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| WEATHER CLIMATE WATER | **World Meteorological Organization**  **WORLD METEOROLOGICAL CONGRESS**  **Nineteenth Session** 22 May to 2 June 2023, Geneva | **Cg-19/Doc. 4.1(9)** |
| Submitted by: Chair of Plenary  29.V.2023  **APPROVED** |

**AGENDA ITEM 4: TECHNICAL STRATEGIES SUPPORTING LONG-TERM GOALS**

**AGENDA ITEM 4.1: Services for societal needs**

# FLOODS AND OTHER HYDROLOGICAL SERVICES



# GENERAL CONSIDERATIONS

### Introduction

WMO Flood Forecasting and Management activities

1. At its seventy-fifth session, in 2022, the Executive Council, in [Resolution 8 (EC–75)](https://library.wmo.int/doc_num.php?explnum_id=11550#page33) – Review of previous resolutions and decisions of the Executive Council, expressed concern about the high number of resolutions and decisions of the Executive Council and other constituent bodies kept in force and the challenges this situation poses in terms of implementation and reporting.

2. The Executive Council emphasized the importance of following Rules [11.2 and 11.3](https://library.wmo.int/doc_num.php?explnum_id=11301#page=13) of the *Rules of Procedure for the Executive Council* (WMO-No. 1256) to ensure that previous resolutions, or the parts thereof that are still relevant, are incorporated in new consolidated resolutions on the same subject or included in an appropriate WMO official publication.

3. The draft Resolution 4.1(9)/1 (Cg-19) consolidates eight previous Resolutions and Decisions of Congress, Executive Council and Technical Commissions that would need to be kept in force, updated to the current and future Strategic and Operational Plans, on the topic of flood forecasting and management.

Expansion of the HelpDesk approach to inform water resources management

4. Since 2009, WMO jointly with Global Water Partnership (GWP) has been developing and operating the [HelpDesk on Integrated Flood Management (IFM)](http://www.floodmanagement.info) under the Associated Programme on Flood Management (APFM). This was followed by a second parallel joint initiative in 2013 with the [HelpDesk on Integrated Drought Management (IDM)](http://www.droughtmanagement.info) under the Integrated Drought Management Programme (IDMP). Discussion on the possible expansion of the two HelpDesks, building on the available expertise and guidance material available through WMO and GWP, has been ongoing since 2021 *[United Republic of Tanzania]*. Considering that the current IFM and IDM HelpDesks provide with success an entry point to information and expertise on topics related to floods and droughts (first two long-term ambitions of the “WMO Vision and Strategy for Hydrology and its related Plan of Action”, Annex to [Resolution 4 (Cg-Ext.2021)](https://library.wmo.int/doc_num.php?explnum_id=11113#page=37)), there is a need to adopt to same approach to ensure that the whole operational hydrology expertise covered by the other six long-term ambitions is equally made accessible to Members.

5. A first proposed structure of the concept note detailing the needs for expansion and its possible modalities has been presented to, and approved by, the Standing Committee on Hydrological Services (SC-HYD) at its tenth meeting held in Geneva in June 2022. The draft concept note was further discussed at the fifth session of the Hydrological Coordination Panel (HCP-5) in January 2023 and was presented to the quarterly call of the SERCOM Management Group on 15 March 2023.

**Expected action**

6. Based on the above, the Congress may wish to adopt draft Resolutions 4.1(9)/1 and 4.1(9)/2 along the following lines. *[After the adoption of the resolution, the paragraphs above will be included in Part II of the final report. This paragraph will be modified as follows: “Based on the above, the Congress adopted Draft Resolutions 4.1(9)/1 and 4.1(9)/2 (Cg-19).”]*

# DRAFT RESOLUTIONS

## Draft Resolution 4.1(9)/1 (Cg-19)

## WMO Flood Forecasting and Management activities

THE WORLD METEOROLOGICAL CONGRESS,

**Recalling:**

(1) [Resolution 5 (EC-LVII)](https://library.wmo.int/doc_num.php?explnum_id=5271#page=59) – Participation of WMO in the International Flood Initiative (2005),

(2) [Resolution 21 (Cg-XV)](https://library.wmo.int/doc_num.php?explnum_id=5225#page=212) – Strategy for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting (2007),

(3) [Resolution 15 (Cg-XVI)](https://library.wmo.int/doc_num.php?explnum_id=3429#page=210) – Establishment of an Advisory Group for the WMO Flood Forecasting Initiative (2011),

