Agenda Item - 11: Space and Water

Mr. Chairman,

Nations give utmost importance for water resources management due to the disparity in its distribution in space and time, potential to cause disasters, and its linkage to climate change. Space technology plays important role in the management and sustainable development of water resources. Indian Space Research Organisation (ISRO) and the nodal Ministry for Water Resources in India; i.e. the Ministry of Jal Shakti (MoJS), have been jointly working towards enhancing the use of space technology for water resources management and for hydrological disaster mitigation. Integrated use of earth observation data, ground-based data, geospatial decision support systems, location based services and satellite communication technology is essential for effective management of water resources.

Space applications have been developed and operationalized in India across different domains of water resources such basin-wise assessment of water resources, irrigation infrastructure management & command area monitoring, reservoir sedimentation assessment, sustainable management of ground water resources, monitoring of snow; glaciers & glacial lakes, monitoring flood inundation & flood forecasting, etc.

Mr. Chairman,

As part of the National Hydrology Project (NHP), ISRO and MoJS have jointly developed geospatial products and services pertaining to water resources sector in India. These include national hydrological modelling system, satellite data-based regional evaporative flux monitoring system, inventory of glacial lakes and GLOF risk modelling, hydrological drought indices, spatial flood forecasting system etc. A web portal on Bhuvan Geo-platform, called Bhuvan-NHP (https://bhuvan.nrsc.gov.in/nhp) is established to disseminate the geospatial products & services.

For facilitating sustainable management of ground water resources, space based inputs are being used for developing aquifer sustainability management system, focusing the peri-urban areas in the country. Sustainability measures are suggested based on large scale ground water resources assessment, and integrating space & ground based inputs.

Mr. Chairman,

For comprehensive management of water resources, necessary database, geospatial tools and decision support systems are enabled. India-Water Resources Information System (India-WRIS) is jointly developed and operationalized by ISRO and MoJS in a standardized GIS framework for Planning, Assessment & Monitoring and for Integrated Water Resources Management.

An Urban Water Body Information System is being implemented, for decision support in the rejuvenation and conservation of urban water resources. Multi-sensor based periodic surface water spread information is generated for water bodies of >1ha size.

This database is used in the Water Body Information System (WBIS) which has provision for water spread analytics, Elevation – Area – Capacity assessment etc.

An Atlas titled “Indian wetlands: A high resolution remote sensing assessment and Analysis” has been published, inclusive of the satellite data, wetlands’ database and its analysis. It contains the geo-spatial database of Indian wetlands at 1:10k scale, classified as per IUCN/RAMSAR definition and has 20 types of wetlands.

Mr. Chairman,

The national space agency of India - ISRO and the French Space Agency – CNES are collaborating on the development of a remote sensing satellite, named TRISHNA - Thermal Infra-Red Imaging Satellite for High resolution Natural Resources Assessment. It is a joint technology demonstration mission being undertaken with science objectives of relevance to crop water stress and would help in providing valuable inputs for improved crop advisories, irrigation scheduling, drought management, etc. The launch of the satellite is planned in 2027.

India uses space based inputs for management of various hydrological disasters. Near-real time monitoring all major floods is done during the flood seasons using satellite data. Historical information on flood affected areas is used for developing flood hazard zonation atlases and flood affected area atlas of the country. These serve as non-structural measures for flood management.

Mr. Chairman,

India effectively uses space technology for assessing and managing water resources. The Indian delegation would like to reiterate its willingness to share its experience with member nations, towards conservation, management and sustainable utilization of water resources.

Thank you Mr. Chair and distinguished delegates.