
Recommendation 25 (EC-70)

WMO technical commissions and other bodies

THE EXECUTIVE COUNCIL,

Recalling:

- (1) That the Seventeenth World Meteorological Congress had requested the Executive Council to provide recommendations to the Eighteenth Congress on constituent body constructs,
- (2) Decision 84 (EC-68) – Governance review,
- (3) Decision 68 (EC-69) – WMO constituent body reform,

Having considered:

- (1) The functions of technical commissions as defined by Article 19 of the WMO Convention and WMO General Regulations 180 to 196,
- (2) The recommendations of the first 2018 session of the Working Group on Strategic and Operational Planning concerning the construct of technical commissions (see [EC-70/INF.16](#)),
- (3) The concept of a revised system of technical commissions, as provided in Annex 1 to the present recommendation,
- (4) The importance of having effective mechanisms to strengthen scientific development for the provision of better weather, climate and related environmental services,
- (5) The importance for the Organization of benefitting from independent, high-level scientific advice on global societal trends and challenges,

Having further considered:

- (1) The alternative proposal by the fourteenth meeting of the Conference of Directors of the Ibero-American Meteorological and Hydrological Services (CIMHET), advocating three commissions for services and applications,
- (2) The success of the Open Science Conferences,

- (3) The outcomes of the Global Conference: Prosperity through Hydrological Services, held in Geneva from 7 to 9 May 2018, and of the Executive Council Special Dialogue on Water, held on 25 June 2018, which encouraged WMO to take on a stronger role in the evolving global water agenda in order to realize opportunities and benefits for Members,
- (4) That the extraordinary session of the Commission for Hydrology (December 2018) has been charged (Resolution 18 (EC-70) – Outcomes of the Special Dialogue on Water) with engaging the hydrological community in: (a) suggesting optimal solutions for effective participation of WMO in the global water agenda, and (b) providing recommendations to Congress on ways to integrate hydrological activities into the new WMO structure,
- (5) That the specific conditions under which the national hydrological services currently operate and the new direction WMO will take with regard to strengthening its hydrological profile may require specific organizational structures and working mechanisms to enable WMO to effectively promote and integrate activities in operational hydrology, and contribute effectively to, and benefit from, the integrated Earth system approach embraced by WMO in the new Strategic Plan,

Recommends to Congress:

- (1) Draft Resolution XX/1 (Cg-18) – Establishment of WMO technical commissions and other bodies for the nineteenth financial period, as provided in Annex 1 to the present recommendation;
- (2) Draft Resolution XX/2 (Cg-18) – Research Board, as provided in Annex 2 to the present recommendation;
- (3) Draft Resolution XX/3 (Cg-18) – Joint WMO-IOC Committee for Oceanography and Meteorology, as provided in Annex 3 to the present recommendation;
- (4) [Draft Resolution XX/4 \(Cg-18\)](#) – Scientific Advisory Panel, as provided in Annex 4 to the present recommendation.

Annex 1 to Recommendation 25 (EC-70)

Draft Resolution XX/1 (Cg-18)

**Establishment of WMO technical commissions and other bodies
for the nineteenth financial period**

THE CONGRESS,

Recalling:

- (1) That the Seventeenth Congress requested the Executive Council to provide recommendations to the Eighteenth Congress on constituent body constructs,
- (2) Decision 84 (EC-68) – Governance review, and Decision 68 (EC-69) – WMO constituent body reform,
- (3) Resolution 43 (Cg-XVI) – Terms of reference of the technical commissions,

Expressing appreciation for the work carried out by the Executive Council and its Working Group on Strategic and Operational Planning concerning the construct of technical commissions,

Having examined Recommendation 25 (EC-70) – WMO technical commissions and other bodies,

Recognizing:

- (1) That in accordance with the Convention, Congress has established and reviewed from time to time commissions consisting of technical experts to study and make recommendations to Congress and the Executive Council on subjects within the purpose of the Organization,
- (2) That the technical commissions, as per their general terms of reference (Annex III to the General Regulations) have been tasked:
 - (a) To study and review advances in science and technology, keep Members informed and advise Congress, the Executive Council and other constituent bodies on these advances and their implications,
 - (b) To develop, for consideration by the Executive Council and Congress, proposed international standards for methods, procedures, techniques and practices in meteorology and operational hydrology including, in particular, the relevant parts of the Technical Regulations, guides and manuals,
- (3) That the Congress had classified the technical commissions into two groups:
 - (a) Basic commissions – dealing with basic operations and facilities, and research in atmospheric sciences,
 - (b) Application commissions – dealing with applications to economic and social activities,
- (4) That the technical commissions have played a major role in engaging the collective expertise of Members in coordinating the design and development of globally harmonized systems and services operated by Members, development of related standards and guidance, which have contributed to the achievement of the purposes of the Organization and bringing benefits to its Members,

Recognizing further:

