

FINAL REPORT

EXECUTIVE COUNCIL WORKING GROUP ON DISASTER RISK REDUCTION First Session GENEVA, 4-7 APRIL 2016

1. OPENING OF THE SESSION

- 1.1 The Co-Chairpersons of the WMO Executive Council Working Group on Disaster Risk Reduction (EC WG DRR), Professor Mieczyslaw Ostojcki, and Mr Abdalah Mokssit, opened the first session of the working group on 4 April 2016 at 09h30. In their opening remarks, they expressed their appreciation to the members of the Group for their presence. They gave a brief overview of the issues that the group would discuss as relates to the tasks assigned to it by the EC.
- 1.2 The Assistant Secretary-General (ASG) of WMO, Dr Elena Manaenkova, welcomed the participants. She pointed out the high priority given to DRR by WMO Members and Congress, and recalled the importance of the Sendai Framework for DRR 2015-2030. She listed the main tasks of the meeting, including guidance on the WMO DRR Roadmap, refining the governance arrangements for DRR, and developing procedures to organize ourselves when Members are at risk from extreme events. Dr Manaenkova also noted that the Group should ensure alignment of the WMO DRR Roadmap with the major United Nations strategies such as the Sendai Framework, the Paris Agreement and the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. She also urged the development of regulatory material on DRR-related services.
- 1.3 The list of participants is given in [Appendix I](#).

2. ADOPTION OF THE AGENDA

- 2.1 The agenda was adopted as presented in [Appendix II](#). Additional presentations were subsequently added during the session and these are included in the modified meeting schedule in [Appendix III](#).

3. CONCLUSIONS AND RECOMMENDATIONS

- 3.1 The Working Group made conclusions and recommendations on issues referred to it by EC as presented in [Appendix IV](#). The Working Group's proposed revised Terms of Reference (ToR) are listed in [Appendix V](#) and summaries of the discussion on each day together with more detailed comments received from members of the Group relating to relevant agenda items are presented in [Appendix V](#).

4. NEXT MEETING

- 4.1 The next meeting of the EC WG DRR was tentatively scheduled for March 2017.

5. CLOSURE OF THE SESSION

- 5.1 Both Co-chairpersons and Dr Xu Tang, Director of the WMO Weather and DRR Services Department (D/WDS) expressed their thanks to all members and/or their representatives, the Secretariat staff for their involvement and contribution to the meeting and the interpreters for their excellent work. The session was closed at 12:50 on 7 April 2016.

LIST OF PARTICIPANTS

Members of the EC WG/DRR:

OSTOJSKI, Mieczyslaw S.	Co-chairperson
MOKSSIT, Abdalah	Co-chairperson
FALLAS SOJO, Juan-Carlos	
SAKYA, Andi Eka	
ČAČIĆ, Ivan	(joined remotely)
KIJAZI, Agnes	
KONATE, Daouda	
NISHIDE, Noritake	(represented by KOIDE, Hiroshi; HOSOMI, Takuya; and HASEGAWA, Jitsuko)
ZHENG, Guoguang	(represented by LI, Mingmei)
SAULO, Andrea Celeste	
FURGIONE, Laura	(represented by BEARDSLEY, Dan – joined remotely)
KUMAR, Ravind	
GÜNES, Ismail	(represented by CEYLAN, Abdullah)

Alternates/Advisors to EC WG/DRR members:

Sopaheluwakan, Ardhasena	(attended with A.E. Sakya)
Rievan, Bagus Rachmat	(attended with A.E. Sakya)

Apologies:

BÁEZ, Julián

Invited:

ILEY, Gavin	UK Met Office (joined remotely)
STAUDINGER, Michael	Zentralanstalt für Meteorologie und Geodynamik (ZAMG), Austria (joined remotely)

WMO Secretariat staff:

MANAENKOVA, Elena	Assistant Secretary-General (ASG) & Acting Deputy Secretary-General (A/DSG)
TANG, Xu	Director, Weather and Disaster Risk Reduction Services Department (D/WDS)
HAINSWORTH, Alasdair	Chief, Disaster Risk Reduction Services Division (C/DRR)

Other Directors, Chiefs and Officers for specific agenda items



From left:

Front: Xu Tang (Secretariat), Juan-Carlos Fallas Sojo, Mieczyslaw S. Ostojki, Elena Manaenkova (Secretariat), Abdalah Mokssit, Andi Eka Sakya, Ravind Kumar, Abdullah Ceylan, Agnes Kijazi

Centre: Mingmei Li, Jitsuko Hasegawa, Hiroshi Koide, Andrea Celeste Saulo, Daouda Konate, Bagus Rachmat Rievan, Jochen Luther (Secretariat)

Back: James Douris (Secretariat), Christopher Ryan (Consultant)
Taoyong Peng (Secretariat), Alasdair Hainsworth (Secretariat)

ANNOTATED AGENDA

1. **OPENING OF THE SESSION**

The session will be opened by the Chairpersons, Prof Mieczyslaw S. Ostojki and Mr Abdalah Mokssit, at 09:30, on Monday, 4 April 2016. It is expected that the Secretary-General or his representative will address the opening.

2. **ADOPTION OF THE PROVISIONAL AGENDA**

The group will be invited to consider and adopt the agenda. The Chairpersons may seek clarifications from participants on the format in which they wish that the final report should be prepared. It could be suggested that only the key conclusions, recommendations and follow-up actions are reflected in the final report.

3. **THE TERMS OF REFERENCE OF THE EC WG DRR**

The group will review its Terms of Reference (ToR) that were agreed during the 67th session of the Executive Council (EC-67) in 2015.

4. **PRESENTATION OF THE FORMAL DOCUMENTS AND DISCUSSION**

4.1 **Implications of major international agreements (Sendai Framework for DRR 2015-2030, 2030 Agenda for Sustainable Development, Paris Agreement, and others) for the WMO DRR priority and status of the WMO DRR Roadmap**

Under this item, implications of major international agreements for WMO and in particular its DRR priority will be outlined and the group will be invited to discuss how to best draw benefits from these frameworks and strategies for WMO Members.

An update on the current status with the WMO DRR Roadmap will be provided, including the establishment of a baseline of WMO activities in and capacities for DRR, identification and prioritization of activities, subsequent updates of the Roadmap and its implementation/work plans, consistency with WMO Strategic and Operating Plans as well as the work plans of relevant WMO programmes and projects, alignment especially with the Sendai Framework for DRR 2015-2030 and the United Nations Plan of Action on DRR for Resilience as well as other linkages, such as with other international (2030 Agenda for Sustainable Development, Paris Agreement, Humanitarian Summit, Habitat III, etc.) and regional (Africa, Pacific, Europe, etc.) meetings and processes. The group will be invited to provide recommendations on the finalization of the Roadmap version which is to be submitted to EC-68.

4.2 **Strengthening coordination mechanisms for DRR within WMO (both at the overall organizational level and within the Secretariat)**

This item lays out the current governance and implementation mechanisms for the WMO DRR activities. The group will be encouraged to provide recommendations on how to strengthen WMO-internal coordination mechanisms including expert teams established under different WMO technical commissions (TCs) and technical programmes (TPs) for implementing the WMO DRR priority, including the DRR Focal Points of RAs, TCs, and TPs (DRR FP RA-TC-TP), DRR User-Interface Expert Advisory Groups (UI-EAGs), PWS Expert Team on Impacts of Hydrometeorological Hazards (PWS ET-IMPACT), DPFS Expert Team on Emergency Response Activities (DPFS ET-ERA), JCOMM Expert Team on Waves Surges and Coastal Hazards (JCOMM ET-WCH), CCI Task Team on Definitions of Extreme Weather and Climate Events (TT-DEWCE),

Flood Forecasting Initiative Advisory Group (FFI-AG) and the WMO Climate Watch System.

4.3 **Regional cooperation projects in DRR**

The group will be invited to review the implementation approaches, outcomes and effectiveness of on-going DRR-related regional cooperation projects and to provide recommendations on developing new projects and/or on expanding existing ones, such as the South-East European Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A) and Small Island Developing States (SIDS) project proposals, the Severe Weather Forecasting Demonstration Project (SWFDP), the Coastal Inundation Forecasting Demonstration Project (CIFDP) and the Flash Flood Guidance System (FFGS);

The group will furthermore consider relevant projects, initiatives and networks led by other international organizations (including other UN agencies) and examine if and to which extent WMO can engage with them to the benefit of its Members. Examples include the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), the European Commission COPERNICUS programme, the global '5-10-50' programme by UNDP, or the One Billion Coalition for Resilience by IFRC.

