GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION NO. 1956
ANSWERED ON 08/08/2024

USE OF SUPERCOMPUTER IN WEATHER FORECASTING

1956. SHRI ASHOKRAO SHANKARRAO CHAVAN:
SMT. DARSHANA SINGH:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether India is going to unveil its new 18 petaFLOP Supercomputer for weather forecasting institutes this year;
(b) if so, the details and the salient features of the said supercomputer;
(c) the total expenditure incurred in the development of this computer and the place where it will be installed;
(d) the manner in which this new supercomputer will help in forecasting weather and predicting calamities, like, cyclone, etc., in the country; and
(e) the other steps taken/being taken by Government in acquiring accuracy in weather forecasting?

ANSWER
THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) Yes. The Government is going to unveil its new 21.1 petaFLOP (PF) Supercomputer this year.

(b) The details of the High-Performance Computer (HPC) systems are as follows:

Salient features of the HPC	IITM, Pune	NCMRWF, Noida
CPU Rpeak (PFLOPs)	11.7 +1.16	8.2
CPU nodes (AMD Milan 7643, 2x48c, 2.3GHz, 256GB RAM)	3021	2115
GPU Nodes (AMD Milan 7643+4xA100-80GB)	26	18
Separate AI/ML System Node	7	-
GPU Rpeak (PFLOPs)	1.16	-
Storage (PB)	33	23

(c) The total expenditure sanctioned for the procurement of the HPC system is Rs. 900 crores. The systems will be installed at two locations: Indian Institute of Tropical Meteorology (IITM), Pune, and National Centre for Medium Range Weather Forecasting (NCMRWF), Noida.

(d) This augmented HPC capacity will help advance the understanding of weather and climate, resulting in better prediction and improved weather services for the nation. The major benefits include:

i. Improved weather and climate forecasts at a very high resolution and forecasts of extreme events at the block level.
ii. Carryout research to improve the Indigenous dynamical models for better prediction.
iii. Leveraging the new HPC facility to develop models using the latest technologies like Artificial Intelligence (AI) and Machine Learning (ML) to improve the last mile services to different stakeholders.
iv. Improving short, medium, and long-range forecasts for monsoon.
v. Better forecast of Air Quality and Fog forecasts for many cities in India.

(e) Improving the accuracy of weather forecasts depends on augmentation of observational network, thereby improving the numerical models along with HOC infrastructure and human resources to undertake R&D. Ministry is continuously endeavoring to achieve better accuracy in weather forecasting.

****