- (1) That the rapidly changing technological and institutional environment and the growing societal demand for information and services in all WMO business areas will require a holistic and integrated approach along the service delivery value chain,
- (2) That such holistic approach would be achieved through consolidation and streamlining of expertise and normative work in major organizational domains covering: (a) the integrated infrastructure and methodology for Earth system observations, information management, and generation of forecasts and products, and (b) the development of applications and services, and related methodologies for service delivery to governments, citizens and economic sectors, and c) focused scientific research and capacity development,
- (3) That the restructuring of the technical commissions is intended to support the Strategic Plan, which aims to support the development of:
 - (a) An Earth system science approach to seamless prediction from climate scales down to the mesoscale that is built upon the concept of the weather, water, ocean and climate linkage,
 - (b) An integrated approach to weather, water, ocean and climate linkages supporting Members' effort to ultimately unify operational prediction systems using a fully coupled Earth system model approach, concerned with changes in the ocean that have a direct influence on the atmosphere and other elements of the Earth system across all time scales,

- (c) A holistic, interdisciplinary approach to services and applications with a strong focus on users and use cases, promoting impact-based approach and supporting common development of standards and methodologies for generic service attributes like quality, competence, fitness for purpose, accessibility, as well as innovation in service delivery (e.g. through social media),
- (4) That, given the capacity development needs of Members, the efficiencies and savings gained from the restructuring of technical commissions will be re-aligned to support activities aimed at enhancing the capacity of Members;

Considering the need to maintain and strengthen the leadership of the Organization in the domains of weather, climate, water and related environmental aspects;

Considering further the review and recommendations of the extraordinary session of the Commission for Hydrology (CHy-Ext) by the EC Working Group on WMO Strategic and Operational Planning (WG/SOP);

Recognizing that, in view of the scale of the restructuring, which is unprecedented in the WMO history, the transition from the existing to the new structure should be realized through a transparent and well-managed process encompassing proactive change management with special focus on communication with all stakeholders, in particular, the regional associations and their Members;

Decides:

- (1) To establish, in accordance with Article 8 (g) of the Convention, the following technical commissions for the nineteenth financial period:
 - (a) Commission for Observation, Infrastructure and Information Systems (COIIS), with terms of reference provided in Annex A; and
 - (b) Commission for Weather, Climate, Water and Related Environmental Services and Applications (CSA), with terms of reference provided in Annex B;
- (2) That the fundamental working principle of the new commissions should be the inclusiveness of the weather, climate, water and other relevant environmental areas covered by the WMO constitutional purpose;
- (3) That, due to the multidisciplinary nature and increased work volume the composition and working arrangements of the new commissions should be elaborated to ensure balanced representation of relevant disciplines, active and balanced regional engagement and gender considerations;
- (4) That the two technical commissions shall commence their work as early as possible in accordance with the Transition Plan as provided in Resolution 36 (EC-70)) – WMO Constituent Bodies Reform Transition Plan and Communication Strategy;
- (5) That, in accordance with final paragraph of Article 8 of the Convention, the president of each new commission and their vice-presidents will be elected by Congress, from amongst current presidents and vice-presidents of technical commissions, as one-time measure aimed at expediting the transition to the new structure of the technical commissions,
- (6) Upon completion of the transition period, to disband the existing technical commissions that have been active during the eighteenth financial period, as follows:
 - Commission for Basic Systems (CBS);
 - Commission for Instruments and Methods of Observation (CIMO);
 - Commission for Hydrology (CHy) (pending CHy-Ext recommendations);
 - Commission for Atmospheric Sciences (CAS);

Commission for Aeronautical Meteorology (CAeM);

Commission for Agricultural Meteorology (CAgM);

Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM);

Commission for Climatology (CCI);

Expresses appreciation to the presidents and experts who served in the technical commissions during and before the eighteenth financial period for their leadership, commitment and contribution to the work of the Organization;

Elects ... [names] to serve as president and [three names] as vice-presidents of ...;

Adopts the amendment to the General Regulations related to the work and specific terms of reference of the technical commissions as presented in the Annex to this Resolution;

Requests the Executive Council to oversee the transition to the new technical commissions and report on the implementation of this resolution at the nineteenth session of Congress;

Requests the presidents of the new technical commissions to ensure establishment of optimum subsidiary structures as needed to implement the Strategic Plan in the most efficient and effective manner;

Requests further the presidents of the new technical commissions:

- (1) To endeavour to maximize efficiency and synergy through establishing strong liaison with relevant internal and external bodies, including, where appropriate, joint bodies and/or inter-agency bodies as well as relevant global and regional partnerships;
- (2) To report on the subsidiary structure and the working plans of the commissions at the seventieth-second session of the Executive Council (2020);
- (3) To establish working mechanisms and processes that will respond to the priorities and requirements set by Members by developing technical solutions to meet those priorities and requirements in consultation with regional associations, to ensure the solutions are feasible, affordable and implementable at the regional and national levels;

