

**World Meteorological Organization submission to the UNFCCC secretariat
regarding Call for Inputs by the Katowice Committee of Experts on the Impacts
of the Implementation of Response Measures**

Workplan Activity 11

Guiding question 1: Which climate change policy(ies) and actions, informed by the best available science, were assessed for environmental, social and economic co-benefits and what were the co-benefits identified from your assessment?

WMO advances assessment of social-, economic and environmental benefits in providing **climate services**, that are useable and sector-tailored advisories based on climate information such as trend projections or forecasts of various climate parameters at different timescales, to a wide range of stakeholders. Based on accessible, useable and timely climate advisory services, beneficiaries at community, sub-national and national levels can more effectively adapt to a variable and changing climate through early action and preparedness.

In a multi-agency effort, WMO provides annual WMO *State of Climate Services* reports that document a variety of improved outcomes and benefits through the usage of climate information and associated tailored services for agriculture and food security (2019), early warning systems (2020), water (2021) and energy (2022, forthcoming). These reports assess adaptation needs in climate-sensitive socio-economic sectors and highlight the gaps in user engagement. Further recent years' assessments for social, economic and environmental benefits include country-specific case studies completed by WMO and its partners as part of climate service pilot projects.

Acknowledged benefits of improved climate services across economic sectors encompass, for instance, increased crop yields, reduced production costs, increased farmer's income, lowered usage of fertilizers, energy and water savings. Some investments in national meteorological and hydrological services (DRC, Burkina Faso, Mali) have also demonstrated benefits along with the "Triple Dividend of Resilience" framework: i) saving lives and avoiding damage and losses; ii) unlocking economic potential; iii) generating development co-benefits. The overall conclusion is that potential benefits are substantial.

Guiding question 2: How such an assessment was conducted? Were there any standards used? What are challenges and opportunities, and lessons learnt from these assessments?

In data collection campaigns, WMO Members are asked to assess their capacity for providing climate services across the entire climate services value chain through a checklist for climate services implementation and document any studies on associated social and economic benefits. Data analysis completed by WMO suggests that despite noticeable progress on governance for climate services, monitoring of their social, economic and environmental co-benefits remains consistently weak worldwide.

To close this gap, WMO and its partners have co-developed and published resources to inform about good practices in delivering climate services to effectively inform the decision-making process (WMO *Guidance on Good Practices for Climate Services User Engagement*) as well as good practices in valuing climate services through the application of the state-of-the-art approaches and methods (WMO/WBG/GFDRR/USAID Report *Valuing Weather*

and Climate: Economic Assessment of Meteorological and Hydrological Services, 2015). The latter represents a comprehensive description and evaluation of the most up-to-date approaches for qualitative and quantitative assessments of economic, social and environmental benefits associated with hydromet services and programmes.

In cooperation with partners, WMO supports its Members in the application of these assessment approaches through ongoing projects and programmes, for instance, in Climate Services and Related Application (ClimSA) or Fully Optimized User Centric Climate Services Value Chain for Southern Africa (FOCUS-Africa) programmes.

Moreover, the Science and Innovation Department (SI) provides leadership in socio-economic research activities through the dedicated Working Group on *Societal and Economic Research Applications* (WG SERA) of the *World Weather Research Programme* (WWRP), which offers a platform to advance the science of social and economic applications of weather-related information and services. Likewise, the Regional Information for Society (RifS) Core Project of the *World Climate Research Programme* (WCRP) grows the foundations for effective links between climate research and the information needs of society to provide actionable information through integrating the best available science.

(c) Guiding question 3: What actions were/are/will be taken based on the co-benefit assessment and what specific measures were taken to maximize the co-benefits if any?

Given that the capacity to assess climate services for their potential benefits is highly uneven across regions, WMO is committed to providing further assistance to its Members.

In a joint initiative called Climate Science Information for Climate Action between WMO and the Green Climate Fund (GCF), guidance with two Annexes is developed to mobilize and facilitate access to scientific and technical resources. This initiative provides the international community on adaptation practices with access to new climate information, tools, and guidance to develop the scientific basis for climate action decisions, particularly for climate adaptation and resilience projects. Providing these products can help countries identify and select the most effective climate actions to overcome the various challenges of climate change. In doing so, the guidance can contribute to country-level decision-making and the mobilization of climate finance (WMO and Green Climate Fund report *Developing the Climate Science Basis for Climate Action*, 2021).

It is expected that additional assessments of social, economic and environmental benefits will support operationalization and scaling up of climate services, especially in Africa and SIDS. While reflecting on challenges and opportunities in assessing socio-economic benefits, the White Paper on *Socio-Economic Benefits of Weather, Climate and Water Services: The Role of WMO* (in preparation) aims at providing the basis for future initiatives.

