

Inputs provided by: *World Meteorological Organization*

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1. General description of mandates and objective(s) of your organization / associated network with institutional structure

The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 191 States and Territories (Annex 1). It originated from the International Meteorological Organization, which was founded in 1873. Established in 1950, WMO became a specialized agency of the United Nations in 1951. Since its establishment, WMO has played a unique role in contributing to the safety and welfare of humanity. Under WMO's leadership and within the framework of WMO programmes, National Meteorological and Hydrological Services (NMHSs) contribute substantially to: (1) the protection of life and property against natural disasters; (2) safeguarding the environment; and (3) enhancing the economic and social well-being of all sectors of society in areas such as food security, water resources and transport. WMO promotes cooperation in the establishment of networks for making meteorological, climatological, hydrological and geophysical observations, as well as the exchange, processing and standardization of related data, and assists technology transfer, training and research. (<http://www.wmo.int/>) WMO's Members are represented in the Organization through their Permanent Representative, usually the Director of the NMHS. WMO's institutional structure is comprised of (i) the World Meteorological Congress, the supreme body of the Organization which meets every 4 years, (ii) the Executive Council, the executive body of the Organization, which is responsible to Congress for the coordination and oversight of the programmes of the Organization in the intervening years, (iii) eight technical commissions composed of experts designated by Members and responsible for studying meteorological and hydrological operational systems, applications and research. (iv) six regional associations, regional groupings of WMO Member States, and related regional offices, and (v) the WMO Secretariat, headed by the Secretary-General with headquarters in Geneva, Switzerland, where the offices of all the WMO sponsored and co-sponsored programmes are also located. WMO is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources.

2. Relevant operational framework(s)

WMO is the specialized agency of the United Nations responsible for (1) coordination of climate and weather research, (2) development of standards and technical developments, (3) operational cooperation and coordination among its Member States for observing, analysis, data exchange, and forecasting of weather, climate, water and related environmental conditions, and (4) Capacity development at national and regional levels for the provision of meteorological, hydrological and climate services to support decision-making for safety of lives, livelihoods and property. This is achieved through (i) WMO's 10 sponsored and four co-sponsored scientific and technical international programmes, (ii) eight technical commissions, composed of a network of over 1500 leading research and operational experts designated by WMO Member States to establish methodologies, procedures and standards. Among them, the Commission for Climatology (CCL) is a specialized body in climate data management, climate monitoring, prediction and downscaling as well as advising on provision of services to climate sensitive sectors, (iii) a globally and regionally coordinated operational network, and (iv) a network of 30 Regional training Centers.

WMO Globally Coordinated Operational Meteorological and Climate Network

Building on more than sixty years of international and regional cooperation facilitated through international programmes, WMO coordinates an operational network including, (i) the coordinated activities of the National Meteorological and Hydrological Services (NMHSs) of its 191 Member States, (ii) the WMO Global Telecommunication Systems (GTS) which connects all countries through their NMHSs, (iii) WMO Global Data Processing and Forecasting System (GDPFS) comprised of three Global Meteorological Centers (Australia, USA and Russia), over 50 accredited Global and Regional Specialized Meteorological Centers (RSMCs) with thematic or regional specialization, Regional Climate Centers (RCCs) and Drought Management Centers (DMCs), and (iv) a coordinated network of National Space Agencies and related centers (referred to as WMO-CGMS Virtual Centers). The definitions and “mandatory functions” of the regional centers are provided in Annex 2.

During the 1990s, as part of its mandate, WMO facilitated negotiations for data exchange among its Member States and reached two resolutions (WMO Congress XII Resolution 40, and WMO Congress XIII Resolution 25) for exchange of “essential” meteorological data (Res. 40) and hydrological data (Res. 25) necessary for the provision of services in support of the protection of life, property and well-being of all nations.

The WMO global operational network has facilitated on-going and sustainable collection, exchange, analysis, forecasting and provision of regional products and services that support the national Meteorological and Hydrological Services of WMO Member States. Everyday the national agencies within the WMO network gather and transmit large amounts of real-time and near real-time data through WMO GTS to the network of RSMCs, who are “mandated” to develop and make accessible various global and regional forecast and analysis products and outputs based on latest tools and technologies. These are provided to the NMHSs of the WMO Member states for further processing, analysis and downscaling for national applications. However, this cooperation depends on the national capacities to provide data and to be able to receive and utilize the regional products in their operations.