(4) [Resolution 6 (CHy-15)](https://library.wmo.int/doc_num.php?explnum_id=3404#page=45) – The Flood Forecasting Initiative and the contribution of the Commission for Hydrology to the Disaster Risk Management Programme (2016),

(5) [Resolution 15 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=80) – Strengthening Multi-hazard Early Warning Services in areas prone to all Flooding types and Severe Weather (2019),

(6) [Resolution 3 (EC-72)](https://library.wmo.int/doc_num.php?explnum_id=10504#page=15) – WMO Flood Forecasting Initiative Advisory Group (WMO FFI-AG) (2020),

(7) [Decision 3 (EC-75)](https://library.wmo.int/doc_num.php?explnum_id=11550#page=60) – Flood forecasting implementation through the Hydrology Action Plan (2022),

(8) [Resolution 3 (SERCOM-2)](https://library.wmo.int/doc_num.php?explnum_id=11528#page=17) – Hydrological Services (2022),

**Decides:**

(1) To confirm the participation of WMO in the International Flood Initiative under the auspices of the EW4All initiative *[Barbados]*, in accordance with the WMO Vision and Strategy for Hydrology and its associated Plan of Action, and particularly with activities under the Long-term ambition “No one is surprised by a flood”;

(2) To continue the enhancement of cooperation between National Meteorological and National Hydrological Services for improved flood forecasting through the Flood Forecasting Initiative, in accordance with the WMO Vision and Strategy for Hydrology and its associated Plan of Action;

(3) To define the scope of the WMO Flood Forecasting Initiative to include all the short term flood forecasting activities, such as those related to flash floods, riverine floods, urban floods and other types of floods including coastal flooding and flooding due to combined influence of storm surges and inland hydrology; *[Russian Federation,* *United Kingdom of Great Britain and Northern Ireland]*

(4) That the implementation and further development of the Flood Forecasting Initiative, including implementation of the flood forecasting elements of the WMO Vision and Strategy for Hydrology and its associated Plan of Action, should be monitored and guided by the WMO Flood Forecasting Initiative Advisory Group (FFI-AG);

*[P/SERCOM]*

(5) To transfer oversight of the Flood Forecasting Initiative Advisory Group, currently chaired by the president of the Services Commission, from EC to the Services Commission at the third session of Services Commission in March 2024; *[P/SERCOM]*

**Invites** WMO Members:

(1) To take institutional, legal and financial measures to create the necessary enabling environment for the implementation of the WMO Vision and Strategy for Hydrology at the basin, national, regional and global levels; *[Kenya]*

(2) To ensure that National Meteorological Services and National Hydrological Services work in close collaboration and provide the required services including monitoring and forecasting *[United Republic of Tanzania]* technical and knowledge support to their disaster management authorities;

(3) To contribute to the Voluntary Cooperation Programme Fund and the Hydrology and Water Resources Trust Fund in support of the implementation of the WMO Vision and Strategy for Hydrology and its associated Plan of Action, and particularly with activities under the Long-term ambition “No one is surprised by a flood”;

(4) To bring to the attention of the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM) Standing Committee on Hydrological Services (SC-HYD) additional models and platforms corresponding to the criteria listed in the [report on Interoperable Models and Platforms for use in flood forecasting and early warning systems](https://filecloud.wmo.int/share/s/rlyYoSI1Rn-LiV6pbJXrBw) for their inclusion in the [online inventory](https://www.floodmanagement.info/e2e-ews-ff-community-of-practice-area/resources/inventory/).

*[P/SERCOM]*

**Requests** the Secretary-General, as appropriate and within the available budgetary resources, to take all necessary actions to support the implementation of WMO Vision and Strategy for Hydrology and its associated Plan of Action, and particularly of activities under the long-term ambition “No one is surprised by a flood”;

**Requests** the Secretary-General to continue with the implementation of the Associated Programme on Flood Management (APFM) within the budgetary constraints through pilot projects approach in other regions affected by severe flood events; *[South Africa, United Republic of Tanzania]*

**Urges** Members to consider the benefits of conducting: a national assessment of their requirements and capabilities for Early Warning Systems (EWS) in areas prone to flooding (from multiple sources, including river-, marine- and geophysical-related), applying the methodology contained in the [*Assessment Guidelines for End-to-End Flood Forecasting and Early Warning Systems*](https://library.wmo.int/index.php?lvl=notice_display&id=22163#.ZBlp9XbMI2w) (WMO-No.1286); and to consider conducting an evaluation of their forecasts at the national level, to be shared with regional and global centres with specialization in meteorology, hydrometeorology and operational hydrology; [Russian Federation, *United Kingdom of Great Britain and Northern Ireland*];

**Further urges** Members, with support of their National Meteorological and Hydrological Services (NMHSs), to continue supporting the development and implementation of EWS in areas prone to flooding (from multiple sources, including river-, marine- and geophysical-related) and impacts from severe weather and all flooding types, through contributing knowledge, expertise, technology and financial support to ongoing and new individual projects as well as in the design of an integrated system, therefore contributing to the Early Warning Systems for All initiative.