References:

Agence Française de Développement (AFD), Adaptation Fund (AF), Climate Policy Initiative (CPI), Climate Risk and Early Warning Systems (CREWS) Secretariat, Food and Agriculture Organization of the UN (FAO), Green Climate Fund (GCF), Global Environment Facility (GEF), Group on Earth Observations (GEO), International Federation of Red Cross and Red Crescent Societies (IFRC), Risk-informed Early Action Partnership (REAP), United Nations Office for Disaster Risk Reduction (UNDRR), United Nations Development Programme (UNDP), World Bank Group (WBG), Global Facility for Disaster Reduction and Recovery (GFDRR), World Food Programme (WFP), World Meteorological Organization (WMO), World Health Organization (WHO), 2020: *2020 State of Climate Services* (WMO-No. 1252), <https://public.wmo.int/en/media/press-release/state-of-climate-services-2020-report-move-from-early-warnings-early-action>

Government of the Democratic Republic of Congo, The World Bank (WB), 2017: *Strengthening Hydro-Meteorological and Climate Services Project*, <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/289901488209393335/congo-democratic-republic-of-strengthening-hydro-meteorological-and-climate-services-project>.

Government of Burkina Faso, The World Bank (WB), 2018: *Strengthening Climate Resilience Project*, <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/141021538191842318/burkina-faso-strengthening-climate-resilience-project>.

Italian National Research Council (NRC), Burkina Faso Meteorological Agency (ANAM), World Meteorological Organization (WMO), 2021: *Access, Uptake, Use and Impacts of Agrometeorological Services in Sahelian Rural Areas: The Case of Burkina Faso*, <https://www.researchgate.net/publication/356604478>.

MeteoSwiss, Senamhi, 2015: *Socio-Economic Benefits of User-Tailored Climate Services: A Case Study for the Coffee and Maize Production in Peru*, <https://www.meteoswiss.admin.ch/content/dam/meteoswiss/en/Forschung-und-Zusammenarbeit/Internationale-Zusammenarbeit/Projekt/doc/SEB-Cusco-ingles-2016.pdf>.

MeteoSwiss, Senamhi, 2018. Designing user-driven climate services. What we can learn from the Climandes project: A checklist for practitioners, scientists and policy makers, https://gfcs.wmo.int/sites/default/files/UIP%20Publication_s.pdf.

Tall, A., 2013: What Do we Mean by Climate Services? <https://public.wmo.int/en/bulletin/what-do-we-mean-climate-services>.

World Meteorological Organization (WMO), 2018: *Guidance on Good Practices for Climate Services User Engagement: Expert Team on User Interface for Climate Services, Commission for Climatology* (WMO-No. 1214), https://library.wmo.int/index.php?lvl=notice_display&id=20254.

World Meteorological Organization (WMO), Adaptation Fund (AF), CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Food and Agriculture Organization of the United Nations (FAO), Green Climate Fund (GCF), Global Environment Facility (GEF), Global Facility for Disaster Reduction and Recovery (GFDRR), World Bank Group (WBG), World Food Programme (WFP), 2019: *2019 State of Climate Services. Agriculture and Food Security* (WMO-No.1242), https://library.wmo.int/index.php?lvl=notice_display&id=21609.

World Meteorological Organization (WMO), Agence Française de Développement (AFD), Adaptation Fund (AF), Climate Policy Initiative (CPI), Climate Risk and Early Warning Systems (CREWS) Secretariat, European Centre for Medium-Range Weather Forecasts (ECMWF), European Investment Bank (EIB), Food and Agriculture Organization of the UN (FAO), Global Facility for Disaster Reduction and Recovery (GFDRR), Global Environment Facility (GEF), Global Water Partnership (GWP), Green Climate Fund (GCF), Group on Earth Observations (GEO), United Nations Development Programme (UNDP), UK Foreign, Commonwealth & Development Office (FCDO), United Nations Office for Disaster Risk Reduction (UNDRR), United Nations Environment Programme (UNEP), UNEP-DHI Centre on Water and Environment, World Bank Group (WBG), 2021: *2021 State of Climate Services – Water* (WMO-No. 1278), <https://public.wmo.int/en/resources/library/2021-state-of-climate-services-water>.

World Meteorological Organization and Green Climate Fund, 2021: *Developing the Climate Science Basis for Climate Action*, https://library.wmo.int/index.php?lvl=notice_display&id=21974#.Yjn3kufMIuU.

World Meteorological Organization (WMO), World Bank Group (WBG), Global Facility for Disaster Reduction and Recovery (GFDRR), United States Agency for International Development (USAID), 2015: *Valuing Weather and Climate: Economic Assessment of Meteorological and Hydrological Services* (WMO-No. 1153), https://library.wmo.int/doc_num.php?explnum_id=3314.