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**Submissions from entities in the United Nations system and elsewhere on
their efforts in 2018 to implement the outcome of the WSIS**

Submission by

World Meteorological Organization

This submission was prepared as an input to the report of the UN Secretary-General on "Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" (to the 22nd session of the CSTD), in response to the request by the Economic and Social Council, in its resolution 2006/46, to the UN Secretary-General to inform the Commission on Science and Technology for Development on the implementation of the outcomes of the WSIS as part of his annual reporting to the Commission.

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World Meteorological Organization (WMO) Submission to WSIS Report 2018

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Part 1: Executive Summary

1. The World Meteorological Organization (WMO) is committed to promoting and supporting the implementation of ICTs for improving the global, regional and national production, exchange and distribution of information, forecasts and warnings on weather, climate, and water. In this way, WMO contributes to the World Summit on the Information Society (WSIS) action line on e-environment and its call “to establish monitoring systems, using ICTs, to forecast and monitor the impact of natural and man-made disasters, particularly in developing countries, LDCs and small economies.”
2. ICT systems that collect weather, climate and water information from around the globe underpin the delivery of information to the public, businesses and governments. They also support the production of analyses and forecasts. WMO continues to develop its WMO Information System (WIS) to allow and facilitate wider accessibility to this information.
3. In addition to improving climate change monitoring and related applications, WMO seeks to link WIS and ICTs with the data needs of the five priority areas of the Global Framework for Climate Services: Agriculture and food security, Water, Disaster Risk Reduction, Health and Energy.
4. The successful development of the Severe Weather Forecasting Demonstration Project continues to evolve in eight geographical regions. Arrangements and techniques developed through this project allow decision makers in countries with less developed infrastructure to take advantage of high-value meteorological analyses and predictions generated around the world, thereby reducing the impact on life and property of severe weather events.
5. ICTs are being harnessed by national weather services around the world to improve the services they offer to citizens. The demand for accessible and accurate services will continue to grow in the years ahead. To respond effectively to the new human vulnerabilities and socio-economic trends of the 21st century, national weather services need greater recognition from policymakers and to be further integrated into national development plans. This will help ensure that all countries reduce the risks and maximize the opportunities linked to weather, climate and water, towards implementation of the 2030 Agenda for Sustainable Development.

Part 2: Analytical overview

1. WMO achieves its objectives by facilitating international agreement among National Meteorological and Hydrological Services (NMHSs) around the world. Challenges to the use of ICT collaboration tools for this purpose include great variability in the quality of ICT infrastructure available to various countries, low uptake of tools that are not a part of the daily working environment of the collaborators, and security constraints that restrict some organizations’ access to collaboration web sites. The most effective

techniques for collaboration remain email lists, wikis and, where time zone differences permit, telephone and video conferences.

2. The WMO Information System (WIS) provides a major upgrade to the way weather services and their partners manage and share weather, climate, water, marine and related environmental information. WIS exploits the most recent advances in information and communication technologies and reduces the costs of exchanging information. WIS gives users outside the meteorological community free access to an expanded range of information. As a result, WMO can now collaborate more fully with United Nations and other international partners on implementing common programmes and activities, such as the Global Framework for Climate Services.

3. In 2015, the Seventeenth World Meteorological Congress noted that the effectiveness of WIS in exchanging information critical for saving lives is sometimes limited by restrictions preventing some countries from accessing equipment needed for full participation in WIS. It therefore passed resolution 31 (Cg-17) classifying telecommunications between WIS centres as an essential service for creating and distributing data, products, warnings and advisories for the protection of life and property.

4. Climate information and services rely on data to conduct analytical studies, feed model predictions and calibrate other types of data, such as data from remote-sensing platforms. This requires longer term observations and data of higher quality than data used for ordinary weather forecasting systems. WMO seeks to ensure that these criteria are met at global and national levels, using best-available technologies, standards and tools. WMO is currently leveraging WIS by developing the functional architecture of the GFCS/Climate Service Information System (CSIS). CSIS functions include managing historical data and providing climate forecasts, long-term change predictions and projections.