Requests Members to support the establishment of a solid community of expertise that will underpin the technical commissions by nominating knowledgeable, experienced and motivated professionals in the related technical fields and to support their work in the commissions, in terms of adequate working time and financial commitment, in order to ensure the leadership role of the commissions in the development of global standards, applying innovation and building national, regional and global technical capacity needed to achieve the purposes of the Organization;

Requests the presidents of regional associations to work actively with their Members to ensure that nominated experts are representative of geographic, gender and technical diversity, in order to facilitate comprehensive input on regional needs and issues, as well as to facilitate implementation and uptake of evolving technical systems, standards and regulations at national and regional levels;

Requests the Secretary-General to take the required steps that will ensure the smooth transition to the new arrangement of technical commissions in accordance with the transition plan.

Note: This resolution replaces Resolution 43 (Cg-XVI) – Terms of reference of the technical commissions, Resolution 4 (EC-LX) – Role and terms of reference of the Meetings of Presidents of Technical Commissions, Resolution 3 (EC-66) – Coordination between regional associations and technical commissions, and Resolution 14 (Cg-XIII) – Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), which are no longer in force.

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

Terms of reference of the technical commissions

Note: The General Terms of Reference of Technical Commissions provided in Annex III to the General regulations will remain unchanged.

A. Commission for Observation, Infrastructure and Information Systems (COIIS)

General mandate

The overall scope and specific terms of reference for the Commission for Observation, Infrastructure and Information Systems (COIIS) shall be in accordance with the purposes of Organization defined in Article 2 of the Convention, in particular, items (a) through (c) and (e), and Regulations 180 to 196 and Annex III (as amended by this resolution) of the General Regulations.

The Commission shall contribute to: development and implementation of globally coordinated systems for acquiring, processing, transmitting and disseminating Earth system observations, and related standards; coordination of the production and use of standardized analysis and model forecast fields; and development and implementation of sound data and information management practices for all WMO Programmes and their associated application and services areas.

The work of the Commission shall encompass all approved WMO application areas, as listed in the Rolling Review of Requirements, as well as updated and emerging observing, information and infrastructure requirements.

The Commission shall promote the development of integrated systems to cover all application areas wherever possible, and shall ensure that these systems:

- (a) Are user-driven and provide earth system observations, processed data and relevant services products and information to Members;
- (b) Are applicable, accessible and with life-cycle management across the full range of WMO Members;
- (c) Are built on a modular and scalable principle to the extent possible;
- (d) Make full use of existing WMO and other relevant standards and regulations;
- (e) Make use of and promote public-private engagement where advantageous;
- (f) Incorporate state-of-art optimal and fit-for-purpose technology;

- (g) Are based on user requirements developed in coordination with CSA and the Research Board;
- (h) Are building upon existing partnerships and networks among communities of practice within the service areas, which are beneficial for WMO Members.

The activities of the Commission shall be guided by the WMO Strategic Plan.

Specific terms of reference

- (a) Development and maintenance of WMO normative material related to integrated observing systems, data transmission and dissemination systems, data management systems, and data processing and forecast systems as specified in WMO Technical Regulations – the Commission shall:
 - (i) Coordinate development of new systems and infrastructure-related regulatory material in application areas of its scope;
 - (ii) Promote and pursue integration of existing regulatory material;
 - (iii) Keep regulatory material up-to-date through regular amendments, as necessary;
 - (iv) Ensure the consistency of the new and amended regulatory material across the application areas;
 - (v) Consider relevant scientific and technological developments to ensure the currency of the regulatory material;
 - (vi) Accompany recommendations for new and amended regulatory material with related impact, cost-benefit, and risk analysis;
- (b) Common infrastructure and systems attributes – the Commission shall:
 - (i) Promote a culture of compliance with standards and relevant regulatory material among all Members;
 - (ii) Further develop and promote the use of the Rolling Review of Requirements (RRR) for the assessment of user requirements, the assessment of available capabilities, and the development of gap mitigation strategies in to further improve the overall systems capabilities of WMO;
 - (iii) Develop and promote a unified approach to data management across all disciplines and WMO applications areas;
 - (iv) Develop common methodologies for quality assurance of observations and other data products across all application areas;
 - (v) Actively seek engagement of Earth system observational data providers from all relevant government entities, international organizations, private sector, and academia.
- (c) Assistance to Members to enhance systems capabilities and enable effective implementation and compliance – the Commission shall:
 - (i) Consult with regional associations and Members to identify needs for improvements in observing, data transmission and data management capabilities services and develop the required implementation strategies;

