WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

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CALL FOR INPUTS FOR THE BELÉM MISSION TO 1.5

Submission from WMO

Pursuant to the Global Mutirão Decision and the establishment of the Belém Mission to 1.5, aimed at enabling ambition and implementation of Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs), to reflect on accelerating implementation, international cooperation and investment, WMO is pleased to provide the following submission to inform discussions and jointly shape the Belém Mission to 1.5.

(1) What action areas and solutions have the highest impact potential to support the submission, ambition and implementation of NDCs and NAPs?

From a WMO perspective, the highest impact action areas and solutions are those that utilize the best available science and its operational foundations to translate climate information into implementation and investment decisions.

(a) Priority solutions and innovations across policies, technologies, practices and investments:

- **Strengthening climate observations and data infrastructure**, including implementation of the Global Basic Observing Network (GBON), sustained investment in national observing systems, data management, and international data exchange, to provide the evidence base for adaptation, mitigation, monitoring, and reporting.

- **Scaling climate and hydrological information services and climate risk assessments** to support mitigation and adaptation decision-making in priority sectors such as energy, agriculture, waste management, water, maritime, health, infrastructure, and disaster risk reduction. This includes utilization of innovative approaches for the quantification of GHG emissions and removals and objective observations-based techniques that have been used by Member countries and user communities to support climate actions, NDC planning, and the monitoring of adaptation outcomes.

- **Expanding Multi-Hazard Early Warning Systems (MHEWS) national capacities and operations** through initiatives such as Early Warnings for All (EW4All), which, with support from the Climate Risk and Early Warning Systems (CREWS) initiative, are helping countries identify key gaps and undertake actions to strengthen the value chain, in a way that directly supports the adaptation components of NDCs, NAPs, and broader resilience goals. Investments in early warning systems, climate services and hydrometeorological observations have consistently demonstrated significant socio-economic benefits through reduced disaster losses, improved preparedness and more effective development planning.

- **Aligning National Frameworks for Climate Services (NFCSs)** with NAPs to ensure that climate information generated by National Meteorological and Hydrological Services (NMHSs) is systematically integrated into national planning and implementation.

- **Strengthening collaboration between NMHSs and other national institutions** involved in NDC formulation and implementation, to encourage more systematic integration of climate information into national planning processes.

- **Leveraging emerging technologies**, including Artificial Intelligence (AI), alongside open-source tools, platforms, and digital innovation that strengthen data sharing globally and thereby help to improve weather and climate observations, climate modelling, downscaling, bias correction techniques to complement traditional statistical approaches by capturing complex non-linear relationships between model simulations and observations, forecasting, and climate service delivery, particularly in data- and capacity-constrained countries.

- **Co-designing and co-producing implementation-ready adaptation, mitigation and resilience investments to strengthen country response** by translating climate science into investment-ready project proposals and climate finance opportunities, that consider and engage the most vulnerable, including youth, women, disabled persons, and elderly, among others.

(b) Finance, technology, capacity building, and institutional opportunities:

- **Expanding access to climate finance** in line with national priorities through mechanisms such as the Green Climate Fund (GCF), Adaptation Fund, the Global Environmental Facility (GEF), with NMHSs playing an active role in this engagement, while strengthening countries' ability to prepare evidence-based funding proposals through operational mechanisms such as CREWS and the Systematic Observations Financing Facility (SOFF). Cooperation frameworks such as the GCF-CREWS scale up framework help scale up good practices and successful interventions through fast-track access to GCF resources and can be replicated with other climate funds. Innovative financing approaches such as the SOFF Systematic Observations Impact Bond can further help mobilize and frontload resources for systematic observations and climate resilience infrastructure. Complementary mechanisms such as the WMO Weather, Climate and Water Intelligence Commons could also help mobilize support from non-traditional donors toward global infrastructure in a coordinated and sustainable manner.

