GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 328
TO BE ANSWERED ON WEDNESDAY, 24TH JULY, 2024

ROLE OF SUPERCOMPUTERS IN CLIMATE RESEARCH

328. SHRI MANOJ TIWARI:
 SHRI JASWANTSINH SUMANBHAI BHABHOR:
 SHRI CHUDASAMA RAJESHBHAI NARANBHAI:
 SHRI BHARTRUHARI MAHTAB:

 Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the Government is aware of the significance of supercomputers in tackling challenges of climate change and research;
(b) if so, the details thereof;
(c) whether the supercomputers in India are installed for climate research;
(d) if so, the details thereof; and
(e) if not, the reasons therefor?

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

(a) Yes.

(b) India has made significant strides in supercomputing for weather forecasting and climate research.Supercomputer facilities are crucial to improving weather forecasting for seasonal, long, and short-range predictions, ensemble predictions with more members, and climate change scenario generation for hundreds of years.These computationally intensive processes require advanced computational resources and high storage capacities. Supercomputers have been the backbone of significant improvements in weather forecast accuracy over the past two decades.

(c) Yes.

(d) Supercomputers are used for weather and climate modeling,coupled ocean-atmosphere-biosphere-cryosphere models, and associated data assimilation, which are highly compute-intensive tasks. The existing supercomputer details are as follows:

  1. Pratyush:

      o Located at the Indian Institute of Tropical Meteorology (IITM) in Pune.
      o Peak speed: 6.8 PetaFlops
      o Purpose: Weather forecasting and climate research work

2. Mihir:

- o Located at the National Centre for Medium-Range Weather Forecast (NCMRWF) in Noida.
- o Peak speed: 2.8 PetaFlops
- o Used for the operational activity of MoES for monsoon prediction, air quality assessment, extreme event forecasting (like cyclones), natural disaster management, etc.

(e) Does not arise.

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