With the goal to further leverage capacities and resources and improve this network, over the last decade, WMO has been working on the WMO Integrated Global Observing System (WIGOS) to address among many issues, interoperability of meteorological, hydrological, marine and climate related observing networks, which requires agreements on specifications, operational, technical, budgets and mandates of the various operators. Furthermore, given the importance of data availability, accessibility and exchanges within and among countries, WMO is working on the WMO Information System (WIS) (building on the WMO GTS) to address accessibility and availability of meteorological, hydrological, marine and climate data and information targeted at sectoral needs and applications. However, this also requires extensive consultations, technical and policy agreements among a large variety of stakeholders and network operators.

For example, the WMO global coordinated network has been the foundation of over 30 years of international and regional cooperation which has led to sustainable provision of regional tropical cyclone and storm surge products and services, based on latest technologies, through six RSMCs to at-risk WMO Member States and Territories for development of their national warning and meteorological services. Furthermore, eight RSMCs provide operational meteorological services to WMO Member States and territories in case of nuclear and other technological accidents, wild fires and volcanic ash transport. This RSMC network is being further leveraged for provision of severe weather forecasts and related meteorological services.

WMO has been a leading agency in advancing research and applications in the area of climate variability and change, climate forecasting and modeling and development of the Global Climate Observing System (GCOS). WMO has hosted three World Climate Conferences (1979, 1990 and 2009). These have led to the: (i) establishment of World Climate Programme (WCP) including World Climate Research Programme (WCRP) which underpins the IPCC reports and is co-sponsored by WMO with UNESCO and ICSU, (ii) establishment of the Intergovernmental Panel for Climate Change (IPCC) by WMO and UNEP in 1988, (iii) establishment of the Global Climate Observing System (GCOS), which WMO co-sponsors with UNESCO and its IOC, ICSU and UNEP, (iv) initiating the Intergovernmental Negotiating Committee (INC, 1990) through the UN General Assembly for the establishment of UNFCCC (1992) and, (v) operationalization of climate information and services for sectoral applications through the

Global Framework for Climate Services (GFCS) established in 2011.

Understanding the impacts of climate variability and climate change on the characteristics (frequency, severity, and location) of hydro-meteorological trends and extreme events is key to climate change adaptation and effective risk reduction strategies. The extraordinary progress in climate modeling and forecasting over the last decade provides unprecedented opportunities for the development of climate services that could support informed medium- to long-term sectoral planning and risk management.

Over the years WMO has facilitated the establishment of the Regional Climate Outlook Forums (RCOF) as multi-stakeholder mechanisms engaging national, regional and international climate experts, sectoral practitioners and policy makers. Through an interactive process, RCOFs and associated Regional Climate User Forums (i) develop consensus regional climate outlooks, (ii) identify the requirements for regional climate information products and services; and (iii) foster multi-disciplinary sectoral cooperation to improve the quality of climate information products and services.

Furthermore, building upon the sustainable cooperation model of the WMO global operational network in recent years, WMO has initiated the designation of Regional Climate Centres (RCCs) as centres of excellence that are mandated to provide WMO Member States with regional tools, products and services to support their national development strategies (Annex 2). One specific mandatory function of WMO RCCs addresses the implementation of Climate Watch systems to enable Members to issue alert and advice information on ongoing or envisaged climate anomalies with potentially adverse effects on societies.

List of WMO Sponsored and Co-Sponsored Programmes and Global Initiatives includes:

WMO Sponsored Programmes:

World Climate Programme (WCP),
World Weather Watch Programme (WWW),
World Weather Research Programme (WWRP),
Hydrology and Water Resources Programme (HWR),
Disaster Risk Reduction Programme (DRR),
Agricultural Meteorology Programme (AgMP)

Co-sponsored programmes:

Global Climate Observing System (GCOS) (cf: ,
World Climate Research Programme (WCRP)
(http://www.wmo.int/pages/summary/progs_struct_en.html)

Global initiative: Global Framework for Climate Services (GFCS)

(<http://www.gfcs-climate.org/>)

List of WMO eight Technical Commissions (http://www.wmo.int/pages/governance/tc/index_en.html)

