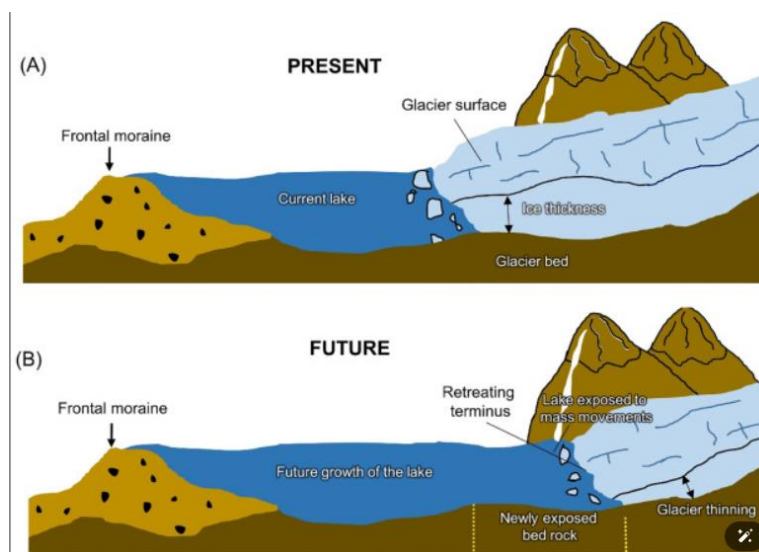
- **ICIMOD Findings:** As per the International Centre for Integrated Mountain Development (ICIMOD), Hindu Kush Himalayas are experiencing rapid, irreversible changes due to climate change, increasing the risk of floods and landslides.
- **Climate Change:** Due to climate change, India faces hazards like extreme altered FDI (frequency, duration and intensity) of precipitation and extreme heat. It may lead to an increased number of flash floods.

Previous Incidents of GLOFs

- **Nepal Incident:** Recently, flash floods struck Thame, a village in the Khumbu region of Nepal which was due to an outburst flood from Thyanbo glacial lake.
- **Sikkim Flash Flood:** A catastrophic GLOF occurred in South Lhonak Lake, Sikkim, in October 2023.
- **Uttarakhand Flash Floods:** A glacier breach-induced flood in February 2021 in Rishi Ganga valley resulted in over 200 deaths and significant damage to hydropower plants and Raini village.

Glacial Lake Outburst Floods (GLOFs)

- A Glacial Lake Outburst Floods (GLOFs) is a **type of flood occurring when water dammed by a glacier or a moraine is released suddenly.**
- When glaciers melt, **the water in these glacial lakes accumulates behind loose naturally formed 'glacial/moraine dams' made of ice, sand, pebbles and ice residue.**
- Unlike earthen dams, the **weak structure of the moraine dam leads to the abrupt failure of the moraine dam on top of the glacial lake, which holds a large volume of water.**
- A **catastrophic failure of the dam can release the water over periods of minutes to days causing extreme downstream flooding.**



National Disaster Management Authority (NDMA)

- The National Disaster Management Authority (NDMA) is the **apex statutory body for disaster management** under **Ministry of Home Affairs** in India.
- The NDMA was formally constituted on 27th September 2006, in accordance with the Disaster Management Act, 2005 with **Prime Minister as its Chairperson and nine other members**, and one such member to be designated as **Vice-Chairperson**.
- Its primary purpose is to **coordinate response to natural or man-made disasters and for capacity-building in disaster resiliency and crisis response**. It is also the apex body to lay down policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters.
- It aims to **build a safer and disaster resilient India by a holistic, proactive, technology driven and sustainable development strategy that involves all stakeholders** and fosters a culture of prevention, preparedness and mitigation.
- NDMA recently developed **National Migrant Information System**.
- NDMA along with **Board (Ministry of Earth Sciences- MoES)** under the Chairmanship of Director, members drawn from MoES, Ministry of Home Affairs (MHA), INCOIS, Odisha State Disaster Management Authority (OSDMA) and Andaman & Nicobar Islands Directorate of Disaster

Management (DDM) implements the International Oceanographic Commission launched Tsunami Ready Community Program.

- Disaster Management Volunteers (Aapda Mitras) Scheme, a Central Sector Scheme has been implementing by National Disaster Management Authority (NDMA) since May 2016.

Notified Disasters

- In India, the Disaster Management Act, 2005, defines a disaster as a "catastrophe, mishap, calamity or grave occurrence" arising from natural or man-made causes those results in substantial loss of life, destruction of property, or damage to the environment.
- Currently 13 disasters are classified as Notified Disaster namely: Cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack and frost, cold wave and Covid-19.
- Presently the notified list of disasters eligible for National Disaster Response Fund/State Disaster Response Fund (SDRF) assistance.
- Being designated a notified disaster makes the affected region eligible for financial aid from the 2 funds set up under the DM Act, the National Disaster Response Fund (NDRF) at the national level and the State Disaster Response Fund (SDRF) at the state.

- The SDRF is primarily used for immediate relief to victims of notified disasters.
- The NDRF supplements the SDRF in cases of severe disasters where funds are insufficient.