COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

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Submissions from entities in the United Nations system, international organizations and other stakeholders on the progress made in the implementation of the outcomes of the WSIS during the past 20 years

Submission by

World Meteorological Organization

This submission was prepared as an input to the report of the CSTD secretariat that will inform the substantive discussion at the CSTD on the progress made in the implementation of the outcomes of the WSIS during the past 20 years during its 28th annual session in April 2025, in response to the request by the Economic and Social Council, in its resolution E/RES/2023/3, to the CSTD to conduct such substantive discussions and to report thereon, through the Economic and Social Council, to the General Assembly.

United Nations Commission on Science and Technology for Development

Twenty years in the implementation of outcomes of the World Summit on the Information Society (WSIS)
WSIS+20 Reporting

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Date of response: 4 November 2024

I. What is your organisation's formal role and responsibilities concerning WSIS implementation?

a. Mandates of your organization relevant to the WSIS implementation

The World Meteorological Organization (WMO) has several mandates that are particularly relevant to the implementation of the World Summit on the Information Society (WSIS) outcomes:

WMO is tasked with developing and implementing globally coordinated systems for acquiring, processing, transmitting, and disseminating Earth system observations. This includes the WMO Integrated Global Observing System (WIGOS) and the WMO Information System (WIS), which are crucial for providing accurate and timely weather, climate, and water information.

Early Warning Systems: WMO leads initiatives to ensure that early warning systems are in place globally. These systems are essential for disaster risk reduction and are a key component of WSIS's focus on using information and communication technologies (ICT) for sustainable development.

Data and Information Management: WMO is responsible for the development and implementation of sound data and information management practices across all its programs. This ensures that data is standardized, accessible, and usable for various applications, aligning with WSIS goals of improving access to information.

Capacity Building: WMO works on enhancing the capabilities of national meteorological and hydrological services through training and development programs. This helps countries better utilize ICT for weather and climate services, supporting WSIS's aim of fostering inclusive and development-oriented information societies.

These mandates highlight WMO's integral role in leveraging ICT to enhance global cooperation in meteorology, climatology, hydrology, and related fields, thereby supporting the broader objectives of WSIS.

b. Brief History of your organization's contribution to the World Summit on the information Society (WSIS)

The World Meteorological Organization (WMO) has been actively contributing to the World Summit on the Information Society (WSIS) since its inception. Here's a brief history of our involvement:

Early Engagement: WMO has been involved in WSIS since the first phase of the summit in 2003 in Geneva and the second phase in 2005 in Tunis.

Focus on Early Warning Systems: One of WMO's significant contributions has been in the development and implementation of early warning systems. These systems use ICT to provide timely warnings about hazardous weather and climate events, which is crucial for disaster risk reduction.

Global Observing Systems: WMO has also focused on enhancing global observing systems, such as the WMO Integrated Global Observing System (WIGOS) and the WMO Information System (WIS). These systems are essential for collecting and disseminating weather, climate, and water data globally.

Capacity Building: Over the years, WMO has worked on building the capacity of national meteorological and hydrological services, particularly in developing countries. This includes providing training and resources to improve the use of ICT in weather and climate services.

Recent Initiatives: In recent years, WMO has continued to lead initiatives like the Early Warning for All global campaign to ensure every person on Earth is protected by early warning systems within five years. This initiative was recognized as a top priority at the WMO Congress in 2023.

WMO's contributions to WSIS highlight their commitment to leveraging ICT for sustainable development and disaster risk reduction, aligning with the broader goals of the summit.

c. Implementation processes and initiatives within your organization and/or in partnership with other organisations

The World Meteorological Organization (WMO) has several key implementation processes and initiatives that align with its mandates and contribute to global efforts in meteorology, climatology, hydrology, and related fields. Here are some notable ones:

Early Warning Systems: WMO is leading a global initiative to ensure that every person on Earth is protected by early warning systems within five years. In this respect, WMO co-leads this initiative in active partnership and collaboration with the United Nations Office for Disaster Risk Reduction (UNDRR), the International Telecommunication Union (ITU) and the International Federation of Red Cross and Red Crescent Societies (IFRC) and other partners. This involves developing multi-hazard early warning systems (EWS) that provide timely information about hazardous weather and climate events.

Capacity Development: WMO has a comprehensive strategy for capacity development, which includes various programs such as the Education and Training Programme, the Voluntary Cooperation Programme (VCP), and the Technical Cooperation Programme (TCP). These programs aim to enhance the capabilities of national meteorological and hydrological services, particularly in developing countries.

Global Observing Systems: WMO coordinates the development and implementation of globally integrated observing systems like the WMO Integrated Global Observing System (WIGOS) and the WMO Information System (WIS). These systems are essential for collecting and disseminating weather, climate, and water data globally.

