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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(7)** |
| Submitted by:Secretary-General14.IV.2023**DRAFT 1** |

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

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

# WMO Activities in drought management

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| **Summary** |
| **Document presented by:** Secretary-General**Strategic objective 2020–2023:** 1.3 Further services in support of sustainable water management**Financial and administrative implications:** Within the parameters of the Strategic and Operational Plans 2020–2023, will be reflected in the Strategic and Operational Plans 2024–2027.**Key implementers:** WMOMembersworking ondrought management issues especially on drought-monitoring and early warning**Time frame:** 2023 and onwards**Action expected:** Approval of draft resolution |

# GENERAL CONSIDERATIONS

### Introduction

1. This resolution consolidates previously approved Congress and Executive Council resolutions and decisions pertaining to WMO activities on drought management.
2. [Resolution 21 (Cg-XVI)](https://library.wmo.int/doc_num.php?explnum_id=3429#page=230) - Use of the Standardized Precipitation Index for characterizing meteorological droughts by all National Meteorological and Hydrological Services, requested WMO Members to consider the use of the Standardized Precipitation Index (SPI) to characterize meteorological droughts. This recommendation from the “Lincoln Declaration on Drought Indices” was adopted at the Interregional Workshop on Indices and Early Warning Systems for Drought held in December 2009 in Lincoln, United States of America.
3. In March 2013, the High-Level Meeting on National Drought Policy was held, and the Final declaration of this meeting stated that countries needed to move from a reactive to proactive approach to drought management. At this meeting, the Integrated Drought Management Programme (IDMP) was established by WMO and the Global Water Partnership (GWP).
4. [Resolution 17 (Cg-17)](https://library.wmo.int/doc_num.php?explnum_id=3138#page=279) - Integrated drought management programme, recommended the IDMP liaise and coordinate with other drought initiatives in order not to duplicate activities, requested the Secretary-General to facilitate the work of the IDMP and to report regularly to the Executive Council on the progress, and to work with the GWP and other potential partners to secure extrabudgetary funding to resource IDMP activities.
5. [Decision 44 (EC-69)](https://library.wmo.int/doc_num.php?explnum_id=3645#page=248) - Enhancing national and regional drought-monitoring systems, invited Members to report on the status of their national and regional drought-monitoring and early warning systems.
6. [Resolution 17 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=86) - Ensuring integration of drought risk management in WMO activities, decided to develop the Global Drought Indicator which was subsequently renamed in [Resolution 3 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008#page=19) - Concept note on the Global Drought Classification System, as the Global Drought Classification System (GDCS). This GDCS will provide input into WMO activities such as the proposed Global Multi-hazard Alert System (GMAS), Common Alerting Protocol (CAP), Global Hydrological Status and Outlook System (HydroSOS), cataloguing of high impact events and in support of relevant United Nations Convention to Combat Desertification (UNCCD) decisions.
7. In addition, this resolution will retain the initial GDCS concept note from [Resolution 3 (EC-73).](https://library.wmo.int/doc_num.php?explnum_id=11008#page=19)

**Expected action**

1. Based on the above, the Congress may wish to adopt the resolution below.

# DRAFT RESOLUTION

## Draft Resolution 4.1(7)/1 (Cg-19)

## WMO Activities in Drought Management

THE WORLD METEOROLOGICAL CONGRESS,

**Recalling**:

1. [Resolution 21 (Cg-XVI)](https://library.wmo.int/doc_num.php?explnum_id=3429#page=230) – Use of the Standardized Precipitation Index for characterizing meteorological droughts by all National Meteorological and Hydrological Services,
2. [Resolution 9 (Cg-17)](https://library.wmo.int/doc_num.php?explnum_id=3138#page=266) – Identifiers for cataloguing extreme weather, water and climate events,
3. [Resolution 17 (Cg-17)](https://library.wmo.int/doc_num.php?explnum_id=3138#page=279) – Integrated Drought Management Programme (IDMP),
4. [Decision 44 (EC-69)](https://library.wmo.int/doc_num.php?explnum_id=3645#page=248) – Enhancing national and regional drought-monitoring systems,
5. [Decision 3 (EC-69)](https://library.wmo.int/doc_num.php?explnum_id=3645#page=175) and [Decision 4 (EC-70)](https://library.wmo.int/doc_num.php?explnum_id=4981#page=154) on the WMO Global Multi-hazard Alert System (GMAS),
6. [Resolution 17 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=86) – Ensuring Integration of Drought Risk Management in WMO Activities,
7. [Resolution 3 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008#page=19) – Concept Note on the Global Drought Classification System,