- (ii) Consult with regional associations to identify experts who can participate in technical commission teams, to facilitate implementation and uptake of evolving technical systems, standards and regulations at national and regional levels;
 - (iii) Facilitate the regional and national implementation of systems under its remit by developing guidance material aligned with new and amended regulatory material;
 - (iv) In consultation with the regional associations, identify needs for assistance to Members to improve their capabilities and provide relevant guidance and capacity building, including training;
 - (v) Propose pilot and demonstration projects as necessary;
 - (vi) Facilitate transfer of knowledge by supporting relevant events and through communication and outreach activities;
 - (vii) Providing standards and regulations for the basic measurement of variables characterising water quantity, quality and sediments; (pending CHy-Ext recommendations)
 - (viii) Support the technical aspects of the Hydrological Status and Outlook System and the state of the water report; (pending CHy-Ext recommendations)
- (d) Cooperation and partnership – the Commission shall:
- (i) Establish close coordination and efficient working mechanisms with the Commission for Weather, Climate, Water and Related Environmental Services and Applications (CSA), relevant international organizations in the area of meteorological, hydrological, climatological and other environmental observations, information and infrastructure;
 - (ii) Establish and maintain close collaboration and coordination with WMO co-sponsored system and programmes, and other major international observing programmes and initiatives;
 - (iii) Establish in the collaboration with the Research Board consultative mechanisms with relevant scientific and operational user organizations to receive feedback and advice (e.g. ECMWF, EUMETSAT, EUMETNET, UNFCCC, FAO) on systems capabilities;
 - (iv) Consider opportunities for leveraging resources through establishment of joint, including inter-agency, bodies and projects addressing common areas of system development.

Composition

The composition of the Commission shall be in accordance with General Regulation 183.

Participation of leading technical experts in Earth system observations, information management and predictions in the fields of meteorology, hydrology, climatology, oceanography, atmospheric environment and other fields covered by the terms of reference shall be ensured by Members.

UN and international organizations partners, private partners of WMO may be invited to nominate technical experts in their areas of expertise to participate in the work of the Commission in accordance with General Regulation 184.

Working procedures

The Commission shall elect a president and vice-president(s) among the experts on the Commission.

The Commission shall establish effective and efficient working mechanisms and related necessary time-limited subsidiary bodies:

- (a) Establish a work programme with concrete deliverables and timelines, aligned with the Organization-wide Strategic and Operating Plan and monitor progress on annual basis by reporting to the Executive Council and Congress;
- (b) Use effectively electronic forms of coordination and collaboration;
- (c) Establish effective coordination with other technical commissions, the Research Board, JCOM and other relevant bodies in particular through the Executive Council's Technical Coordination Committee, as appropriate;
- (d) Organize communication and outreach to inform the WMO community of ongoing work, achievements and opportunities;
- (e) Apply a system for recognition of achievements, promotion of innovation and include young professionals;
- (f) Ensure regional and gender balance and inclusiveness in all its structures and work plans;
- (g) Ensure adequate representation and consultation with communities of practice among the service areas.

B. Commission for Weather, Climate, Water and Related Environmental Services and Applications (CSA)

General mandate

The Commission for Weather, Climate, Water and Related Environmental Services and Applications (CSA) scope and specific terms of reference shall be in accordance with the purposes of Organization defined in Article 2 of the Convention, in particular, items (d) and (e); Regulations 180 to 196 and Annex III (as amended by this resolution) of the General Regulations.

The Commission shall contribute to the development and implementation of globally harmonized weather, climate, water, ocean and environment related services and applications to enable informed decision making and realization of socioeconomic benefits by all user communities and society as a whole.

The Commission shall encompass application areas with substructures as needed to implement the strategic plan including, but not limited to:

- (a) Regulated and existing meteorological services (covered by WMO *Technical Regulations* (WMO-No. 49), in accordance with General Terms of Reference 2):
 - (i) aeronautical meteorological services;
 - (ii) marine and oceanographic meteorological services;
 - (iii) agrometeorological services;
 - (iv) public weather services;
 - (v) climatological services;
 - (vi) hydrological services; (pending CHy-Ext recommendations)
- (b) Emerging services under development (currently subject of studies and evaluation for possible inclusion in regulated services, in accordance with General Terms of Reference 1):
 - (i) urban services;
 - (ii) environmental services;

- (iii) multi-hazard early warning services;
- (iv) polar and mountain area services;
- (v) health;
- (vi) energy;
- (vii) water management (pending CHy-Ext recommendations)
- (vii) land transportation;
- (viii) other, as may become necessary.

- (c) Potential category for hydrological services (pending CHy-Ext recommendations)

The Commission shall promote a holistic approach to services and service delivery and assist Members to apply:

- (a) Risk-based decision-making in support of disaster risk preparedness and reduction;
- (b) A service-oriented culture;
- (c) A strong user focus with 'fit-for-purpose' services;
- (d) Quality management in service delivery;
- (e) Standards for competence and qualification of personnel;
- (f) Mutually-beneficial public-private engagement providing optimized service delivery and added value to the society;
- (g) Accelerated uptake of advanced technology for service delivery;
- (h) Systematic evaluation of socio-economic benefits and other relevant market-oriented evaluations of products and services.

