2015 MEETING OF THE DISASTER RISK REDUCTION FOCAL POINTS OF REGIONAL ASSOCIATIONS, TECHNICAL COMMISSIONS AND PROGRAMMES (DRR FP RA-TC-TP)

3–5 November 2015
WMO Headquarters
Geneva, Switzerland
Room: Salle C1

Webpage:
https://www.wmo.int/pages/prog/drr/events/teccom015/workshop_en.html

FINAL REPORT

(as of 17 March 2016)

1. Introduction and Background

The seventeenth World Meteorological Congress (Cg-17) in June 2015 reaffirmed disaster risk reduction (DRR) as one of the high-priority areas for WMO, thereby acknowledging the significance of the Sendai Framework for Disaster Risk Reduction 2015-2030 (hereafter referred to as Sendai Framework) for WMO and the new opportunities and challenges it poses for National Meteorological and Hydrological Services (NMHSs).

The DRR Programme, established in 2003, 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 hydrometeorologcial hazards. The scope and objectives of the WMO DRR Programme were aligned with the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (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 (EWS); (iii) the ability to respond to user requirements; and (iv) the cooperation and engagement in disaster governance structures at all levels. Through this crosscutting Programme, WMO has played an important role in supporting its Members in implementing the HFA. 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). 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 and Cg-17 to produce and regularly update a WMO DRR Roadmap.

The 64th session of the WMO Executive Council (EC-64) had urged the presidents of the technical commissions (TCs) to identify concrete intra- and inter-commission collaborations to support the implementation of the DRR Work Plan 2012-2015. 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 regional associations (RAs), TCs, and technical programmes[1] (TPs), EC-64 supported the utilization of DRR User-Interface Expert Advisory Groups (UI-EAGs), comprised of experts from the diverse DRR user community (public and private sectors), United Nations and international partner agencies, academia as well as the NMHSs. It decided to endorse the establishment of UI-EAGs on: (i) Hazard/Risk Analysis (HRA); (ii) Multi-Hazard Early Warning Systems (MHEWS); (iii) Disaster Risk Financing (DRF); and, (iv) Humanitarian Planning and Response (HUM). EC-65 urged the presidents of TCs (PTC) to engage actively with these DRR user-interface mechanisms.

Therefore, a network of DRR Focal Points of the TCs and TPs (DRR FP TC-TP) had been created through nominations by the PTC and relevant coordinating mechanisms of TPs and inter-commission activities. Cg-17 reconfirmed the establishment of the DRR FP TC-TP and requested to include focal points of the RAs as a mechanism to support the WMO-wide coordination of DRR activities. Cg-17 furthermore encouraged the Secretariat to continue with user-driven approaches such as the UI-EAGs in the development of DRR knowledge products, science-based and risk-informed services, and in the implementation of demonstration projects as detailed in the WMO DRR Roadmap and its Work Plans for the WMO DRR Priority and Programme. Following Cg-17, EC-67 established the EC Working Group on DRR (EC WG-DRR) to provide guidance on the implementation of the DRR Programme. The PTC and the presidents of RAs (PRA) then nominated (or reconfirmed) respective DRR Focal Points (now DRR FP RA-TC-TP), as shown in Annex I.

Major decisions of WMO governing bodies (Cg and EC) since Cg-16 in 2011 with regards to DRR are compiled in Doc 9 and are available on the Meeting website, together with all other background documentations and the presentations.

[1] Mainly those programmes which do not directly serve a technical commission, such as the Tropical Cyclone Programme.

2. The 2015 Meeting of the WMO DRR FP RA-TC-TP

The 2015 Meeting of the WMO DRR FP RA-TC-TP was held on 3-5 November 2015, at the WMO headquarters in Geneva, Switzerland. The agenda and list of participants are provided in Annexes II and III. The meeting was co-chaired by Michel Jean (DRR Focal Point of the Commission for Basic Systems (CBS)) and by Kevin Horsburgh (DRR Focal Point of the WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM)).

The goals of the 2015 Meeting of the DRR FP RA-TC-TP were to:

1. Review and finalize the draft Terms of References (ToRs) of the DRR FP RA-TC-TP;
2. Review and provide input to the current draft of the WMO DRR Roadmap, in particular to the activities for the intersessional period 2016–2019;
3. Provide guidance and recommendations on the process for the development of standard identifiers for cataloguing extreme weather, water, and climate events including standard hazard definitions and a respective governing mechanism;
4. Discuss relevant DRR-related projects and activities of the RAs, TCs, and TPs and their relation to prospective projects and activities of the DRR Programme.
5. Development of priorities for action and recommendations to better leverage DRR-related projects and activities of the RAs, TCs and TPs;
6. Provide recommendations for governance mechanisms / oversight arrangements including interactions with the PTC/PRA, Working Groups on DRR (or similar, if applicable) within RAs, TCs, and TPs, and the DRR UI-EAGs; and,
7. Develop a prioritized work plan for 2016–2017.

In **Session 1 – Opening and Introduction**, an opening statement on behalf of the WMO Secretary-General Michel Jarraud was delivered to set the scene for the Meeting[2]. It recalled the enormous importance of DRR to WMO and the NMHSs of its Members, since events of hydrometeorological origin continue to trigger the largest majority of disasters. It further outlined how WMO enables NMHSs to provide unique scientific and technical services through its scientific and technical programmes, TCs and RAs that underpin DRR and adaptation to climate change. These include observing, detecting, monitoring, predicting and early warning of a wide range of weather-, climate-, and water-related hazards. The speech then referenced significant achievements over the past decade, such as various capacity development initiatives for EWS in over 50 countries that have contributed to reducing substantially mortality risk from natural hazards. Finally, it provided an outlook to the implications of implementing the Sendai Framework and the GFCS and how WMO continues to support DRR at the international (e.g. through an International Network for MHEWS[3] that will facilitate sharing of expertise and good practice and undertake relevant baseline studies, reviews and research), regional level, national (particularly through the development of impact-based forecast and risk-informed warning services), and the city and community level.

