

**11.4.22** Congress further agreed that CCI and CBS collaboration should be extended to seek establishing improved interfaces with other databases, such as hydrological, agriculture, health, environmental and socio-economic databases.

## **11.5 DISASTER RISK REDUCTION PROGRAMME** (*agenda item 11.5*)

### **Strategic Priorities, Implementation and Project Management Framework of the crosscutting DRR Programme**

**11.5.1** Congress recalled the endorsement, at its Fifteenth Session, of the crosscutting DRR Programme vision, strategic priorities, underpinned by the Hyogo Framework for Action (HFA), as provided in the DRR Programme Description in [Annex II to the present report](#), and its request to the Secretary-General for the development of: (a) a sustainable and coordinated implementation framework through concrete and well-defined national/regional DRR projects, leveraging Members and their National Meteorological and Hydrological Services (NMHSs), WMO Programmes, technical commissions (TCs), regional associations (RAs) and external partners; and (b) a resource mobilization strategy for development and sustainability of national and regional capacities.

**11.5.2** Congress recalled that the long-term objective of the WMO DRR Programme is to contribute to the strengthening of institutional capacities with respect to the provision of meteorological, hydrological and climate services and cooperation in supporting disaster risk assessment, risk reduction and risk transfer for the protection of lives, livelihoods and property, and contributing to sustainable development of Members as given in the programme description referred to above.

**11.5.3** Congress stressed the importance of the outcomes of the 2006 WMO DRR Programme country-level survey based on 145 Member responses, as a benchmark for development of national/regional DRR capacity development projects, particularly acknowledging that:

- (a) Droughts, flash and river floods, strong winds and severe storms, tropical cyclones, storm surges, forest and wild land fires, heat waves, landslides, sand and dust storms, marine and aviation hazards, as well as rapid melting of the glaciers and potential risks to quality and quantity of water supply, are among the top hydrometeorological hazards of concern to Members;
- (b) Nearly 70% of countries require new or revised DRR policies, legislation, planning, and coordination mechanisms with focus on preparedness and prevention and clarity of the role of the NMHS; over 65% of NMHS need modernization or strengthening of their core infrastructure for observation, telecommunication, and operational forecasting; nearly 80% of NMHS need guidelines, as well as management and technical training; and over 80% of NMHS need strengthening of their strategic and operational partnerships with various disaster risk management (DRM) stakeholders.

### **Lessons learnt: DRR Capacity Development Projects and Good Practices Guidance**

**11.5.4** Congress noted that a number of Members were making progress in developing their disaster risk reduction capacities such as those in South America, as presented during the Third Global Platform on Disaster Risk Reduction (10–13 May 2011, Geneva, Switzerland). The Congress was pleased to hear of the lessons learnt from a number of WMO initiated on-going national/regional DRR projects (Southeast Europe, The Caribbean, Central America, and Southeast Asia) developed within DRR Programme project management framework and related criteria, approved by EC-LXII. Congress encouraged further expansion of these national/regional DRR capacity development projects to other regions, with consideration for the governments' receptivity and commitment to strengthening DRR, resources and leveraging projects such as the Severe Weather Forecasting Demonstration Project. The Congress particularly noted:

- (a) The effective utilization of regional and national DRR platforms, policy dialogues and WMO regional meetings such as tropical cyclone committee meetings, and Regional Climate Outlook Forums as multi-purpose, multi-stakeholder fora to engage the Members, regional associations, regional and international DRM stakeholders and development and funding agencies in the planning of regional cooperation in DRR, development of national and regional work plans, integration of relevant projects and monitoring and evaluation of projects;
- (b) A number of Members were actively revising and or developing their national DRR policies, planning, legal frameworks and were benefiting from multi-sectoral coordination, integrated planning and budgeting mechanisms;
- (c) NMHS' need systematic capacity development with a sustainability plan that addresses: (i) their engagement in the national to local DRR coordination and planning mechanisms supported by adequate legislation to underpin their role and activities; (ii) strengthening of core observation, forecasting, telecommunication and human capacities; (iii) a number of common basic meteorological, hydrological and climate tools for development of products and services; and (iv) development of operational cooperation and Standard Operating Procedures (SOPs) with various DRM stakeholders from different sectors to support risk assessment, risk reduction through Multi-Hazard Early Warning Systems (MHEWS) and sectoral planning as well as financial risk transfer through catastrophe and weather indexed insurance and other indicators, tools and mechanisms;
- (d) Benefits of coordinated and integrated project development, planning, and implementation, leveraging WMO Regional and Technical Cooperation Programmes, WMO Technical Programmes, TCs, Members, operational regional centres, NMHSs and external partners for increased benefits to the Members;
- (e) Capacity-building can best be achieved through strategic partnership of WMO with international and regional agencies that influence DRM policies, planning, funding, and institutional development, particularly noting the World Bank, United Nations Development Programme (UNDP), the UN-International Strategy for Disaster Reduction (UN-ISDR), regional inter-governmental DRM agencies and economic groupings as well as development banks taking into account national policies, strategies, priorities and local conditions.