Policy Integration: WMO engages in intergovernmental processes to inform policy development, such as the UN Framework Convention on Climate Change and the 2030 Agenda for Sustainable Development. This ensures that meteorological and hydrological services are integrated into national and international development plans.

II. What have been your organization's main contributions to the direct implementation of the WSIS outcomes and related areas of digital development since the Summit, particularly since 2015?

a. WSIS Action Lines (as lead, co-facilitator or supporting participant)

As a co-facilitator of the WSIS action line on e-environment, the World Meteorological Organization (WMO) has made several significant contributions:

Monitoring Systems: WMO has been instrumental in establishing monitoring systems that use information and communication technologies (ICTs) to forecast and monitor the impact of natural and man-made disasters. This is particularly crucial for developing countries, least developed countries (LDCs), and small economies.

Early Warning Systems: WMO leads global efforts to develop and implement multi-hazard early warning systems (EWS). These systems provide timely information about hazardous weather and climate events, helping to mitigate the impacts of disasters.

Climate and Environmental Data: WMO facilitates the collection, processing, and dissemination of climate and environmental data through initiatives like the WMO Integrated Global Observing System (WIGOS) and the WMO Information System (WIS). These systems ensure that accurate and timely data is available for decision-making and policy development.

Capacity Building: WMO works on enhancing the capabilities of national meteorological and hydrological services to use ICTs effectively. This includes training programs and technical support to improve the use of weather and climate information for sustainable development.

b. WSIS-related projects

A typical example: The **WMO Information System 2.0 (WIS2)** is an advanced framework designed to enhance the sharing and accessibility of weather, climate, and water data among WMO Member States and Territories. It provides a modern, flexible, and powerful framework for data sharing in the 21st century. It supports the WMO Unified Data Policy and the WMO Global Basic Observing Network, ensuring that data from various Earth system domains are integrated and accessible.

c. Indicators used to measure the impact of ICT in the achievement of the SDGs in your organization's area of work

Number of countries that participate in global operational data exchange and meet the minimum technical requirements set by WMO's technical commissions; Number of countries that have completed the transition from legacy message switching system to new WMO Information

System; Number of countries having access to weather forecasts and climate prediction products prepared by World Meteorological Centres.

d. What assessment has your organization made of its engagement in WSIS-related work and digital development in its areas of responsibility?

WMO has a Planning, Foresight and PerformanceOffice (PFPO) which annually assesses the key performance indicators related to its engagement in WSIS work.

III. What does your organization see as the main achievements, problems and emerging issues arising from WSIS and from digital development in its areas of responsibility since the Summit, particularly since 2015?

a. What have been the main achievements of WSIS and digital development?

- Establishment of the Severe Weather forecasting Programme (2006)
- Guidelines on Multi-hazard Impact-based Forecast and Warning Services (2015)
- WMO Unified Data Policy (2021)
- Digitization of Extreme Events Survey (2022)
- Launching of the Early Warning for All Initiative (2023)

b. What problems, obstacles and constraints have been encountered?

Quality, affordability and access to ICTs – The status of equipment and infrastructure varies widely among LDCs for Multi-hazard Early Warnings Systems; variations in access and use of mobiles and the Internet across gender and age, urban vs. rural groups.
Low uptake of tools and organizational competency – Most NMHSs in LDCs face acute staffing shortages and competency gaps; Brain drain, especially among ICT professionals; Security constraints that restrict some organizations' access to collaboration web sites, cloud computing services.
Collection and sharing of impact information – Impact information following disasters can come from several different sources and takes time to complete; NMHSs are not mandated to collect impact information.

c. What new opportunities and challenges have emerged over the years since WSIS which need to be addressed?

- **Accelerated Implementation of Early Warning for All initiative by 2027** – Exploring innovative solutions, strategic partnerships, and incorporating new technologies for delivering targeted and coordinated support and technical assistance to bridge gaps outline in national EW4ALL road maps.

- **Migration to the new WMO Information System** – 90% of Members of WMO will complete this migration by 2030.

- **New technologies**: Machine Learning, Big Data and cloud-based services

IV. Lessons learned in the implementation of the Summit outcomes in your organisation's specific areas of responsibility

Lack of ICT professionals, especially information system architects could seriously hinder the application of ICT in National Meteorological and Hydrological services.

V. Observations or recommendations concerning the future of WSIS and digital development, taking into account the outcomes of the Summit of the Future in September 2024

For LDCs and SIDS, regional and subregional collaborative solutions could be more cost effective and sustainable. Cloud computing services will be a better solution for most developing countries compared to traditional on-premises systems.

VI. Please identify publications, reports and other documents by your organisation which you consider can contribute to the work of the review.

WMO and the Early Warnings for All Initiative

WMO Unified Data Policy Resolution (Res.1)

WMO Information System (WIS) | World Meteorological Organization

State of the Global Climate 2023