4.4 **Documentation of good practices and development of knowledge products (guidelines, standards, training modules, etc.)**

Documentation of good practices

The group will be invited to discuss how the DRR Programme can best utilize/leverage and document good practices by NMHSs and Members in relevant areas of disaster risk management, such as the Costa Rica Early Warning Systems for Hydro-Meteorological Hazards Project, the provision of hydrometeorological support for the humanitarian crisis in South-East Europe to UN relief agencies, the implementation of Meteoalarm, or the Weather-Ready Nation Roadmap in the United States of America. Participants are encouraged to mention or present further good practices and lessons learnt.

Development of knowledge products

The group will further be invited to provide recommendations on developing relevant guidelines, standards, and training modules, including but not limited to:

- a) WMO guidelines for NMHSs on institutional roles and partnerships in multi-hazard early warning systems (MHEWS), including on respective Standard Operating Procedures (SOP);
- b) Identifiers for Cataloguing Extreme Weather, Water and Climate Events – review, and endorse as appropriate, a proposed annotated outline for a guideline on the standardization of hazard and extreme event information for loss and damage assessment, including unique identifiers for cataloguing (Implementation of Resolution 9 (Cg-17)).
- c) Capacity development approaches for WMO DRR and service delivery activities (including trainings) leveraging these knowledge products, lessons learnt and good practices.

4.5 **Disaster and emergency response activities**

The group will be invited to discuss the kind of support WMO as a whole could provide to Members affected by major disasters, upon their request, including the role of the Secretariat, the RAs, Members and their NMHSs, etc. Examples include the engagement of other NMHSs to support the rehabilitation of an NMHS affected by a hazard or assisting those NMHSs, if required, in their support to the national preparedness and response activities of Members impacted by a major disaster (as was the case e.g. in the Philippines, Vanuatu or Nepal).

4.6 **Partnerships, cooperation and coordination between providers of products and services and users from all sectors and at all levels**

The group will be invited to discuss how to further strengthen cooperation and coordination between providers of weather, climate and hydrology-related products and services and users (customers) in the public and private sectors at national and international levels, including between and among:

- a) National and local governments, media, academia (incl. social and economic sciences), intergovernmental agencies, NGOs and civil society);
- b) Humanitarian agencies; and,
- c) United Nations and other international organizations.

4.7 **Participation of WMO in the International Network for Multi-Hazard Early Warning Systems (IN-MHEWS) as well as other relevant networks (on Earth observations, landslides, floods, etc.)**

The group will be presented with progress on the establishment and activities of the International Network for Multi-Hazard Early Warning Systems (IN-MHEWS) and WMO's engagement in other DRR-related networks in accordance with Resolution 10 (Cg-17).

4.8 **Organization of the International Conference on Multi-Hazard Early Warning Systems (IC-MHEWS)**

The group will be presented with progress towards the organization of the International Conference on Multi-Hazard Early Warning Systems (IC-MHEWS), including the establishment of an International Organizing Committee, discussions with the potential host, and funding options.

4.9 **Implementation of the WMO Strategy for Service Delivery**

The group will be presented with progress the implementation of an integrated approach to DRR services: seamless service delivery, relationship between day-to-day service delivery and during high impact weather events, in particular impact-based forecasting and early warning services and the extended use of the Common Alerting Protocol (CAP) to other applications.

4.10 **Effective engagement of WMO programmes involved in the implementation of the DRR priority as an input to the Global Framework for Climate Services (GFCS)**

The group will be invited to discuss how, through the implementation of the DRR Roadmap and the WMO Strategy for Service Delivery, WMO programmes will provide leadership particularly to the development of the User Interface Platform (UIP), Climate Services Information System (CSIS) and Observations and Monitoring (OBS) components and the DRR priority of the Global Framework for Climate Services (GFCS).

5. ANY OTHER BUSINESS

The group may wish to take up other relevant matters for consideration.

6. CLOSURE OF THE SESSION

The session is planned to close at 16:00 on 7 April 2016.

ACTUAL MEETING SCHEDULE

Website: <https://sites.google.com/a/wmo.int/1st-ec-wg-drr-2016/documents-english>

Day 1 – Monday, 4 April 2016	
09:00 – 09:30	➤ Registration
Session 1: Opening and Introduction	
09:30 – 12:30 group photo (ca. 12:30)	<ul style="list-style-type: none"> ➤ <u>Item 1:</u> Welcome remarks and opening of the meeting – <i>ASG, Co-chairpersons</i> ➤ <u>Item 4.1:</u> Implications of major international agreements (Sendai Framework for DRR 2015-2030, 2030 Agenda for Sustainable Development, Paris Agreement, and others) for the WMO DRR priority – <i>ASG</i> ➤ <u>Item 2:</u> Adoption of the provisional agenda – <i>Co-chairpersons</i> ➤ Roundtable introduction of participants – <i>all</i> ➤ Objectives, structure, document list and working arrangements of the meeting – <i>C/DRR</i> ➤ <u>Item 3:</u> Discussion of the Terms of Reference (ToR) of the EC WG DRR – <i>Co-chairpersons</i>
Session 2: Status of the WMO DRR Roadmap and Work Plan including WMO DRR Governance	
14:30 – 16:00	<ul style="list-style-type: none"> ➤ <u>Item 4.1 (continued):</u> Status of the WMO DRR Roadmap and Work Plan – <i>D/WDS & JPO/DRR</i> ➤ <u>Item 4.2:</u> Outcomes of the 2015 Meetings of the WMO DRR Focal Points of Regional Associations, Technical Commissions and Technical Programmes (WMO DRR FP RA-TC-TP) – recommendations on DRR governance and implementation mechanisms – <i>C/DRR</i>
Session 3: Documentation of good practices and development of knowledge products (guidelines, standards, training modules, etc.) (10-20 min presentations)	
16:00 – 17:30	<ul style="list-style-type: none"> ➤ <u>Item 4.4:</u> Examples of good practices <ul style="list-style-type: none"> ➤ Costa Rica Early Warning Systems for Hydro-Meteorological Hazards Project – <i>Juan-Carlos Fallas (PR of Costa Rica with WMO)</i> ➤ Support for the humanitarian crisis in South-East Europe to UN relief agencies – <i>Ivan Čačić (PR of Croatia with WMO, President of RA VI – remotely) & Gavin Iley (UK Met Office – remotely)</i> ➤ Weather-Ready Nation initiative – <i>Courtney Draggon / Dan Beardsley (US NWS – remotely)</i> ➤ Meteocalarm – <i>Michael Staudinger (ZAMG, PR of Austria with WMO – remotely)</i> ➤ The Monitor IMGW-PIB (https://monitor.imgw.pl) developed under the Hydrology System Centre, Institute of Meteorology and Water Management National Research Institute (IMGW-PIB) – <i>Mieczyslaw Ostojcki (Second Vice-President of WMO and PR of Poland with WMO)</i> ➤ Disaster Risk Management in Indonesia: Policy, Practice and Showcase – A Case of Bali (national disaster database) – <i>Andi E. Sakya</i>
Day 2 – Tuesday, 5 April 2016	
Session 4: Disaster and emergency response activities (Brainstorming session)	
9:30 – 10:00	<ul style="list-style-type: none"> ➤ <u>Item 4.4 (ctd):</u> Examples of good practices <ul style="list-style-type: none"> ➤ Costa Rica Early Warning Systems for Hydro-Meteorological Hazards Project – <i>Juan-Carlos Fallas (PR of Costa Rica with WMO)</i> ➤ <u>Item 4.5:</u> Overview – <i>C/DPFS</i>