**11.5.5** Congress noted the publication of seven examples of good practice in national MHEWS (Bangladesh, Cuba, France, Germany, Japan, Shanghai/China, and United States) and expressed its appreciation to these Members for this important contribution. It noted the success of the resulting guidelines in MHEWS as a basis for the conduct of related workshops on Institutional Coordination in MHEWS that have led to effective knowledge sharing and systematic engagement of executive management of NMHS and DRM stakeholders and other regional and international partners in the planning of national/regional DRR capacity development projects. The Congress requested further documentation of other aspects of MHEWS, particularly noting guidelines to support the NMHSs for their engagement in the policy and legal frameworks as well as Standard Operating Procedures (SOPs) with the Disaster Risk Management agencies and other sectoral stakeholders, building on the good practice experiences. The Congress also encouraged documentation and publications of good practices in other areas including risk assessment, risk reduction and financial risk transfer, the development and sharing of related guidelines and lessons learnt to support NMHS activities and the capacity development of NMHS in these areas.

**11.5.6** Congress stressed that effective MHEWS required significant cooperation, information sharing and coordination among NMHS and other agencies at national to local levels to ensure: (i) effective monitoring and forecasting of hazards; (ii) development and issuance of risk-based alerts and warnings; (iii) dissemination of official warnings to authorities, sectors and the public,

using standard formats such as Common Alert Protocols, and addressing uncertainties and follow up in case of false alarms; (iv) activation of emergency preparedness measure and response operations; and (v) provision of other relevant products and services to support emergency relief, response and recovery operations.

**11.5.7** Congress noted that increasingly as the governments are taking ownership in the development of multi-hazard early warning systems, warning authority varies from nation-to-nation and in some countries is shifting from technical agencies, to multi-hazard warning authorities that incorporate risk information for development of warnings (e.g., disaster risk management agencies, health authorities, etc.). In this emerging framework, NMHSs are critical service providers of “authoritative” science-based hydrometeorological hazard analysis, forecasts, alerts, warning guidance and advice. The Congress stressed the need for fostering strong relationships between NMHSs and Disaster Risk Management agencies and that the development of NMHS communication strategies related to alerts and warning, should be in alignment with the national warning protocols.

**11.5.8** Congress noted that regional and global sites, such as the WMO’s Severe Weather Information Centre (<http://severe.worldweather.wmo.int/>) and EUMETNET’s MeteoAlarm, provide opportunities for users to access official national information and warnings. Congress further noted that the establishment of publicly accessible web portals that hold relevant observations, forecasts, advisories, warnings and other information is an important communication tool. Congress encouraged the evaluation of these portals to ensure that they achieve their stated purposes and reach their target audiences. Congress also encouraged the active participation of NMHSs with their counterpart national disaster risk management authorities, in the further development of portals such as these.

**11.5.9** Congress was informed of the coordination efforts of the WMO Secretariat with the Members, UN and other development partners and the RAs for realizing opportunities for development of NMHS capacities through post disaster funding mechanisms, such as the UN-driven Humanitarian Flash Appeal, the UN/World Bank Post Disaster Needs Assessment (PDNA) for reconstruction, and bi-lateral contributions of Members. Congress requested the Secretary-General to document lessons learned, in consultation with partners, including the governments of Haiti and Pakistan, for appropriate follow up and to further strengthen post disaster resource mobilization efforts to support strengthening of NMHSs of affected Members.

