



National Supercomputing Mission

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Why in News

The **second phase of the National Supercomputing Mission (NSM) will be completed by September 2021**, taking India's total computational capacity to **16 Petaflops**.

Key Points

- **About the National Supercomputing Mission (NSM):**
 - **Launch:** NSM was **announced in 2015**, with an **aim** to connect national academic and R&D institutions with a grid of more than 70 high-performance computing facilities at an estimated cost of Rs. 4,500 crores **over the period of seven years by 2022**.

It supports the government's vision of 'Digital India' and 'Make in India'.
 - **Implementation:** NSM is **jointly steered by the Ministry of Electronics and IT (MeitY) and Department of Science and Technology (DST - Ministry of Science and Technology)** and implemented by the **Centre for Development of Advanced Computing (C-DAC)**, Pune and the Indian Institute of Science (IISc), Bengaluru.
 - **Features:**
 - It is also an effort **to improve the number of supercomputers** owned by India.
 - These supercomputers will also be networked on the National Supercomputing grid over the **National Knowledge Network (NKN)**. The NKN connects academic institutions and R&D labs over a high-speed network.
 - Under NSM, the long-term plan is to build a strong base of 20,000 skilled persons over the next five years who will be equipped to handle the complexities of supercomputers.

- **Progress of NSM:**
 - In the first phase, **PARAM Shivay, PARAM Shakti, PARAM Brahma, PARAM Yukti and PARAM Sanganak** were deployed at IIT (BHU), IIT Kharagpur, Indian Institute of Science Education and Research, Pune, and Jawaharlal Nehru Centre for Advanced Research.
 - Recently, **PARAM-Siddhi AI**, has been **ranked 63rd in the Top 500 list of most powerful supercomputers** in the world. It was developed under the NSM.
- **Recent Development:**
 - In October 2020, **C-DAC had inked MoUs with IITs** along with **IISc, National Agri-Food Biotechnology Institute and NIT, Tiruchirapalli** – where a High Power Computing (HPC) system in each institute is currently being installed.
 - So far, **over 4,500 people have been trained in HPC** and further training in **Artificial Intelligence** will be held at special **NSM nodal centres** established at four IITs – **Kharagpur, Madras, Goa and Palakkad.**
- **Challenges:**
 - The NSM envisages setting up a network of 70 high-performance computing facilities in the country but **skewed funding for the mission** during the initial years slowed down the overall pace of building supercomputers.
 - **Only 16.67% of the total budget of Rs. 4,500 crore**, was utilised during the first four-and-a-half years for execution of the mission.
- **Global Scenario:**

Globally, **China** has the maximum number of supercomputers and maintains the **top position** in the world, **followed** by the **US, Japan, France, Germany, Netherlands, Ireland and the United Kingdom.**

Source:IE