

Annex 1 to draft Resolution 5.3(1)/1 (Cg-18)

LONG-TERM AMBITIONS FOR THE OPERATIONAL HYDROLOGICAL COMMUNITY

- (1) No one is surprised by a flood** – Risk assessment, proper planning and mitigation are the cornerstones of any National Meteorological and Hydrological Service (NMHS) measure to reduce flood risks. Timely forecasts/warnings must be produced at regional/national/local levels and communicated through appropriate authorities. Current tools for prevention, mitigation and forecasting must incorporate important ancillary data and a thorough understanding of water management and the dynamics of land use. Data and products relevant for flood risk assessment and management should be provided to relevant stakeholders. Achieving this ambition will rely on further integrating the end-to-end early warning systems (E2E EWS) for flood forecasting, the Flash Flood Guidance Systems (FFGS), the Associated Programme on Flood Management (APFM), the Coastal Inundation Forecasting Demonstration Project (CIFDP), together with the Severe Weather Forecasting Demonstration Project (SWFDP) and the Global Data-processing and Forecasting System (GDPFS);
- (2) Everyone is prepared for drought** – Drought risk management should be undertaken by WMO Members and through regional centres. The Integrated Drought Management Programme (IDMP) can serve as a nucleus to further develop necessary alliances and capabilities, including a detailed understanding of hydrological drought mitigation through reservoir operations, natural systems, conservation and the use of local/regional/national water. IDMP should be supported by climatological and hydrological prediction capabilities, water resources management, the Global Hydrological Status and Outlook System (HydroSOS), Regional Climate Centres (RCCs) and GDPFS;
- (3) Hydro-climate and meteorological data support the food security agenda** – WMO should support resolving the equation of water demand for human consumption, irrigation requirements, water availability and potential water storage and should provide advice to optimize rainfed and irrigated agriculture. The water-energy-food nexus should be considered as well. This ambition should be supported by integrating the agrometeorological, climatological and hydrological expertise of WMO with socioeconomic and geophysical data and water resources management practices;
- (4) High-quality data supports science** – WMO should support Members in accessing proper technology and with respect to the generation of high-quality hydrological data and the corresponding information products and services. This ambition can be realized with support from Global Water Data Centres, can benefit from further developing the Global Hydrometry Support Facility (HydroHub), the World Hydrological Cycle Observing System (WHYCOS), the Meteorological, Climatological and Hydrological Database Management System (MCH), the WMO Hydrological Observing System (WHOS), the Innovation Hub and the Quality Management Framework - Hydrology (QMF-H) and is essential for the wise management of our water resources. The future GDPFS and the upcoming operational phase of the WMO Integrated Global Observing System (WIGOS) and the next generation of the WMO Information System (WIS) 2.0 are expected to support the achievement of this ambition;
- (5) Science provides a sound basis for operational hydrology** – Scientific knowledge should be strengthened to support operational hydrological predictions and modelling as part of an integrated Earth systems approach. This ambition would benefit from an improved understanding of the impacts of various stressors on the hydrological cycle, in support of closing the water balance;
- (6) We have thorough knowledge of the water resources of our world** – An appropriate monitoring system, addressing all the key variables associated with operational hydrology, including the cryosphere, should span the globe and produce

information that can be used to optimize the efficiency of existing services, future policies and services and political decision-making from the local to the global scale. Further development of WMO initiatives such as WHOS, HydroSOS and the Global Cryosphere Watch, matched with other international efforts, should support a fully operational World Water Data Initiative and enable local and global assessments of the availability of water resources;

- (7) Sustainable development is supported by hydrological information** – Hydrological information should be available at all appropriate scales in space and time in order to support all water-dependent sectors for optimal operational water resources management as well as for planning and adapting to transient environmental conditions, particularly those associated with climate change. The future GDPFS should lend itself to being merged with those WMO activities related to the Global Expanded Monitoring Initiative. This ambition is also a great opportunity to include private partners and research in the provision of future services. Changes to hydrological regimes should be tracked and adequately allocated to support water resources management;
- (8) Water quality is known** – Surface and groundwater quality should be permanently monitored as a necessary step to ensure water quality in accordance with different requirements for society and ecosystems, and corrective actions should be applied when necessary. A new partnership will be needed to support this ambition, including existing links to the Global Environment Monitoring System-Water (United Nations Environment Programme), the United Nations Educational, Scientific and Cultural Organization and other relevant stakeholders.
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