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Submissions from entities in the United Nations system and elsewhere on their efforts in 2012 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 16th 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.

6 December 2012

WMO Submission to WSIS Report 2012.

Part 1: Executive Summary

1. The World Meteorological Organization (WMO) is committed to the promotion, coordinating and support of implementation of ICTs for improving global, regional and national production, exchange and distribution of information, forecasts and warnings on weather, climate, and water.
2. Underpinning the delivery of information to the public, businesses and governments are the ICT systems that collect weather, climate and water information from around the globe and that support the production of analyses and forecasts. WMO has continued to develop its WMO Information System that allows and facilitate wider accessibility to this information, and during 2011 the WIS became operational. WIS provides greater visibility of the information that is available and allows users to access information either on demand or through routine delivery when it is updated.
3. Following a successful pilot in southern Africa, the Severe Weather Forecasting Demonstration Project has been extended to five regions around the world. The organization and techniques developed in this project allow decision makers in countries with less developed infrastructure to take advantage of weather information generated around the world, thereby reducing the impact on life and property of severe weather events. Key priorities in the current phase of the project are to make the techniques available to more regions of the world and to ensure that the approach is sustainable.
4. During 2011 the World Weather Information Service that provides public access to authoritative weather information for cities throughout the world has been released for testing. ICTs are being harnessed by government weather organizations around the world to improve the services they offer to citizens. An example is a trial in Uganda where fishermen on Lake Victoria are sent weather warnings by SMS in a service designed to reduce loss of life.

Part 2: Analytical overview

1. Weather information is available from a large number of sources, but the end user often has little indication of the origins of the information. The quality and consistency of the information becomes crucial during a weather emergency. This has led to the concept within WMO of a "single authoritative voice" for issuing weather warnings and the detailed information associated with them. If the authorities responsible for responding to emergencies base their decisions on differing information, the resulting actions are inconsistent and may work against each other. To remain credible, the single authoritative source within a country has to provide high quality information as well as having the support of the national government.
2. WMO achieves its objectives through facilitating international agreement among the weather services around the world. Challenges to the use of ICT collaboration tools have included great variability between nations of the ICT infrastructure available, low uptake of tools that are not part of the daily working environment of the collaborators, and security constraints within organisations' ICT infrastructures that restrict access to collaboration web sites. The most effective techniques remain email lists and wikis, and telephone conferences where time differences permit.
3. The WMO Information System (WIS) is now in operational use. This builds on the routine exchange of weather information that has been in place for half a century, retaining the core attributes of fast and reliable delivery of critical information. WIS allows users to discover what information is available through the WIS and allows authorised users to

download data on demand or to issue are request for the information to be supplied whenever it is updated. WIS also introduces alternative methods of transporting information, making it possible for research institutes, for example, to deliver information routinely without needing a direct connection to the (expensive) core network that is used to exchange critical information. This will deliver the twin benefits of operational meteorology delivering more accurate information through the availability of additional types and volumes of observations and product information, and allowing a wider range of services through the combining of weather information with that from other disciplines.

Part 3: Innovation and Progress, plans

1. Central to the WMO Information System is the use of international standards. In addition to WMO's own standards for data representation that are designed for highly efficient data exchanges of specialised information so that large volumes can be exchanged in a short time, WIS uses standards developed by the Open Geospatial Consortium and the International Standards Organisation. WMO is taking an active part in the standards development processes for these organisations so that the standards evolve to be able to represent the complex descriptions of time and space that are needed for meteorology, water and climate information. Enhancing the standards, rather than working around their limitations, means that weather, water and climate information will be available more easily to a wider community.

2. WIS addresses the mechanics of making information available to users. WMO has another Programme, called the WMO Integrated Global Observing System (WIGOS) that is designed both to increase the quantity of weather, water and climate observations and to improve their quality and confidence in that quality. Like WIS, it seeks to involve more scientific communities in the generation and sharing of observations of the environment so that research, operational and end user products can be made more accurate and relevant. WIGOS has entered the detailed planning stage, with tangible results expected by 2015.

3. An unqualified success, the Severe Weather Forecasting Demonstration Project is providing countries in southern and eastern Africa, and island states of the southwest Pacific with information needed to make better decisions on mitigating the impacts of severe weather, but has also delivered improved ways of working between national and global experts, and between these experts and people who have the responsibility for planning for and managing the response to severe weather events. This approach is now planned for two other regions in Asia. ICT is crucial to the success of the project: global observations of the weather underpin the approach; numerical weather forecasts produced by the most advanced weather services are made available to the forecasters in the affected nations, who are supported through training in how to interpret the forecasts; and the forecasters work closely with the decision makers using relationships that are built up during the project.

4. Planners, operations teams and the public use weather information routinely, and a wide range of weather services exist to support them. Climate change means that it is no longer enough to look at historical events to determine what is likely to happen during the lifetime of a building, road or other investment, or to develop the regulations to ensure public safety. A new range of services will be needed to support these activities, and WMO is developing the Global Framework for Climate Services to make sure that nations are aware of the opportunities that can be taken from the science of climate change, supported by ICT, and also of what is needed from the science for it to be applied for global benefit.

5. Providing an agreed authoritative source of weather information is crucial to successful management of weather related events. ICT has a role to play in this; the authoritative source has to be as accessible, if not more so, that other sources. Even those weather services with the most developed ICT infrastructures have to work hard to maintain this position. 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. 2011 saw the introduction of a smart phone application, making the service more attractive and more accessible to users. Other countries are collaborating with other service providers, for

example 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. The improvement of the warnings themselves in this project is being addressed through a Severe Weather Forecasting Demonstration Project covering six Eastern African countries.