3. Focus areas of risk management for loss and damage associated with climate change impacts

WMO through its comprehensive 2006 Country-level DRR survey assessed the capacities of its members pertaining to the ability to monitor, detect, archive databases and meta data for and carryout statistical and forward looking analysis of characteristics of extreme events for meteorological, hydrological and climate related hazards (http://www.wmo.int/pages/prog/drr/natRegCap_en.html). A number of gaps and needs were identified, which has underpinned development of a number of coordinated international, regional and national initiatives (See Annex 3). The following are a description of major WMO programmes and initiatives relevant to the various priorities associated with damage and loss:

1. Assessing the risk of loss and damage associated with the adverse effects of climate change, including slow onset impacts (trends and extremes):

(1) WMO Disaster Risk Reduction (DRR) Programme

(http://www.wmo.int/pages/prog/drr/index_en.html): As its highest priority, the DRR Programme Work Plan (2012-2015) (<http://www.wmo.int/pages/prog/drr/documents/2012.07.05-WMODRRWorkPlan2012-2015.pdf>) is aimed to deliver guidelines, standards and recommended practices for monitoring, detection, archiving historical data, metadata, as well as tools for statistical and forward looking (forecasts, analysis, projections) of characteristics of weather, water, and climate related hazards, such as droughts, floods, storms, heat waves, tropical cyclones, storm surges and coastal inundation. WMO has established a User-Interface Expert Advisory Group on Hazard/Risk Analysis, comprised of leading experts from UN, other international, regional agencies, private and public sectors and academia, with expertise in risk modeling or capacity development in risk analysis to guide the technical work of WMO in this area. Furthermore a team of leading experts from WMO Technical Commissions, Technical Programmes and WMO Co-sponsored World Climate Research Programme have been established to provide technical support and to systematically engage the extensive technical network of WMO in the process. The “First Technical Workshop on Standards for Hazard Monitoring, Databases, Metadata and Analysis Techniques to Support Risk Assessment” was held on 10 - 14 June 2013, WMO Headquarters in Geneva, Switzerland, through which a number of gaps and needs with respect top definitions, methods, tools and techniques were identified and recommendation for developing the guidelines, standards were developed (http://www.wmo.int/pages/prog/drr/projects/Thematic/HazardRisk/2013-04-TechWks/index_en.html). The next meeting to address these needs will be held on 14-16 October 2013 and in April 2014 in Geneva, Switzerland at the WMO HQ. The developed guidelines, recommended practices and standards will be implemented through coordinated national capacity development project in DRR and adaptation.

(2) The Global Framework for Climate Services, flowing from the World Climate Conference-3, will enable better management of the risks of climate variability and change and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale. The four priority areas for the initial implementation of thee GFCS are Agriculture and Food Security, Disaster Risk Reduction, Health and Water. The pillars for the implementation of the GFCS are:

- User Interface Platform — provide ways for climate service users and providers to interact and improve the effectiveness of the Framework and its climate services
- Climate Services Information System — produce and distribute climate data and information according to the needs of users and to agreed standards
- Observations and Monitoring – develop agreements and standards for generating necessary climate data.
- Research, Modeling and Prediction — harness science capabilities and results to meet the needs of climate services
- Capacity Building — support the systematic development of the institutions, infrastructure and human resources needed for effective climate services

Please note that through the GFCS process, inter alia, study the implications of, and the potential for, applying the principle of free and unrestricted exchange of data and products, while respecting national policies, for the provision of climate services, including identification of examples of climate data and products that are available are being considered and examined.

(3) The Integrated Drought Management Programme (IDMP) is a joint initiative of the WMO and the

Global Water Partnership (GWP). The scope of the IDMP is to build climate resilience, reduce economic and social losses, and alleviate poverty in drought-affected regions of the world through an integrated approach to drought management, which cuts across sectoral, disciplinary, and institutional jurisdictions and is responsive to specific regional and national needs and requirements. The objective of the Programme is to support stakeholders at all levels by providing policy and management guidance and by sharing scientific information, knowledge and best practices for Integrated Drought Management. The Programme will contribute to the global coordination of drought-related efforts of existing organizations and agencies with regard to:

- Better scientific understanding and inputs for drought management;
- Drought risk assessment, monitoring, prediction and early warning;
- Policy and planning for drought preparedness and mitigation across sectors; and
- Drought risk reduction and response.