The activities of the Commission shall be guided by the WMO Strategic Plan and the WMO Strategy for Service Delivery.

Specific terms of reference

- (a) Development and maintenance of WMO normative material related to service delivery, as specified in WMO Technical Regulations, Volume I and its relevant Annexes, the Commission shall:
 - (i) Coordinate development of new service-oriented regulatory material in all application areas of its scope based on identified needs of Members;
 - (ii) Keep the service-related regulatory material up-to-date through regular amendments, as necessary;
 - (iii) Ensure the consistency of the new and amended regulatory material across the application areas;
 - (iv) Enhance capacity for prediction and service delivery;
 - (v) Consider relevant scientific and technological developments to ensure the currency of the regulatory material;
 - (vi) Together with the COIIS and the Research Board, coordinate linking science, infrastructure and services interactively;

- (vii) Accompany recommendations for new and amended regulatory material with related impact, cost-benefit, and risk analysis.
- (b) Common service delivery attributes – the Commission shall:
- (i) Promote service-oriented culture in all relevant application areas including a customer focus, quality management, understanding of the value and socioeconomic benefits;
 - (ii) Share best practices and develop harmonized methodologies for user engagement including identification of requirements and establishment of feedback mechanisms with users necessary for continuous improvement of services;
 - (iii) Develop methodologies for impact-based products and services in all application areas, innovative service delivery methods and integrated platforms;
 - (iv) Ensure harmonization of requirements for competency and qualification of personnel involved in service delivery;
 - (v) Develop common methodology for verification and validation of information and service delivery as part of quality management;
 - (vi) Build through appropriate studies and projects a better understanding of the economics of service delivery, cost-recovery mechanisms, commercial and market elements, and develop respective guidance to Members;
 - (vii) Seek the engagement of service providers from private sector and academia.
 - (viii) Promote global and regional partnerships, including building upon existing partnerships and networks among communities of practice among the service areas, which are beneficial for WMO Members.
- (c) Assistance to Members to enhance service delivery capabilities and enable effective implementation and compliance – the Commission shall:
- (i) Consult with regional associations and Members to identify needs for new and improved services and analyse related capabilities, and best practices;
 - (ii) Consult with regional associations to identify experts who can participate in technical commission teams, to facilitate implementation and uptake of evolving services and applications, standards and regulations at national and regional levels;
 - (iii) Facilitate the implementation by developing guidance material aligned with the promulgation of new and amended regulatory material;
 - (iv) In consultation with the regional associations, identify needs for assistance to Members and provide relevant guidance and capacity development activities including training;
 - (v) Propose pilot and demonstration projects as necessary;
 - (vi) Facilitate transfer of knowledge and best practices by supporting relevant events and through communication and outreach activities.
- (d) Cooperation and partnership – the Commission shall:
- (i) Establish close coordination and efficient working mechanisms with relevant international organizations such as ICAO, IMO, FAO in the area of service delivery;
 - (ii) Establish consultative mechanisms with user organizations to receive feedback and advice on services;

- (iii) Consider opportunities for leveraging resources through establishment of joint, including inter-agency, bodies and/or projects addressing common areas of service delivery.

Composition

The composition of the Commission shall be in accordance with General Regulation 183.

Participation of leading technical experts in services and applications in the field of meteorology, climatology, hydrology, ocean and the other fields covered by these terms of reference, shall be ensured by Members.

UN, international organizations and private sector partners of WMO may be invited to nominate technical experts in their areas of expertise to participate in the work of the Commission in accordance with General Regulation 184.

Working procedures

The Commission shall elect a president and three vice-presidents among the experts on the Commission.

The Commission shall establish effective and efficient working mechanisms and related necessary time-limited subsidiary bodies:

- (a) Establish effective and efficient working mechanisms through an adequate number of subsidiary bodies;
 - (b) Make an effective use of a broad community of practice encompassing Members collective expertise, including the private and academia sectors;
 - (c) Establish a work programme with concrete deliverables and timelines, aligned with the Organization-wide Strategic and Operating Plan and monitor progress regularly appropriate performance indicators and targets;
 - (d) Use effectively electronic forms of coordination and collaboration;
 - (e) Establish effective coordination with other technical commissions, the Research Board, JCOM and other relevant bodies, in particular through the Executive Council's TCC, as appropriate;
 - (f) Organize effective communication and outreach to inform community of ongoing work, achievements and opportunities;
 - (g) Apply a system for recognition of achievements, promotion of innovation and the participation of young professionals;
 - (h) Ensure regional and gender balance and inclusiveness in all its structures and work plans;
 - (i) Ensure adequate representation and consultation with communities of practice among the service areas.
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Annex 2 to Recommendation 25 (EC-70)**Draft Resolution XX/2 (Cg-18)****Research Board****THE CONGRESS,****Recalling:**