### **Further development of the DRR Programme**

**11.5.10** Congress encouraged further development of DRR capacity development projects with a strong focus on enhancing NMHSs, Regional Specialized Meteorological Centres (RSMCs) and Regional Climate Centres (RCCs) institutional capacities. In this regard, it requested the presidents of TCs and RAs and the Secretary-General, in coordination with other relevant partners, to support capacity development needs for the thematic topics, operational capacities and coordination mechanisms. Congress noted that resource mobilization in support of DRR should be coordinated through the WMO’s broader resource mobilization processes, leveraging emerging DRR funding opportunities, with the objective of supporting:

- (a) Development, improvement and sustainability of early warning systems in particular related to scientific and technical infrastructures, systems and capabilities for research, observing, detecting, forecasting and warnings of weather-, water- and climate-related hazards;
- (b) Development, improvement and sustainability of standardized hazard databases and metadata, systems, methods, tools and applications of modern technologies such as geographical information systems for recording, analyzing and providing hazard information for risk assessment, sectoral planning, risk transfer and other informed decision-making;

- (c) Development and delivery of warnings, specialized forecasts and other products and services that are timely, understandable to those at risk and driven by requirements of disaster risk reduction decision processes and operations engaging socio-economic sectors;
- (d) Stimulate a culture of resilience and prevention through strengthening of capacities for better integration of meteorological, hydrological and climate products and services in disaster risk reduction across all socio economic sectors, such as land use planning and infrastructure design and continued public education and outreach campaigns;
- (e) Strengthening cooperation and partnerships of WMO and NMHSs in national, regional and international user forums, mechanisms and structures for implementation of disaster risk reduction.

**11.5.11** Congress stressed that the DRR capacity development projects should support the Members in realizing opportunities for:

- (a) Reflecting roles of the NMHSs within the national DRR and adaptation policies, legal frameworks, planning, and coordination mechanisms;
- (b) Raising resources for strengthening of NMHSs capacities through the national, regional and international DRR and adaptation funds;
- (c) Demonstrating principles of effective service delivery with various socio-economic sectors to support their DRR decision-making;
- (d) Development of Quality Management Systems (QMS) and Standard Operating Procedures (SOPs) of NMHS with DRR stakeholders in various sectors;
- (e) Leveraging regional and national DRR platforms, policy dialogues and other relevant fora for engagement with the DRR stakeholders, identification of their needs, and strengthening partnerships.

**11.5.12** Congress stressed the need for: (i) a comprehensive set of guidelines, manuals, and training modules, spanning technical, operational, management and institutional aspects in DRR; and (ii) strengthening of regional training capacities, to support the implementation and expansion of the national/regional DRR projects. It requested the Secretary-General to coordinate such efforts consistent with principles of QMS and prepare a proposal for strengthening of DRR training capabilities by leveraging WMO Programmes, TCs, Members, other DRM, technical, education and training partners, and the Regional Training Centres.

**11.5.13** Congress called for a second comprehensive DRR survey towards the end of the sixteenth intersessional period to help assess progress with the development of national and regional DRR capacities to inform discussions at the Seventeenth Congress. Congress noted that the outcomes of such survey could also serve as a critical contribution to the WMO Country Profile database.

**11.5.14** Congress was informed that nearly 90% of NMHSs need support and guidelines for the development and/or maintenance of standardized hazard databases and metadata, and hazard analysis tools to be able to report on their meteorological, hydrological and climate related hazards systematically. In this regards, the Congress:

- (a) Appreciated the outcomes of a Secretariat study that documented:
  - (i) Global disaster databases;
  - (ii) Various global reports of hazards and their impacts;

- (iii) Examples of selected hazard programmes of WMO Members including Canada, the Russian Federation and Australia;
  - (iv) Strengths, weaknesses, opportunities and challenges for addressing the Cg-XV request to the Secretary-General to coordinate the collection and dissemination of information on meteorological, hydrological and climate-related hazards and their impacts, when possible and available;
- (b) Reaffirmed the importance of systematic monitoring and reporting, and encouraged the Secretariat to:
  - (i) Issue a “sample” annual report in collaboration with custodians of the global disaster databases focused on meteorological-, hydrological- and climate-related hazards and their impacts, in 2011;
  - (ii) Establish a special task team to develop a standard outline for a global report, identify good practices from WMO Members, and facilitate a pilot project engaging Members to contribute to the development of a sample report for consideration by the Executive Council;
  - (iii) Facilitate contributions of WMO Members and Programmes to critical global reports.