(4) The Associated Programme on Flood Management (APFM) is a joint initiative of the World Meteorological Organization and the Global Water Partnership. The mission of the APFM is to support countries in the integrated management of floods within the overall framework of integrated water resources management. The APFM facilitates the dialogue to governmental agencies and provides a platform for guidance on flood management policy, strategy and institutional development. The programme's objective is to promote the concept of Integrated Flood Management (IFM) as a new approach in dealing and living with floods. The Integrated Flood Management approach aims to maximize the net benefits from flood plains and at the same time reduce loss of life as a result of flooding, flood vulnerability and risks, and preserve ecosystems and their associated biodiversity within the overall framework of IWRM. The concept recognizes the benefits of the smaller and more frequent floods, the importance of flood plains and the increasing development demands they face, while at the same time recognizing the disruptive nature of floods. It integrates structural and non-structural measures; land and water management; ecosystem preservation and development needs; and short- and long-term measures.

[2. Identifying options and designing and implementing country-driven risk management strategies and approaches, including risk reduction, and risk transfer and risk-sharing mechanisms;](#)

(1) As part of the implementation of its DRR Programme Work Plan, the WMO is working with a number of UN, technical and development agencies such as UN-ISDR, UNDP, IFRC, the World Bank to assist countries with the development of policies, institutional, operational and technical capacities in areas of Risk Assessment, Multi-Hazard Early Warning Systems, Sectoral Risk Management and Disaster Risk Financing and Risk Transfer Mechanisms to reduce the impacts of disasters associated with weather, water and climate-related hazards.

The development of the project had been based on the following considerations:

- (a) Government interest, alignment with national DRR and development planning and priorities, engagement and commitment to DRR and climate adaptation;
- (b) Development of strategic alliances with partners and donors from early stage (national, regional, global);
- (c) Engagement of WMO Members, RAs and WMO Operational Network;
- (d) Leverage exiting projects and their outcomes;
- (e) Multi-stakeholder and multi-sectoral engagement for a user-driven assessment of gaps, needs, prioritization and requirements;
- (f) National development and regional cooperation components:
 - National: DRR policies, institutional roles, partnerships, capacity development for strengthening of NMHSs, technical cooperation and development of meteorological, hydrological and climate

products and services as per requirements of target users;

- Regional: Strengthening of RSMCs and RCCs and their cooperation with NMHS in support of DRR applications;

(g) Sustainability.

The main thrusts of the project included:

- (a) Prioritization of NMHSs national DRR users, establishment of agreements as per national DRR priorities and institutional frameworks (policy, legislation and legal frameworks);
- (b) Assessment of sectoral needs, requirements and agreements for meteorological, hydrological and climate products and services; assessment of capacities, gaps, needs of NMHS and development of priorities for their capacity development
- (c) Documentation of national policies and regulatory framework and roles of NMHSs (with partners such as UNDP and UN-ISDR);
- (d) Development of relevant partnership agreements and alliances (regional, global);
- (e) Modernization and/or core service strengthening of NMHSs as relevant (with partners such as the World Bank);
- (f) Development of products and services to support Risk Assessment, Multi-Hazard Early Warning Systems, Sectoral Risk Management and Disaster Risk Financing and Risk Transfer Mechanisms, underpinned by quality Management System (QMS) principles:
 - Severe Weather and Marine Services: Increased access to forecasting tools and severe weather warning services and utilization of related products by users;
 - Hydrological services: Increased access to national and regional flood management information systems;
 - Climate Services: Increased access to climate data, analysis tools, and climate forecast products and services;
- (g) Optimal design of the national observing systems, data services and exchange: Increased regional dialogue and agreements for exchange of meteorological, hydrological and climate data and regional products (space, radar, etc.);
- (h) In-country technical support and feedback;
- (i) Evaluation and expansion to next phase.

Currently these projects are active in South East Europe (Albania, Bosnia & Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia, Kosovo (as defined by UNSCR 1244/99), Turkey), South East Asia (Lao PDR, Cambodia, Thailand, Vietnam, Indonesia, and the Philippines), Caribbean (All Caribbean island countries and territories) and Central America (Costa Rica).