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Note: This resolution replaces [Resolution 5 (EC-LVII)](https://library.wmo.int/doc_num.php?explnum_id=5271#page=59), [Resolution 21 (Cg-XV)](https://library.wmo.int/doc_num.php?explnum_id=5225#page=212), [Resolution 15 (Cg-XVI)](https://library.wmo.int/doc_num.php?explnum_id=3429#page=210), [Resolution 6 (CHy-15)](https://library.wmo.int/doc_num.php?explnum_id=3404#page=45), [Resolution 15 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=80), [Resolution 3 (EC-72)](https://library.wmo.int/doc_num.php?explnum_id=10504#page=15), [Decision 3 (EC-75)](https://library.wmo.int/doc_num.php?explnum_id=11550#page=60) which are no longer in force.

## Draft Resolution 4.1(9)/2 (Cg-19)

## Expansion of the HelpDesk approach to inform water resources management

THE WORLD METEOROLOGICAL CONGRESS,

**Noting** the success of the existing HelpDesks on [Integrated Flood Management](http://www.floodmanagement.info) and on [Integrated Drought Management](http://www.droughtmanagement.info), jointly developed and managed between WMO and GWP; under the Associated Programme on Flood Management and the Integrated Drought Management Programme, respectively,

**Further noting** the need to complement the information provided through the existing HelpDesks and expand the provision of support to inform water resources management and showcasing/providing access to/facilitate use of the resources developed under the activities related to the WMO Vision and Strategy for Hydrology and its associated Plan of Action,

**Endorses** the concept note on the development of a HelpDesk to:

(1) Link to data, information, models and other tools relevant to water resources management;

(2) Provide linkages to guidance and momentum for reform in favour of Integrated Water Resources Management (IWRM) in countries or river basins in developing water resources management policies, strategies and institutional arrangements;

(3) Serve as a link between water resources management practitioners and decision-makers, and multidisciplinary expertise and best practice in various fields related to water resources management;

(4) Provide a continuous and sustainable capacity development mechanism in support of operational hydrology and best practices in water resources management;

**Supports** the principal goal of the HelpDesk to inform water resources management and to develop a global coordination of efforts liaising and coordinating with other water resources management initiatives in order not to duplicate activities;

**Encourages** Members to make available and use resources available for this HelpDesk, in developing water resources management actions;

**Requests** the Secretary-General within the available budgetary resources:

(1) To report regularly to the Executive Council through C/HCP on the progress of its implementation, usage information of the HelpDesk as well as information about benefits to Members;

(2) To work with the Global Water Partnership (GWP), the United Nations Economic Commission for Europe (UNECE) Water Convention and other potential partners to synergize efforts and secure funding to resource the activities of the HelpDesk in the Secretariat.

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[Annex: 1](#_Annex_to_draft_1)

## Annex to draft Resolution 4.1(9)/2 (Cg-19)

## Concept Note on the expansion of the HelpDesk approach to cover Operational Hydrology and inform Water Resources Management

### 1. Background

According to the WMO convention (Article 2), WMO has a mandate inter alia to promote activities in operational hydrology. Through [Resolution 24 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=98), WMO adopted the definition of operational hydrology as: “(...) the real-time and regular measurement, collection, processing, archiving and distribution of hydrological, hydrometeorological and cryospheric data, and the generation of analyses, models, forecasts and warnings which inform water resources management and support water-related decisions, across a spectrum of temporal and spatial scales”.

