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Pre-recorded video message

Keynote Speech

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Your Excellencies,

Distinguished Guests,

I am very pleased to deliver a keynote speech on this third day of the 7th High-Level Forum on United Nations Global Geospatial Information Management on the topic of *Building a sustainable future: innovation, technology and AI.*

Allow me to start by telling you what the ITU is and what it does.

The International Telecommunication Union (ITU) is the UN Specialized Agency for ICT and is at the very heart of the ICT sector. It manages the allocation of global resources like radio-frequency spectrum and satellite orbital positions, to create a seamless global communications system that is robust, reliable, and constantly evolving.

Virtually every facet of modern life – in business, culture, or entertainment, at work and at home – depends on information and communication technologies.

Today, there are around seven billion mobile phone subscribers, close to five billion people with access to television, and tens of millions of new Internet users every year. Hundreds of millions of people around the world use satellite services – whether getting directions from a satellite navigation system, checking the weather forecast or watching television in isolated areas.

Millions more use video and audio compression every day in television sets, computers, mobile phones music players and cameras.

The global international telecommunications network is the largest and most sophisticated engineering feat ever created. We use it every time we log on to the web, send an e-mail or SMS, listen to the radio, watch television, order something online, travel by plane or ship – and of course every time we use a mobile phone, smartphone, tablet or a computer.

Ladies and gentlemen,

Geospatial data are one of the key enablers of the ICT sector, and this is why the ITU has been very interested in and committed to the work of the UN Committee of Experts on Global Geospatial Information Management (UN-GGIM).

I take this opportunity to acknowledge the UN-GGIM for its achievements in addressing global challenges regarding the use of geospatial information, including the development of the United Nations Integrated Geospatial Information Framework (UN IGIF) which enables Member States to collaborate on, develop, enhance and advocate for the efficient production and effective utilization of geospatial information.

The ITU has been participating since the beginning in the work of the UN Geospatial Network, as a Member of its Steering Committee, and has being working in the past few years, in close cooperation with the UN GGIM Academic Network, to foster geospatial innovation by organizing a series of events on Geospatial AI (GeoAI) ibn topics of relevance for the SDGs at the AI for Good Summit.

The ITU GeoAI Challenges are competitions aimed at providing solutions for collaboratively addressing real-world geospatial problems by applying artificial intelligence/machine learning to advance the SDGs.

I wish to congratulate the winners of two GeoAI Challenges (vegetation mapping and human settlement detection challenges) proposed by INEGI and just announced at this venue.

I am glad to acknowledge also the contribution given by Mrs. Paloma Merodio, VP INEGI, during the in-person AI for Good Summit workshop *Navigating GeoAI: Plotting the course for future education* organized in Geneva on May 30th under the leadership of professor Maria Brovelli, UN GGIM Academic Network chair. Despite its importance, there's a lack of standardized GeoAI education and the workshop highlighted key educational deliverables developed over the past year by four international working groups, including the syllabi to bridge the knowledge gap between the geospatial and machine learning/artificial intelligence communities. I invite the global geospatial community to be part of this initiative, which is currently looking for funding the implementation phase.

Following the first geospatial resolution adopted by the United Nations General Assembly, on 2015, "A Global Geodetic Reference Frame for Sustainable Development" I am pleased to see the progress that the geospatial community has achieved so far, including the establishment of the UN Global Geodetic Centre of Excellence (GGCE) at the United Nations campus in Bonn, Germany.

This activity made the international community aware that the identified weak links in the geodesy supply chain are putting satellites and ICT applications we rely on every day at risk of degradation, which in turn would impact the accuracy and quality of our decision making.

Just to make a few examples, relevant also for ITU activities, the geodetic supply chain allows to:

- Monitor the precise orbits of Earth observation satellites, which impact the accuracy with which we can measure sea level variations, ice loss and changes in the landscape.
- Measure and monitor time, which is critical for the GPS time synchronisation used to maintain cellular networks, financial transactions and power grids.
- Operate the almost three billion mobile phone applications that rely on PNT information, including providing navigation options.

The UN GGCE recently raised with ITU some concerns within the Geodetic communities for possible interference to the very large baseline interferometry (VLBI) observations which are used for geodesy purposes. ITU provided to the UN GGCE information on the procedures to obtain an agenda item for the protection of VLBI at the ITU World Radiocommunication Conference (WRC), the treaty-making Conference where frequency spectrum allocation is revised by Member States.

At its Fourteenth Session, in 2024, the Committee of Experts discussed also the draft report on future trends and opportunities in the application and use of geospatial technologies and applications. This report outlines crucial elements for the future of digital infrastructure, including the advancements in new technologies and applications which are at the very core of ITU activities enabling the pillars of the digital infrastructure.

ITU plays a leading role in managing the radio spectrum and developing globally applicable standards for IMT-2020 (5G) ensuring the stability, security, reliability, and interoperability of 5G telecommunication infrastructure to support an enormous volume of applications and services.

