Call for Submissions from UAE 2023 – Global Goal on Adaptation

Submission from WMO

Background

Following the conclusion of the Glasgow–Sharm el-Sheikh work programme (FCCC/PA/CMA/2023/L.18, para. 5), the decision to launch a two-year UAE – Belém work programme (FCCC/PA/CMA/2023/L.18, para. 39); and the invitation for Parties and observers to submit views on matters relating to the UAE – Belém work programme, WMO is hereby expressing its views on indicators for measuring progress achieved towards the targets of the framework, to identify and as needed, developing indicators and potential quantified elements for those targets under the Paragraphs 9 and 10 of the CMA.5 Decision on the global goal on adaptation and modalities of the work programme, including organization of work, timelines, inputs, outputs and involvement of stakeholders.

WMO activities contribute to the science-based indicators and metrics for the targets under FCCC/PA/CMA/2023/L.18, para. 9 for measuring progress to:

*(a) Significantly reducing climate-induced **water scarcity and enhancing climate resilience to water-related hazards** towards a climate-resilient water supply, climate-resilient sanitation and access to safe and affordable potable water for all.*

For countries to report on climate-induced water scarcity and hazards, there is a need to monitor how climate change factors influence the hydrological cycle and the status of water resources at different levels. National Meteorological and Hydrological Services (NMHSs) are collaborating to increase this understanding. NMHSs are developing their capacities to gather crucial hydrological indicators, such as the changes in river discharge, reservoir inflow, groundwater levels, soil moisture and evapotranspiration, and changes in the cryosphere, among others. These indicators can be compiled by the World Meteorological Organization (the UN Specialized Agency where NMHSs are represented) in the State of Global Water Resources report and in the implementation of the WMO Global Hydrological Status and Outlooks System (HydroSOS), which offers a comprehensive and consistent overview of water resources worldwide, highlighting the influence of climatic, environmental and societal changes on the hydrological variables. A set of selected existing indicators that are standardized and harmonized across countries will be needed to have comparable information to report back on progress made towards the GGA 9a. The UN-Water Task Force on Indicators, Monitoring and Reporting in 2009[1] concluded that a limited set of indicators offers an entry point to target data creation and facilitate the mobilization of information flows to generate indicators on a systematic basis. A reduced number of indicators selected from an existing larger set of indicators will help inform civil society and support effective communication with decision-makers on trends and progress. Based on these findings of the UN-Water Task Force, the following set of indicators is suggested to assess the status of water resources that are easy-to-use, easy to understand and communicate, yet robust and reliable outputs.

[1] https://www.unwater.org/publications/final-report-monitoring-progress-water-sector-selected-set-indicators/

*(b) Attaining **climate-resilient food and agricultural production** and supply and distribution of food, as well as increasing sustainable and regenerative production and equitable access to adequate food and nutrition for all.*

Agriculture features prominently in the NAPs of many developing countries, both in terms of vulnerability to climate change (impacts on crop yields, pasture availability, livestock productivity, post-harvest losses) as well as prioritization of adaptation actions. Agriculture also features prominently in the NDCs, firstly as a major GHG emitter and secondly as an area for obtaining co-benefits in terms of mitigation and adaptation, therefore contributing to the mitigation and resilience goals of the Paris Agreement. Climate services play a key role in adaptation in agriculture. CS on different timescales can inform seasonal agricultural adaptation for farmers and long-term adaptation planning for agricultural investments by Ministries of Agriculture. Enhancing the application of climate services (including seasonal forecasts, decadal predictions and long-term climate projections) coupled with impact and vulnerability assessments (e.g., crop yield modelling, crop suitability mapping under different climate scenarios, crop-specific vulnerability assessments) are key aspects for understanding and identifying strategies for adaptation and resilience in the sector.

*(g) Protecting cultural heritage from the impacts of climate-related risks by developing adaptive strategies for preserving **cultural practices and heritage sites** and by designing climate-resilient infrastructure, guided by **traditional knowledge, Indigenous Peoples' knowledge and local knowledge systems**.*

Climate information services through the co-design of knowledge products

The Second WMO-GCF Global Forum on Climate Science Information brought together different actors involved in producing climate science information to discuss and better understand the co-design of climate services that can enable climate action. Representatives from the Indigenous People Inuit Circumpolar Council and Indigenous Movement for Peace Advancement and Conflict Transformation were invited to talk about indigenous people's access and contributions to the design of climate information services. Many participants argued that, in terms of larger thinking paradigms, most scientific endeavours use the same underlying assumptions about reality that exclude indigenous knowledge-holders in the first place. In this context, diversity in ways of understanding reality may be crucial. The Forum pointed that our understanding of the role of Indigenous knowledge and knowledge holders in places like the IPCC may need to change to include contextual and locally grounded perspectives. The Global Forum concluded that there is a need to agree on principles for co-designing climate services based on local and gender-sensitive experiences and practices for cataloguing and accounting for indigenous knowledge to feed into a database and support climate adaptation [Link].