**Noting:**

1. UNCCD Decision 29/COP.13 – Policy advocacy on drought ([Cg-17 Report, Part II](https://library.wmo.int/?lvl=notice_display&id=18648)),
2. The work of the IDMP, co-sponsored by WMO and the GWP,
3. That IDMP and its partner organizations have been assisting the UNCCD Secretariat in its Drought Initiative in many regions of the world,
4. That WMO is an official observer to the UNCCD Science Policy Interface,
5. The need to move from a reactive to proactive approach to drought management, based on risk management principles as stated in the Final Declaration of the High-Level Meeting on National Drought Policy (HMNDP),
6. The IDMP [*Handbook of Drought Indicators and Indices*](https://library.wmo.int/index.php?lvl=notice_display&id=19498)(WMO-No. 1173),

**Recognizing** that many drought-affected countries do not yet have national drought policies, and that existing policies may need to be updated, and that countries need further assistance in enacting policies that incorporate the IDMP three pillars of drought-monitoring and early warning systems, vulnerability and impact assessments, and mitigation and response measures,

**Decides**:

1. To support the principal goal of IDMP to develop a global coordination of efforts to strengthen drought-monitoring, risk identification, drought prediction and early warning services;
2. To develop a Global Drought Indicator (GDI) as input into WMO activities such as the proposed GMAS, Common Alerting Protocol (CAP), Global Hydrological Status and Outlook System (HydroSOS), and cataloguing of high impact events;
3. That information on the outcomes of these efforts be provided to UNCCD in support of relevant UNCCD decisions;

**Encourages** Members to use the resources available under IDMP, including the Help Desk, in developing proactive drought management actions;

**Confirms** the relevance of the initial Concept Note on the GDCS, as provided in the [annex](#annex), as a basis for further refinements;

**Requests** the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM) to further develop the concept of the GDCS and develop an implementation plan to test the concept, led by the Standing Committee on Services for Agriculture (SC-AGR), in coordination with the Standing Committee on Hydrological Services (SC-HYD), the Standing Committee on Climate Services (SC-CLI) and other relevant bodies as appropriate, including the World Climate Research Programme, on aspects of long-term changes and future projections of drought and the relevant mechanisms of the United Nations Convention to Combat Desertification (UNCCD);

**Requests** Members to ensure that all National Meteorological and Hydrological Services around the world use the Standardized Precipitation Index (SPI) to characterize meteorological droughts, in addition to other drought indices that are already in use in their service;

**Requests the Secretary-General:**

1. To liaise with the IDMP on integrating the GDI framework and standards into its work on the three pillars in support of WMO Members;
2. To work with the UNCCD Secretariat and other United Nations and humanitarian organizations on the uptake of drought policies and drought early warning systems incorporating WMO activities and practices;
3. To support Members in further developing national and regional drought-monitoring systems;
4. To facilitate the work of the IDMP Technical Support Unit, Management Committee and Advisory Committee and to report regularly to the Executive Council on the progress of its implementation;
5. To work with the Global Water Partnership and other potential partners to secure extrabudgetary funding to resource the activities of the IDMP in the Secretariat;
6. To ensure that the comprehensive user manual on SPI, which provides a description of the index, the computation methods, the current application of the index, the strengths and limitations, mapping capabilities and how it can be used, will be published and distributed in all official languages of WMO;
7. To ensure that the outcomes and recommendations of the Working Groups on Agricultural and Hydrological Drought Indices will be distributed to all Members;

**Recommends** that IDMP liaise and coordinate with other drought initiatives in order not to duplicate activities;

**Invites Members:**

1. To incorporate the GDCS into the proposed GMAS, HydroSOS, CAP and cataloguing of hazardous events;
2. To keep the Secretary-General regularly updated on the status of their national or regional drought-monitoring and early warning systems and national drought policies.