- (1) Decision 50 (EC-69) – An integrated research and development approach, which includes the main principles to fill the gap between research and operations and to better integrate science in WMO activities,
- (2) Decision 52 (EC-69) – Early career research scientist involvement in WMO activities, which requested all Members to promote and support the early career scientist activities and make them beneficial and accessible to young researchers in their own countries and worldwide,
- (3) Recommendation 1 (CAS-17) – The role of science in serving society, which requested the Executive Council Working Group on Strategic and Operational Planning to take into account the need for a stronger WMO leadership in science and research and to strengthen the integrated role of research in the “science-for-services” context,
- (4) Recommendation 2 (CAS-17) – Seamless prediction systems, which recommended strengthening partnerships with the United Nations system and other international organizations to promote the WMO research agenda towards seamless prediction, and promoting innovation across the WMO technical programmes and activities to ensure the co-design of new and improved services and products,

Considering that the implementation of the WMO Strategic and Operating Plans will benefit significantly from effective uptake of research into operational systems and political decision making needs a solid scientific foundation,

Considering further the need for a mechanism to coordinate the implementation of the research programmes of the Organization to deliver on the long-term goals and strategic objectives of the Strategic Plan, assisted by the guidance provided by the Scientific Advisory Panel established by Resolution 35 (EC-70),

Decides, according to article 8(h) of the Convention, to establish the Research Board on Weather, Climate, Water and the Environment with the terms of reference as given in the Annex to this Resolution.

Note: This resolution replaces Resolution 43 (Cg-XVI) – Terms of reference of the technical commissions, Resolution 4 (EC-LX) – Role and terms of reference of the Meetings of Presidents of Technical Commissions, Resolution 3 (EC-66) – Coordination between regional associations and technical commissions.

Annex to draft Resolution XX/2 (Cg-18)

Terms of reference of the Research Board on Weather, Climate, Water and the Environment

Research Board on Weather, Climate, Water and the Environment

Mandate

The Research Board translates the strategic aims of WMO and decisions of the Council and Congress into overarching research priorities, and ensures the implementation and coordination of the research programmes to achieve these priorities in accordance with the purposes of Organization defined in Article 2(f) of the Convention.

The Board shall coordinate implementation and resourcing of WMO research programmes taking into account the advice of the Executive Council Scientific Advisory Panel (SAP). The Board shall address Members' needs and support implementation of the WMO Strategic Plan based on science and implementation plans approved by the Executive Council and any co-sponsor governing bodies, as appropriate, for WMO research programmes and activities.

Specific terms of reference

The Board specifically shall:

- (a) Promote convergence and integration between the various research programmes inside of and external to WMO, where appropriate,
- (b) Initiate, coordinate and promote research activities in weather, climate, water and related environmental aspects through the WMO and co-sponsored research programmes (WCRP, GCOS, GOOS, WWRP, GAW and possible future research programmes) taking into account the advice provided by SAP and taking into consideration different needs amongst members,
- (c) Guide the implementation of WMO research programmes and act as the primary point of contact related to weather, climate, water and related environmental research aspects in WMO,
- (d) Ensure close coordination and cooperation between the WMO research programmes and eliminate duplication in structures and bodies,
- (e) Maintain an optimal balance between weather, climate, water, ocean and environmental research initiatives and promote the synergies among such initiatives,
- (f) Ensure that the research programmes are implemented according to agreed implementation plans and that such plans are current,
- (g) Promote the co-design of research initiatives aimed at strengthening the 'science-to-service' link between user needs and research project design and between research and operations, to benefit service delivery to Members,
- (h) Promote activities to strengthen scientific development in relevant areas for the benefit of all Members and particularly for developing countries and SIDS,
- (i) Ensure close coordination among the physical and social sciences,
- (j) Promote the science to service and applications,
- (k) Establish effective coordination with technical commissions, JCOM and other relevant bodies, as appropriate,

- (l) Organize effective communication and outreach to inform community of ongoing work, achievements and opportunities,
- (m) Apply a system for recognition of achievements, promotion of innovation and the participation of young professionals.

Composition

The Board shall be composed of an optimum number of leading research scientists and research funding managers active in the fields of weather, climate, water, ocean and related environmental and social sciences, taking into account geographical balance and reflecting the WMO gender equality policy, including:

- (a) The chairs of the scientific oversight/steering committees of the WMO research programmes (WCRP, WWRP, GAW) as ex officio members,
- (b) Representatives from IOC and ICSU and major global and regional research funding organizations based on the Research Board chair and SAP advice,
- (c) One representative from each regional association based on their capacity to connect with regional scientific institutions and activities.

The term of engagement shall be of four years with the possibility to renew once for a further four years; for ex officio members the duration shall be based on that of their term.

Working procedures

The Board will have a chair and a vice-chair, appointed by Congress. The members will be appointed by the EC.