In **Session 2 – Setting the Context**, major decisions by Cg-17 and EC-67 were outlined, recalling also decisions of earlier Cg/EC sessions that resulted in the current governance and implementation mechanisms of the DRR Programme: EC WG-DRR, DRR FP RA-TC-TP and the UI-EAGs[4],[5]. The

[2] Opening statement by the WMO SG, available at: http://www.wmo.int/pages/prog/drr/events/teccom015/documents/2015.11.03-DRRFPRA-TC-TPMeeting-SGOpening.pdf

[3] Annex III of the tentative WMO DRR Work Plan 2016-2019, available at: http://www.wmo.int/pages/prog/drr/events/teccom015/documents/2015.04.10-Doc7AnnexIII-IN-MHEWSConceptNote.pdf.

[4] Doc 8: Considerations on the Governance and Implementation Mechanisms for the WMO Disaster Risk Reduction (DRR) Programme and Information on the Current Status (as of 8 December 2015), available at: http://www.wmo.int/pages/prog/drr/events/teccom015/documents/2015.12.08-Doc8-DRRPGovernance.pdf.

[5] Docs 9: DRR sections of Cg-16 and 17 and EC-64 to 67 reports, available at http://www.wmo.int/pages/prog/drr/events/teccom015/2015.10.29-Docs9-Cg-ECAbridgedFinalReportsDRRSections.zip.

participants were then provided with an update on the WMO DRR Roadmap, which the Secretariat had been requested to develop by EC-66[6] (also see Annex IV for a short outline).

A main discussion item in this Session dealt with the decision by Cg-17 through Resolution 9 (Cg-17) to develop *Identifiers for cataloguing extreme weather, water and climate events*, under the leadership of CBS and in close collaboration with other TCs, especially with the Commissions for Climatology and Hydrology (CCl and CHy), which have a number of task teams that can contribute to this endeavour. The Secretariat provided a briefing on needs and requirements for hazard information to support collection of national loss and damage data and conduct risk analysis[7]. On a global scale this is especially relevant in the light of the targets of the Sendai Framework and their indicators, the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impact under the UNFCCC, and the Sustainable Development Goals, especially Goal 11 and its target 11.5. Many NMHSs are already cataloguing extreme events, and more than 80 countries have accounting systems (databases) for recording losses due to natural hazards. However, this is done only in a semi-standardized way and there is often a disconnect between the hazard and damage recording.

The co-chairs then briefly reviewed the outcomes of the 2013 (1st) Coordination Meeting of the DRR FP TC-TP[8]. The participants requested to include the recommendations from this meeting in the report of the 2016 meeting at hand (Annex V), together with an update of its Annex X *Mapping of WMO TC, TPs, and WMO Secretariat Departments/Divisions as relevant to the engagement in a multi-hazard, multi-sector demonstration project proposed to be implemented in Southeast Asia,* (this annex is again included in Annex VII).

Lastly, a first draft of the Terms of Reference (ToRs) of the DRR FP RA-TC-TP was presented. The final version of the ToRs – a main outcome of the meeting – is included in Annex VI.

In **Session 3 – DRR-related Mandates and Relevant Activities and Projects of WMO Regional Associations, Technical Commissions and Programmes**, the DRR FPs presented their respective RA's, TC's or TP's (i) mandates and priorities in DRR, (ii) specific projects and activities, (iii) guidelines, manuals and standards that could be leveraged for the implementation of the DRR Programme (i.e. the DRR Roadmap and Work Plan(s)). The representatives of the RAs, TCs and TPs were also asked to (i) elaborate on how the projects and activities of other RAs/TCs/TPs could be leveraged to ensure holistic DRR outcomes of their own RA's/TC's/TP's projects and activities, (ii) identify challenges when doing so, and (iii) address how these mandates, priorities, projects and activities, and challenges contribute to the WMO DRR priority and to the implementation of the Sendai Framework through the lenses of the key components of disaster risk management that NMHSs are supporting to varying degrees: 1) Hazard risk assessment, 2) Risk reduction through prevention, mitigation, preparedness (incl. MHEWS), response, recovery, and rehabilitation, and 3) risk transfer. A short summary for most RAs and TCs is provided on the meeting website and the FPs were encouraged to provide further input for their respective RA, TC or TP.

Session 4 – Discussion on key issues and role of as well as input to the DRR FP RA-TC-TP was centred around four topics:

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[6] Doc 6: WMO Disaster Risk Reduction (DRR) Roadmap (draft as of 16 January 2016 including comments received before, during and after Cg-17), available at http://www.wmo.int/pages/prog/drr/events/teccom015/workshop_en.html.

[7] In the meantime, the 2016 Meeting of the WMO DRR User-Interface Expert Advisory Group on Hazard and Risk Analysis (UI-EAG HRA) took place on 15-17 December 2016. A Concept paper for *Developing a WMO System for Characterizing and Cataloguing Extreme Weather, Water and Climate Events* and the final report of the meeting will be available at http://www.wmo.int/pages/prog/drr/events/2015HRA/2015_UI-EAG_HRA.html.

[8] Doc 5: 2013 (1st) Coordination Meeting of the Disaster Risk Reduction Focal Points of Technical Commissions and Programmes (DRR FP TC-TP) (as of 20 January 2014), available at http://www.wmo.int/pages/prog/drr/events/teccom015/documents/2014.02.20-Doc5-FinalReport2013DRRFPTC-TPMeeting.pdf.

1. The DRR FP RA-TC-TP as one of the main governance mechanisms for the DRR Programme (incl. Recommendations for inter- & intra-commission/-programme engagement to implement WMO DRR Roadmap & Work Plan 2016-17);
2. Nature and role of the UI-EAGs as a DRR Programme implementation mechanism;
3. Discussion on the WMO DRR Roadmap & Work Plan 2016-17 incl. milestones & deliverables (per thematic area / pillar) such as identifiers for cataloguing of extreme weather, water, climate, space weather events, a Southeast Europe Early Warning Platform, IN-MHEWS and IC-MHEWS; and,
4. Monitoring and reporting to WMO constituent bodies and governing mechanisms (Cg, EC, EC WGs, etc.).