10:00 - 12:30	<ul style="list-style-type: none"> ➤ <u>Item 4.5</u>: Discussion on the kind of support WMO as a whole could provide to Members affected by major disasters, including the role of the Secretariat, the RAs, Members and their NMHSs, etc.
	<ul style="list-style-type: none"> ➤ Brain storming session in Press Room
12:30 - 14:30	Lunch
Session 5: Documentation of good practices and development of knowledge products (guidelines, standards, training modules, etc.)	
14:30 - 16:00	<ul style="list-style-type: none"> ➤ <u>Item 4.4 (continued)</u>: Knowledge products ➤ Approach to the implementation of Resolution 9 (Cg-17) Identifiers for Cataloguing Extreme Weather, Water and Climate Events – <i>D/CLPA & C/DRR</i>
Session 6: Partnerships	
16:00 - 17:15	<ul style="list-style-type: none"> ➤ <u>Item 4.6</u>: Partnerships, cooperation and coordination between providers of products and services and users from all sectors and at all levels and WMO engagement in other relevant networks (e.g. on Earth observations, landslides, etc. – <i>C/DRR & JPO/DRR</i>) ➤ <u>Item 4.6 (continued)</u>: Associated Programme on Flood Management (APFM) & Integrated Drought Management Programme (IDMP) – <i>SO/HFWR & C/AGM</i> ➤ <u>Item 4.7</u>: Participation of WMO in the International Network on Multi-Hazard Early Warning Systems (IN-MHEWS) – <i>C/DRR & JPO/DRR</i> ➤ <u>Item 4.8</u>: Organization of the International Conference on Multi-Hazard Early Warning Systems (IC-MHEWS) – <i>C/DRR & JPO/DRR</i>
Session 8: Implementation of the WMO Strategy for Service Delivery	
17:15 - 17:30	<ul style="list-style-type: none"> ➤ <u>Item 4.9</u>: Implementation of the WMO Strategy for Service Delivery – <i>C/PWS</i>
Day 3 – Wednesday, 6 April 2016	
09:30 - 10:00	<ul style="list-style-type: none"> ➤ <u>Recap Day 2</u> – <i>C/DRR</i> ➤ <u>Additional item</u>: Update on the country-profile database – <i>WIGOS DO / PM CPDB</i>
Session 7: Regional cooperation projects (10-20 min presentations)	
10:00 - 11:45	<ul style="list-style-type: none"> ➤ <u>Item 4.3</u>: Review of the implementation approaches, outcomes and effectiveness of on-going DRR-related regional cooperation projects and recommendations on developing new projects and/or expanding existing ones, such as: <ul style="list-style-type: none"> ➤ South East European Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A) project development – <i>Ivan Čačić (PR of Croatia with WMO, President of RA VI – remotely) & C/EUR</i> ➤ Overview of Project Development, with particular focus on CREWS, the Canadian Initiative, Small Island Developing States (SIDS) project and the Green Climate Fund – <i>D/RMDP</i> ➤ Severe Weather Forecasting Demonstration Project (SWFDP) – <i>PO/DPFS</i> ➤ Coastal Inundation Forecasting Demonstration Project (CIFDP) – <i>C/MMO</i> ➤ Strengthening Meteorological, Hydrological and Climate Services to support Risk Assessment and MHEWS in the Caribbean (Small Island Developing States (SIDS) project development for the Pacific and the Caribbean) – <i>PO/DRR</i> ➤ Flash Flood Guidance System (FFGS) & Flood Forecasting Initiative (FFI) – <i>SO/HFWR</i>

Session 9: Effective engagement of WMO Programmes involved in the implementation of the DRR priority as an input to the Global Framework for Climate Services (GFCS)	
11:45 – 12:30	➤ <u>Item 4.10</u> : Effective engagement of WMO Programmes involved in the implementation of the DRR priority as an input to the Global Framework for Climate Services (GFCS) – <i>D/CLPA</i>
12:30 – 14:30	Lunch
Session 10: Capacity Development	
14:30 – 17:30 <i>incl. a coffee break</i>	<ul style="list-style-type: none"> ➤ <u>Item 4.4 (continued)</u>: How the DRR Programme can best utilize/leverage and document good practices by NMHSs and Members in relevant areas if disaster management. – <i>C/DRR</i> ➤ <u>Item 4.4 (continued)</u>: Knowledge products. <ul style="list-style-type: none"> ➤ Capacity development approaches for WMO DRR and service delivery activities – <i>SO/ETR & C/DRR</i>
Day 4 – Thursday, 7 April 2016	
Session 11: Review of key recommendations	
10:30 – 13:30	<ul style="list-style-type: none"> ➤ <u>Recap Days 1-3</u> – <i>Co-chairpersons</i> ➤ Review of key recommendations – <i>Co-chairpersons</i> ➤ <u>Item 5</u>: Any other business – <i>Co-chairpersons</i> ➤ <u>Item 6</u>: Next steps and closure – <i>Co-chairpersons</i> ➤ Departure



CONCLUSIONS AND RECOMMENDATIONS FROM THE 2016 SESSION OF THE EC WORKING GROUP ON DISASTER RISK REDUCTION (WG/DRR)

(GENEVA, 4-7 APRIL 2016)

3 The Terms of Reference of the EC WG DRR

- 3.1 The EC WG DRR reviewed its Terms of Reference (ToR) and agreed that they were appropriate.
- 3.2 The EC WG DRR recommended to adjust its ToRs (as given in Appendix IV), which were set by EC-67, to prioritize within the terms mentioned under 1 a) – l) based on surveys and other tools for establishing a baseline. Immediate priorities identified by the Group include: Strengthening coordination (within WMO and externally, e.g. with national and regional platforms for DRR), clarify/determine the DRR governance structure, documenting good practices specific to certain hazards and phases of the disaster risk management cycle (before, during and after an event), WMO activities contributing to GFCS, link to climate change adaptation and the Paris Agreement, public education, etc.

4.1 Recommendations relating to “Implications Of Major International Agreements (Sendai Framework for DRR 2015-2030, 2030 Agenda For Sustainable Development, Paris Agreement, and others) for the WMO DRR priority and Status of the WMO DRR Roadmap”

- 4.1.1 The EC WG DRR examined the Roadmap and proposed to include the recommendations made by the Group in the next draft to be submitted to EC-68 and to be shared with all Members on the WMO website¹ before EC-68 (with the opportunity to comment):
1. it should clearly define the role of NMHSs within the national disaster risk management structure (especially in relation to other agencies dealing with DRR);
 2. the document be sent also to other organizations for their feedback to ensure that the DRR Programme is efficiently coordinating with them; and,
 3. include the development of curricula / training modules for NMHSs on specific DRR issues such as communication of risk (towards defined competencies for delivering hydrometeorological services to DRR stakeholders).

The EC WG DRR noted that the Country Profile Database and surveys being conducted by the Secretariat could be used to inform the development of the Roadmap and serve as a baseline and that a further separate DRR survey may not necessarily be required for this purpose.

¹ <http://www.wmo.int/pages/prog/drr/documents/roadmap/index.html>

- 4.1.2 An implementation plan should be drafted (including a work plan for the Secretariat) for consideration by EC-69.
- 4.1.3 The EC WG DRR commended the Secretariat for active involvement in the inter-agency mechanisms supporting the implementation of major United Nations strategies to maximize benefits for WMO Members, including the Sendai Framework, the Paris Climate Change Agreement, and the Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development, such as through the High-Level Committee on Programmes (HLCP) consultation process, the results-based monitoring process provided by the implementation of the revised United Nations Plan of Action on DRR for Resilience: Towards a Risk-informed 2030 Agenda, the United Nations Development Assistance Framework (UNDAF) process in many least developed and developing countries.
- 4.1.4 The Group encouraged the RAs and Members to actively engage in the regional consultation processes on disaster risk management, such as the regional and global platforms and ministerial meetings for DRR.
- 4.1.5 The Group recommended that the Secretariat develop a template for easy recording and documentation of good practices by Members and then invite Members to provide their inputs on these.

4.2 Recommendations relating to the strengthening of coordination mechanisms for DRR within WMO (both at the overall organizational level and within the Secretariat)

- 4.2.1 Given that there is no Technical Commission overseeing the DRR Programme and noting that this key priority of the WMO Strategic Plan 2016-2019 is inherently cross-cutting, the EC WG DRR highlighted the importance of the WMO DRR Focal Points of TCs, RAs, and technical programmes (TPs) mechanism (DRR FP RA-TC-TP). The Group recommended that it is to oversee the work of the DRR FP RA-TC-TP mechanism which would report to the EC WG DRR in consultation with the PRA and PTC and coordinate with the DRR-related working groups and expert teams of the RAs, TCs and TPs.
- 4.2.2 In addition, the EC WG DRR recommended changing the name and nature of the WMO DRR User-Interface Expert Advisory Groups (UI-EAGs) to DRR User-Interface Working Groups (DRR UI-WG) to reflect that these groups include experts from both NMHSs and the broader DRR community who are working on concrete knowledge products such as guidelines, training modules, documentation of good practices and other publications. This change should be reflected in the ToRs of each group and the ToR of the EC WG DRR.
- 4.2.3 The EC WG DRR noted the thematic areas which could be further emphasized by the existing, or by new, working groups include multi-hazard monitoring, risk-informed early warning, prevention, and emergency assistance to NMHSs, Members and humanitarian agencies and recommends that the DRR FP RA-TC-TP propose the establishment of new groups as required to the EC WG DRR for their approval.
- 4.2.4 The EC WG DRR considered to include the further monitoring of the implementation of WMO Strategy for Service Delivery as one of the requests in its ToRs.

4.3 Recommendations relating to regional cooperation projects in DRR

- 4.3.1 The EC WG DRR recognized the opportunities to improve high impact weather and impact based forecasting capabilities achieved by the implementation of the demonstration projects. The Group recommended to strengthen the training activities on DRR-related services.

4.3.2 The EC WG DRR noted the work of the Flash Flood Guidance System (FFGS) Project and that there is a document in preparation for EC-68.

4.3.3 The EC WG DRR urged the Secretariat to conduct regional capacity development on DRR services especially through training and workshops, using and sharing good practices and WMO knowledge products.