### **Emerging opportunities for the development of Climate Services for DRR**

**11.5.15** Congress highlighted the outcomes of the Third World Climate Conference (WCC-3) for establishment of a Global Framework for Climate Services (GFCS) and the recommendations of the High-Level Taskforce (HLT) particularly noting the need for applied research and development of seamless operational forecasting and analysis of the changing characteristics of hydrometeorological hazards at different climate timeframes (i.e., seasonal, inter-annual, decadal, and longer climate change time lines) as fundamental input for DRR decision-making. In this regard, Congress stressed the importance of linking the implementation framework of the DRR Programme with the development of the Global Framework for Climate Services (GFCS), in particular, potential contributions of the DRR Programme to the User Interface Programme of the GFCS. In this regard, Congress requested the Secretary-General to utilize national/regional DRR projects for engaging various WMO sponsored and co-sponsored climate programmes, technical commissions, and other research initiatives for development of climate services and capacities to support DRR and climate adaptation.

### **Response to major hydrometeorological disasters since Cg-XV**

**11.5.16** Congress highlighted that there have been a large number of major and many smaller disasters during the intersessional period. It particularly stressed the effective coordination of the WMO Secretariat with Members and other United Nations and international agencies in responding to the 2010 Haiti Earthquake for the development of Haiti’s meteorological and hydrological alerts and warnings.

**11.5.17** Congress also noted that disasters are receiving an increasing level of global attention due to the media’s ability to almost instantaneously gather photographic coverage of a disaster occurring anywhere in the World. This media coverage in turn places increasing pressure on NMHSs to respond quickly and accurately in both analysis and prediction of hydrometeorological disasters, for which consistency with the information from other NMHSs is desirable.

**11.5.18** Major disasters with an international dimension require coordinated responses from a broader range of agencies and organizations than the WMO community routinely deals with. A significant part of this communication requirement is often between UN agencies and organizations handled through the WMO Secretariat. It also seems clear that as the scale of the disaster increases so the complexity of effective communication increases at a greater rate, in part because



of the cultural and operational differences across the agencies and organizations and in part because there are no pre-established relationships between key decision-makers.

**11.5.19** Congress requested the Commission for Basic Systems (CBS) to develop proposals for a framework for communication responsibilities of RSMCs. In addition, Congress noted that there is an urgent need to develop a standardized format for exchange of tropical cyclone advisories issued by RSMCs and Tropical Cyclone Warning Centres (TCWCs) and that the experience of aeronautical meteorological services in establishing standard tropical cyclone advisories for the aviation community could be used as a basis. Such standardized formats would benefit the whole meteorological community as well as members of the public and international media around the world. Furthermore, standardized tropical cyclone advisories would facilitate the display of related graphical information on the Web pages, including those involving private sector providers.

**11.5.20** Congress requested the Executive Council, in close cooperation with the technical commissions and regional associations, and the relevant UN and international agencies to urgently review the operational arrangements in place between RSMCs and NMHSs for warning of, and responding to major disasters, focusing particularly on those with an international dimension, taking into account the national accountability for the disaster management and the requirements for regional coordination and support.

**11.5.21** Congress noted the DRR Programme Description as given in [Annex II to the present report](#) and adopted [Resolution 52 \(Cg-XVI\) – Disaster Risk Reduction Programme](#).

## **11.6 AERONAUTICAL METEOROLOGY PROGRAMME** (*agenda item 11.6*)

**11.6.1** Congress was pleased to note the achievements of the Aeronautical Meteorology Programme during the fifteenth financial period. A description of the Aeronautical Meteorology Programme is given in [Annex II to the present report](#).