FCCC/PA/CMA/2023/L.18, para. 10

*(a) **Impact, vulnerability and risk assessment***

Delivery Mechanisms

The Global Climate Observing System (GCOS)

GCOS (the Global Climate Observing System, co-sponsored by WMO, IOC, UNEP and ISC) works towards climate observations being enhanced and sustained in order to provide the evidence needed to understand and predict the evolution of the climate as well its causes, including the related impacts and risks, and therefore providing information essential also to guide adaptation measures. Long-term global datasets of the GCOS-defined Essential Climate Variables, ECVs, are instrumental for developing the

methodologies, indicators, and metrics needed for adaptation planning and monitoring, providing complementary information under a consistent global perspective. However, to be more effective for local adaptation, the quality of these climate datasets, in terms of completeness, accuracy, resolution, interoperability and accessibility, must be improved. GCOS is working to identify the main gaps and needs, and to determine the spatial and temporal specifications of ECVs suitable for adaptation purposes. More in general, GCOS supports data archiving, dissemination, communication, and other infrastructures necessary to support operational climate services and plan adaptation measures. Finally, GCOS can provide a consistent and transparent framework for sharing data, comparable information, tools, and best practices among countries supporting GGA.

The Climate Risk and Early Warning Systems (CREWS) initiative

The CREWS initial phase external evaluation recommended the strengthening of the initiative's monitoring, evaluation, accountability, and learning (MEAL) framework underpinned by a theory of change. The strengthened MEAL is expected to further enable CREWS to demonstrate its impact and contribution to the Early Warning for All initiative. The MEAL framework will be aligned with and contribute to the global goals of the Sendai Framework, the Paris Agreement, and the Sustainable Development Goals. CREWS is expected to play a role in the efforts by UNDRR and WMO to track progress, to inform decision-making and measure success in achieving the five-year goal of the Early Warning for All initiative (EW4All). The CREWS Secretariat is supporting a working group on Monitoring and Evaluation set-up to ensure a coordinated, methodologically sound and uniform approach to monitoring the progress of the Initiative. In parallel, to ensure medium to long-term sustainable measuring of success, CREWS will also support the efforts led by WMO and UNDRR with stakeholders to develop an Early Warnings for All Maturity Index. This Maturity Index will harness and integrate the data of all partners, cover all four early warning pillars and provide reliable information on capacity gaps.

*(b) Planning: by 2030 all Parties have in place country-driven, gender-responsive, participatory and fully transparent **national adaptation plans**, policy instruments, and planning processes and/or strategies, covering, as appropriate, ecosystems, sectors, people and vulnerable communities, and have mainstreamed adaptation in all relevant strategies and plans.*

Climate Science Information for Climate Action

Since October 2018, and in response to the Paris Agreement (Article 7, paragraph 7 (c)), the World Meteorological Organization (WMO) and Green Climate Fund (GCF) have partnered to provide the global community with access to climate information, tools, and guidance to facilitate the generation and use of climate information in support of climate action decisions. Some of the products developed by WMO include a methodology for Developing the Climate Science Information for Climate Action (WMO-No. 1287), data, tools and associated technical resources for enhancing the climate science basis for GCF-funded projects and activities, as well as for National Adaptation Plans (NAPs) and climate policies. WMO-GCF technical guidance focuses on using available observationally based, reanalysis and models to develop a justification for project funding based on climate risks and needs and providing means to monitor the implementation of climate-related projects such as adaptation measures. The technical guidance on climate science information for climate action points to a variety of technical resources that support the formulation and implementation of climate action based on measurable climate indicators and indices:

1. An online Climate Information Platform (CIP) that provides access to projections of 28 pre-calculated climate and water indicators at a regional model scale, derived from fully coupled global and regional climate models.
2. Online access to Climpact – for calculation of over 70 indices associated with climate impacts, from historical daily temperature and precipitation data.
3. Online access to Climdex – for downloading and analysis of pre-calculated indices from global and regional observed and modelled climate extremes. The Climdex indices help to understand patterns in temperature and precipitation extremes, how they change from year to year or from place to place.