4.4 Recommendations relating to the documentation of good practices and development of knowledge products (guidelines, standards, training modules, etc.)

4.4.1 The EC WG DRR decided to establish a WMO Inter-Programme Task Team on Cataloguing Extreme Weather, Water and Climate Events (IPTT-CWWCE) as a coordination mechanism co-chaired by a representative from the Commission for Basic Systems and the Commission for Climatology. The coordination should lead to an organization-wide framework for the implementation of Resolution 9 (Cg-17), such as a WMO Reference Manual on Global practices for cataloguing hazards and extremes and related information exchange with recommendations for modification, as required, of WMO manuals and guidelines (e.g. Manual on the Global Data-Processing and Forecasting System and the WMO Information System (WIS)). The IPTT-CWWCE should be comprised of experts from TCs that are working on various aspects related to the cataloguing and coding of extreme weather, water and climate events (ref. Doc 4.4 and Inf. 4.4(c)). The draft Terms of Reference are included in Annex VI.

4.4.2 The EC WG DRR requests that the Secretariat utilize/leverage and document good practices by NMHSs and Members in relevant areas of disaster risk management in order that these may be extended in a similar nature to other regions and Members.

4.4.3 EC-68 is recommended to request the development of relevant guidelines, guides, standards, and training modules and other publications to be used as knowledge products in future capacity development activities.

4.4.4 EC-68 is recommended to request the development of guidance material based on and along with the above-mentioned regulations and guides, indicating the types of roles that will require education and training, the numbers of personnel, the timelines and priority locations for training intervention and where the resources (financial and human) could be obtained to address the requirements. This type of information will be required by EC and Cg when developing the operational plan and budgetary considerations for the next financial period as well as for addressing more pressing needs prior to 1 January 2020.

4.4.5 The Working Group will work on a draft resolution for EC-70 to Cg-18, noting the suggestion that the WMO could have a resolution at Cg-18 requiring the NMHSs to transmit data relating to hazardous meteorological and hydrological phenomena to WMO. Under this resolution, NMHSs could also undertake to provide the WMO with the data from such events in the past and this will be entered into a database.

4.4.6 The EC WG DRR requested that the Secretary-General write to the PRs of South-Eastern European and UK NMHSs thanking them of their invaluable support to the UNHCR Winter Operations Cell this winter.

4.5 Recommendations relating to disaster and emergency response activities

4.5.1 The EC WG DRR requests the Secretariat to develop protocols/procedures and processes by which Members could be assisted by their neighboring NMHSs or other NMHSs in the event that their capacity to provide critical services to their own communities is seriously affected. This assistance could be activated in anticipation of an expected high-impact hazard event and must be cognisant of existing arrangements and mechanisms that are already in place. It will identify the roles of the key

stakeholders identified during the Session 4 of the meeting (see the daily summary of Day 2 in Appendix IV). This will require some work with the RAs and the development of standard operating procedures (SOPs) (ref. EC-66, item 4.3).

- 4.5.2 The EC WG DRR recommended to EC-68 to request all Members, assisted by the Secretariat and the DRR Programme's UI-EAGs, to document good practices for dealing with emergency situations within countries, but that do not necessarily affect their ability to perform their function (i.e. they do not necessarily require external assistance to perform core functions, but may require some kind of specialist assistance).
- 4.5.3 The Group suggested to consider the possibility of establishing focal point for DRR for each Member who would develop a "toolbox" of responses for emergency situations relevant to the characteristics and needs of the Member/region. This would be the person that Members (and the Secretariat) should contact for assistance in case of any type of disaster. This would be done with the knowledge and approval of the PRA who would seek the support of WMO Regional Offices and the Secretariat, according to the procedure laid down in the "toolbox" and the SOPs which are to be developed.

4.6 Recommendations relating to partnerships, cooperation and coordination between providers of products and services and users from all sectors and at all levels and WMO engagement in other relevant networks (on Earth observations, landslides, floods, etc., including APFM and IDMP)

- 4.6.1 The Working Group encourages NMHSs to identify, prioritize and establish partnerships and service delivery agreements with the national DRR user community and engage with them to identify their requirements. These partnerships should entrench the sovereign role of the NMHS to be the authoritative voice in issuing weather warnings for public safety at the national level.
- 4.6.2 The EC WG DRR acknowledged the immense importance of partnerships among NMHSs and between NMHSs and other key agencies involved in DRR, especially national DRM and civil protection agencies, as well as with the various user and stakeholder groups (e.g. the media). These partnerships take on the form of agreements and standard operating procedures with partner agencies, NMHSs' engagement in national DRR decision-making fora (e.g. national DRR platforms, national climate outlook fora), collaborative projects, engagement in knowledge networks, etc.
- 4.6.3 The EC WG DRR confirmed that partnerships and collaboration are also essential on the regional and global levels. EC WG DRR was pleased to note the successful implementation of co-sponsored programmes such as the APFM and the IDMP and encouraged Members and the Secretariat to continue with such activities. For other international partnerships the EC WG DRR urged the Secretariat to check the added value for Members and their NMHSs when deciding to engage in such partnerships and networks. Partnership agreements with international partners should be followed by concrete action to the benefit of Members.
- 4.6.4 The EC WG DRR further encouraged the Secretariat to proactively participate in the implementation of the United Nations Plan of Action on DRR for Resilience through the joint efforts with other international organizations in the specific areas such as IN-MHEWS and the UNDAF process to assist Members, especially LCDs and SIDSs.

4.7 Recommendations relating to IN-MHEWS

- 4.7.1 The EC WG DRR appreciated the Secretariat's proactive participation in the International Network for Multi-Hazard Early Warning Systems (IN-MHEWS) initiative at all levels. This will exemplify the importance of multi-stakeholder cooperation and synergy in advancing MHEWS and promoting DRR for societal resilience.

4.8 Recommendations relating to IC-MHEWS

- 4.8.1 The EC WG DRR noted that the current Q4 2016 timeline is ambitious, and expressed a desire that at least one member of the EC WG DRR be invited to attend the Conference. It was also felt that the media should be invited. The Group requested the Secretariat to provide regular updates to the group on the IN-MHEWS and IC-MHEWS.
- 4.8.2 The EC WG DRR noted that the IC-MHEWS is planned for the end of 2016 and recommended rescheduling to a date in early 2017 which would allow sufficient time for preparation. The Group encourages Members to promote the Conference amongst their own organizations once the final details are known.

4.9 Recommendations relating to Implementation of the WMO Strategy for Service Delivery

- 4.9.1 Considering the increasing trend towards the implementation of impact-based forecasting and risk-based warning services and the development of decision support systems by Members, and given the complexity of providing this type of service, the Working Group considered how it might provide guidance on how to accelerate, in the framework of improved service delivery to the stakeholders and in particular the emergency managers, assistance required by Members in this important area.
- 4.9.2 The EC WG DRR noted that this reinforced the need for the application of social sciences, hence NMHSs should develop meteorologists who have the appropriate competencies in order that they might specialize in the provision of more targeted forecasts and advice on high-impact weather events to key stakeholders. It noted that Argentina is conducting an experiment in reviewing their products and message formats with assistance of sociologists in order to make the message more effective and accessible.
- 4.9.3 The EC WG DRR noted that there are generally four phases to minimizing the impact of extreme events as follows:
1. Prevention and early warning;
 2. Response actions to the event;
 3. Post event actions; and,
 4. Post disaster analysis;

and stressed that NMHSs provide leadership in the early warning phase, and ensure that sociological elements are incorporated into the warning development and messaging.

- 4.9.4 The EC WG DRR noted that implementation of the Sendai Framework requires engagement of many stakeholders from national to local levels, and that the NMHSs should actively engage where they add value.

4.10 Recommendations relating to the effective engagement of WMO Programmes involved in the implementation of the DRR priority as an input to the Global Framework for Climate Services (GFCS)

- 4.10.1 The EC WG DRR urged the Secretariat to find synergies between projects and activities which are led by and funded through WMO and are included in the results-based framework (RBF) (ref. Inf. 4.10) to assist in identifying the specific WMO contributions to GFCS implementation. This could be done specifically for DRR-related projects and activities of WMO and demonstrate how these contribute to implementing the GFCS DRR priority area. Such improved alignment and coordination will help to leverage synergies and avoid duplication of efforts especially in the cross-cutting fields of DRR and climate change adaptation.