### **Competency of personnel in aeronautical meteorology**

#### ***Top level competencies and implementation guidelines***

**11.6.2** Congress was informed that the WMO Executive Council (EC-LXII, June 2010) had approved the inclusion of Competence Standards for Aviation Meteorological Forecasting and Observing Personnel into WMO Publication No. 49, Technical Regulations, Volume I. The Standards were developed and endorsed by the WMO Commission for Aeronautical Meteorology (CAeM) and respond directly to the requirement listed in ICAO Annex 3, paragraph 2.1.5, which states “Each contracting State shall ensure that the designated meteorological authority complies with the requirements of the World Meteorological Organization in respect of qualifications and training of meteorological personnel providing service for international air navigation”. Congress thus endorsed the relevant text in Resolution 53 (Cg-XVI), whilst recognizing that national personnel qualification requirements for Aeronautical Meteorological Personnel could be set at a higher level.

**11.6.3** Congress strongly supported the introduction of a competency-based system for personnel in aeronautical meteorology, recognizing that such systems are generally used in the entire aviation sector, where all types of personnel are required to be able to demonstrate their ability to meet the competence standards for their activities. Members will be expected to provide evidence of their personnel’s competence as part of their Quality Management System. Congress thus welcomed the successful development and testing of a comprehensive toolkit for competency assessments of personnel, and congratulated the CAeM for the excellent work completed in a very short time.

**11.6.4** Regarding the need for meteorological service providers to aviation to fulfil the Competence Standards, which are driven by the associated ICAO requirements for personnel by 1

**Resolution 52 (Cg-XVI)****DISASTER RISK REDUCTION PROGRAMME**

THE CONGRESS,

**Noting:**

- (1) The *Abridged Final Report with Resolutions of the Fifteenth World Meteorological Congress* (WMO-No. 1026), general summary, paragraphs 3.9.1 to 3.9.16, and Resolution 25 (Cg-XV) – Natural Disaster Prevention and Mitigation Programme,
- (2) The *Abridged Final Report with Resolutions of the Fifty-ninth Session of the Executive Council* (WMO-No. 1027), general summary, paragraphs 3.4 to 3.6,
- (3) The *Abridged Final Report with Resolutions of the Sixtieth Session of the Executive Council* (WMO-No. 1032), general summary, paragraphs 4.1.1 to 4.1.25, and Resolution 5 (EC-LX) – Executive Council Working Group on Disaster Risk Reduction and Service Delivery,
- (4) The *Abridged Final Report with Resolutions of the Sixty-first Session of the Executive Council* (WMO-No. 1042), general summary, paragraphs 4.1.1 to 4.1.17,
- (5) The *Abridged Final Report with Resolutions of the Sixty-second Session of the Executive Council* (WMO-No. 1059), general summary, paragraphs 4.1.1 to 4.1.28,
- (6) The outcome documents of the World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan, from 18 to 22 January 2005, including the Hyogo Declaration and the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters,
- (7) The WMO 2012–2015 Strategic and Operating Plans,
- (8) The outcomes of Decision 1/CP.13 – Bali Action Plan and Decision 1/CP.16 – The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, in addition to the Cancun Adaptation Framework, adopted by the Conference of Parties to the United Nations Framework Convention on Climate Change at its thirteenth session, 3–14 December 2007, Bali, Indonesia, and sixteenth session, 29 November–10 December 2010, Cancun, Mexico, respectively,

**Noting further:**

- (1) That disasters pose a serious threat to safety, security and sustainable development,
- (2) The significant loss of life and property associated with weather-, water- and climate-related hazards and increasing risks associated with climate variability and change,
- (3) That the increasing volatility of water supply and food security associated with the increasing severity and frequency of slow-onset disasters, such as drought, owing to climate change is becoming a major concern,

**Considering:**

- (1) That more and more countries are shifting their policies from post-disaster response to preparedness and prevention within the national development framework, thus increasing the need for meteorological, hydrological and climate services,
- (2) The increasing funding opportunities for National Meteorological and Hydrological Services (NMHSs) as part of national development planning linked to disaster risk reduction and climate change adaptation,

**Considering further:**

- (1) That the WMO Disaster Risk Reduction (DRR) Programme is cross-cutting and inextricably linked to other WMO Programmes, technical commissions, regional associations and the Secretariat,
- (2) That disaster risk reduction is one of the five priority areas for consideration under voluntary resources of WMO and among the high-priority areas recommended by the High-level Taskforce on the Global Framework for Climate Services (GFCS),
- (3) The importance of lessons learned from national/regional coordinated DRR projects in further development of the DRR Programme implementation framework and its expansion to other regions,
- (4) The high value of sharing lessons learned, and opportunities for improved operational procedures among NMHSs, Regional Specialized Meteorological Centres (RSMCs) and other United Nations and international agencies,
- (5) That responsibilities for providing warnings, advice and information are spread over many agencies, that arrangements vary from nation to nation and that there are great sensitivities involved,