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[Annex: 1](#_Annex_to_draft_3)

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Note: This resolution replaces [Resolution 21 (Cg-XVI)](https://library.wmo.int/doc_num.php?explnum_id=3429#page=230), [Resolution 17 (Cg-17)](https://library.wmo.int/doc_num.php?explnum_id=3138#page=279), [Resolution 17 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=86), [Resolution 3 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008#page=19), and [Decision 44 (EC-69)](https://library.wmo.int/doc_num.php?explnum_id=3645#page=248) which are no longer in force.

## Annex to draft Resolution 4.1(7)/1 (Cg-19)

## Concept Note on the Global Drought Classification System

Drought is an insidious natural hazard which can occur in any global climate regime. Drought impacts can be significant and widespread, affecting many economic sectors and people at any one time. The areas affected by droughts are typically larger than those for other hazards.

Like other hazards, droughts can be characterized in terms of their severity, location, duration and timing. Droughts can arise from a range of hydrometeorological processes that suppress precipitation and/or limit surface water or groundwater availability, creating conditions that are significantly drier than normal or otherwise limiting moisture availability to a potentially damaging extent. Droughts can severely adversely affect agriculture and food security, hydropower generation and industry, human and animal health, livelihood security, personal security and access to education.

The issue of quantifying loss and damage from extreme climate events such as droughts has become important for policy implementation, especially about the United Nations Framework Convention on Climate Change (UNFCCC) agenda. Also, improved drought-monitoring and management will be crucial to implementing the Sendai Framework for Disaster Risk Reduction 2015–2030 and the Sustainable Development Goals. Effective and accurate monitoring of hydrometeorological indicators is a key input to risk identification to drought early warning systems for managing sector impacts. [Resolution 9 (Cg 17)](https://library.wmo.int/doc_num.php?explnum_id=3138#page=266) — Identifiers for Cataloguing Extreme Weather, Water and Climate Events, initiated a process of standardizing weather, water, climate, space weather and other related environmental hazards and risk information and prioritized the development of identifiers for cataloguing extreme weather, water and climate events. Based on this need, the Integrated Drought Management Programme (IDMP), co-sponsored by WMO and the Global Water Partnership, published the [*Handbook on Drought Indicators and Indices*](https://library.wmo.int/?lvl=notice_display&id=19498#.YAbxFOhKiUk) (WMO-No. 1173) in 2016. This handbook includes drought indicators and indices for various impact sectors (i.e., agricultural and socioeconomic) and are categorized by meteorology, soil moisture, hydrology, remote sensing, and composite or modelled.

Building upon these efforts, WMO has also been working on developing the Global Multi-hazard Alert System (GMAS). Early warnings for weather, water and climate hazards have been demonstrated over the past decade to be very effective in reducing loss of life and property. These warnings, which come from the National Meteorological and Hydrological Services (NMHSs) of each country, provide the foundation on which early action to take precautions against hazards by the responsible authorities and public can be realized. The WMO GMAS will be developed to provide target users with authoritative hydrometeorological hazard warnings and related information. In 2018, WMO urged Members, regional associations, technical commissions and technical programmes to participate and contribute to the development of WMO GMAS. WMO would contribute to GMAS by incorporating national drought alerts and warnings.

**Proposed Global Drought Classification System (GDCS)**

The previous Commission for Agricultural Meteorology (CAgM) “Expert Team on Drought”, along with other experts, proposed that each country should determine the most appropriate drought index to use for their country. This index would then be standardized into discrete classes. This approach has been adopted by the North American Drought Monitor. Ideally, the statistics of return periods will also need to consider climate change trends and projections.

**Table 1: Proposed Drought Classes of the GDCS**

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| **Drought Class** |
| No Drought |
| D1 (Moderate Drought) |
| D2 (Severe Drought) |
| D3 (Extreme Drought) |
| D4 (Exceptional Drought) |

The resulting classifications would provide a sufficient level of standardization to allow integration into early warning and risk management systems, hazardous event catalogues, and other applications.

It is recommended that the Standardized Precipitation Index (SPI) be used as an initially applied index for these purposes since it is regarded as being relatively simple to apply and has a lower requirement for complex data (only monthly precipitation is required as an input) compared to other more complex indices such as those that integrate soil moisture and precipitation.

The Expert Team on Drought in the Standing Committee on Services for Agriculture (SC-AGR) in the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM) will continue this work and will develop an implementation plan for SERCOM-3 to review and approve.

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