The geospatial community responsibility in the provision of very accurate geospatial data will be essential for 5G deployment, requiring denser telecommunication networks when implemented in the millimetre wave bands. The availability and affordability of both accurate geographical data and advanced spatial analytics will be crucial to ensure that these radio networks are cost-effective and efficient. 5G base stations will require nanosecond synchronization to improve the positioning accuracy for smart transportation and intelligent traffic management systems.

While there is still much innovation to come in 5G with new versions of the standard, IMT-2030 (6G) research is well underway around the world to make 6G commercially available by 2030. In addition to enhancing capabilities already provided by 5G, 6G targets new capabilities including an accuracy of geographical positioning up to 1 cm and several AI-related capabilities.

More generally, radio-meteorological geospatial data are instrumental for the development of ITU recommendations, the equivalent to international standards, on radio-wave propagation prediction methods for the planning for radio communication services. These methods use digital terrain models and features on the surface of the Earth to make predictions, ensuring optimum and efficient use of the radio spectrum.

Telecommunication systems provide the means to perform and gather geospatial data on meteorological, Earth and solar observations, which, besides their primary purposes, also provide the possibility to enhance telecommunication services.

An ITU Resolution (ITU-R 40-4) resolves that administrations would produce and regularly update (in cooperation with relevant organizations) terrain datasets, making them freely available to the ITU. The ITU hopes that open and quality geospatial data on ICT infrastructure, worldwide terrain and ground cover datasets would be available to fulfill its mandate. ITU supports the effort within the UN Geospatial Network to procure a high-resolution digital terrain model, needed also for most of the UN support activities. I hope that by pooling resources amongst interested agencies we would be able to procure this data for the whole UN system in the near future.

I would like to bring to your attention that the ITU-R Study Group on Earth Observation deals with remote sensing systems, including passive and active sensing systems, operating on both ground-based and space-based platforms. One of its publication, Recommendation ITU-R RS.1883 on *Use of remote sensing systems in the study of climate change and the effects thereof*, encompasses guidelines on the provision of satellite-provided remote sensing data for studying climate change.

Furthermore, I wish to underline the essential role of the ITU in the allocation and international management of spectrum needed for delivering the imaging payload to earth stations. Likewise, spectrum is required by Synthetic Aperture Radars onboard satellites for earth observations.

In supporting universal access, ITU provides various geospatial analysis tools assisting its membership in removing network gaps, improving network roll-out to connect underserved or disconnected communities. For example, the *ICT Infrastructure Connectivity Maps* display different geo-reference and ITU data on an interactive map.

ITU believes that promoting ICT infrastructure open data (e.g. mobile coverage, fiber networks) unlocks the potential of geospatial activities for social good and advanced connectivity through innovative solutions. This can only be achieved through closer partnerships to increase awareness, capacity in producing and sharing data, and international harmonization. The UN IGIF would surely play an essential role in reaching this goal.

ITU is contributing a few geospatial ICT infrastructure datasets to the *One UN Geospatial Situation Room*, the data hub endorsed by UN-GGIM under development by the UN Geospatial Network, and we are preparing more geospatial datasets for the data hub.

ITU has brokered various ICT standards that include the use or transport of geospatial data. For example, in the scope of the United for Smart Sustainable Cities Initiative, ITU contributed to the report “Redefining smart city platforms: Setting the stage for Minimal Interoperability Mechanisms” providing guidelines on sharing geospatial data and their interoperability.

An ITU Focus Group on AI for Natural Disaster Management capitalizes on the growing interest and novelty of AI in natural disaster management, laying the groundwork for best practices in the use of AI including assisting with data collection and handling, improving modelling across spatiotemporal scales, and providing effective communication. This activity may be of interest to UN-GGIM. Task Team on Geospatial Information for Climate Resilience and I hope synergies could be developed between our organizations at this regard.

Regarding the UN Early Warnings for All Initiative, that stipulates that an early warning system should protect every person in the world by 2027, ITU is leading the “Warning Dissemination and Communication" pillar, looking at last-mile connectivity to ensure timely delivery of warnings to people at risk. The Action Plan for this initiative, launched during COP 27, calls for the promotion and

implementation of geo-located mobile-based early warning services using cell broadcast and/or location-based SMS. Another example of the interconnection of geospatial data and ICT for the benefit of all!

Distinguished guests,

As you can see, the ITU is at the forefront of the digital revolution that accelerates progress towards all the United Nations Sustainable Development Goals.

Geospatial data coupled with powerful geospatial analyses, which include the use of machine learning and artificial intelligence approaches, are key to providing effective and efficient telecommunication services and applications now and for the future.

This is why a close relationship with the geospatial community is welcomed as it will help us to ensure that the potential and requirements of geospatial data, services, and technologies are well understood and integrated in ICT systems and applications, which are at the basis of the fourth industrial revolution.

The ITU Membership comprises 193 Member States and over 1000 companies, universities, research institutes and international and regional organizations. In fact, several organizations of the geospatial community are already members of the ITU, for example, the Open Geospatial Consortium (OGC) and the Airbus Group.

I invite you also to follow the work of the International Telecommunications Union so that together, we can leverage the power of the technology to improve the lives and productivity of people and businesses everywhere.

Thank you very much.