Topic 1: The participants expressed concerns that this governance structure is still quite complex and in parts redundant with governance mechanisms of other WMO entities, and possibilities for simplifying this structure could be explored. An emphasis was put on seizing opportunities to support humanitarian assistance requiring fast action, and to reactivate efforts to develop a WMO humanitarian demonstration project with a strong DRR component. Participants also raised questions on the knowledge transfer mechanisms from the TCs to the Programmes, NMHSs and Members, which would need to be clarified, reflected in the governance structure and included in the WMO DRR Roadmap. Participants called for a mapping of roles and responsibilities of each group and respective links, and the inclusion of mechanisms other than the TCs and RAs (e.g. other TPs, the WMO Integrated Global Observation System (WIGOS), the WMO Information System (WIS), GFCS, Group on Earth Observations (GEO), etc.).

Topic 2: Further questions referred to the status and membership (and its determination) of the UI-EAGs. It was agreed to review the status, membership, ToRs, and outcomes of the UI-EAGs (i.e. those currently active) and make recommendations on their work programmes as well as include this as an agenda of the next teleconference of the FPs (intended to take place once every quarter).

Topic 3: In order to arrive at a new draft that will be submitted to EC-68, consultations with the RAs (e.g. PRA, Working Groups), TCs (e.g. PTC, Management Groups, Expert Teams), EC WG DRR, Members, the Secretariat and selected partners will take place during the early part of 2016. The Meeting participants requested to be given the opportunity to give feedback in writing. They recommended that more emphasis be put on MHEWS that include specifically local communities and on risk communication to those at risk as well as redundant communication systems which need to be periodically tested to ensure operation during disasters. Participants, however, pointed out that NMHSs can contribute also to other risk reduction measures, not only early warning, in support of building back better and development activities to prevent new risks. Thus, the Roadmap activities need to balance between early warning, preparedness and response and longer term development goals and consider two phases of DRR: a “cold” phase in absence of an impending hazard and focused on longer term risk management such as building codes and land use planning; and a “warm” phase when the threat from hazards is imminent, focusing on EWS.

The meeting participants recommended to develop the WMO DRR Work Plan 2016-2017 in the form of a matrix that lists the various decisions and requests by Cg and EC with regards to the WMO DRR Priority and Programme, the current status of these activities, and what remains to be done, including the timeframe and approach chosen to do this[9].

[9] After the Meeting a draft DRR Work Plan 2016-2017 was prepared by the Secretariat for further consultation with and input by the FPs and for submission to the EC WG DRR. It also outlines the work that will feed into major meetings of WMO constituent bodies and programmes and their sub-groups (as well as major external DRR activities at intergovernmental / interorganizational level) and the work that these meetings and groups represent. The Work Plan includes annexes with concept notes on some major WMO DRR activities, such as an existing proposal for an integrated multi-hazard DRR pilot/demonstration project in Southeast Asia, for an International Network on MHEWS (IN-MHEWS), an International Conference on MHEWS (IC-MHEWS), and a multi-hazard early warning platform for Southeast Europe. See Doc 7: Draft WMO Disaster Risk Reduction (DRR) Work Plan 2016-2017 (as of 14 December 2015) and its annexes (concept notes of IN-MHEWS, IC-MHEWS, and a multi-hazard early warning platform for Southeast Europe) – to be circulated among the FPs (not for public distribution yet).

The ideas for one or more demonstration projects on how NMHSs in a certain region, supported by the WMO regional and global operational network, can support DRR formed a significant part of the discussion. Participants asked for the Southeast Asia project proposal to be circulated among the FPs for comments on how to best re-orientate the proposal towards strengthening MHEWS in the region through a phased and transferable / scalable approach, as the PTC 2014 Meeting raised concerns that the proposal was too ambitious. Instead it was suggested to pursue a project on couples hydrological and atmospheric modelling (CHAM) in the Great Lakes Region in Canada and the USA. It was mentioned that any new proposal should include various options, also for other regions (e.g. India or Africa), and utilizing and connecting different projects (e.g. the Coastal Inundation Forecasting Demonstration Project (CIFDP), the Severe Weather Forecasting Demonstration Project (SWFDP), and the Flash Flood Guidance System (FFGS)[10]). It should also involve WIGOS and partner agencies and include certain foci and prototype activities per hazard, e.g. salination and its impact on agriculture, coastal erosion, or wildfires and smoke as a hazard for aviation. In this regard it was suggested that a sub-group of the DRR FPs (involving CHy, CCl, CBS, JCOMM, WIGOS and RA II/V[11] could look at good examples for coupled systems (atmosphere, surface waters, and oceans). The Meeting participants further recommended that the Secretariat (especially the WDS, OBS and CLW Departments) update Annex X of the 2013 WMO DRR FP TC-TP (see Annex VII) to include the CBS OPAGs IOS and ISS, the new generation of satellites, and other regional mechanisms such as the Regional Integrated MHEWS for Africa and Asia (RIMES).

