

India

Agenda item 5

United Nations Programme on Space Applications

Madam Chairperson and Distinguished delegates,

India acknowledges and appreciates the efforts under the United Nations Programme on Space Applications, in enhancing the knowledge and experience on space applications. During the last 5 decades, these efforts have made significant contributions towards utilisation of space technology for sustainable socio-economic development, locally and globally. Since inception, the Indian Space Programme also focuses in utilising space technology for the benefit of society and for the development of the nation at large. The Indian delegation would like to update on the developments on Space Applications in India.

Madam Chairperson

Space Applications is one of the four verticals of the Indian Space Programme, and acts as the link that connects Space to common man. Space Applications programme in India is designed and developed in tune with the requirements of the user community, and is implemented by integrating the capabilities across Satellite Communication; Navigation and Earth Observation domains. Socio-economic security, sustainable development, governance and disaster risk reduction are the major areas for which the potential of space applications is being utilised and also, it provides inputs for meeting many of the targets set under the Sustainable Development Goals of UN. Apart from developing space technology based applications for national needs, India extends the capabilities of Space Applications Programme for the benefit of the neighbouring countries also.

Madam Chairperson

India has implemented an institutional mechanism involving all the stake holders of Space Applications in the country, including Government, Academia and Industry. This mechanism ensures translating the requirements into appropriate space missions and ground infrastructure, for provision of data and relevant techniques & algorithms for deriving products, services and solutions. It also ensures continuous capacity building of the stakeholders for wider and deeper utilisation of the technology to address the development needs.

The Indian Space Applications programme has strategized the proliferation of space applications in the country through institutionalisation and internalisation of the applications among the user Ministries. For example, space technology based techniques for forecasting of potential fishing zones, pre-harvest crop production estimation and forest cover mapping, have been developed by ISRO and have been institutionalized with Ministry of Earth Sciences, Ministry of Agriculture & Farmers' Welfare and Ministry of Environment; Forest & Climate Change, respectively.

Madam Chairperson

Assessment of the status of natural resources is necessary to ensure sustainable development. Census of natural resources is being carried out in India at appropriate time intervals, for various resources such as vegetation, wetlands, forest cover & biomass, snow & glaciers, corals & mangroves etc. Periodic assessment of air quality and generation of products on essential climate variables are also being carried out. These inputs help in informed decision making towards sustainable development.

Space Applications are also implemented in addressing issues related to food and water security. Delineation of areas suitable for increasing cropping intensity and development of horticulture are being done using space based inputs. National and state specific information systems related to water resources have been developed, using Geospatial tools and techniques. Surface water spread database derived at fortnightly interval serves as important input for decision making on irrigation planning, inland aquaculture development etc. Space technology is also utilised for implementing water conservation and recharge measures, in addition to ground water prospect assessment.

Using the observations from Indian weather and atmospheric observation satellites, products on summer monsoon rainfall, weekly agricultural outlook, monsoon prediction etc. are generated. Data and products from these satellites are assimilated by India Meteorological Department for Numerical Weather Prediction models for enabling national weather services.

Madam Chairperson

Tailoring the Space Applications to support the needs of Governance has been one of the major highlights of the Indian Space Programme. Space technology utilisation has been enabled for planning, monitoring & evaluation, and decision

support to major programmes of the Government. For example, under the rural employment guarantee programme, geospatial monitoring of rural development activities has been implemented. Similarly, the impact assessment of watershed development is being carried out at national level, using periodic satellite data coverage and geotagged locations of watershed development interventions.

An automated system has been developed for detecting forest cover changes in the country on an annual basis. Space technology based techniques have also been implemented for enabling various components under the Crop Insurance programme. Satellite data based inputs are derived for generation of Urban Master Plans. One of the unique examples of space technology applications in India is for decentralised planning, where satellite image base and derived information are integrated with traditional wisdom, for preparing land & water resources development plans, by the local administration.

Indian Space Programme is also supporting the Disaster Management endeavours of the stakeholders in the country. Space based inputs are continuously being provided to address various disasters such as flood, forest fire, landslides, earthquakes and cyclones.

Madam Chairperson

India utilises the satellite communication and navigational applications also for societal benefits. The tele-education programme connects inaccessible regions of the country, for interactive educational services. Here the expertise on advanced and emerging topics available at major educational institutions are shared to the benefit of students in the remote areas. Similarly, using the tele-medicine programme, doctors at remote localities get expert advice from Specialty Hospitals, based on digitally transmitted diagnostic records and live audio-visual interaction.

India's regional navigational satellite system; NavIC, is being utilised for services on time synchronisation and location based applications. Smartphones running on new Qualcomm chipsets will also have NavIC enabled location based services.

Receivers enabled with NavIC messaging service are being utilised by fishermen for receiving forecasts on ocean state and potential fishing zones. Alerts while approaching international maritime boundary are also enabled on such devices.

GNSS based applications are also enabled for monitoring of crustal deformation, ionospheric TEC, and also for reflectometry based parameter retrieval such as soil moisture, snow characteristics etc.

Madam Chairperson

India is engaged in International Cooperation for Space Applications, in terms of joint missions, exchange of Earth Observation data, and also in Disaster Management support. For example, with NASA, the L & S band SAR mission is under development for realisation by early 2022. Exchange of Earth Observation data with USGS and European Commission are enabled, for mutual benefit on the use of Earth Observation data from Landsat, Sentinel IRS systems. India is also active in the International Charter on Space and Major Disasters and Sentinel Asia, for sharing Earth Observation resources during major disasters.

Madam Chairperson.

India believes in extending the space technology applications for the benefit of the neighbouring countries also. Geospatial support for visualization and dissemination of satellite data & products, Weather Information and Forecasting Services, Remote Sensing Applications in the domains of agriculture, forestry, geology, disaster management support, terrain data, etc., have been enabled for the South Asian countries.

India contributes towards capacity building in space technology applications for professionals and students from Asia-Pacific region through the CSSTEAP centres at Dehradun, Ahmedabad and Bengaluru, benefitting nearly 2200 participants during last 24 years. ISRO has extended training on Geospatial Technologies for Drought and Water Management for officials from Sri Lanka during the last quarter of 2019. Similarly, training on Remote Sensing Applications has been provided to professionals and students from BIMSTEC countries during January, 2020.

Madam Chairperson

In conclusion, India would like to convey that we have developed expertise to take the benefits of space technology applications for national development and strongly supports for its wider utilisation, at global level.

Thank you, Madam Chairperson.