(2) The WMO in collaborating with the World Bank through participation in the scoping and provision of technical advice to the Executive Team involved in the design of the pilot Projects for Climate Resilience (PPCR) as follows:

- Nepal - management and technical advice in support of the project to the Exec team. Liaison visits to China, India and S Korea being organized through Regional Office
- Yemen - initial scoping mission to Cairo with the World Bank to plan the project. No further action.
- Niger - informal request from PR to assist in implementation assuming the country is successful, but nothing formal since
- Caribbean - awareness of the regional project and specific attempts to link with the Haiti PPCR project which links with the Canadian funded work.

3) The systematic observation of, and data collection on, the impacts of climate change, in particular slow

onset impacts, and accounting for losses, as appropriate;

A critical aspect of collection of damage and loss data is the ability to geo-reference the impacts with the hazard and climatic condition information. For example, in case cascading hazards (tropical cyclone, and related wind, precipitation, flooding, land and mud-slides, tornadoes) can lead to mis-calculation of damage and loss information if the correct attributions from the hazard side are not considered. This is at the core of the WMO initiative under its DRR Programme Work Plan (2012-2015) to develop standards, guidelines and recommended practices for monitoring, detection, archiving of data, metadata and tools for statistical and forward looking analysis of meteorological, hydrological and climate-related hazards to support risk analysis. For more information see the response under item (1) above.

4) Implementing comprehensive climate risk management approaches, including scaling up and replicating good practices and pilot initiatives;

WMO established its Disaster Risk Reduction (DRR) Programme, in 2003, to strengthen and integrate disaster risk reduction processes related to meteorological, hydrological and climate hazards into the climate services of its WMO operational and research networks. It is planned to be integrated in all countries, however particularly in those with the least resources and are therefore more vulnerable to climate disasters. Through this crosscutting programme, WMO is developing an organization-wide coordinating framework to achieve these objectives at the international, regional and national levels. Part of this framework is the Hyogo Framework for Action plan, produced in 2005 at the Second World Conference on Disaster Reduction. The Framework for Action (2005-2015) highlights actions to help countries prevent and prepare for climate disasters. Climate-related disasters, and therefore climate risk management, often has a negative connotation. This is because climate disasters inflict so much damage to society. However, on the same hand, 'climate-related risk management' also bears a great potential to capture 'benefits' from the windows of opportunity offered by the climate. Appropriate climate information distributed through an efficient delivery system can alert health and food officials to optimise the allocation of medical resources to fight malaria outbreaks or assure food and water security long before the actual natural hazard sets in. Early warning systems give communities time to prepare for the disaster, saving lives if not infrastructure as well.

5) Promoting an enabling environment that would encourage investment and the involvement of relevant stakeholders in climate risk management;

The implementation of the Global Framework for Climate Services (GFCS) is now well underway, and requires full support, including investment/funding for institutional, procedural, infrastructural and human capacity development. The main sources of GFCS funding thus far are Member contributions to the GFCS Trust Fund or to project specific trust funds, through bilateral and multi-lateral investments for projects in selected countries or regions. In addition, various actors can support projects – to be listed in a compendium of GFCS projects – or designate their activities as contributing to the GFCS by fulfilling criteria to be approved by the Intergovernmental Board on Climate Services (IBCS).

6) Involving vulnerable communities and populations, and civil society, the private sector and other relevant stakeholders, in the assessment of and response to loss and damage;

WMO activities in this area particularly are focused on the topic of Multi-Hazard Early Warning Systems. Early warning systems are effective tools for reducing loss of life, however, emergence of climate prediction and forecasting tools provides opportunities to provide warnings with longer lead times that can be used in savings of livelihoods through improved sectoral planning. Analysis of hazard patterns from historical data is necessary but not sufficient for strategic planning. Changing patterns of climate hazards are posing challenges with longer-term investments in infrastructure planning and retrofitting based on

building codes and specifications, using only historical records (e.g., 100 year flood may become a 30 year flood). In these areas, WMO activities through its WCRP, World Weather Research programme, DRR, Public Weather Services, Global Data processing and Forecasting System Programme and Climate Programmes include facilitation of development of climate services (data, forecasts, projections) to support longer lead-time early warning of Risk management decision making. Among major outcomes have been:

(1) Golnaraghi, M (Ed.) “Institutional Partnerships in Multi-Hazard Early Warning Systems” Book published by Springer Verlag Publishers, ISBN 978-3-642-25372-0 (2012), which is a compilation of seven good practices in Early Warning Systems and synthesis of common principals and success factors

(2) Release of WMO Guidelines for National Meteorological and Hydrological Services on Institutional Partnerships in DRR and Multi-Hazard EWS (Forthcoming)

(3) A number of coordinated national projects for development of Multi-Hazard EWS, as part of a more comprehensive DRR and adaptation capacity development phased projects in a number of regions around the world.