The aim of providing these products is to help all countries, in particular least developed countries (LDCs), small island developing states (SIDS) and developing countries to develop skills to interpret, formulate and effectively articulate climate science analyses and identify and select the most effective climate actions to address climate impacts. In doing so, the guidance can contribute to country-level decision-making and the mobilization of climate finance.

Mainstreaming climate science and knowledge for adaptation planning

Through WMO engagement with the UNFCCC/UN4NAPs partnership, ongoing tailored and specific technical assistance to LDCs or SIDS is being provided to support the development of National Adaptation Plans (NAPs). Under the Climate Science Information for Climate Action initiative, the Climate Information Platform (CIP) helped developing countries to generate and include climate model outputs for the formulation of National Adaptation Plans (NAP) for Haiti, Mali, Senegal, Zambia, Zimbabwe, Burundi, Brunei, Congo DRC, Sierra Leone and Lesotho. NAP for Sierra Leone, Congo DRC and Haiti are now published in the NAP central. The CIP provides the qualitative assessment of the validity of model outputs and guides users on how to assess the uncertainty in projected climate changes. It indicates how large the change is for each climate indicator (small, medium and large) and in which direction (increase, decrease, no change) the indicator is moving. This helps the user to focus on the cases which indicate more robust signals.

*(c) Implementation: by 2030 all Parties have progressed in **implementing their national adaptation plans**, policies and strategies and, as a result, have reduced the social and economic impacts of the key climate hazards identified in the assessments referred to in paragraph 10(a) above.*

Strengthen implementation of adaptation actions in vulnerable developing countries through global earth system observations and monitoring capabilities

The Systematic Observations Financing Facility (SOFF)

The WMO Global Basic Observing Network, designed and defined at a global level, is the basic surface-based observing network that is essential to support Global Numerical Weather Prediction (NWP) for the public good. As of January 2024, some WMO members meet GBON compliance standards for both standard and recommended high horizontal resolutions, while others meet standard requirements but need to increase reporting frequency. However, significant compliance gaps persist, particularly in Least Developed Countries (LDCs), Small Island Developing States (SIDS), and Lower Middle-Income Countries. Member compliance details are outlined in INFCOM-3/Inf. 8.1(4). To point out, a dedicated web tool for compliance status monitoring and reporting for GBON surface and upper-air stations over land, based on information from WDQMS, will be launched at the INFCOM-3 in April 2024. Hence, GBON compliance at the station and member levels will be routinely assessed and the results made available using tools such as the WDQMS web tool. Moreover, the Systematic Observations Financing Facility

(SOFF) was created and started its implementation to address observation gaps for GBON and provide long-term support, especially in SIDS and LDCs and in all initial Early Warnings for All countries.

Views on modalities of the work programme, including organization of work, timelines, inputs, outputs and involvement of stakeholders to enhance progress and ambition for science-based adaptation planning and implementation:

- Systematic observation – The systematic observations that underpin climate services needed to support priority areas identified in Parties' NDCs remain inadequate
- Systems integration – Operational exchange of data and products between the national, regional and global levels is essential for improving service delivery for country-level adaptation.
- Co-design, co-development and coproduction of decision-support products and services – Increased interaction with stakeholders in climate sensitive sectors is needed to co-design, develop and deliver the tailored products and services that support improved user decisions leading to improved adaptation outcomes.
- Access to services – Data consistently show that "last mile" service delivery is insufficient to ensure widespread access to climate services, particularly in developing countries.
- Climate science basis – Climate action and associated investments should be based on the best available science. Methods and tools now available for this purpose should be upscaled on a widespread basis to promote adaptation effectiveness.
- Capacity data – Data on Party adaptive capacities in the area of climate services is incomplete and the data that are available need to be quality assured as a basis for certification of climate services capacities.
- Overall investment levels and associated data – Adaptation finance for climate services remains inadequate, especially for meeting needs in LDCs and SIDS. More detailed data on financial allocations for hydro-met systems and services is needed to enable tracking of financing in relation to assessed gaps and needs.
- Documentation of socio-economic and environmental benefits of adaptation action – more systematic documentation of the benefits of adaptation actions and the resulting improvements in adaptation outcomes is needed in order to ensure that the measures being financed are cost-effective and that progress towards the global adaptation goal is being achieved.