

### **Agenda Item - 10: Space and Water**

**Mr. Chairman,**

Conservation of water resources is among the top priorities of Governments globally, due to the challenges posed by the inequitable distribution of water. Space based inputs play a key role in water resources management, including for addressing hydrological disasters such as floods, drought, lake outbursts etc. Indian Space Research Organization (ISRO), has successfully demonstrated utilization of Space technology for many aspects of water resources management, through its integration with spatial information systems, location based services, and communication technology.

In India, the Ministry of Water Resources (known as the Ministry of Jal Shakti) and ISRO are jointly working in developing Space applications for water resources management. Remote sensing projects are taken up in various fields such as reservoir sedimentation, irrigation command area monitoring, irrigation infrastructure & potential assessment, snow; glacier and glacial lakes monitoring, aquifer management, flood forecasting & monitoring etc.

**Mr. Chairman,**

Sustainable development of ground water is given much importance in the country. ISRO has developed methodology for assessing the sustainability and prospects of groundwater resources at habitation level, using remote sensing based inputs. This is used for identifying ground water sources to facilitate drinking water supply to rural households, while planning locations of suitable recharge structures, towards ensuring sustainability of the resource.

Government of India launched a time bound, mission mode, water conservation campaign called Jal Shakti Abhiyan, to improve ground water scenario in the country. Space based inputs are being used for decision support in planning and implementation of various water conservation measures under this initiative.

**Mr. Chairman,**

As part of the National Hydrology Project (NHP), a flagship programme of Ministry of Jal Shakti, ISRO is developing geospatial products & services pertaining to water resources sector. Spatial flood early warning system, daily actual evapotranspiration, database of Himalayan glacial lakes, glacial lake outburst flood model, snowmelt rate forecast etc. are being developed as part of NHP.

**Mr. Chairman,**

India has a vast irrigation network which is important towards achieving food and water security. ISRO has enabled the use of remote sensing data, geoportal and tools for monitoring the creation of irrigation infrastructure, and assessing the actual irrigation potential created, towards comparison with the planned potential. This

facilitates comprehensive monitoring of irrigation projects for timely completion and optimum utilization of resources.

**Mr. Chairman,**

ISRO and Ministry of Jal Shakti have jointly established a standard framework for re-assessment of water availability in the river basins of India, incorporating remote sensing derived inputs. The methodology has been utilized by the Ministry for deriving the latest update on country's water resources.

**Mr. Chairman,**

An information system called India Water Resources Information System or IndiaWRIS has been jointly developed by ISRO and Ministry of Jal Shakti. It has comprehensive & consistent water resources data of the country in a standardized GIS framework. The activities related to India-WRIS is now institutionalized under the National Water Informatics Centre (NWIC), by Ministry of Jal Shakti, and the water resources database is being periodically updated.

ISRO has implemented automated extraction of surface water spread information from satellite data. The output is organized as a Water Body Information System (WBIS), which provides spatio-temporal dynamics of surface water bodies at a frequency ranging from 5 to 15 days.

**Mr. Chairman,**

India has been using space based inputs for developing flood forecast models, flood hazard assessment, monitoring flood inundation, and for damage assessment.

An operational flood early warning system called FLEWS is established to provide actionable alerts for the flood prone districts in the catchments of Brahmaputra and Barak rivers in the north eastern region of the country. FLEWS is now being extended to other states in the north eastern region.

**Mr. Chairman,**

ISRO works in close coordination with the stake holders in the water resources sector, towards developing prototype space applications and then migrating these for operational implementation. Capacity building of the users is also facilitated towards technology adoption and utilisation by them. ISRO has been successful in internalizing or institutionalizing the use of space technology by the Ministry of Jal Shakti. 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. Chairman and distinguished delegates.**