**Reaffirming** that protection of lives, livelihoods and property from weather-, climate and water-related hazards is a key strategic priority of WMO,

**Recognizing** the International Strategy for Disaster Reduction (ISDR) system as the primary collaboration mechanism across the United Nations system and other international and regional agencies and networks in disaster risk reduction,

**Decides** to endorse:

- (1) The DRR Programme, which is aimed at increasing, through appropriate means, the capacity of all Members to contribute to national and regional DRR activities;
- (2) Giving strong support to national and regional DRR capacity development projects that contribute to:
  - (a) Development, improvement and sustainability of early warning systems, in particular with regard to scientific and technical infrastructures, systems and capabilities for research, observing, detecting, forecasting and warnings of weather-, water- and climate-related hazards;
  - (b) Development, improvement and sustainability of standardized hazard databases and metadata, systems, methods, tools and applications of modern technologies, such as geographical information systems for recording, analysing and providing



hazard information for risk assessment, sectoral planning, risk transfer and other informed decision-making;

- (c) Development and delivery of warnings, specialized forecasts and other products and services that are timely, understandable to those at risk and driven by requirements of disaster risk reduction decision processes and operations engaging socio-economic sectors;
- (d) Stimulate a culture of resilience and prevention through strengthening of capacities for better integration of meteorological, hydrological and climate products and services in disaster risk reduction across all socio-economic sectors such as land use planning and infrastructure design, and continued public education and outreach campaigns;
- (e) Strengthening cooperation and partnerships of WMO and NMHSs in national, regional and international user forums and mechanisms and structures for the implementation of disaster risk reduction;

**Requests** the Executive Council:

- (1) To provide guidance on the future development of the appropriate governance mechanisms for the DRR Programme with the aim of further enhancing coordination among WMO Programmes, technical commissions, regional associations, the Secretariat and relevant partners;
- (2) To provide guidance on linking the DRR Programme implementation framework with the Global Framework for Climate Services (GFCS);
- (3) To urgently review and further consider the operational arrangements between RSMCs and NMHSs for providing hazard warnings and disaster response, focusing particularly on those with an international dimension, in close cooperation with the technical commissions, regional associations, and the relevant United Nations and international agencies, and with consideration of national accountability for disaster management and the requirements for regional coordination and support;
- (4) To consider the establishment of an Executive Council Working Group on Service Delivery that would address DRR as a priority issue;

**Requests** the presidents of technical commissions:

- (1) To coordinate their respective intra- and inter-commission DRR-related projects and activities and provide advice on these to Members through the presidents of regional associations;
- (2) To respond to the needs of Members, including as communicated by presidents of regional associations, by developing guidelines and training modules consistent with Quality Management System (QMS) principles, spanning technical and operational aspects of meteorological, hydrological and climate services to support the implementation and scaling up of national/regional DRR projects;

**Requests** the presidents of regional associations to support the development and buy-in of national/regional DRR projects and facilitate input on needs and priorities of the Members and Regions;

**Requests** the Secretary-General:

- (1) To implement the DRR Programme through DRR national/regional projects;
- (2) To develop linkages between DRR and all relevant programmes and activities, and in particular with GFCS;
- (3) To assist further strengthening of international cooperation in disaster risk reduction in close collaboration with the United Nations International Strategy for Disaster Reduction (ISDR), other United Nations and international partners, and other relevant governmental and non-governmental organizations;
- (4) To support the development of a standard methodology for the collection and reporting of information on weather-, climate- and water-related hazards and their impact, with consideration for QMS principles;
- (5) To explore opportunities for further enhancement of regional and global Websites such as those of the WMO Severe Weather Information Centre or the Network of European Meteorological Services (EUMETNET) MeteoAlarm project in Europe, for access to official national information and warnings, and encourage the evaluation of these portals for, inter alia, their purpose and target audience, the strategy for linking to official sources of warnings, standardization of advisory and warning formats, in particular tropical cyclone information issued by RSMCs and national tropical cyclone warning centres, and alignment with the emerging protocols for “authoritative” warnings on a nation-by-nation basis;
- (6) To facilitate further documentation of good practices and development of guidelines on Multi-Hazard Early Warning Systems (MHEWS), risk assessment, risk reduction and risk transfer to support the NMHSs in further strengthening their national linkages with other agencies and sectors in these areas;
- (7) To develop a post-disaster strategy for resource mobilization for WMO, including both national and international funding;