This work will be further expanded in context of the implementation of GFCS.

7) [Enhancing access to, sharing and the use of data, at the regional, national and sub-national levels such as hydrometeorological data and metadata, on a voluntary basis, to facilitate the assessment and management of climate-related risk.](#)

During the 1990s, as part of its mandate, WMO facilitated negotiations for data exchange among its Member States and reached two resolutions (WMO Congress XII Resolution 40, and WMO Congress XIII Resolution 25) for exchange of “essential” meteorological data (Res. 40) and hydrological data (res. 25) necessary for the provision of services in support of the protection of life, property and well-being of all nations. The WMO Executive Council has established a Task Team on the WMO Policy for International Exchange of Climate Data and Products to support the implementation of the Global Framework for Climate Services. The Task Team is to, inter alia, study the implications of, and the potential for, applying the principle of free and unrestricted exchange of data and products, while respecting national policies, for the provision of climate services, including identification of examples of climate data and products that are available.

The highest priority of the DRR Programme Work Plan (2012-2015)

(<http://www.wmo.int/pages/prog/drr/documents/2012.07.05-WMODRRWorkPlan2012-2015.pdf>) is to deliver guidelines, standards and recommended practices for monitoring, detection, archiving historical data, metadata, as well as tools for statistical and forward looking (forecasts, analysis, projections) of characteristics of weather, water, and climate related hazards, such as droughts, floods, storms, heat waves, tropical cyclones, storm surges and coastal inundation. WMO has established a User-Interface Expert Advisory Group on Hazard/Risk Analysis, comprised of leading experts from UN, other international, regional agencies, private and public sectors and academia, with expertise in risk modeling or capacity development in risk analysis to guide the technical work of WMO in this area. Furthermore a team of leading experts from WMO Technical Commissions, Technical Programmes and WMO Co-sponsored World Climate Research Programme have been established to provide technical support and to systematically engage the extensive technical network of WMO in the process. The “First Technical Workshop on Standards for Hazard Monitoring, Databases, Metadata and Analysis Techniques to Support Risk Assessment” was held on 10 - 14 June 2013, WMO Headquarters in Geneva, Switzerland, through which a number of gaps and needs with respect to definitions, methods, tools and techniques were identified and recommendation for developing the guidelines, standards were developed

(http://www.wmo.int/pages/prog/drr/projects/Thematic/HazardRisk/2013-04-TechWks/index_en.html).

The next meeting to address these needs will be held on 14-16 October 2013 and in April 2014 in Geneva, Switzerland at the WMO HQ. The developed guidelines, recommended practices and standards will be

implemented through coordinated national capacity development project in DRR and adaptation.

4. Geographic coverage

Global: WMO's scope is to support all 191 member states through coordinating an operational network operated by Members. Furthermore as an ISO-accredited agency, WMO provision Technical Regulations, guidelines, manuals, standards for monitoring, detection, archiving and development of databases and meta data, analytical and forecasting tools for a wide range of meteorological, hydrological and climate-related hazards.

Regional: WMO works on the regional levels through 6 regional associations and a number of regional mechanisms associated with various technical programmes, such as the Tropical Cyclone Programme

National: 191 Members. Currently coordinated projects for strengthening institutional capacities for hazard mapping as input into risk analysis for a number of hazards, particularly droughts, floods severe weather are being implemented through the coordinated National Capacity development projects in CRR and Climate adaptation in:

- Western Balkans and Turkey: Eight (8) IPA beneficiaries: Albania, Bosnia & Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia, Kosovo (as defined by UNSCR 1244/99), Turkey
- Caribbean: All Caribbean island countries and territories
- With plans underway in:
 - Southeast Asia: Lao PDR, Cambodia, Thailand, Vietnam, Indonesia, and the Philippines
 - Central America
 - Haiti
 - Select countries in Africa and South Asia

5. Key stakeholders

National Meteorological and Hydrological Services (NMHS), Weather and climate international research community, Space agencies.

