Launch of C-FLOOD System

Why in News?

The **Union Minister of Jal Shakti** inaugurated C-FLOOD, a Unified Inundation **Forecasting System**. This new initiative aims to enhance **India's flood management** capabilities by providing advanced flood forecasting and **early warning systems**.

Key Points

- **About the C-FLOOD System:**
  - It is a web-based system that delivers **two-day advance inundation forecasts** up to the village level.
  - The system includes flood inundation maps and water level predictions, enabling authorities to prepare for potential flooding more effectively.
  - This initiative aims to enhance flood management by offering a **unified system** that integrates data from various national and regional flood modeling agencies.
- **Collaboration and Development:**
  - **C-FLOOD** was developed through collaboration between the **Centre for Development of Advanced Computing (C-DAC)** Pune, **Central Water Commission (CWC)**, and **National Remote Sensing Centre (NRSC)** under the guidance of the **Ministry of Jal Shakti**.
  - The initiative is part of the **National Supercomputing Mission (NSM)**, a joint effort between the **Ministry of Electronics and Information Technology (MeitY)** and the **Department of Science and Technology (DST)**.
- **Advanced Features and Coverage:**
  - The platform utilizes **2-D hydrodynamic modeling** to simulate flood scenarios and is run on **High-Performance Computing (HPC)** infrastructure at **C-DAC Pune**.
  - Currently, the system covers the **Mahanadi**, **Godavari**, and **Tapi** river basins, with plans to expand to other river basins in the future.
  - It serves as a comprehensive **decision-support tool** for disaster management authorities by integrating outputs from multiple agencies, thereby improving coordination and timely decision-making during flood events.
  - The system is designed to integrate seamlessly with the **National Disaster Management Emergency Response Portal (NDEM)**, facilitating effective coordination during flood emergencies.

National Supercomputing Mission (NSM)

- The **National Supercomputing Mission (NSM)** was launched in 2015 to enhance **High-Performance Computing (HPC)** capabilities in India.
- **Type**: **Central Sector Scheme**
- **Nodal Ministries**: Department of Science and Technology (DST), Ministry of Electronics and Information Technology (MeitY).
- **Implementing Agencies**: C-DAC (Pune), IISc (Bengaluru).
- **Key Objectives:**
  - **Supercomputer Installation**: To empower academic and research institutions with

advanced supercomputing facilities.
- **Skill Development**: Promotes **HPC [skill development](#)** through dedicated training centers in Pune, Kharagpur, Chennai, Palakkad, and Goa.
- **Significance:**
  - Advances scientific research in areas like **drug discovery**, **climate modeling**, **[disaster management](#)**, and **material science**.
  - Supports **[start-ups](#)** and **[MSMEs](#)** in innovation, product development, and **HPC and [AI](#)** training.

Mahanadi River

- The Mahanadi River system is the **third largest of peninsular** India after **[Godavari](#)** and **[Krishna](#)**, and the largest river of Odisha state.
- The catchment area of the river extends to Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand and Maharashtra.
- Its basin is bounded by the Central India hills on the north, by the Eastern Ghats on the south and east and by the **[Maikala range](#)** in the west.

Godavari River

- The Godavari is the **largest Peninsular River system**. It is also called the **Dakshin Ganga**.
- The basin is bounded on the north by the **Satmala hills**, on the south by the Ajanta range and the Mahadeo hills, on the east by the Eastern Ghats and on the west by the Western Ghats.
- Godavari River rises from **Trimbakeshwar near Nasik in Maharashtra** and flows for a length of about 1465 km before outfalling into the Bay of Bengal.

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