- **Investing in long-term capacity development for NMHSs and related institutions**, including technical training, regional cooperation, and knowledge-sharing platforms.

- **Strengthening institutional coordination** among NMHSs, planning ministries, finance ministries, statistical offices, and sectoral agencies to improve uptake and use of climate information for mitigation and adaptation.

- **Supporting regional climate and other specialized centers and sharing peer-to-peer knowledge** and digital platforms that provide technical expertise, good practices and standards, climate data, AI tools, and targeted operational services.

(c) The most significant barriers:

- **Persistent gaps in climate observations**, monitoring systems, networks sustainability and data quality, particularly in Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

- **Limited institutional and technical capacity** to translate climate science and risk information into actionable policies, investment-ready proposals, and adaptation measures with measurable outcomes, resulting in continued reliance on external consultants.

- **Insufficient financing and a lack of sustained funding** for observing systems, data sharing and modelling capabilities, climate services, and early warning systems.

- **Limited coordination** across institutions and sectors, which limits the integration of climate information into national planning and implementation.

(2) What is required to further strengthen international cooperation to enhance ambition and enable the effective implementation of NDCs and NAPs?

Strengthened international cooperation should focus on ensuring that all countries, particularly developing countries, LDCs and SIDS, have access to climate science, observations, services, technologies, capacities and finance needed to prepare, implement and update ambitious NDCs and NAPs.

Key priorities include:

- **Enhancing institutional and operational capacities of NMHSs** to generate, interpret and communicate weather, water and climate information that informs NAPs, NDCs, and other relevant national planning and investment strategies.

- **Strengthening international data exchange** as a core focus of cooperation, alongside continued investment in the climate observations and climate services that underpin it, as foundational enablers of NDC and NAP implementation. International cooperation could prioritize open and sustained data exchange arrangements, while also encouraging support for observing systems, data management, and climate service delivery, helping countries undertake robust climate risk assessments, develop evidence-based adaptation priorities, and monitor progress over time.

- **Strengthening international support for developing climate scenarios, risk analyses, and sector-specific information**, including through access to global and regional modelling capabilities, technical assistance, and shared methodologies – to help countries integrate climate science into NDCs and NAPs and guide implementation and investment decisions. Such information also supports efforts to assess, prevent, minimize and address climate-related losses and damages associated with extreme weather, water and climate events.

- **Expanding technology cooperation to ensure technology exchange**, open-source solutions, and digital tools to enable data sharing for enhanced climate modelling capabilities, AI applications, and regional climate platforms

that improve the usability and accessibility of climate information for national planning and decision-making.

- **Strengthening international support for national coordination mechanisms**, particularly among NMHSs, climate change focal points, planning ministries, finance ministries, and sectoral institutions, including through peer learning and technical assistance, to ensure climate information is systematically integrated into NDC and NAP formulation and implementation processes.

- **Enhancing financial support** for climate resilient activities, including through EW4All and CREWS, to operationalize adaptation priorities identified in NAPs. This could include support for countries to translate climate science relevant to mitigation and adaptation, risk assessments and adaptation priorities into implementation-ready projects and programmes. Technical assistance should strengthen the capacity of national institutions to engage with climate finance mechanisms and develop bankable proposals.

- Promoting **knowledge exchange, South-South cooperation and peer learning**, enabling countries to share practical experiences on NDC enhancement, NAP implementation, climate services, early warning systems, adaptation monitoring and climate finance mobilization.

- **Strengthening international cooperation** on adaptation indicators and reporting methodologies under the Global Goal on Adaptation (GGA), to support coherence between NDCs, NAPs and global adaptation frameworks, and enable tracking of adaptation outcomes across countries, while respecting nationally determined circumstances.

International cooperation could therefore focus on strengthening the entire climate information-to-action value chain, from observations and climate science to climate services, early warnings, and decision-making support so that countries can deliver more ambitious, evidence-based and implementation-ready NDCs and NAPs.