**Invites** the UN-ISDR Secretariat and other United Nations, international and regional agencies to continue strengthening their partnerships with WMO and the development of effective inter-agency coordination mechanisms at all levels to support DRR capacity development projects;

**Urges** Members:

- (1) To actively participate in the national development planning and coordination processes linked to DRR and climate change adaptation;
- (2) To support the development of relevant DRR policies and legislation, with the aim of clarifying the roles of NMHSs in the national DRR policies, legal frameworks, institutional coordination and operational mechanisms;
- (3) To realize funding opportunities for strengthening of NMHSs capacities through national DRR development and adaptation funding;
- (4) To strengthen collaboration of NMHSs with disaster risk reduction stakeholders, including disaster risk management agencies and all relevant economic sectors;
- (5) To consider assisting WMO with post-disaster capacity assessments and activities by providing experts and other support as relevant.

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**Note:** This resolution replaces Resolution 25 (Cg-XV), which is no longer in force.

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### **Resolution 53 (Cg-XVI)**

#### **AERONAUTICAL METEOROLOGY PROGRAMME**

THE CONGRESS,

**Noting:**

- (1) Resolution 18 (Cg-XV) – Aeronautical Meteorology Programme,
- (2) Resolution 6 (EC-LXII) – Report of the fourteenth session of the Commission for Aeronautical Meteorology,
- (3) Resolution 18 (EC-LXII) – WMO definition of a meteorologist,
- (4) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Aeronautical Meteorology* (WMO-No. 1053),
- (5) The *Abridged Final Report with Resolutions of the Sixty-first Session of the Executive Council* (WMO-No. 1042) and in particular its paragraph 4.2.47 concerning the timelines proposed by EC-LXI for compliance with competency (1 December 2013) and qualifications (1 December 2016) requirements,
- (6) The recommendation made by the Executive Council at its sixty-second session (*Abridged Final Report with Resolutions of the Sixty-Second Session of the Executive Council* (WMO-No. 1059), general summary, paragraph 7.2.17) to the Secretary-General that the Aeronautical Meteorology Programme be treated as a future priority issue,

**Considering:**

- (1) That aviation is a key economic sector in most countries and aeronautical meteorology is an important component in ensuring safe and efficient operation of this sector,
- (2) That aviation meteorology is the main source of income through cost recovery for many National Meteorological Services, particularly in developing countries,
- (3) That there is constant pressure within the aviation sector to increase efficiency in the provision of services, including those that would lead to improved safety levels,
- (4) That as of 15 November 2012, National Meteorological and Hydrological Services are required by the seventeenth edition of Annex 3 to the Convention on International Civil Aviation, paragraph 2.2.3, to implement recognized quality management systems, with the recommendation that they be certified according to the International Organization for Standardization Standard 9001:2008,
- (5) That national and transnational air traffic management authorities in several regions are implementing new airspace structures and consequently request the provision of aeronautical meteorological services to aviation in line with the new airspace structures,

development of its Members, including activities taken by individual or groups of Members on behalf of the Region, coordinated through the RP. In order to pursue the tasks during their intersessional periods, RAs develop appropriate work structures for its subsidiary bodies such as working groups, task teams, networks and forums, engaging the available expertise of its Members based on the principle of volunteerism. The RP supports the activities of RA's subsidiary bodies and plays an important role in ensuring consistency between the WMO Strategic Plan, technical programmes and respective regional activities. The RP provides technical and logistics support to the related RA activities in order to ensure achievement of planned key outcomes.

**5.3** In each WMO Region there are a number of international organizations, inter-governmental agreements, regional economic groupings, development agencies, and NGOs, whose objectives and activities are related to those of WMO. The RP works towards establishment of close cooperation and partnership with those organizations in order to find synergies, possibilities for financing projects and provision of technical assistance to Members in the Region. The RP accounts for the representation of WMO in different inter-agency and inter-governmental meetings at regional and subregional level, thus, contributing to a better visibility of WMO and the NMHSs and emphasizing their role in the development agenda.