The Research Board chair, based on recommendations from IOC, ICSU, other relevant international research initiatives, and SAP will propose the three chairs of the research programmes (WWRP, GAW and WCRP), who will be appointed by Executive Council. In case of co-sponsored research programmes, the chair shall be selected by mutual agreement between co-sponsoring organizations.

The chair of the Research Board has the responsibility to ensure coordination of the work in the Research Board with the presidents of the TCs and RAs, who similarly shall coordinate their work with the Research Board chair.

The Board shall meet in principle once per year.

The Board may establish time-bound substructures for the discharge of specific tasks during an intersessional period. Such temporary substructures shall be discontinued at the end of every intersessional period.

The Board shall ensure regional and gender balance and inclusiveness in all its structures and work plans.

Annex 3 to Recommendation 25 (EC-70)**Draft Resolution XX/3 (Cg-18)****Joint WMO-IOC Committee for Oceanography and Meteorology****THE CONGRESS,****Recalling:**

- (1) Resolution 14 (Cg-XIII) – Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),
- (2) IOC Resolution XX-12 – Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),

Considering the revision of the system of technical commissions as decided by this resolution,

Considering also the expanded collaboration between WMO and IOC of UNESCO in marine meteorology and oceanography, including in services, observation and information management, research and capacity building,

Considering further the evolving needs of a coordinating mechanism between WMO and IOC of UNESCO to support such collaborative activities,

Considering the work of the Joint WMO-IOC Consultation Team on the reform of JCOMM established by Decision 58 (EC-70),

Decides, according to article 8 (h) of the Convention:

- (1) To integrate JCOMM components on observation, data management, and processing and forecasting systems into the Commission for Observation, Infrastructure and Information Systems, recognizing IOC co-sponsorship by relevant structures;
- (2) To integrate JCOMM component on services into the Commission for Services and Applications, recognizing IOC co-sponsorship by relevant structures;
- (3) To establish the Joint WMO-IOC Committee for Oceanography and Meteorology (JCOM), as a high-level coordination mechanism with broader engagement of the key relevant bodies of the WMO and IOC, with the terms of reference as given in the Annex to this Resolution;

Invites the Assembly of IOC to reflect in its decisions the content of this Resolution as it applies to the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology;

Instructs the Secretary-General to consult with the Executive Secretary of the IOC on the further definition of the working arrangements of the Joint WMO-IOC Committee for Oceanography and Meteorology and its substructures and to report on implementation at the seventy-second session of the Executive Council.

Note: This resolution replaces Resolution 43 (Cg-XVI) – Terms of reference of the technical commissions, Resolution 4 (EC-LX) – Role and terms of reference of the Meetings of Presidents of Technical Commissions, Resolution 3 (EC-66) – Coordination between regional associations and technical commissions, and Resolution 14 (Cg-XIII) – Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), which are no longer in force.

Annex to draft Resolution XX/3 (Cg-18)

Terms of reference of the Joint WMO-IOC Committee for Oceanography and Meteorology

Joint WMO-IOC Committee for Oceanography and Meteorology

The terms of reference of the Joint WMO-IOC Committee for Oceanography and Meteorology (JCOM) shall be:

Mandate

- (a) To provide guidance on the coordinated or collaborative development, integration and implementation of the activities related to oceanographic, meteorological, hydrological and climatological observation, data and information management, and services and forecasting systems as well as research carried out by WMO and IOC subsidiary bodies:
 - (i) For WMO, the Commission for Observation, Infrastructure and Information Systems, the Commission for Services and Applications and the Research Board,
 - (ii) For IOC, the Committee on International Oceanographic Data and Information Exchange (IODE), the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG) and the Intergovernmental Panel on Harmful Algal Blooms (IPHAB),
 - (iii) The co-sponsored entities: Global Climate Observing System (GCOS), Global Ocean Observing System (GOOS) and World Climate Research Programme (WCRP);
- (b) To report to WMO and IOC governing bodies on these activities, propose new action, as required, and advise them regarding:
 - (i) Instructions to the relevant subsidiary bodies,
 - (ii) Any liaison or consultation required with relevant intergovernmental and international stakeholders.

Membership

The membership of JCOM shall be constituted by:

- (a) Representatives from WMO and IOC subsidiary bodies:
 - (i) For WMO, two members of the Commission for Observation, Infrastructure and Information Systems, covering observation, data and information management, and data processing and forecasting systems, two members of the Commission for Services and Applications, covering services, appointed by the respective presidents, and a member of the Research Board appointed by the chair,
 - (ii) For IOC, the chairpersons of the IODE Committee, the TOWS-WG and IPHAB;
- (b) The chairs of the steering committees of entities jointly sponsored by WMO and IOC:¹
 - (i) Global Climate Observing System,
 - (ii) Global Ocean Observing System,
 - (ii) World Climate Research Programme;

¹ GOOS-SC being already represented under (a) (ii).