6. Implementation modality / delivery mechanisms

Please provide information related to the technical, financial and institutional support mechanism
Regarding technical and institutional support please See description under items 1 and 2.

Regarding financial support mechanisms, WMO has a regular budget which is approved through its Congress every four years, which funds the core activities of its ten Technical Programmes. Furthermore, WMO has a Resource Mobilization Office which seeks funding for capacity development projects aligned with WMO core

mandate and priorities. Such funds are raised through various bi- and multi-lateral donor mechanisms, Voluntary Cooperation Programme (VCP). The main purpose of the VCP is to assist Member countries through cooperative efforts of Members to complement implementation activities for WMO scientific and technical Programmes under national programmes, bilateral or multilateral programmes, Trust Fund arrangements and the United Nations Development Programme (UNDP). The VCP provides, inter alia, for support to be given to Member countries at their request either in the form of equipment and services, including training, contributed on a voluntary basis by Member countries or by direct financing, using financial contributions obtained on the same basis WMO is also accredited as an implementing agency of the Climate Adaptation Fund.

Please provide information related to reporting, if any:

WMO follows a result-based management approach to report its deliverables to its Members. The reporting is carried out formally through WMO governing bodies, namely WMO Congress as the supreme governing body of the WMO, which meets every four years during which all WMO constituent bodies (i.e., technical commissions and regional associations) as well as all WMO Programmes provide in-depth report of the performance and deliverables. In addition, through WMO Executive Council which meets annually to monitor the progress with the implementation of the WMO Implementation Plan between the Congress meetings. Furthermore, achievements and deliverables related to each of the six WMO regions are reported through the meeting of the respective regional associations (participated by the Directors of National Meteorological Services, National Hydrological Advisors and other representatives from the Members), which meet every four years. Progress with the implementation of technical matters and outcomes of WMO technical programmes, implemented through intra- and inter-commission mechanisms are reported during the meetings of these technical structures, every four years, with the exception of the Commission of Basic Systems (CBS) which meets every two years.

7. Key activities / outputs to date (Relevant to Damage and Loss Programme)

1. WMO DRR National Survey was conducted in 2006 which identified capacities, gaps and needs for practices to monitor, detect, archive data and metadata

(http://www.wmo.int/pages/prog/drr/natRegCap_en.html)

2. WMO Expert Advisory Group on Hazard/Risk Analysis established comprised of leading experts from nearly 30 United Nations, other international and regional agencies, academia, National Meteorological and Hydrological Services and the private sector involved in risk analysis or institutional capacity development in risk assessment. This serves as the key advisory group to guide the technical work of WMO pertaining to user needs and requirements for hazard information to support collection of loss and damage data caused by meteorological, hydrological and climate-related hazards. The first planning workshop was held in June 2013

((http://www.wmo.int/pages/prog/drr/projects/Thematic/HazardRisk/2013-04-TechWks/index_en.html)

3. With consideration for WMO mandate in setting international guidelines, standards and recommended practices in technical matters related to weather, water and climate, a coordinated process is developed engaging experts from the WMO Technical Commissions to support the development of international guidelines, standards and recommended practices for monitoring, detection, archiving data and metadata and statistical and forward looking tools and methods for analysis of characteristics of hazards to support risk analysis. The first meeting of this team is held on 14-16 October 2013.

4. Good practices pertaining to systematic monitoring, detection, archiving of historical data and

metadata, and analysis of hazard characteristics, have been documented in a number of countries as the foundation for the work with a multi-hazard approach. This activity has engaged the National Meteorological and Hydrological Services and other technical agencies of Canada, Japan, China, the USA, United Kingdom, France, Germany, Switzerland, Russia, Australia, and Netherlands. The outcome would be a technical report, expected to be published in the fall of 2013.

5. A number of coordinated national projects are underway through cooperation of WMO, UNDP, UNISDR and the World Bank as core partners for capacity development in DRR and adaptation. As part of these a number of critical activities are carried out including data rescues, development of historical hazard data and metadata and extensive training and capacity building in hazard and risk analysis.

6. Regional climate output forums and Regional Climate Services are being expanded to address critical technical issues for provision of climate services to support areas such as risk analysis.

7. Process for development and Implementation of GFCS is underway as critical framework to facilitate the development of climate services to support risk analysis.

8.

9. Any additional information and contact details

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