Another major discussion item under Topic 3 was Resolution 9 (Cg-17) *Identifiers for cataloguing extreme weather, water and climate events*. Participants highlighted the significant effort that is required to track all hazards and their hierarchies and the cascading impacts of some hazards and secondary hazards triggered by the main hazard (such as during an El Niño, landslides, diseases related to rainfall, etc.). It was recommended to identify and track all relevant activities on this issue that are on-going in various TCs, TPs and other mechanisms. While the Secretariat intends to conduct a survey[12] on this it was recalled that the last activity by the DRR FPs was the review of the IRDR Peril Classification and Hazard Glossary (which informed the negotiations on the Sendai Framework). Participants also brought attention to other relevant on-going national (e.g. national risk assessments in many countries) and international processes such as by the UN Office for DRR (UNISDR) on the Sendai Framework targets and terminology (with new requirements for Members and their NMHSs) and under the UNFCCC (e.g. the Intended Nationally Determined Contributions (INDCs) where details on climate change impacts are already provided by the countries). This data should be made use of. Participants cautioned that the cataloguing system needs to leverage existing national systems which might be challenging due to variation in capacity, governance and needs, and that loss and damage data sharing may be limited due to the sensitive/classified or proprietary nature of the data. Participants also raised the issue of challenges associated with events that are transboundary (with characteristics that will differ from country to country → role of observing and monitoring systems) and with translating the terms into different languages. It was recommended that the relevant TCs and the UI-EAG HRA make a list of hazards/events that are worth tracking and then hand over these terms to the various experts and consult the dictionaries. One possibility to start with one hazards, e.g. which seem to be straightforward but can actually serve as an “integrator” across many hazards: a heat wave may cause snowmelt and subsequent flooding, heavy rains may cause flooding and landslides, a rockfall may cause a lake to overflow, and see level rise aggravates coastal flooding. The cataloguing system would therefore be especially helpful to those Members where meteorological and hydrological (and geophysical) services are located in different agencies.

[10] USAID is already funding activities to include the SWFDP and the FFGS in Southern Africa.

[11] A WIGOS workshop with an explicit DRR focus was recently held for these RAs. The last meeting of the CCl Management Group in Madrid also extensively discussed how especially climate data management is important for DRR.

[12] The survey results could be brought to a “Global Practice Workshop” which NOAA offered to host and which would be funded by the USA and the Climate Prediction and Application Branch of the WMO Secretariat.

Topic 4: It was discussed that there are two different types of monitoring: 1) Key Performance Indicators (KPIs) for achieving the Expected Results in the WMO Operating Plan (linked to the Priorities of the WMO Strategic Plans) and the Benefits of the Roadmap and 2) Indicators (milestones) for monitoring the DRR Work Plan. The former would be more on the programme level and for them it would be necessary to examine the existing KPIs and seek guidance from the EC WG DRR. For these the results from a new 2016 DRR survey and from surveys conducted e.g. by the WMO Secretariat's Regional Department (and thus information from the Country Profile Database) could be used. The latter type of indicators would be more on the Secretariat level.

Following the discussions in these sessions, the DRR FP-RA-TC-TP formulated their recommendations which are detailed in Section 3 below.

In **Session 5 – Review of the Draft Summary from Sessions 3 and 4 and Closing** the DRR FP RA-TC-TP finalized their draft ToRs for further consultation with the PTC and PRA and the respective RA/TC management groups and TP management structures. The outcomes of the 2015 WMO DRR FP RA-TC-TP Meeting, the PTC-PRA 2016 Meetings, and the 2016 EC WG DRR Meeting on this issue will be submitted to EC-68 for consideration and adoption.

3. Recommendations of the 2015 Meeting of the WMO DRR FP RA-TC-TP

1. The DRR FP RA-TC-TP as one of the main governance mechanisms for the DRR Programme
    - The Meeting recommended that the FP RA-TC-TP would ensure coordination within and across RAs, TCs, and TPs as well as related WMO initiatives (such as WIGOS and WIS);
    - The Meeting recognized that the DRR FP RA-TC-TP serve as a mechanism for inter-commission/-programme coordination and engagement for the implementation of the WMO DRR Roadmap & Work Plan 2016-17;
    - The Meeting recommended that the PTC and PRA provide guidance to the work of the DRR FP RA-TC-TP;
    - The Meeting agreed the DRR FP RA-TC-TP would seek direction from and provide recommendations to the EC WG on DRR;
    - The Meeting proposed that the UI-EAGs report to the DRR FP RA-TC-TP;
    - The Meeting proposed that the DRR FP RA-TC-TP would provide guidance and specific direction to the work plans and the TORs of the UI-EAGs as a key implementation mechanisms of the DRR Programme;
    - The Meeting developed draft TORs of the DRR FP RA-TC-TP for consideration by the EC WG on DRR and approval by EC-68; and,
    - The Meeting agreed to the following working arrangements (within available resources): Meet on an annual basis face-to-face, organize quarterly teleconferences.
2. Nature and role of the UI-EAGs as a DRR Programme implementation mechanism:
    - The Meeting agreed that the DRR FP RA-TC-TP will review the membership and (draft) ToRs of each of the UI-EAGs;
    - The Meeting agreed that the DRR FP RA-TC-TP have the authority to initiate or cease individual UI-EAGs;
    - The Meeting highlighted that the outputs of the UI-EAGs serve as an important contribution to the GFCS process; and,
    - The Meeting agreed that the DRR FP RA-TC-TP will review the outputs of the UI-EAGs and provide direction on their future activities.
3. Discussion on the WMO DRR Roadmap & Work Plan 2016-17 incl. milestones & deliverables:
    - The Meeting took stock of the Cg-17 decisions;
    - The Meeting participants requested the Secretariat to incorporate feedback from Members received thus far on the WMO DRR Roadmap and circulate a new draft to the DRR FP RA-

TC-TP and to the former drafting team, and then to WMO Members prior to submission to the EC WG DRR and EC-68

- The Meeting developed a draft DRR Work Plan and requested the Secretariat to further develop the DRR Work Plan (as an Annex to the DRR Roadmap, to be updated regularly/annually) for further consultation; and,
- The Meeting requested the Secretariat to circulate the existing proposal for an integrated multi-hazard DRR pilot/demonstration project in Southeast Asia to the DRR FPs for comments on how to best re-orientate the proposal towards strengthening MHEWS in the region through a phased approach.