- 4.10.2 The EC WG DRR agreed on a need to urge the working mechanisms of WMO TCs, RAs and TPs (i.e. the programme managers at the Secretariat or designated programme experts) to better collaborate with the GFCS implementation mechanisms in the planning and provision of technical advice and coordination support for DRR measures in selected countries. The EC WG DRR noted with appreciation the results-based framework for WMO's contribution to GFCS and was informed that the results-based framework identified plans for implementation of activities in eight initial beneficiaries (focus countries: Burkina Faso, Tanzania, Bhutan, Papua New Guinea, Dominica, Moldova, Colombia and Peru) as an opportunity for enhanced collaboration with GFCS, in line with the RBF.
- 4.10.3 The EC WG DRR requested that the existing DRR User-Interface Expert Advisory Groups (UI-EAGs)(ref. Doc. 4.2 and Inf. 4.2 together with the Final Report 2015 Meeting of the WMO DRR Focal Points of RAs, TCs and Technical Programmes (DRR FP RA-TC-TP)), including the EAG-Disaster Risk Financing, which has not met for several years, as well as the Expert Teams under the Public Weather Service (PWS) Programme could function as a quasi User-Interface Platform (UIP) – one of the pillars of GFCS – for coordinating additional key inputs from partner organizations into the GFCS, including organizations which are also members of the GFCS Partners Advisory Committee (PAC). Such additional inputs would not be restricted to DRR-related services but would include regular coordination and coordination with stakeholders from other GFCS priority areas (health, food security, water, energy) and activities (urban services, transport).

Proposed revision of the Terms of References of the WMO Executive Council Working Group on Disaster Risk Reduction (EC WG DRR)

Decides to establish an Executive Council Working Group on Disaster Risk Reduction with the following terms of reference:

1. To provide guidance on implementation of the DRR Programme, in particular with respect to:
 - a) Strengthening coordination mechanisms among WMO Programmes, technical commissions, regional associations, the Secretariat and relevant partners and co-sponsored programmes **[previously c)];**
 - b) Aligning the DRR Programme with the Sendai Framework for Disaster Risk Reduction **[previously a)];**
 - c) Developing the WMO DRR Roadmap and its subsequent updates as required **[previously b)];**
 - d) Reviewing the implementation approaches and outcomes of the regional/national cooperation projects and programmes in DRR, and assessing their effectiveness; developing new projects and/or expanding existing ones;
 - e) Documenting good practices and developing guidelines in the thematic areas of the DRR Programme;
 - f) Standardization of hazard information for loss and damage assessment;
 - g) Capacity development approaches for WMO DRR activities;
 - h) Engaging NMHSs to fully support, as an important contributor to disaster risk management, national reconstruction and DRR planning following a major disaster;
 - i) Coordinating emergency response activities, such as those related to air-borne hazards;
 - j) Strengthening cooperation and coordination between providers of weather, climate and hydrology-related products and services and users (customers) in the public and private sectors, including the media, academia, social and economic sciences, international and intergovernmental agencies and non-governmental organizations, at national and international levels;
 - k) Strategies and priorities that can be applied by NMHSs in the implementation of the WMO Strategy for Service Delivery, in particular in early warning;
 - l) Participation of WMO in the International Network for Multi-hazard Early Warning Systems;
2. To provide advice, guidance and recommendations for more effective engagement of WMO Programmes involved in DRR and service delivery activities with the GFCS, in particular the User Interface Programme;
3. ***[New:] Oversee the work of the FP RA-TC-TP mechanism, which will report to the EC WG DRR in consultation with the PRA and PTC, and coordinate with the DRR-related working groups and expert teams of the Regional Associations, Technical Commissions and Technical Programs.***
4. To monitor progress made with the above-mentioned terms of reference and report back to the Executive Council;

Authorizes the working group to establish subgroups and task teams as and when required;

Requests the Secretary-General to support the work of the working group.

Draft Terms of Reference of the WMO Inter-Programme Task Team on Cataloguing Extreme Weather, Water and Climate Events (IPTT-CWWCE)

In accordance with Resolution 9 (Cg-17) and in coordination with relevant TCs, RAs, and Members the IPTT-CWWCE will have the following terms of reference:

1. Take stock of the work WMO TCs, RAs and Members have accomplished to date relevant to Resolution 9 (see Annex II, such as the work conducted by the Commission for Climatology's (CCI) Task Team on Definitions of Extreme Weather and Climate Events (TT-DEWCE), the CCI Expert Team on Climate Data Base Management Systems (ET-CDMS) and the work undertaken by CBS and the WMO DRR Services Division);
2. Development of a WMO architecture for defining, characterising, coding (unique identifier format and scheme), recording and reporting extreme events and submission to WMO EC-69;
3. Development of a WMO proposal and implementation plan (that leverages the related work of TCs, RAs, and Members) with recommendations for modification as required of WMO manuals and guidelines (e.g. Manual on Manual on the Global Data-Processing and Forecasting System (DPFS) and the WMO Information System (WIS)) for submission to EC-69;
4. Conduct of a demonstration project to test the WMO architecture and make refinements to the proposal; and,
5. Submission of formal proposal and implementation plan through the PTC-PRA for consultation and to Cg-18 for approval.

Daily Summaries (including Members comments)

SESSION 1 EC WG DRR 4-7 April 2016

Day 1 Summary, Monday 4 April 2016

Welcome by M. Ostojski, co-chairperson:

- High priority given to disaster risk reduction by members and Congress. Importance of Sendai Framework.
- Main tasks of the meeting:
 - DRR Roadmap;
 - Assistance to Members; and
 - Governance of DRR;
- The User-Interface process is important;
- The question was asked - How do we strengthen coordination efforts and organize ourselves when members are at risk? The efficient and effective use of National Platforms was raised.
- TOR of the Group adopted but may still require around 4-6 priorities within them. This can be obtained from previous surveys, but that does not preclude confirmation through another survey, or leveraging off a survey planned within the Secretariat. A small working group may be necessary to assist this process. (Secretariat has generated a strawman, indicative example).
- It was noted that GFCS, existing volcanic ash system and some other issues(?) should be gathered into the WG activities.
- The Paris agreement on adaptations was a breakthrough and this may require some recognition in the TORs. The Paris Agreement also contains important aspects including improved public education.
- To assist Group in fulfilling our mission, may wish to prepare a table of hazards, plus examples of how some countries have solved problems associated with preparing warnings or warning systems for these (*in conjunction with survey?*). The small WG could develop this document and it could be used in conjunction with the Roadmap. Develop a report on this by end of 2016 and report to EC-69?
- The governance structure is seen to be important in order to improve coordination among the many groups engaged in related activities. It was noted that there is no Technical Commission for DRR, so this structure is extremely important.
- Roadmap document. This might be catered for in other documents.
- DRR FP RA-TC-TP are seeking direction from the WG. They currently proposed to oversight the activities of the four User Interface Expert Advisory Groups.
- EAG members are broader than NMHS reps. They are user interface groups. CBS Management Group recommended to this EC WG-DRR that their nature (TOR and name) should change from advisory groups to working groups to expand the output of the DRR Programme.

Item 4.4: Examples of good practices:

Support for humanitarian crisis in SE Europe to UN relief agencies. Ivan Cačić

- Example of a Sub-Regional EWS.

- Required a strong collaborative effort which was well achieved.
- Engaging European resources.
- Essential that the message provided is clear and unambiguous.

Weather-ready Nation – Dan Beardsley, US NWS

- Impact-based decision support services (started in 2011)
 - Involves understanding effects on society, being involved in decision making
- Technology allowing rapid access to data
 - Less emphasis on individual forecasting work, more on communicating the forecasts.
- Communication
 - Target under-served populations such as elderly, disabled.
 - Weather ambassador scheme. Voluntary, in all levels of government, academia.
- Evolving the Weather Service.
 - Designing the weather service of the future.
 - Moving away from purely science based training of forecasters.

UNHCR The Winter Operations Cell – Gavin Iley, UK Met Office

- Need to create a platform for future access by humanitarian agencies to meteorological data in future crises.

Meteoalarm – Michael Staudinger, ZAMG

- A paradigm shift for NMHSs to impact based forecasting
- D/DWS: Impact based and risk informed early warning services are key components of DRR services that NMHS can provide. The methodology of colour coded early warning matrices which map the relationship between event likelihood and potential impact could be upscaled to assist members to better present their provision of DRR services.

Disaster Risk Management in Indonesia: Policy, Practice and Showcase - A Case of Bali (national disaster database) – Andi E. Sakya

- Presentation provided. Web site: [Http://Dibi/bnpb/go/id](http://Dibi/bnpb/go/id)

Day 2 Summary, Tuesday 5 April 2016

- The Costa Rica presentation video on Early Warning System for Hydrological Hazards completed Item 4.4 – Examples of good practices. Co-Chair suggested that the secretariat produce a compilation of DRR success stories at local, regional and international levels. Establishing a matrix would be a useful guide to members.
- Co-Chair clarified that analysis of a new survey is not expected to be ready for next EC, but for one of the following ones (EC-69 or 70) and asked if the Secretariat could update the survey analysis document in the interim while we wait for a new larger survey within the larger WMO survey strategy. Secretariat proposed presenting a draft revision of the document to the group later in the week.
- Co-Chair pointed out the importance of a template to collect the key elements from Members' good practices, such as good practice on DRM in Bali, Indonesia.

