GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 1856

TO BE ANSWERED ON WEDNESDAY, FEBRUARY 11, 2026

APPLICATION OF SPACE-BASED SYSTEMS FOR NATIONAL DEVELOPMENT GOALS

1856. SHRI JASHUBHAI BHILUBHAI RATHVA:
SMT. D K ARUNA:
SHRI RAJESH NARANBHAI CHUDASAMA:
SHRI ANURAG SHARMA:
SHRI MUKESH RAJPUT:

Will the PRIME MINISTER be pleased to state:

(a) the details of the key applications of space-based systems undertaken during 2025 for agriculture, disaster management, climate monitoring and societal welfare including crop forecasting and Earth observation initiatives;

(b) the outcomes of India's leadership role in international disaster response mechanisms using space assets;

(c) the extent to which satellite data and indigenous platforms are being integrated with Ministries and State Governments for evidence-based decision-making; and

(d) the details of the steps being taken to further enhance outreach, data accessibility and operational use of space

technologies to support national development goals in line with Space Vision 2047?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND IN THE PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH):

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(a) Key applications of space-based systems undertaken during 2025 by ISRO/DoS are:

- **For Agriculture: All-India in-season crop sown and harvest area mapping for all 3 crop seasons; All-India mapping of Kharif rice, Wheat, Jute crops; national level crop yield estimation for rice and wheat crops, State level mapping of crops for Maharashtra (Soybean, Cotton, Paddy) and Madhya Pradesh (Soybean, Wheat, Gram, Mustard, Paddy); Insurance unit level estimation of crop yield in 9 States to support Pradhan Mantri Fasal Bima Yojana (PMFBY); Development of Jute Crop Information System (JCIS).**
- **For Disaster Management: Regular monitoring of Glacial Lakes; Operational Flood Early warning in parts of three Basins (Brahmaputra, Godavari, Tapi); Mapping of flood affected area for the major flood events of year 2025; Lightning Nowcasting from Light Detection Sensor Network (LDSN) and IRS Meteorological data using AI; operationalisation of Integrated Control Room for**

Emergency Response (ICR-ER)-DR & integration of National Database for Emergency Management (NDEM) services; Satellite Integrated landslide Assessment and Alert System.

- **For Climate Monitoring: Satellite-based monitoring of NO_2 concentrations over thermal power plants around Delhi and assessing their role in Delhi air pollution; Development of GeoAI Framework for Air Quality Monitoring over Indian Region; Quantification of Greenhouse Gas Emission Inventory for Land Use, Land Use Change over India; Inter-annual budgeting of tropospheric CO_2 over Indian Monsoon Region – based on model diagnostics, satellite and in-situ datasets; Generation Geophysical products and Essential Climate Variables (ECVs).**
- **For Societal Welfare: Planning and monitoring of MGNREGA activities using Geospatial Technology; Monitoring of the Watershed Development Component – Pradhan Mantri Krishi Sinchayee Yojana (WDC-PMKSY) Projects using geospatial technologies; Monitoring of progress of projects under Pradhan Mantri Awas Yojana-Housing For All (Urban) (PMAY-HFA(U)); Mapping the status of road network of the rural parts of India under Pradhan Mantri Gram Sadak Yojana (PMGSY); Monitoring the assets created under Rashtriya Krishi Vikas Yojana (RKVY), etc.**

(b) India (ISRO) successfully completed its six-month leadership tenure (April–September 2025) of the International Charter 'Space and Major Disasters'. Under India's leadership:

- **Successfully executed 39 activations for global disaster management,**
- **On-boarded 4 new authorised users, extending space-based disaster management to developing nations.**
- **On-boarded new satellite data and successfully coordinated all Charter activities.**

(c) The satellite data and indigenous space platforms are well integrated in many of the National flagship programmes carried out by the Ministries/ Departments of Government of India and State Governments. Details are as follows:

- **Satellite data is operationally used for crop mapping, yield estimation and damage assessment under the Pradhan Mantri Fasal Bima Yojana (PMFBY) of Ministry of Agriculture and Farmers Welfare, GoI.**
- **Satellite data is used for mapping the status of road network of the rural parts of India under Pradhan Mantri Gram Sadak Yojana (PMGSY).**
- **Space based platforms and geospatial technology is used for collecting information on status of projects funded under Pradhan Mantri Awas Yojana-Housing For All (Urban).**
- **Yuktdhara, a Geospatial planning portal, is being used in the scientific planning of the rural employment (MGNREGA) works by the Rural Development Departments in all the States.**