4. Monitoring and reporting to WMO constituent bodies and governing mechanisms (Cg, EC, etc.)

- The Meeting recommended that existing DRR Programme Key Performance Indicators (KPIs) be circulated to the DRR FP RA-TC-TP for review and recommended alternatives (to be submitted to the appropriate WMO body);
- The Meeting recommended that the 2016 WMO DRR Survey should be as concise as possible and include questions derived from relevant Sendai Framework indicators and WMO Programme KPIs (with a focus on science and MHEWS);
- The Meeting agreed to report on the DRR FP RA-TC-TP's activities and progress to the PTC/PRA and to EC WG on DRR on an annual basis.

Annex I

The nominated WMO Disaster Risk Reduction Focal Points of Regional Associations, Technical Commissions and Programmes (DRR FP RA-TC-TP)

(as of 5 November 2015)

WMO constituent body/ mechanism	Nominated focal point(s) and affiliation
Technical Commissions	
CAeM	**Ian Lisk**, Met Office, United Kingdom
CAgM	**Roger Stone**, Queensland Department of Primary Industries & Fisheries, University of Southern Queensland, Australia
CAS	**Paul Kovacs**, Institute for Catastrophic Loss Reduction (ICLR), Canada
CBS	**Michel Jean**, Meteorological Service of Canada (MSC), Canada (Co-Chair)
CCl	**n.n.**
CHy	**Johnson Muturi Maina**, Kenya Meteorological Department (KMD), Kenya **Yury Simonov**, Hydrological Centre of Russia, Russian Federation
CIMO	**Jitze P. van Der Meulen**, Royal Netherlands Meteorological Institute (KNMI), The Netherlands
JCOMM	**Kevin Horsburgh**, National Oceanography Centre, United Kingdom (Co-Chair)
Regional Associations	
RA I	**Richard Philippe**, Direction de la météorologie nationale, Ministry of Transports, Cameroon
RA II	**K.J. Ramesh**, Ministry of Earth Sciences, India
RA III	**Carlos Naranjo Jacome**, Instituto Nacional de Meteorología e Hidrología (INAMHI), Ecuador
RA IV	**Albert A.E. Martis**, Meteorological Department Curaçao
RA V	**Dodo Gunawan**, Meteorological, Climatological and Geophysical Agency (BMKG), Indonesia
RA VI	**Axel Thomalla**, Deutscher Wetterdienst (DWD), Germany
Technical Programmes	
TCP	**Andrew Burton**, Bureau of Meteorology (BoM), Australia
WCRP	**Simon Mason**, International Research Institute for Climate and Society (IRI), USA
WWRP	**Paolo Ruti**, WMO Secretariat
Others	**n.n.**
Other mechanisms and projects	
GFCS	**n.n.**
WIGOS	**Jochen Dibbern**, Deutscher Wetterdienst (DWD), Germany **Luis Nunes**, WMO Secretariat
WIS	**n.n.**
Others	**n.n.**

Annex II

AGENDA

(as of 5 November 2015)

Day 1 – Tuesday, 3 November 2015	
08:30 – 09:00	➢ Registration
Session 1:	**Opening and Introduction**
09:00 – 10:30	➢ Welcome remarks and opening of the workshop – *Alasdair Hainsworth, Chief DRR Services Division (C/DRR, WMO)* ➢ Roundtable introduction of participants ➢ Objectives, structure, document list and working arrangements of the meeting – *Alasdair Hainsworth* ➢ Introducing the current co-chairs and selection of the drafting group for preparation of the final outcomes / recommendations – *Alasdair Hainsworth*
10:30 – 11:00	**Group Photo & Coffee**
Session 2:	**Background**
11:00 – 13:00	➢ DRR governance and implementation mechanisms and decisions of the 17th World Meteorological Congress (Cg-17) and Executive Councils (ECs) 64-67, including the EC Working Group on DRR, DRR FP RA-TC-TP, and the DRR User-Interface Expert Advisory Groups (UI-EAGs) (Docs 7-9) – *James Douris, Project Officer DRR Services Division* ➢ WMO DRR Roadmap and new framework conditions against the background of the post-2015 development agenda (Doc 6) – *Jochen Luther, Junior Professional Officer DRR Services Division* ➢ Briefing on needs and requirements for hazard information to support collection of national loss and damage data and conduct risk analysis – *Maxx Dilley, Director Climate Prediction and Adaptation Branch (D/CLPA, WMO)* ➢ Review of the draft Terms of Reference (ToR) of the DRR FP RA-TC-TP (Doc 4) – *Michel Jean, Meteorological Service of Canada (MSC), Environment Canada (DRR FP of CBS) & Kevin Horsburgh, Head Institute for Sustainable Coasts and Oceans and Chair of IOC/WMO JCOMM Expert Team on Waves and Coastal Hazard (ETWCH) Forecasting, National Oceanography Centre, UK (DRR FP of JCOMM)* – current co-chairs of the DRR FP RA-TC-TP ➢ Review of the outcomes of the 2013 (1st) Coordination Meeting of Disaster Risk Reduction Focal Points of Technical Commissions and Programmes, 14-16 October 2013, WMO Headquarters in Geneva (Doc 5) – *Michel Jean and Kevin Horsburgh*
13.00 – 14:00	**Lunch**
Session 3:	**DRR-related Mandates and Relevant Activities and Projects of WMO Regional Associations, Technical Commissions and Programmes**

Key issues for discussions:

1) What are your RA's/TC's/TP's mandates and priorities in DRR?
2) What priority projects and activities related to DRR is your RA/TC/TP working on?
3) What guidelines, manuals, and standards related to DRR is your RA/TC/TP developing?
4) How are projects and activities of other RAs/TCs/TPs leveraged to ensure holistic DRR outcomes of your RA's/TC's/TP's projects and activities?
5) What challenges does your RA/TC/TP face to ensure holistic DRR outcomes of its projects and activities?