Item 4.5 Disaster and Emergency Response Activities

EM (ASG, A/DSG):

- Members are becoming subject to more disasters which they are not used to, so are looking for help which is well organized. We need to understand who does what, and when, during disasters.
- In terms of responding to emergency situations within and across countries, IAEA has established an action plan for emergencies which gives very strict protocols. Would like to see something similar if less strict for WMO members, with a single entry point for advice.

Presentation by Abdoulaye Harou:

- recalled that EC 66 requested CBS to develop a concise guide for NMHSs on seeking support. This group is asked to provide advice on developing the guide on action by members, and key elements in addressing the role and responsibilities of WMO bodies and the working arrangements between WMO bodies.

Brainstorming Session Results:

During emergency situations:

- Role of Members:
 - Be prepared to shift from a reactive approach to actively managing risk.
 - Develop protocols for specific hazards, defining:
 - Objectives
 - Relevant players
 - Scope
 - Data requirements
 - Establish practice drills
 - Share reports on extreme events with other Members
 - Establish good dialogue with the local disaster management agency
 - Support neighboring Members when incapacitated
 - Establish a platform which makes information accessible to all agencies involved in DRR.
- Role of Regional Office:
 - Establish practice drills for assisting other NMHSs
 - Define levels of response: local; national; regional
 - Host lists of procedures and players related to assisting NMHSs
- Role of Regional Associations:
 - With EC WG DRR develop general guidelines on requesting assistance
 - Maintain lists of communications focal points within countries
 - Map Regional hazard types and consider the need for new Regional Centres.
- Role of RSMCs:
 - Consider what new or extra services would be required to assist NMHSs affected by extreme events
 - Identify which Centres have responsibility for DRR services.
- Role of World Centres:
 - Prepare report on changes to distribution/frequency/intensity of multi-hazard disasters in the context of a 1.5 to 2 C global temperature rise (5-10 pages only)
 - Provide access for NMHSs to all relevant data during emergencies, rather than a selected subset.

- Role of Technical Commissions:
 - Consider how to help with the increasing frequency and/or spread of extreme events into regions not previously affected
 - Provide advice to members
 - Identify who has responsibility for DRR
- Role of Secretariat:
 - Compile a set of case studies, with Regional Centres, illustrating best practice and lessons learnt.
 - Facilitate the EC WG DRR providing advice to Technical Commissions on requirements for assistance to NMHSs during extreme events.
 - Maintain a database of operational technical systems used by NMHSs
 - Highlight the existence of 2 types of events involving assistance:
 - Loss of business continuity by NMHSs
 - Requests for ERA type specialized assistance
 - *Establish a process by which Members could be assisted by their neighboring NMHSs. This will require some work with the Regional Associations and SOPs?.*

Item 4.4 (contd): Knowledge Products – Res. 9 (Cg-17)

Presentation by Maxx Dilley (Secretariat):

- Resolution 9 notes the Sendai Framework for DRR, the UNFCCC and the Sustainable Development Goals. Congress created EC WG DRR with oversight of Res 9.
- CBS tasked with developing a proposal for Cataloguing and characterizing extreme events.
- The proposal is likely to include a typology of events and indices/parameters for characterizing.
- Development of event identifiers is difficult due to uncertainty about families of events and spread in time and space.
- CCI TT-Definition of extreme weather and climate events will meet in May.
- A database management system will be required, eg KRONER for RA-VI
- The system must be integrated with databases on loss and damage.
- Proposes inter-program TT co-chaired by CBS and CCI to develop the response to the Resolution.
- Co-Chair proposed that the WG DRR acknowledge the work being done on definitions and ask to be kept informed of progress. Also proposed that NMHSs responsibility should include the registration of extreme events with the proposed database, within say 6 months.
- MO suggested that the *WG prepare a draft resolution Cg-18 requiring the NMHSs to transmit data relating to hazardous meteorological and hydrological phenomena to WMO and NMHSs undertake to provide the WMO with the data such events in the past that will be entered into a database.*
- Regarding the proposed new Inter-Programme TT, MO proposed that a coordination team be formed.

Item 4.6 – Partnerships

- Co-Chair noted the great importance of these type of partnerships and also that many partners approach NMHSs for information and that it should be possible to respond with the correct contact information.

- AS: Noted that such partnerships can be developed and benefit members.
- LI: Question about how international partnerships can be reflected at the national level.
- Co-Chair questioned the value from these partnerships from the NMHS perspective and suggested seeking synergies as long as they benefit members. Recommended that we ask ourselves what can we ask of these partners to improve our capacity.
- The Group took note of the information thanked the Secretariat.
- Dr Tang pointed out that the document requests guidance from the group on priorities to be given to these partnerships, including public/private partnerships.

Item 4.6 (contd): Associated Programme on Flood Management (APFM)

- Presentation: www.floodmanagement.info
- Co-Chair noted that the system appears to have great value for NMHSs.

Item 4.6 (contd): Integrated Drought Management Programme

- Presentation by R. Stefanski (<http://www.droughtmanagement.info>)

Item 4.7: IN-MHEWS

- Presentation by Alasdair Hainsworth.
- Not an operational network. Designed for exchange of experience and best practice.
- Has met twice and will organize the International Conference on MHEWS.

Item 4.8: IC-MHEWS

- Presentation by Alasdair Hainsworth.
- Will publish a set of recommendations addressed to different MHEWS stakeholders for strengthening of their MHEWS.
- Co-Chair noted that Q4 2016 timeline is ambitious, and expressed a desire that a member of the EC WG DRR attend the conference. It was also felt that the media should be invited.
- Group proposed a recommendation that the Secretariat provide regular updates to the group on the IN and IC-MHEWS.

Item 4.9: WMO Strategy for Service Delivery (SSD) – Impact-based Forecasting

- Haleh Kootval presentation.
- Strategy and Implementation Plan approved by Cg-16 and EC-65
- CBS OPAG-PWS has promoted the impact-based forecasting approach.
- It was noted that this reinforced the need for the application of social sciences so meteorologists can provide better advice on hazards. Argentina is conducting an experiment with sociologists assistance in reviewing products.
- Co-Chair stressed that in the process of minimizing the impact of extreme events can distinguish 4 phases:
 1. Prevention and early warning,
 2. Response actions to the event,
 3. Post-event actions and

4. Post-event analysis.

- The NMHSs should take full responsibility for only the first phase, while the other should be supported other services. The success of the entire process can be ensured only when all these steps are properly carried out. With this in mind it should be emphasized that:
 - o NMHSs cannot meet the Sendai Framework goals alone, but require commitment of local and national government agencies,
 - o More training and stakeholders workshops on impact-based forecasting are desirable.
- D/DWS: The methodology of impact based forecasts and risk based warnings are the key elements for the further implementation of the WMO SSD. To develop a capacity-ready roadmap is important for further implementation of DRR service delivery.

Day 3 Summary, Wednesday 6 April 2016

- AS (Ind) proposed that the daily summary be shared with members of the group
- AS (Arg) requested that all PowerPoints presented be made available to the group

Additional Item: Country Profile Database (CPDB)

- Presentation by Timo Proesholdt
- Website: www.wmo.in/cpdb/
- Co-chair stressed that the database is an articulation of everything WMO does around the world. It is the value added to NMHSs, for Disaster Management, capacity building and vulnerability reduction, etc.
- The database can be a resource when considering surveys of members.
- SWFDP is using the database to gather a set of indicators on a quarterly basis. Fields include types of hazards occurring, requirements for products, training status, observing system resources.
- As an example, the Survey on institutional arrangements for NMHSs is carried out regularly and contains information which could be useful in many areas. Its results flow to the CPDB.
- CC sees value in the interactive system and wonders how the system would handle many sessions. Since launch 1 year ago, T advised that members have found the system useful to check the currency of information held by WMO on their country. As a result, many fields get updated more frequently. Log files indicate the system has 10-15 visitors per day.
- Dr Tang asked how the database could reflect good practice by members, and how members could make use of the information. TP advised that repeated survey input, such as for the SWFDP is the most useful approach, as trends can then be identified. Annual or bi-ennial timetables would also be effective. The long term approach may be to have a core survey set which is regularly completed by Members and held in the database. Some fields may be flagged to show that updating is needed.
- Members can update any field and the goal is to allow modification of CPDB data online, but at present there are still some manual steps in making changes. National or bilateral projects are recognized as being a useful inclusion in addition to WMO-managed projects, and will be included in a forthcoming release.