The concepts of Integrated Flood Management (IFM) and Integrated Drought Management (IDM), applied in the context of Integrated Water Resources Management (IWRM), have been recognized and promoted by the World Meteorological Congress since many years ([Resolution 20 (Cg-XV)](https://library.wmo.int/doc_num.php?explnum_id=5225#page=208) for IFM, 2007; and [Resolution 17 (Cg-17)](https://library.wmo.int/doc_num.php?explnum_id=3138#page=279) for IDM, 2015). IFM has also been recognized in major global initiatives related to water resources management and disaster risk reduction, such as the Sendai Framework on Disaster Risk Reduction 2015–2030, the International Flood Initiative (IFI), and UN-Water, as a balanced and robust development policy concept. Of particular interest has been the establishment of the HelpDesk concept, planned by Congress since its fifteenth session, to advocate for a widespread adoption of IFM and IDM approaches at the basin, national and international levels; and to provide support on flood and drought management policy issues in collaboration with other partners to Members through an easy to access interface.

Whereas the HelpDesk approach is successfully implemented to provide support on flood and drought management issues, tackling Long-Term Ambitions 1 – No one is surprised by a flood and 2 – Everyone is prepared for a drought of the “WMO Vision and Strategy for Hydrology and its associated Plan of Action”, Annex to [Resolution 4 (Cg-Ext.2021)](https://library.wmo.int/doc_num.php?explnum_id=11113#page=37), the provision of guidance to inform water resources management and support water-related decisions is still limited to ad-hoc initiatives and does not benefit from a similar approach. There is therefore the need to set up a similar HelpDesk, encompassing the existing ones on IFM and IDM, but additionally providing support on informing water resources management and showcasing/providing access to/facilitate use of the resources developed under the activities related to the WMO Vision and Strategy for Hydrology and its associated Plan of Action, other than floods and drought preparedness and management. This would be done also in line with activity G.4.1: Development and implementation of Water Resources Assessment (WRA) community of practice to complement the [WMO WRA Portal](https://community.wmo.int/activity-areas/water-resources-assessment) (approved through [Resolution 3 (SERCOM-2)](https://library.wmo.int/doc_num.php?explnum_id=11528#page=17)), providing up-to-date information and enabling knowledge transfer in the field of WRA contributing to inform water resources management; and to activity A.1.4: Emphasize the convenience of linking flood and drought management plans to local/national development policies

### 2. Current status and practices: the IFM and IDM HelpDesks

Since the official launch of the IFM HelpDesk under the Associated Programme on Flood Management (APFM) at the UN-ISDR Global Platform on Disaster Risk Reduction on 17 June 2009, and until 21 March 2023 the IFM HelpDesk has received 574 requests with an average of 41 per year, fulfilling more than 93% of them. Similarly, the IDM HelpDesk under the Integrated Drought Management Programme (IDMP) has received since its launch in September 2017 and until 21 March 2023 294 requests, which had a similar successful fulfilment rate. The IFM and IDM Help Desks are hosted in WMO but depend on a strong decentralized network of experts and specialized institutes. This is necessary because both integrated flood management and integrated drought management depend on various inputs, tools and excellence that cannot be provided by one single organization.

A similar approach, although not labelled explicitly “HelpDesk”, is being adopted in WMO in relation to other initiatives such as the Global Hydrometry Support Facility (HydroHub), or the User Interface Platform (UIP) of the Intra-ACP Climate Services and Related Applications (ClimSA) project.

There is no dearth of support mechanisms on water resources management also outside WMO. To mention a few, the Toolbox of the Global Water Partnership (GWP) is a global knowledge platform which supports actors to implement IWRM, share knowledge and expertise, and bring relevant stakeholders together; and the UNECE Water Convention similarly has a wide collection of guidance material related to transboundary water resources management. Notwithstanding the mandate of WMO in operational hydrology, a mapping would be helpful in the initial stage of the new HelpDesk to identify gaps in the provision of information for water resources management, and potential synergies with other existing support mechanism in order to offer a wide array of information resources to WMO Members.

### 3. The scope for expanding the HelpDesk approach to inform water resources management

Objective of the proposed expanded HelpDesk

The objectives of the proposed HelpDesk to inform water resources management are to:

 Provide a link to data, information, models and other tools relevant to water resources management ([Resolution 24 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=98), on the definition of operational hydrology)

 Provide linkages to guidance and momentum for reform in favour of IWRM in countries or river basins in developing water resources management policies, strategies and institutional arrangements, especially through the GWP Toolbox and the UNECE Water Convention

 Serve as a link between water resources management practitioners and decision-makers, and multidisciplinary expertise and best practice in various fields such as hydrology, river engineering, legal and institutional development, ecology, sociology and development economics, water use conflict resolution, water use prioritization, international basin management, etc.