Note:

The discussion should address how these mandates, priorities, projects and activities, and challenges contribute to the WMO DRR priority and to the implementation of the Sendai Framework for DRR 2015-2030 through the lenses of:

- Hazard risk assessment
- Risk reduction, prevention, mitigation, preparedness (incl. MHEWS), response, recovery, and rehabilitation

▪ Risk transfer	
14:00 – 18:00 *Including a short coffee break*	➢ 15 minute presentations/inputs with 5 minute Q&A ▪ Commission for Basic Systems (CBS) – *Michel Jean* ▪ Commission for Hydrology (CHy) – *Johnson Muturi Maina, Kenya Meteorological Department & Yuri Simonov, Senior Researcher, Hydrological Forecasts Department, Hydrometeorological Centre of Russia (DRR Focal Points of CHy)* ▪ Commission for Instruments and Methods of Observation (CIMO) – *Jitze Van der Meulen, Senior Adviser Weather Service, Royal Netherlands Meteorological Institute (KNMI) (DRR Focal Point of CIMO)* ▪ Joint WMO-IOC Commission for Oceanography and Marine Meteorology (JCOMM) – *Kevin Horsburgh* ▪ Commission for Climatology (CCl) – *Sezin Tokar, Senior Hydrological Advisor, Office of U.S. Foreign Disaster Assistance (USAID) (on behalf of the CCl DRR Focal Point which is still to be nominated)* ▪ Commission for Aeronautical Meteorology (CAeM) – *Ian Lisk, Head of Natural Hazards, Met Office, UK (DRR Focal Point of CAeM)* ▪ World Weather Research Programme (WWRP) – *Paolo Ruti, World Weather Research Division, Research Department (C/WWR, WMO)* ▪ WMO Integrated Global Observing System (WIGOS) – *Luis Filipe Nunes (WIGOS Project Office, WMO)*

Day 2 – Wednesday, 4 November 2015	
Session 3 (continued)	
09:00 – 11:00	➢ 15 minute presentations/inputs with 5 minute Q&A ▪ RA I – *Richard Philippe, Director Direction de la météorologie nationale and Permanent Representative of Cameroon with WMO (DRR Focal Point for RA I - Africa)* ▪ RA II – *K.J. Ramesh, Ministry of Earth Sciences, India (DRR Focal Point for RA II - Asia)* ▪ RA III – *Carlos Naranjo Jacome, Executive Director Instituto Nacional de Meteorología e Hidrología (INAMHI) and Permanent Representative of Ecuador with WMO (DRR Focal Point for RA III - South America)* ▪ RA IV – *Albert A.E. Martis, Director Meteorological Department Curaçao and Permanent Representative of of Curaçao & St. Maarten with WMO (DRR Focal Point for RA IV - North America, Central America and the Caribbean)* ▪ RA VI – *Hans-Joachim Koppert (on behalf of Axel Thomalla), German Weather Service / Deutscher Wetterdienst (DWD)*
11:00 – 11:30	**Coffee**
Session 4:	**Discussion on key issues and role of as well as input to the DRR FP RA-TC-TP**
11:30 – 13:00	➢ Topic 1: Discussion on the WMO DRR Roadmap and DRR Work Plan 2016-2017 (2019) including thematic and functional areas, milestones and deliverables / projects and initiatives such as: ▪ Hazard cataloguing of extreme weather, water, climate, space weather events. ▪ Southeast Europe (SEE) Early Warning Platform ▪ In-MHEWS ▪ IC-MHEWS ➢ Topic 2: Recommendations for inter- and intra-commission and -programme engagement to implement activities on the WMO DRR Roadmap and DRR Work Plan 2016-2017 (2019) ➢ Topic 3: Monitoring and reporting to WMO constituent bodies and governing mechanisms (EC and Congress) ➢ Topic 4: The DRR FP RA-TC-TP as one of the main governance mechanisms for the DRR Programme ➢ Topic 5: Nature and role of the DRR User-Interface Expert Advisory Groups (UI-EAGs)

13:00 – 14:00	**Lunch**
14:00 – 17:30 *Including a short coffee break*	➢ Continued discussion Session 4

Day 3 – Thursday, 5 November 2015	
Session 5: Review of the Draft Summary from Sessions 3 and 4 and Closing	
09:00 – 10:30	➢ Presentation of the draft summary from Sessions 3 & 4 for further discussion ➢ Finalization of the draft summary and of the 2015 DRR FP RA-TC-TP meeting recommendations ➢ Finalization of the DRR FP RA-TC-TP work plan for 2016-2017 with an outlook to 2018-2019
10:30 – 11:00	**Coffee**
11:00 – 12:30	➢ Review/finalization and adoption of the TORs of the DRR FP RA-TC-TP for further consultation with the Presidents and Management Groups of RAs, TCs, and TPs and for submission to EC-68 for consideration and endorsement ➢ Action points, next steps, and important dates throughout 2016 ➢ Official closing of the DRR FP RA-TC-TP meeting

Annex III

LIST OF PARTICIPANTS

(as of 5 November 2015)

DISASTER RISK REDUCTION FOCAL POINTS OF REGIONAL ASSOCIATIONS, TECHNICAL COMMISSIONS AND PROGRAMMES

TECHNICAL COMMISSIONS:

Commission for Aeronautical Meteorology (CAeM)

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Commission for Basic Systems (CBS)

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Commission for Climatology (CCl)

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Joint WMO-IOC Commission for Oceanography and Marine Meteorology (JCOMM)

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Regional Association II

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Regional Association IV

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Regional Association VI

Mr Hans-Joachim Koppert (on behalf of Axel Thomalla)
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WMO SECRETARIAT

WMO Integrated Observing System (WIGOS)

Mr Luis Filipe Nunes
WIGOS Scientific Officer
WMO Integrated Global Observing System (WIGOS) Project Office

World Weather Research Programme (WWRP)

Dr Paolo Ruti
Chief
World Weather Research Division (WWR)

World Climate Programme (WCP)

Maxx Dilley
Director
Climate Prediction and Adaptation Branch (CLPA)
Climate and Water Department (CLW)

