CONCEPT NOTE (DRAFT)
(as of 3 December 2015)

About the Meeting

The World Meteorological Organization (WMO) Executive Council (EC), at its sixty-fourth session (EC-64) in 2012, endorsed the establishment of Disaster Risk Reduction (DRR) User-Interface Expert Advisory Groups (UI-EAGs) to guide the implementation of the WMO DRR priority and its DRR Programme, Roadmap, and Work Plan. Among these Groups is the one on Hazard and Risk Analysis (UI-EAG HRA) for which draft Terms of Reference (ToR) are provided in Doc 4. The UI-EAG HRA will involve experts from the diverse DRR stakeholder community (public and private sectors) as well as from United Nations and other international agencies, academia, and the National Meteorological and Hydrological Services (NMHSs), including WMO technical commissions (TCs) and technical programmes (TPs).

Meeting Objectives and Expected Outcomes

In line with the WMO DRR Roadmap and a new DRR Work Plan for 2016-2017, which is under development, the objectives of this Meeting are to:

1. provide guidance and recommendations on WMO activities and processes related to the decision by the Seventeenth Session of the World Meteorological Congress in 2015 (Cg-
17) to “standardize weather, water, climate, space weather, and other related environmental hazard and risk information and to develop identifiers for cataloguing extreme weather, water and climate events” in a form that allows data on losses and damage to be cross-referenced to these phenomena (Resolution 9 (Cg-17)), including:

a. activities on the development of hazard definitions and a classification of hazards, hazard data/metadata and modelling requirements to support loss and damage data collection and risk assessment;

b. Explore and discuss the challenges and opportunities for developing international guidelines, manual and standards for NMHSs in the development of standard identifiers for cataloguing extreme weather, water, and climate events;

c. Explore the challenges and opportunities for linking such an identifier and catalogue system to the numerous hazard and loss and damage databases that exist in countries, UN organizations, and the private sector;


Meeting Participants and Expected Members of the UI-EAG HRA

Participants (see Doc 3) of the meeting include leading technical experts from:

1. Several countries (i.e. their NMHSs), which systematically monitor and analyze hazards and maintain respective databases, including Austria, Australia, Barbados, Canada, China, France, Germany, Japan, Netherlands, Peru, Russian Federation, Switzerland, Thailand, United Kingdom, and the United States of America;

2. WMO TCs responsible for the development of technical standards and guidelines related to the monitoring, detection, forecasting and analysis of weather, climate and water-related hazards; and,

3. Organizations such as the United Nations, other (inter-)governmental and non-governmental international, regional, and national agencies; academia and the private sector with extensive experience in risk assessment and collection of damage and loss data.

Background

Increasing Losses and Damages

Vulnerability and exposure to disasters is increasing as more people and assets locate in areas of high risk. When a disaster happens, it can set back socio-economic development by years if not decades, particularly in less developed countries.

Events of hydro-meteorological origin trigger the large majority of disasters. Between 2005 and 2014 alone, 83% of recorded disasters, 39% of recorded deaths, and 95% of the recorded total affected population were linked to hazards such as tropical cyclones, storms, floods, droughts, heat waves, cold waves, and wildfires.\(^1\)

According to the latest Intergovernmental Panel on Climate Change’s (IPCC) special report “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)” the frequency and severity of a number of hydro-meteorological hazards are on the rise, posing challenges to sustainable development and building resilience in both developing and developed nations.²

**(New) International Policy Frameworks (Sendai, SDGs, UNFCCC Warsaw Mechanism)**

The Sendai Framework for Disaster Risk Reduction 2015-2030 (hereafter referred to as Sendai Framework)³ adopted by 187 countries in March of 2015 was the first major agreement of the post-2015 development agenda. Its seven global targets and four priorities for action are highly relevant to WMO. It followed the adoption, by the United Nations General Assembly, of an ambitious 2030 Agenda for Sustainable Development in September. These will be followed by the twenty-first session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) that is currently taking place in Paris, France, to discuss a new climate agreement to succeed the Kyoto Protocol.

The Sendai Framework is built on elements that ensure continuity with the work done by countries and other stakeholders under the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA). The Sendai Framework centres around four priorities for action and introduces a number of innovations that arose during the consultations and negotiations⁴. The most significant shifts include:

- a strong emphasis on disaster risk management as opposed to disaster management;
- the substantial reduction of disaster risk and losses in lives, livelihoods and health, and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries as an expected outcome;
- a goal focused on preventing the creation of new risk, reducing existing risk and strengthening resilience; and
- the definition of seven global targets for achieving the expected outcome, including on reduced disaster mortality, number of affected people, economic loss, damage to critical infrastructure and disruption of basic services (including health and educational facilities), on an increase in the number of national and local DRR strategies, in international cooperation, and in the availability of and access to multi-hazard early warning systems and disaster risk information and assessments..