Item 4.3: Review of the implementation approaches, outcomes and effectiveness of on-going DRR-related regional cooperation projects

Presentation by Milan Dacic: MHEWS in South East Europe (SEE)

- Project supporting refugee crisis in SEE made extensive use of Blue Jeans technology for the first time.
- Noted that the SEE Meteo infrastructure is not as well developed as in Western Europe.
- Co-Chair invited participants to think about how the example of SEE could be followed in other Regions and it was indicated that such examples would follow during the SWFDP presentation, which shows the extension of this concept in southern, eastern and parts of Western Africa, amongst others.
- It was proposed that there be more cooperation between Regions and the question was asked as to how the process could be triggered to set up other sub-regional systems to that are established in SEE. It was noted that there were also refugee problems in Europe but these do not have the same methodological guidance to help the response.
- MD advised that they are aware of other projects in RA-VI and are looking for other partners to assist in the future implementation plan of this project and to collaborate between the SEE MHEWS project and other regional projects.
- It was also noted that a number of African countries can access EC forecasts which allow them to provide good products, so a start on inter Regional collaboration has been made, but can be enhanced.

Presentation by Mary Power: SIDS project development for the Pacific and Caribbean

- Cg passed a Res to establish a SIDS Programme. There are a number of ongoing projects which focus on SIDS, including a GFCS project which has been in operation for some years and has included a number of meetings in the Pacific and Indian Oceans. In the Caribbean, there is a \$6m climate-related project ongoing.
- A paper will go to EC proposing an action plan for SIDS for this financial period, in response to the Cg resolution.
- Emphasis has been on capacity development in weather and climate prediction. The new project will focus on MHEWS, which is under development with DRR. Canada has pledged \$10m for the project.
- France has also announced support for a climate risk early warning program (CREWS).
- A Secretariat for the project is expected to be established within WMO, involving World Bank and UNISDR, during the next few months.
- WMO has just become an accredited member of the Green Climate Fund. Processes to access the fund will be complex and likely to take about 12 months.
- It was pointed out that international financing flows to Ministers in countries, rather than directly to the NMHS. MP agreed that there is a significant challenge in getting sign-off between the Ministries and the NMHS. However, the SG is committed to finding ways for WMO and Met Services to access new sources of funding.
- MP indicated that the SG also wishes to assist NMHSs to develop business plans which would be used to assist in acquiring funding from various financing mechanisms.
- Co-Chair indicated that it has been assessed that WMO is very unlikely to be able to access the Green Climate Fund. ***Suggested that the meeting act to mobilize PRs to be active in contacting at the national level those (Ministers) who will be involved with the Green Climate Fund.***
- It was suggested that WMO may be able to assist members in applying for Green Climate Funds through assisting in the development of relevant regional projects.

- MP was asked about the program which was agreed at the last Cg on cooperation between World Bank and WMO and MP indicated that the meeting next week will discuss the associated African hydrometeorological project.

Presentation by Ayhan Sayin: Flash Flood Guidance and Early Warning System (FFGS)

- FFGS covers 52 countries in SE Asia, Middle East, SE Europe and South Africa

Presentation by Ata Hussain:SWFDP

- SWFDP representing the implementation of the cascading forecasting process, with NWP and other products flowing from Global Centres, to Regional Centres where analysis and Local Area Models (LAM) are run and regional guidance is issued to National Met Centres which issue alerts, advisories and warnings.
- The implementation process has 4 phases:
 1. overall project planning;
 2. regional subproject planning and execution;
 3. evaluation of regional subproject and broaden;
 4. regional subproject long term sustainability and future developments.
- Potentially growing to involve 100 countries in 3-4 years. CPDB is used for submission of progress reports.
- It is a significant capacity development process with over 175 forecasters trained in 2015.
- It was pointed out that the global centres provide graphical products only, not data and so products from ECMWF should continue to be available.

Presentation by E. Cabrera: CIFDP

- An extended version of the presentation is available in the documents to provide more detail in critical areas.
- Coastal populations are rapidly growing, worldwide. Storm surges are the most underestimated and misunderstood of natural hazards. CIFDP was established in 2013, as a partnership among WMO, JCOMM and CHy. The project is currently operating in 4 countries and is expected to be completed in 2019.
- Linkages of this project with the flash flood guidance project and severe weather forecast demonstration projects in the same region were compulsory for approval.
- Co-Chair noted last year's extreme wave event in Morocco showed that large wave forecasting must also be part of risk management.

Presentation by James Douris: Caribbean Assessment of Risk Assessment and MHEWS Capacities

- Publication WMO No. 1082.
- It was noted that progress in implementing the recommendations of the assessment in the last 3 years has been dependent on funding.

Presentation by Ayhan Sayin WMO Flood Forecasting Initiative (FFI)

- Created by Cg-XV Res 20.
- Co-Chair: How can we make the most of everything that has been proposed in an orderly manner to fill a toolbox which allows any NMHS to act quickly in response to any extreme event. What do we need to put together to make the most of others' experiences and avoid re-inventing the wheel? **We must consider how we help members to adapt these**

experiences to their own situation, then if necessary consider how capacity can be developed.

- It was indicated that the pilot project of the FFGS in El Salvador will be extended to the rest of the Region if it was possible and contact has been made with the donor, USAID, to seek funding for extending to other countries.
- It was suggested that the Secretariat inform Members of important projects of this type affect their countries and the Secretariat indicated that this would normally occur as a matter of course.

Item 4.10 DRR Priority as input to the GFCS

Presentation by Maxx Dilley

- Proposed items for discussion:
 - Identification of DRR related projects of WMO contributing to implementation of the GFCS DRR priority area
 - How WMO TCs, RAs and programmes supported by DRR Programme can better collaborate with GFCS implementation mechanisms.
 - How to make the existing DRR UI EAGs more effective as a GFCS user interface platform
- Group members noted the difference between slow-onset climate related hazards and other DRR phenomena and stressed the difficulty of communicating the risk related to climate-related hazards as distinct from the short fuse hazards.
- The Group felt that the country focused approach was most appropriate. The expected outcome is to upscale the results to similar countries. Currently MHEWS are more focused on weather hazards, rather than slow-onset hazards, but may be able to move to address the climate hazards better, depending on the development of better international standards on definitions, etc. Mr Dilley also commented on ***UI-EAGs, questioning whether their current structure was appropriate or whether they needed to change to become more effective in this area.***
- AS (Arg) noted that the recent El Niño was extreme in southern Argentina and for the first time, early warning was provided for the region, for the month of September advising authorities and the public of the high probability of flooding. This had a very positive response and indicates the scale on which a climate EWS service can be provided particularly during periods when there are strong climate indicators/factors.
- Co-Chair stressed the importance of the GFCS and that we should build it as the main supplier of climate data.
- When questioned on the link between GFCS and DRR through EWS, Co-Chair suggested a triangular setup: early warning; user interface; and everything classed as added-value/reinforcement. The crux is strengthening the link between GFCS and EWSs.
- Veronica Grasso: Re second discussion item on better collaboration between GFCS implementation mechanisms. Relevant discussion were held at the GFCS Partners Advisory Committee (PAC).
- Milan D: In small NMHSs, there is often conflict with customized services and decisions on what to make public.
- CC: Stressed the importance of synergy to make the most of the various efforts.

Item 4.4 Cont'd: Capacity development approaches for DRR and service delivery activities

Presentation by Pat Parrish.

- Capacity development has 4 dimensions: Institutional, Human, Procedural, Infrastructural
- Learning theory: teach the same way you expect people to perform in real life.
- Need for DRR competency framework. PWS competencies include disaster prevention and mitigation weather advisors.
- It was indicated that there is a growing requirement for partner competencies and it was asked if DRR competencies could be developed for multiple government agencies and private partners?

Presentation by Alasdair Hainsworth

- 2-tier approach: knowledge products + capacity development & demonstration projects.
- Agreements and SOPs are required in all of the linkages involved in DRR by NMHSs.
- UI-EAG mechanism: will guide the development of knowledge products.
- The importance of the "downstream" part of DRR services, ie the understanding of the recipients of DRR products was stressed and it was noted that there is a requirement for NMHS to associate ourselves with other organizations in partnership, and developing competencies for those partners could be identified as one of our areas of action.
- The importance of having good communicators within NMHSs to ensure services are delivered effectively to users understandably was stressed and it was noted that education is essential at every level.
- Co-Chair noted that the main goal of the meeting is to define actions to be proposed to EC. Proposes some questions to be answered in the final sessions tomorrow.
- There are many relevant activities and good examples apparent to us, but the group needs to diagnose what is still missing. Financing is one area which is lacking. Without adequate funding the result will have holes like Swiss Cheese.

Co-Chair asks members of the group to propose one or two actions for submission to EC for tomorrow's discussions.