- **High resolution satellite data is operationally used for monitoring interventions carried out in the projects funded under Watershed Development Component-Pradhan Mantri Krishi Sinchayee Yojana 2.0 (WDC-PMKSY 2.0).**
- **The Indian meteorological data and processing system are operationally integrated at India Meteorological Department, MoES, supporting operational weather services.**
- **Data from Indian meteorological and ocean monitoring satellites are operationally used by Ministry of Earth Sciences for monitoring and early-warning of Tropical Cyclones around Indian region.**
- **Data from Oceansat satellite and its processing system are integrated at Indian National Centre for Ocean Information Services (INCOIS), enabling routine use of satellite-derived oceanographic products for fisheries advisory, ocean state forecasting, and coastal management.**
- **Indian Navy operationally assimilates satellite data for generating weather & ocean outlook. A dedicated web-portal, MOSDAC-IN, is developed by ISRO/DoS to enable the access of satellite data to Indian Navy.**
- **Sea Ice Advisory are utilised by National Centre for Polar and Ocean Research (NCPOR/MoES) for planning safer ship navigation routes during Indian Scientific Expeditions to Antarctica.**

- **Satellite based meteorological products are utilised by MoES for operational generation of Agro-meteorological advisories.**
- **Satellite data and space platforms are used for mapping flood affected area in the country and flood forecasting in parts of Brahmaputra basin, Godavari Basin and Tapi Basin. These outcomes are operationally utilized by State Disaster Management Authorities (SDMAs), National Disaster Management Authority (NDMA), Ministry of Home Affairs (MHA)**
- **Satellite data is operationally used by Ministry of Jal Shakti (MoJS) for mapping and monitoring of Glacial lakes.**
- **Space platforms are used for monitoring water-spread in all the large waterbodies in the country at fortnightly interval and estimation of storage capacity of major reservoirs. National inventory on Wetlands are used by Ministry of Jal Shakti for implementation of Water Bodies Census 2.0.**
- **Hydro-informatic products generated under National Hydrology Project are operationally utilised by MoJS for water resources monitoring, planning and management.**
- **Biennial Land Cover Land Use change, derived from satellite data, is utilised by MoEF&CC, as input for National Communications (NATCOM) under UNFCCC requirements.**
- **Indian Remote Sensing satellite data is operationally used for generating India State of Forest Report (ISFR), biennially, by Forest Survey of India (FSI), MoEF&CC.**

- **Satellite-derived Land Degradation and Desertification inventories are actively used by MoEF&CC in the formulation and implementation of the National Action Plan (NAP) for Land Restoration, supporting long-term environmental planning and reporting commitments.**
- **Geo-spatial Energy map of India is an indigenous platform utilised by NITI Aayog and other energy related Departments/Ministries for integrated planning and management of prudent investment decisions in India's energy sector.**

(d) To improve space-based technology's outreach, data accessibility, and operational adaptability for national growth, numerous measures are implemented. These include,

- **Providing open and free access to Indian EO data, having coarser than 5m Ground Sample Distance (GSD), to all users under the ambit of Indian Space Policy-2023. All the products derived from free data are also disseminated free of charges to all the users.**
- **EO data having GSD finer than 5m are provided free of charge to Government Users and at fair price to non-Government users.**
- **Enhancing the web-based interfaces, streamlining data regulations, and offering operational users near-real-time products. Space-based observations are distributed in real time for various applications through portals such as MOSDAC and VEDAS.**

- **To encourage and accelerate the use of space-based observations in various applications, ISRO/DoS organizes training programmes and workshops as part of capacity building.**
- **National Meet 2025 (NM2.0) with theme of "Leveraging Space Technology & Applications for Viksit Bharat 2047" was organised, on 22nd August 2025 at New Delhi, by ISRO/DoS. The NM2.0 focused on advancing the utilization of space technology in various Ministries and Departments. The current & future requirement of space technology and applications in the respective domains of 63 Departments/ Ministries of Government of India and 36 States/ UTs are compiled through more than 300 one-to-one meetings with user Departments/Ministries/States/UTs and the National Mission Plan is generated to service these requirements.**

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