5. To provide clarity for Members in navigating the rapidly changing world of data and data technologies, and especially to provide some insight regarding trends and emerging issues in data and its use, the WMO Commission for Basic Systems led a review and prepared a report on emerging data issues. The review focused on the impact (both positive and negative) of emerging data issues on WMO and its Members, and how they might respond collectively and individually, at global, regional and/or national levels. The review converged around the important reminder that data is a means to an end, not an end in itself. It is only through its intelligent use in engaging with users and in the development and uptake of services and associated outcomes that meet societal needs that data delivers its full value, be it over the long term required for historical climate insight and impact management, the medium term for effective water and natural resource management and disaster preparedness, or over the shorter term to warn of, and support response to, impending severe weather events and disasters. The review provided a response framework featuring concrete actions centred on thinking global, acting local and reaching forward.

Part 3: Innovation and Progress, plans

1. To provide guidance on the evolution of WIS to better meet the needs of users from across all WMO and partner programmes, and to embrace current trends in technology and data volumes, WMO developed the concept of WIS 2.0. WIS 2.0 will be a collaborative system of systems using Web-architecture and open standards to provide

simple, timely and seamless sharing of trusted weather, water and climate data and information through services. It will provide a “virtual one-stop-shop” for weather, water and climate information and services by providing an environment in which data can be managed, documented, discoverable, accessible and easy to use. It will also standardize information management, so data can be relied upon.

2. A specification document on Climate Data Management Systems (CDMS) was developed to help Member States use standard and the most up-to-date systems for organizing, managing and analyzing climate data from all sources. These specifications are now included as part of the WMO/WIS regulatory material, hence constituting a new reference for managing climate data and developing its supporting technology and systems. A strategy and implementation plan for an reference Open source CDMS tool sets is under development. An International workshop on climate data management systems is scheduled to take place in 2019.

3. A tremendous success for WMO, the Severe Weather Forecasting Demonstration Project (SWFDP) is providing most developing countries across the globe with information needed to make better decisions on mitigating the impacts of severe weather. It has also delivered improved ways of working between national, regional and global operational centres and experts, and it has established partnerships among these experts and the people responsible for planning for and managing the response to severe weather events. The SWFDP is currently active in Southern and Eastern Africa, the Bay of Bengal, Southeast Asia, Central Asia, the Eastern Caribbean and West Africa. It is being planned for Central Africa and South America. The project is expanding its scope by establishing synergies and integrating, for example, with Flash Flood Guidance System in Southern Africa. ICT is crucial to the success of the project: global observations of the weather need to be made available, and numerical weather forecasts produced by the most advanced NMHSs need be accessible by forecasters in participating nations, who may also need training in the interpretation of Numerical Weather Prediction products and in how to perform verifications (as part of the NMHSs’ quality management framework). ICT also facilitates communication between forecasters and decision makers, helping to build long-lasting relationships. A full review of the SWFDP has been requested by the 2018 seventieth session of Executive Council, to ensure the efficiency and potential synergy with Flash Flood Guidance System and Coastal Inundation Forecasting Demonstration Project.

4. Providing an agreed authoritative source of weather information is crucial to the successful management of weather-related events. The WMO Weather Information Service, hosted by Hong Kong (China), delivers authoritative web-based weather forecasts for cities around the world using information provided from the national weather service of each participating country. In Uganda, the weather service is working with a mobile telephony provider to deliver an SMS warnings service to reduce the loss of life among fishermen on Lake Victoria. Neighbouring Tanzania is building on this experience to provide a similar service to support fishers, farmers and the transport industry and is also cooperating with community radio to enhance the penetration of messages, a series of achievements under the WMO Public Weather Service (PWS) Programme through the WDS/Service Delivery Division. The improvement of the warnings themselves in this project is being addressed through a Severe Weather Forecasting Demonstration Project covering six Eastern African countries. To improve the effectiveness and efficiency of weather, climate and water related alerting systems

worldwide, WMO has encouraged its Members to adopt the Common Alerting Protocol (CAP) as the key standard for the achievement of the goal of all-hazards, all-media public alerting. WMO works via the PWS Programme, with the International Telecommunication Union (ITU) in promoting CAP implementation worldwide by organizing international workshops and in-country implementation projects as well.

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