- (c) Members of the WMO and IOC governing bodies:
 - (i) Three members of the WMO Executive Council appointed by the President, taking into account geographical distribution and gender balance,
 - (ii) Three members of the IOC Executive Council appointed by the Chairperson, taking into account geographical distribution and gender balance;
- (d) One representative of the International Maritime Organization;
- (e) No more than four experts appointed by the co-chairs.

Working procedures

The Committee shall be co-chaired by two co-chairs, one for oceanography and one from meteorology, elected among the members.

The co-chairs shall hold their office for one intersessional period, with the possibility to be re-elected for a second term.

The members elected in WMO and IOC governing and subsidiary bodies and co-sponsored programmes shall also hold their office based on the duration of their term; the experts shall hold their office for one intersessional period, with the possibility to be re-confirmed for a second term.

The co-chairs shall represent the Committee in the sessions of the WMO and IOC governing and subsidiary bodies.

The Committee shall meet in principle in person every two years, in conjunction with the sessions of the WMO and IOC governing bodies, alternating with the WMO Congress and the IOC Assembly. Intersessional work should be carried out by correspondence or virtual means.

The Committee may establish time-bound substructures for the discharge of specific tasks during an intersessional period, provided that this is at no cost for the parent bodies. Such temporary substructures shall be discontinued at the end of every intersessional period.

For the first intersessional period following the adoption of this Resolution, the Committee shall be co-chaired by the current co-presidents of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology.

Chairs of other relevant WMO and IOC working groups, panels and expert teams may be invited by the co-chairs to attend meetings of the Committee as required by the agenda.

Representatives from other United Nations or international organizations may be invited as members of or observers to the Committee as deemed appropriate.

The WMO Secretary-General and the IOC Executive Secretary shall evaluate the financial and secretariat support requirements for the Committee and make adequate provisions in their budget proposals to the respective governing bodies.

Note: Article 26 of the Convention refers to relations with other organizations.
Regulations 38–45 refer to joint working groups in principle of the duration of one intersessional period.
Regulation 181 refers to joint technical commissions.

Annex 4 to Recommendation 25 (EC-70)**Draft Resolution XX/4 (Cg-18)****Scientific Advisory Panel****THE CONGRESS,**

Recalling the global societal challenges underlying the 2030 Agenda for Sustainable Development, the Paris Agreement on climate change and the Sendai Framework for Disaster Risk Reduction and the resulting demand for multi-disciplinary scientific foresight;

Considering that benefiting from independent scientific advice would strengthen the ability of the WMO to gain from scientific and technological breakthroughs in order to lead advancements in weather, climate, water and related environmental fields to address the above challenges;

Decides, according to article 8(h) of the Convention, to establish the Scientific Advisory Panel with the terms of reference as given in the Annex to this Resolution.

Annex to draft Resolution XX/4 (Cg-18)**Terms of reference of the Scientific Advisory Panel****Scientific Advisory Panel*****Mandate***

The Scientific Advisory Panel (SAP) shall be the scientific advisory body of the Organization, drawing up opinions and recommendations to Congress and to the Executive Council on matters concerning WMO research strategies and the optimal scientific directions to support the evolution of its mandate in weather, climate, water and related environmental and social sciences. The Panel shall provide forward-looking strategic advice on emerging challenges and opportunities, and in particular:

- (1) Advise on areas in which, on the basis of available evidence, new technological and scientific advancement would open to new applications related to WMO core activities,
- (2) Promote the global standing and visibility of WMO as a leading scientific organization in the fields of weather, climate, water and related environmental and social sciences within the UN and otherwise, and enhance the WMO role as facilitator of international cooperation in weather, climate, water, ocean and environmental sciences among all role players,
- (3) Promote science vision, and its downstream trends, with WMO and among its Members as the primary driver for innovation, understanding and the development of new and improved weather, climate, water, ocean and related environmental services and know-how,

Composition

The Panel shall be composed of maximum fifteen independent leading internationally recognized experts coming from the fields of weather, climate, water, ocean and related environmental and social sciences.

The opportunity to become a member of the Panel shall be announced publicly for individuals to put their name forward. The members of the Panel shall be appointed by the Executive Council, taking into account regional and gender balance and representation of academia, research bodies, the private sector and user communities reflecting the breadth of engagement in WMO Research Programmes. The selection of the names to be proposed to the Executive Council to be appointed as Panel members shall be done by the Secretariat in consultation with the chair of the Research Board. The term of engagement for members shall be for four years with a possibility to be renewed for a second term.

A WMO Vice-President shall act as an Executive Council focal point for the Panel to ensure cross-communication.

The chair of the Research Board and a representative of the Secretariat shall take part in the meetings of the Panel.

Working procedures

The Panel shall select a chair and a vice-chair.

The Panel shall meet in principle once per year prior to a session of Executive Council.

The chair of the Research Board together with the Secretariat shall support the chair of the Panel in setting up and executing the meetings. The chair of the Panel may invite experts and/or representatives from partner organizations to attend meetings of the Panel as observers.