**5.4** WMO Regional Offices support the RP and other Programmes as appropriate. The Regional Offices include a number of offices located in Sub-Regions for closer coordination of regional activities with Members and development partners. The RP contributes to capacity development efforts, through the Regional Offices and WMO Offices in the Regions, by maintaining close relations with all Members, by acting as point-of-contact between Members and the WMO Secretariat. One of the main tasks of these Offices is to advocate the role of the NMHSs and the need for support from the governments to sustain and enhance their operations. A major task in the advocacy effort is to demonstrate the socio-economic benefits of the weather, climate and water services and promote the need to invest in necessary infrastructure, as well as in related research and development. The RP puts emphasis on strengthening the national and regional institutional frameworks, legislation and regulations, in order to ensure sustainability of NMHSs and their continuous improvement.

## **DISASTER RISK REDUCTION PROGRAMME**

### **1. Long-term objective**

The main long-term objective of the WMO DRR Programme is to contribute to the strengthening of institutional capacities with respect to the provision of meteorological, hydrological and climate services and cooperation in supporting disaster risk management for the protection of lives and property and contributing to sustainable development of Members.

### **2. Purpose and scope**

The purpose of the WMO DRR Programme is to assist Members to provide and deliver services that are directed towards the protection of lives, livelihoods and property, in a cost-effective, systematic and sustainable manner.

The scope of the Programme is defined through its five strategic goals underpinned by the Hyogo Framework for Action 2005–2015 and approved by Cg-XV:

- (a) Development, improvement and sustainability of early warning systems in particular related to scientific and technical infrastructures, systems and capabilities for research, observing, detecting, forecasting and warnings of weather-, water- and climate-related hazards;
- (b) Development, improvement and sustainability of standardized hazard databases and metadata, systems, methods, tools and applications of modern technologies such as geographical information systems for recording, analysing and providing hazard information for risk assessment, sectoral planning, risk transfer and other informed decision-making;
- (c) Development and delivery of warnings, specialized forecasts and other products and services that are timely, understandable to those at risk and driven by requirements of disaster risk reduction decision processes and operations engaging socio-economic sectors;
- (d) Stimulate a culture of resilience and prevention through strengthening of capacities for better integration of meteorological, hydrological and climate' products and services in disaster risk reduction across all socio economic sectors, such as land use planning and infrastructure design and continued public education and outreach campaigns;
- (e) Strengthening cooperation and partnerships of WMO and NMHSs in national, regional and international user forums, mechanisms and structures for implementation of disaster risk reduction.

### **3. Governance**

The guidance and oversight to the DRR Programme is provided by the Executive Council Working Group on Service Delivery (EC WG SD). The implementation of the Programme engaged a number of inter-commission task teams, with experts drawn from CBS, CHy, CCI, JCOMM and CAgM.

### **4. Programme structure**

The DRR Programme is cross-cutting and is implemented through coordination among WMO Members, regional associations, WMO Technical Programmes and Commissions, WMO global operational components (GDPFS, WIS, WIGOS), other UN international and regional humanitarian and development partners and the regional inter-governmental disaster risk management agencies linked to the UN-ISDR System. Specifically, the implementation of the DRR Programme is built upon strong cooperation across a number of programmes such as WWW, HWR, WCP, TCP, PWS, MMOP, and AgM. The Programme is implemented through regional and national projects based on a project management framework and set of criteria approved by the WMO EC-LXII.

Implementation of resource mobilization in support of the crosscutting DRR Programme is coordinated through the WMO resource mobilization office, with consideration for:

- (a) The development of DRR Programme implementation priorities based upon the WMO's Strategic and Operating Plans;
  - (b) Identification of strategic donors, understanding of their priorities and interests in investing in DRR projects in different regions and their engagement in the projects from early stages of assessments and project identification;
  - (c) Realization of post-disaster funding opportunities such as the UN Flash Appeal led by UN-OCHA and the Post Disaster Needs Assessment (PDNA) and reconstruction planning, led by UNDP–World Bank–European Union.
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