 Provide a continuous and sustainable capacity development mechanism in support of operational hydrology and best practices in water resources management

Target audience of the proposed expanded HelpDesk

The target audience of the HelpDesk includes the following groups:

 National, provincial and local government agencies involved in decision making charged with a role in water resources management (policy makers, flood management practitioners, development planners, disaster managers, National Hydrological and Meteorological Services, etc.)

 River Basin Organizations

 Bi- and Multilateral Organizations involved in Technical and Financial Cooperation

 Non-Governmental Organizations, in particular those working with communities affected by water hazards

 Water users and other stakeholders (e.g. private sector, food and agriculture, energy)

 Voluntary Organizations and Community-based Organizations

 Universities or Academia, etc.

Consideration of Public-Private Engagement

One of the main reasons for the success of the IFM and IDM HelpDesks has been the contribution given by the Support Base Partners in fulfilling the requests. Support Base Partners are institutions external to WMO and GWP, both from the public and private sectors (as well as NGOs and academia), with whom specific memoranda of understanding have been signed to support the implementation of integrated flood and drought management practices. Their involvement in responding to request, sometimes also jointly developing with WMO project proposals to implement IFM/IDM strategies, is an excellent example of a public-private partnership that could be replicated as a model for populating the resource base of the future HelpDesk to inform water resources management. This will also assist in the development of Public-Private Engagement practices in WMO and provide opportunities to increase the expertise network of WMO for the benefit of Members.

Consideration of the existing IFM and IDM HelpDesks

To optimize resources the proposed expanded HelpDesk will be closely linked with the existing HelpDesks on IFM and IDM, making use of their existing networks of Support Base Partners, and of the existing partnership with GWP and UNECE Water Convention. At the same time, as highlighted during discussions held at the 2022 Annual meetings of APFM and IDMP, the branding of the existing HelpDesks will be kept capitalizing on their existing visibility. At least in the initial implementation phase of the proposed expanded HelpDesk to inform Water Resources Management, the three HelpDesks will be interlinked but will keep independent visual identities and entry points. Consideration will be given at a later stage (e.g. after an initial 5 years phase of the new HelpDesk) about the opportunity to merge the HelpDesks and provide a single entry point.

### 4. Operation of the expanded HelpDesk

The proposed HelpDesk to inform water resources management will be open to all Members and targeted to the entities listed under section 3.

Whereas a detailed structure will be developed and discussed in the inception phase of the HelpDesk, it might be worth keeping a similar structure to the existing HelpDesks on IFM and IDM, articulated along three main functions (Find, Ask, Connect). This will allow to “Find” resources both internal to WMO Technical Commissions (e.g. Technical regulatory material, Communities of Practices, Tools and software) and external (e.g. link to GWP Toolbox and other resources on water resources management identified through a preliminary mapping). The “Ask” section will be managed and operated by a Technical Support Unit, similar to the ones of APFM and IDMP, but enlarged to ensure coverage of the different disciplines involved (i.e. cross-cutting between Infrastructure and Services Departments). Finally, the “Connect” part will provide linkages to the relevant experts in the Support Base Partner network, as well as to the identified expert networks of WMO, GWP and UNECE Water Convention.

Support Base Partners of the proposed HelpDesk will be engaged through the Technical Support Unit to assist with specific requests arriving to the HelpDesk, in line with the rules and procedures set by WMO Public-Private Engagement initiative.

### 5. Timeline and Workplan

The development of the HelpDesk to inform water resources management would articulate over three phases:

(1) Inception phase (1 year), during which a detailed mapping of other existing initiatives/resources to inform water resources management will be carried out to ensure complementarity and added value. This mapping can be carried out by the SERCOM Standing Committees on Hydrological Services and Agricultural Meteorological Services, and the INFCOM Joint Expert Team on Hydrological Monitoring under the overall guidance of the WMO Hydrological Coordination Panel.

(2) Development phase (1 year), during which the HelpDesk will be developed and tested, connecting the different identified resources and populating the hydrological resource base partners community composed of experts from WMO Technical Commissions and from major partners. Agreements will be undertaken with major partners (e.g. GWP and UNECE Water Convention) and existing or new Support Base Partners to expand the existing cooperation on IFM and IDM to the wider topic of informing water resources management. This phase should be supported by a communication strategy to increase the HelpDesk visibility and notify the target audience about the available resources.

(3) First operational phase (2 years), where it is expected to fulfil more than 60 requests per year, in terms of capacity development activities and provision of rapid guidance to the HelpDesk users, and possibly implementation of extrabudgetary projects to improve Members’ capacities in informing water resources management.

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