It is therefore a high priority that hazard-specific data and information on hazard event occurrence is systematically collected and catalogued as a requirement for the implementation of the Sendai Framework and the monitoring of its expected outcome and its targets.

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Background to WMO Congress 17 Resolution 9

Decisions by Cg-17

Cg-17, in its consideration of WMO DRR services, noted the emphasis of the Sendai Framework on the need for understanding of hazard risk, including hazard characteristics (Doc 7). In this connection, Cg-17 emphasized the need for systematic characterization and cataloguing of extreme weather and climate events in a form that allows data on losses and damage to be cross-referenced to the phenomena and adopted Resolution 9 to "standardize weather, water, climate, space weather and other related environmental hazard and risk information and to develop identifiers for cataloguing extreme weather, water and climate events". Cg-17 further requested the EC to provide oversight and the WMO Commission for Basic Systems (CBS) to develop a proposal on standardized identifiers, in collaboration with all TCs and RAs, for consideration by the EC.

Cataloguing of Extreme Weather and Climate Events

The need to consistently characterize and catalogue hazards related to extreme weather and climate events had been recognized by many of the WMO's TCs prior to Cg-17's Resolution 9, as well as by many NMHSs, other UN agencies, research bodies and the private sector (e.g. insurance companies). In the absence of a clear standard from an appropriate standards building authority (such as WMO), many of these external bodies have independently developed databases and procedures to record extreme weather, water and climate events and their impacts for specific purposes such as GLIDE, IRDR, EM-DAT, Desinventar, NatCatSERVICE, SIGMA to name a few.

The resulting landscape of databases of hazardous events is complex, but in conceptual terms can be divided into two categories:

1. Databases that focus on the meteorological and hydrological characteristics of hazardous events, e.g. tropical cyclones or on the departure from climatological norms, e.g. drought; and,

2. Databases that tend to be focused on the human and economic toll of a disasters but also include hydro-meteorological attributes such as hazard type (including hierarchy of the hazard), severity/intensity, etc.

Directly relevant to Cg-17's request were two WMO workshops on the subject of hazard and risk assessment in 2013 and 2014 (see Doc 5). The First Technical Workshop on Standards for Hazard Monitoring, Data, Metadata and Analysis to Support Risk Assessment, held in June 2013, involved participants from 11 countries which systematically monitor and maintain databases and analyze hazards; from the eight WMO TCs; and from other organizations with extensive experience in risk assessment and collection of damage and loss data (e.g. Munich Re, UNDP, UNISDR, and the Centre for Research on the Epidemiology of Disasters (CRED)). The Workshop explored the kinds of hazard information that are needed to analyze risk and to geo-reference damage and loss data. It identified the various approaches in use nowadays around the world and how various countries and organizations define, detect, monitor, map and forecast different types of hazards. Based on pre-workshop assessments, the workshop also developed recommendations and priorities of action for developing relevant guidelines and standards for monitoring, detecting and analyzing weather, climate and hydrological hazards.

Disaster Risk Reduction – a high priority for the World Meteorological Organization

The World Meteorological Organization (WMO)

Originating from the International Meteorological Organization established in 1873, WMO became the specialized agency of the United Nations in 1951 for meteorology, operational hydrology and
related geophysical sciences. Today, it is the authoritative voice of the United Nations system on the state and behaviour of the Earth's atmosphere (weather), its interaction with the oceans, the climate it produces, and the resulting distribution of water resources. As weather, climate, and the water cycle do not recognize any political boundaries, WMO promotes international cooperation in these areas by coordinating the activities of the NMHSs of its 191 Member states and territories (on 1 January 2015), most of which operate 24/7 throughout the year. It provides a unique mechanism for the timely exchange of data, information and products and fosters the improved understanding and development of meteorology and operational hydrology, as well as the benefits from their applications.

WMO carries out its work through scientific and technical programmes. These are designed to assist all Members to provide, and benefit from, meteorological and hydrological services and to address present and emerging problems. Within the framework of these programmes, NMHSs contribute substantially to the protection of life and property against natural hazards, to safeguarding the environment, and to enhancing the economic and social well-being in all sectors of society.