Disaster Risk Reduction Programme (DRR)

Mr Alasdair Hainsworth
Chief
Disaster Risk Reduction Services Division (DRR)
Weather and Disaster Risk Reduction Service Department (WDS)

Mr James Douris
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Disaster Risk Reduction Services Division (DRR)
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Mr Jochen Luther
Junior Professional Officer
Disaster Risk Reduction Services Division (DRR)
Weather and Disaster Risk Reduction Service Department (WDS)

Annex IV

OUTLINE OF THE WMO DRR ROADMAP

A zero draft of the DRR Roadmap had been developed by the WMO Secretariat, assisted by a number of Members (Canada, China, Japan, United Kingdom, and the United States of America), for consideration by Cg-17 (circulated to all Members), at the request of EC-66. Specifically, EC-66 requested the WMO Secretariat, "*in consultation with Members, to urgently develop 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*". Furthermore, EC-67 called for a clear identification of the role of NMHSs and WMO, working with their partners, in the implementation of international planning processes, such as the Sendai Framework. The EC request was timely since 2015 marked a pivotal year in the global development agenda which saw the adoption of the Sendai Framework, the 2030 Agenda for Sustainable Development with a set of Sustainable Development Goals (SDGs), of which disaster risk management for achieving DRR is an integral part, and the Paris Agreement.

In addition to this global development agenda, an increasing number of actors are demanding access to timely multi-hazard / climate change warnings and information in order to better inform their own tactical strategic decision making. For many of these actors the demand for information is being successfully realised through WMO Members, however this demand is also being served by 3rd party organisations including regional intergovernmental bodies, the private sector and non-governmental organizations (NGOs). On the grounds that this could potentially undermine the role of the local NMHS and lead to a confused message for decision makers, it is therefore important that the Roadmap also acts as a vehicle by which WMO looks to improve coordination and collaboration with respect to the global response to the DRR-focus in this global agenda.

The Roadmap is first and foremost a document that can be used by both WMO Members and the external side to understand how NMHSs can contribute to increasing the resilience of communities, nations, regions, and the world under the above-mentioned frameworks, through a coordinated WMO-wide plan of action for DRR. It is neither a reference document for the theoretical or practical aspects of DRR nor a separate project or programme. However, it will discuss the activities required to address DRR as one of seven WMO priority areas in its Strategic Plan 2016-2019. Therefore, a key feature is to utilize existing WMO mechanisms (constituent bodies and programmes) and their plans and expert groups wherever possible, identify synergies to leverage WMO activities and projects to realise a DRR vision for NMHSs and the Organization and, if appropriate, forge links to external initiatives. This comprehensive, cross-cutting set of activities will also contribute to the realization of other WMO priorities such as the GFCS and capacity development.

The Roadmap will cover four inter-sessional periods of WMO, corresponding to the 15 years lifetime of the Sendai Framework. Each financial period may have different phases in terms of development, implementation, operation and evaluation. The period 2016-2019 may consist mainly of the establishment of a baseline, strengthening DRR components of existing projects and activities, and developing new pilot activities. The timescales involved require the Roadmap to be a "living" document which will define an initial set of activities and identify key milestones along this journey towards a "DRR service-ready" NMHS and Organization over all. Over the course of time the DRR landscape is certain to change and this initial document will necessitate regular updates and therefore further endorsement from the WMO decision-making bodies. With regards to the draft WMO DRR Work Plan 2016-2017, which will constitute Part II or the DRR Roadmap, a template for such an implementation plan for the Roadmap over the next two years was presented and populated after the meeting.

Annex V

Recommendations of the 2013 Meeting of the WMO DRR FP TC-TP

Following discussions and deliberations, the DRR FP TC-TP recommended that:

1. The extensive body of knowledge, including guidelines, manuals and standards available through various TCs and TPs as relevant to the thematic topics of DRR (see Annex II) be compiled, synthesized and made available on a portal for further analysis pertaining to the relevance to the deliverables of the DRR Work Plan 2012-2015. In this regard,
    a) Noted as highest priority the need for guidelines, recommended practices and standards addressing:
        i. Hazard definitions, monitoring, detection, databases, metadata, and hazard mapping and analysis to support risk assessment; and,
        ii. Operational guidelines of MHEWS.
    b) Requested support from the WMO Secretariat to provide services of a consultant in order to review the documents prepared by DRR FP TC-TP as the foundation for this compilation and further consult with the DRR FP TC-TP on the synthesis and design and development of a portal to make these available in a more accessible and organized manner for further analysis by the DRR FP TC-TP.
2. Significant opportunities to support the Members in disaster risk reduction may be achieved through a more integrated approach in developing multi-hazard observation and forecasting platforms as the foundation for development of relevant and seamless products and services to support multi-Hazard EWS and risk analysis. With these considerations, and addressing the request of EC-64 and 65, the DRR FP TC-TP:
    a) Proposed the design and development of a proposal leading to implementation of a coordinated multi-hazard Multi-Sector Risk Assessment and Multi-Hazard early warning Systems demonstration project with a service-delivery framework to demonstrate benefits of an integrated observation and forecasting platforms (Annex IX). Such a project would:
        i. Demonstrate “Reduced Human & Economic Losses and Realize Economic Opportunities and Benefits through Enhanced Risk Assessment and Multi-Hazard Early warning Systems for weather-, water-, climate- and costal-related hazards”;
        ii. Include Multi hazards: Tropical cyclones, storm surge and coastal inundation, severe precipitation and related flash flooding and riverine flooding, other severe weather including tornados, drought and heat waves;
        iii. Include Multi sectors and user communities: Disaster Risk Management, Agriculture and Food Security, Water Resource Management and Coastal Zone Management;
        iv. Be built wherever possible upon a number of technical assistant projects and activities (including TCP, SWFDP, CIFDP, FFG, ERA, WIGOS, WIS and GDPFS), particularly stressing the development of Regional Climate Centres, the THORPEX TIGGI database and the WWRP-WCRP legacy projects on sub-seasonal and seasonal timeframes and MILAC (Annex X);
        v. Involve identification, prioritization and development of partnerships and working arrangements with target sectors and users;