- It was noted that involvement with the management of disasters is a new area for met services. NMHS face challenges on two time scales (early warning short timescale and seasonal time scale). We need to take the examples of what is working well to all WMO members and generalize. We may lack tools to take that next step.
- It was felt that there was a gap or short fall at present in convincing international agencies that NMHSs need direct help to improve critical hydrometeorological infrastructure.
- The Secretariat needs to provide support in the follow-up and consolidation of projects, as well as the implementation. The project benefits from international support being visible. Jim Douris support for Costa Rica is an example of the benefits of this follow-up.
- Co-Chair: the first issue is improvement in infrastructure. The second is that disaster warning as a whole is new activity for NMHSs as it goes beyond meteorology. Also Government must be reminded of the importance of DRR even when no events have occurred for some time, so the political aspect is also important. Fourthly, we should ensure assistance from WMO is available at the request of the NMHS in discussing DRR with national authorities.
- It was pointed out that the roadmap document could encapsulate many of the issues discussed and that comments on this from Group members would be extremely valuable.
- Co-Chair noted that our goal should be for WMO to be seen as the authority on DRR.

Member comments on particular agenda items

4.1 Recommendations Relating to Implications Of Major International Agreements (Sendai Framework for DRR 2015-2030, 2030 Agenda For Sustainable Development, Paris Agreement, and others) for the WMO DRR priority and Status of the WMO DRR Roadmap

Member comments

An implementation plan should be drafted (including a work plan for the Secretariat) for consideration by EC-69.

- *Strengthen Governance to manage Disaster Risk at national level through development of New or Revised DRR Laws, Policies and legislations to clarify the role of NMHSs, Response Agencies and all relevant stakeholders.*
- *Development of DRR Governance and Institutional Framework at National and/or higher level. This may include National Strategy for DRR, Standard Operating Procedures for Multi-Hazard Early Warning Systems etc.*
- *Having read the Roadmap, which is an excellent document and certainly will be a vivid one, there are not so many actions to include (they are mostly listed in section 3 of the document). So my emphasis would be in actions that increase our Met Services capability to deal with complex (different actors, social demand, inter-institutional links, natural+social sciences) and highly demanding problems*
- *Compendium (highlight) of Success Stories on DRR: with angle/perspective from the NMHS:*
 - a. *Success predicted potential disaster occurs, minimum human and economic losses;*
 - b. *Upstream/Structural:*
 - 1) *Institutional Confidence;*
 - 2) *Criteria of dissemination: slow and fast onset disasters;*
 - 3) *Identification of spatial occurrence.*
 - c. *Downstream/Cultural/Outreach:*
 - 1) *Partners Involved;*
 - 2) *Structure of Dissemination EWS Flow of Practices;*
 - d. *Framework; Position of the NMS in their national DRM.*
 - e. *Third Party*
 - 1) *Weakness and Strength Factors;*
 - 2) *Entry Point. (Indonesia)*

The EC WG DRR has examined the Roadmap and proposes to include the recommendations made by the group in the draft to be submitted to EC-68 after consultation with all Members via a circular letter:

- a. *it should clearly define the role of NMHSs within the national disaster risk management structure (especially in relation to other agencies dealing with DRR);*
- b. *the document be sent also to other organizations for their feedback to ensure that the DRR Programme is efficiently coordinating with them;*
- c. *Include a DRR survey (as well as similar activities for establishing a sound baseline) as a major milestone as well as specific responses to actions called for in the Sendai Framework;*
- d. *Include the development of curricula / training modules for NMHSs on specific DRR-issues such as communication of risk (towards defined competencies for delivering hydrometeorological services to DRR stakeholders)*
- e. *An implementation plan be drafted (including a work plan for the Secretariat) for consideration by EC-69.*

4.2 Recommendations relating to strengthening coordination mechanisms for DRR within WMO (both at the overall organizational level and within the Secretariat)

Member comments:

The DRR governance structure should be enhanced by putting the FP-TC-TP-RA under its oversight. The WG-DRR should oversee the overall coordination and the strategic issues such as the alignment of DRR Programme with the Sendai Framework and other important disaster reduction-related processes at international levels, monitoring the implementation of the DRR Program, review and update of the Roadmap, etc. The FP-TC-TP-RA will be tasked with the specific coordination with programmes and activities carried out by the constituent bodies of WMO, ensuring their synergy with the needs and goals of DRR Programme. FP-TC-TP-RA should be made as a body with formal terms of reference rather than an informal meeting, and be able to put up task groups to address technical matters emerged from DRR. The current UI-EAGs may be put under the direct oversight by the EC WG DRR and continue to focus on user interface issues, or alternatively be put under FPs and restructured to undertake priority tasks as seen by FPs.

4.3 Recommendations relating to regional cooperation projects in DRR

Member comments:

- 1. Provide an accompaniment to member or regions of the projects by the DRR Program of the Secretariat of WMO, end to end and carry out an evaluation at least two years after completion of the project, to know their status and sustainability, and offer guidance or reorientation if necessary, in order to give operability to the effort given or identified as a project of good practices to be incorporated into the "toolbox".*
- 2. The Secretariat is asked to explore the establishment of a mechanism to encourage Members to Invest in Meteorological services and early warning systems. Also a need to assist Members specifically LDCs and SIDs to develop proposals to enable them to access available funds e.g. GCF*
- 3. Enhance the cooperation between regional association in sharing good practices in DR resilience*
- 4. Identify synergies between the projects related to DRR in WMO and partners and provide more information about those projects for Members*
- 5. Strengthening the cooperation and collaboration among countries at the regional level*
- 6. Sharing of the good practices amongst the regional countries*
- 7. Preparation and implementation of sustainable regional projects in cooperation*

4.4 Recommendations relating to Documentation of good practices and development of knowledge products (guidelines, standards, training modules, etc.)

Member Comments:

- 1. Enhance capacity of NMHSs to develop DRR products and services. This should start with identification of major gaps and needs for each NMHS or collectively for each Region.*
- 2. Taking advantage of the ongoing projects in some regions and in consultation with the relevant working group, the Secretariat should identify and document good practices and use them to develop guidelines, standards, tools, and methodologies to be used by Members.*
- 3. Promote continuous training inside NHMSs focused on high impact weather events forecasts and nowcasting. This should improve our current capacity to generate new type of information and products.*
- 4. Promote direct work with social scientists for both, forecast elaboration and validation. (e.g.: if the forecast is based on impacts, then the role of social experts is critical)*
- 5. Inform capacity building through the Lesson Learnt*

6. *Enhance regional cooperation, particularly in capacity building, through the support of international funding and through donor funded projects.*
7. *The implementation of Multi-Hazard Early Warning System is the highest priority of DRR. It should overarch all the DRR-related projects and activities both within the Organization and in collaboration with partner organizations, such as SWFDP, CIFDP, FGG, impact-based forecast and risk-informed warning etc. Members should be encouraged to develop and implement the MHEWS as a mechanism to engage the local authorities, the public, sectors, businesses and other stakeholders, and to consolidate NMHSs' role in their national DRR governance.*
8. *The MHEWS should be further developed to cover more varieties of weather-related hazards and slow onset or climate hazards. The DRR Programme, through the above-proposed governance structure and drawing on the current relevant activities in TCs and TPs, should develop pilot projects, technical guidance and best practice as needed, such as approaches to identify user needs of different sectors, risk mapping of different hazards, standards for risk warning based on sub-seasonal to seasonal prediction, etc.*
9. *DRR program should also encourage benefit assessment of successful DRR-related pilot projects like SWFDP and early warning systems at regional and national levels to support their request for financial resources from regional and national authorities in order to sustain their future operation.*
10. *Group stressed the importance of capacity building in the management of knowledge of risk disaster of NMHS*
11. *Establishment of country-level database for the past disaster events and preparation of hazard and impact maps*
12. *Assessment of the impact based forecasts and risk based warnings through the feedback*

4.5 Recommendations relating to disaster and emergency response activities

Member Comments:

1. *Each Member should endeavour to have a very close working relationship with the civil defence agency or its equivalent, in order to be part of the solution to a disaster situation.*
2. *Take into consideration the possibility of establishing the focal point or the leader of the working group on DRR for each Member and in each Regional Association who would develop a "toolbox" of responses for emergency situations relevant to the characteristics and needs of each region. This would be the person that members should contact for assistance in case of any type of disaster. This would be done with the knowledge and approval of the president of the region who would seek the support of Regional Offices and the WMO Secretary of the WMO, according to the procedure laid down in the "toolbox" and the SOPs which are to be developed.*

4.6 Recommendations relating to partnerships, cooperation and coordination between providers of products and services and users from all sectors and at all levels and WMO engagement in other relevant networks (on Earth observations, landslides, floods, etc. (including APFM and IDMP)

Members Comments:

Ask the Regional Associations to coordinate exercises (on-line - like simulators) between regional forecasting teams (e.g. 2 per country) whenever there is a region under "alert". This could be an extra source of information (or decision, if it is on the fly) for the country that is under a critical situation. To be doable, this should not be more than once a week, for example. According to the results, this can be adjusted.