The World Meteorological Congress is the supreme body of the Organization and brings together the delegates of Members once every four years. The Executive Council, the executive body of the Organization, is responsible to Congress for the coordination of the WMO programmes and the utilization of its budgetary resources. Composed of 37 directors of NMHSs, it meets at least once a year to review the activities of the Organization. Six regional associations are each composed of Members whose task it is to coordinate meteorological, hydrological and related activities within their respective Regions (Africa; Asia; South America; North America, Central America and the Caribbean; South-West Pacific; and Europe). Eight technical commissions, composed of experts designated by Members, study meteorological and hydrological operational systems, applications and research and establish methodologies and procedures. They have been established for basic systems, instruments and methods of observation, atmospheric sciences, aeronautical meteorology, agricultural meteorology, oceanography and marine meteorology (jointly with IOC of UNESCO), hydrology and climatology. Through the RAs, TCs, and the programmes, WMO engages leading experts around the world to develop guidelines, manuals and standards for its Members' consideration and adoption. The Secretariat serves as the administrative, documentation and information centre of the Organization and provides support to the work of the above-mentioned WMO constituent bodies.

The WMO Disaster Risk Reduction Programme

The crosscutting WMO DRR Programme was established by WMO Members in 2003, with the aim to enhance the contributions of NMHSs to DRR in a cost-effective, systematic, and sustainable manner through developing knowledge products, capacity development projects and multi-stakeholder cooperation in disaster risk and emergency management at local to global levels. The scope and objectives of the WMO DRR Programme, were aligned with the HFA to support NMHSs in:

(i) the provision of hazard information for risk assessments, prevention, response, recovery and risk transfer across sectors;
(ii) the preparedness through early warning systems (EWSs);
(iii) the ability to respond to user requirements; and,
(iv) the cooperation and engagement in disaster governance structures at all levels.

Through this Programme, WMO has played an important role in supporting its Members in the implementation of HFA. Cg-17 reaffirmed DRR as one of the high-priority areas for WMO, thereby acknowledging the significance of the Sendai Framework for WMO and the new opportunities and challenges it poses for NMHSs. The WMO DRR priority cuts across all other WMO priorities and
contributes to related priority areas such as capacity development and the implementation of the Global Framework for Climate Services (GFCS).

Through its crosscutting nature the WMO’s DRR Programme is inextricably linked to the WMO RAs, TCs, and TPs. Hence, the DRR Programme strives to ensure that the activities of WMO’s constituent bodies and programmes and their operational and research networks are aligned when assisting Members in their efforts to reduce disaster risks and the impacts of hydro-meteorological hazards (see Doc 6). It should be noted that:

- Cg-17 reconfirmed the establishment of the DRR Focal Points of TCs and TPs (DRR FP TC-TP) and requested it to include focal points of the RAs as a mechanism to support the WMO-wide coordination of DRR activities (now DRR FP RA-TC-TP); and,
- EC-67 in 2015 established the EC Working Group on DRR (EC WG-DRR) to provide guidance on the implementation of the DRR Programme (Doc 8).

In order to better define users of different weather, water, and climate services for DRR and their requirements as well as to leverage the activities of RAs, TCs, and TPs, EC-64 in 2012 supported the utilization of DRR User-Interface Expert Advisory Groups (UI-EAGs), comprised of leading experts from the diverse DRR user community (public and private sectors), United Nations and international partner agencies, academia as well as from the NMHSs. It decided to endorse the establishment of UI-EAGs on:

- Hazard/Risk Analysis (HRA);
- Multi-Hazard Early Warning Systems (MHEWS);
- Disaster Risk Financing (DRF); and,
- Humanitarian Planning and Response (HUM).

Cg-17 encouraged the Secretariat to continue with such user-driven approaches in the development of DRR knowledge products, science-based and risk-informed services, and in the implementation of demonstration projects.

**The WMO Disaster Risk Reduction Roadmap**

WMO is now realigning its DRR Programme with the Sendai Framework while considering the provisions of other global frameworks that are highly relevant to DRR, for example, on sustainable development, climate change, humanitarian assistance and urban issues. A first step was the decision by EC-66 in 2014 and Cg-17, to produce and regularly update a WMO DRR Roadmap of “prioritized and realistically achievable activities and deliverables that are consistent with the WMO Strategic and Operating Plans as well as the work plans for relevant WMO programmes and projects”. A first draft was presented to Cg-17 and further input will be collected during this meeting. It should be recalled that Cg-17 emphasized that all DRR activities should consider and leverage existing guidelines, good practices, frameworks, etc. from the RAs, TCs, TPs and from NMHSs’ own DRR roadmaps, frameworks and good practices.

The Roadmap will guide WMO’s activities in all components of disaster risk management as well as their further enhancement and coordination across WMO constituent bodies and programmes. It is a coordinated organization-wide plan of action and will be continuously updated and verified for consistency with the other WMO planning documents. The aim of the Roadmap is furthermore to emphasize the role WMO and the NMHSs of its Members need to play in the effective implementation of the Sendai Framework across all levels, sectors and timescales, including the provision of weather-specific early warnings with improved lead time, slower onset seasonal or climate-related information, and hazard information for risk assessments, prevention, response, recovery, and risk transfer, i.e. for the reduction of existing risks and preventing the creation of new risks.