vi. Demonstrate the benefits of meteorological, hydrological, and climate products and services underpinned by target user needs and requirements and be aligned with the WMO Strategy in Service Delivery;

vii. Demonstrate the benefits of an integrated platform for observations and forecasting as the foundation for operational development of such services;

viii. Include capacity development and training engaging NMHS and their target users in alignment with the WMO Capacity Development Strategy; and,

ix. Be implemented in Southeast Asia, in Cambodia, Lao, Thailand and Vietnam as this region is one of the DRR Programme regions for demonstration of such projects, as approved by Cg 16, and also many of the technical assistance projects of WMO have been or are being implemented there. Therefore, the project provides an opportunity to leverage and coordinate these towards enhanced benefits to the Members.

b) Requested the secretariat as part of the review of the TC and TP work to identify guidelines, recommended practices, and standards as well as more details on the TC activities that would be relevant to this demonstration;

c) Agreed to establish a steering committee to guide and oversee the development of the proposal and implementation, monitoring and evaluation of the demonstration project;

d) Requested WMO Secretariat assist with identification of funding;

e) Recommended that the demonstration project be implemented in two distinct phases to the project including (i) 2014-15 for planning, obtaining buy-in form various stakeholders; (ii) 2016-2019 Implementation subject to approval in the planning phase, evaluation and future recommendations; and,

f) Urged all Technical Commission and Technical Programmes to participate and contribute as relevant to their mandates to the design, implementation, evaluation and development of future recommendation from the pilot;

3. All DRR Focal Points to consult with their management groups on the Draft TOR of the DRR FP TC-TP and recommendations of this workshop by the end of November 2013;

4. The Secretariat to publish a technical report comprised of the final report of this meeting and all the reports and presentations of the TCs and TPs prepared for this meeting as the foundation for the future work plan development; and,

5. The co-chairs to present these proposals and recommendations as well as the DRAFT TOR of the DRR FP TC-TP to PTC Meeting (January 2014).

Finally the DRR FP TC-TP agreed that its next meeting would be held in conjunction with the First Meeting of the WMO DRR User-Interface Expert Advisory Group on Hazard Risk (DRR UI EAG AR) at the Understanding Risk Conference 30 June – 4 July 2014, and that wherever appropriate it would support WMO Secretariat with planning of events at the Understanding risk Conference.

Annex VI

WMO Disaster Risk Reduction Focal Points of Regional Associations, Technical Commissions and Programmes (DRR FP RA-TC-TP)

TERMS OF REFERENCE (FINAL DRAFT)

(as of 5 November 2015)

The WMO disaster risk reduction focal points (FPs) of the regional associations (RAs), technical commissions (TCs), and technical programmes (TPs) (DRR FP RA-TC-TP) will serve under the direction of the Executive Council Working Group on Disaster Risk Reduction (EC WG on DRR) using the following Terms of Reference (ToR):

1) Serve as a point of contact for representation, coordination and promotion of RAs', TCs' and TPs' DRR-related activities and issues;

2) Conduct an ongoing review of the DRR Roadmap, proposing updates where necessary;

3) Propose and coordinate the development of priority initiatives (including suggestions for pilot projects) and plans that integrate the relevant activities of the RAs, TCs and TPs, necessary in supporting the ongoing implementation of the WMO DRR Roadmap and WMO Strategy for Service Delivery;

4) Gather and share information on DRR-related activities and best practices of the RAs, TCs, TPs and other agencies/initiatives in support of the implementation of the DRR Roadmap; and,

5) Report on progress to the EC WG on DRR and the presidents of Technical Commissions (PTC) and the Presidents of Regional Associations (PRA).

Annex VII

Mapping of WMO TC, TPs, and WMO Secretariat Departments/Divisions as relevant to the engagement in a multi-hazard, multi-sector demonstration project proposed to be implemented in Southeast Asia
(from the Report of the 2013 Meeting of the DRR FP TC-TP)

Hazards		Observations (equipment and networks)	short-term forecasting (0-5 d)	Sub-seasonal and seasonal predictions	Policy, Institutional cooperation and user interface and requirements in DRR	Service Delivery
Tropical Cyclones	**CIMO (IMOP)** **CCL- OPACE I – CDM** **ICG – WIGOS** **CBS WIS**	**TCP, WDS** **CAS – WWRP - TCRP AREP/RES** **UNESCAP WMO Typhoon Committee** **RSMC Tokyo**		**CCL-CHy-CAgM – EGCFW** **CBS-CCL ET-OPSLTS** **JCOMM-ETOOFS** **CBS-ETLRF** **WWRP-WCRP S2S Research Project**	**DRR UI EAG – Hazard Risk** **DRR UI-EAG- MHEWS** **DRR UI-EAG-DRF and Insurance** **DRR UI EAG – SWG IASG Preparedness** **DRR** **WDS** **CCL - WCSP – OPACE 4**	**CBS-OPAGE-PWS // EC WG SD with focus on DRR** **CAgM - ET WAMIS** **CAeM** **CHy** **JCOMM - SFSPA**
Storms surge and coastal Inundation => **Salination**		**JCOMM- ET-WCH, CIFDP, MMOP, WDS** **CAgM, AgMP CLW**				
Severs Weather **(Precipitation)** **Flash Flooding** **Riverine flooding**		**CBS – OPAG DPFS SWFDP DPFS WDS** **CCL – OPACE II – TTDEWCE – WWCER CLW** **CAS – WWRP AREP/RES** **WCRP – S2S – ET CCDI RES** **CHY – OPACHE – HFP HWRP CLW**				
Other severe weather **Tornados**		**CBS- OPAG DPFS SWFDP DPFS WDS**				
Heat waves		**CCL-OGAC III – TTGSCU CLW**				