

# Regional Association II (Asia)

Abridged Final Report of the Seventeenth Session

25 and 26 May 2021 (virtual session)

27-30 September 2021 (virtual session)



WORLD  
METEOROLOGICAL  
ORGANIZATION



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**BACKGROUND INFORMATION SUPPORTING THE WORK OF THE SESSION**

## GENERAL SUMMARY OF THE WORK OF THE SESSION

1. The president of Regional Association II (RA II) (Asia), Dr Abdulla Ahmed AL MANDOUS, opened the seventeenth session of RA II (RA II-17), Part I, on Tuesday, 25 May 2021 at 0700 UTC by videoconference. He welcomed all the participants and expressed his confidence that the region would overcome the current challenges. He focused on the importance of the regional reform, briefed the Members on the phased approach to the session and highlighted the key priority areas in the region for the coming years.

The Secretary-General of WMO, Prof. Petteri Taalas, further elaborated upon the WMO reform progress and highlighted priorities. He also briefed the participants on the global climate, weather and water conditions and introduced the initial arrangements for the extraordinary session of the World Meteorological Congress in October 2021.

The President of WMO, Prof. Gerhard Adrian, echoed the importance of the regional reform and of adopting an Earth system approach. He emphasized the role of the regional associations in implementing World Meteorological Congress resolutions, providing feedback to the Organization and contributing to the Strategic and Operating Plans.

The vice-president of RA II, Prof. Tran Hong Thai, also delivered a brief statement thanking Members and the Secretariat for their support.

2. The agenda adopted by RA II is provided in [Appendix 1](#).
3. At Part I of its seventeenth session, RA II adopted three resolutions, given in [Appendix 2](#), and seven decisions, given in [Appendix 3](#).
4. The list of participants is given in [Appendix 4](#). Out of a total of 117 participants, the ratio of female to male participants was 30:87, that is 26:74%.
5. Dr Abdulla Ahmed AL MANDOUS (United Arab Emirates) was elected president and Prof. Tran Hong THAI (Viet Nam) was elected vice-president of RA II.
6. Subject to the evolution of the COVID-19 pandemic, and with a view to maintaining as much as possible the necessary communications and needed coordination, the Association agreed that Part II of RA II-17 could be held in 2021 by videoconference.
7. RA II-17, Part I closed at 0945 UTC on Wednesday, 26 May 2021.

\*\*\*\*\*

8. Part II of RA II-17 was declared open by the president of RA II, Dr Abdulla Ahmed AL MANDOUS, on Monday, 27 September 2021, via videoconference. The president warmly welcomed all the participants and briefly recalled the proceedings of the successful Part I of the session, held on 25 and 26 May 2021. He noted that Part II would focus on technical matters as well as partnerships and would include a two-day Regional Technical Conference. Highlighting the achievements and progress made by the subsidiary bodies of the Association since Part I, the president expressed his appreciation to the Members for their efforts and contribution.

On behalf of the Secretary-General of WMO, the Assistant Secretary-General of WMO, Dr Wenjian Zhang, congratulated the president on successfully kickstarting the regional reform and expressed his confidence that the new regional working structure would further enhance cooperation and collaboration among the relevant WMO bodies as well as with other stakeholders. He noted with appreciation that the RA II Operating Plan 2021–2024 was both comprehensive and ambitious and urged Members to continue participating proactively in regional activities.

9. At RA II-17, Part II, RA II adopted eight resolutions, given in [Appendix 2](#), and five decisions, given in [Appendix 3](#), and acknowledged the following updates:
- (a) Dr Hyo Seob CHO (Republic of Korea) was appointed as Chair of the Coordination Panel on Hydrology and Water Resources (Thematic Coordinator on Hydrology and Water Resources); RA II noted that the previous Chair, elected during Part I of RA II-17, had vacated the position due to unforeseen circumstances;
  - (b) Dr R. VENKATESAN (India) was appointed as Vice-Chair of the Task Team on the Regional Concept (TT-RC), and Dr Ahad VAZIFEH (Islamic Republic of Iran) was appointed as Vice-Chair of the Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP);
  - (c) The Association agreed to follow, to the extent possible, the timeline proposed by the Chair of TT-RC to facilitate the implementation of the RA II Operating Plan and the confirmation of the RA II sub-structure. That is, the Association agreed to call for Members' co-sponsorship or proposals for additions to the RA II Operating Plan and to make the final adjustments to the RA II sub-structure by Q4 2021, to approve the RA II sub-structure and to appoint leaders and core members of the sub-structure by Q1 2022, to begin implementing the RA II Operating Plan when ready, and to report on the activities in the RA II Operating Plan, conduct a review, and update the Operating Plan in 2022;
  - (d) The Association agreed to further develop the RA II Partnership Strategy, in particular its conclusions and recommendations, led by TT-RP.
10. The list of participants is given in [Appendix 4](#). Out of a total of 112 participants, the ratio of female to male participants was 25:87, that is 22:78%.
11. The Association decided that the arrangement of its eighteenth session would be determined by the RA II Management Group upon further discussions with the Secretariat.
12. In delivering his closing remarks, the Secretary-General of WMO, Prof. Petteri Taalas, emphasized the back-to-basics and action-oriented nature of the regional reform and highlighted the work done by the Association in this respect as well as its focus on engaging partners. He assured Members of the support of the Secretariat, noting that two new technical coordinators had joined the Regional Office for Asia and the South-West Pacific. He also provided updates on various upcoming activities and events, including the extraordinary session of the World Meteorological Congress (Cg-Ext(2021)) and the 26th United Nations Climate Change Conference (COP26).
- Ms Mary Power, Director of the Member Services and Development Department, congratulated the Association on achieving a significant milestone with its endorsement of a new working structure and the RA II Operating Plan, noting that the Operating Plan was well aligned with both the WMO Strategic Plan and the regional reform agenda.
- Her words were echoed by the president of RA II in his closing remarks, where he expressed appreciation once again to all for their contributions to a successful session. He underscored the importance of the new working structure and the RA II Operating Plan and expressed his hope that the milestones achieved during the session would enhance the effectiveness and efficiency of regional business.
13. RA II-17, Part II closed at 0900 UTC on Thursday, 30 September 2021.
-

## **APPENDIX 1. AGENDA**

### **1. Organization of the session**

- 1.1 Opening of the session
- 1.2 Adoption of the agenda
- 1.3 Methods of work for the online session and use of the videoconference platform
- 1.4 Consideration of the report on credentials
- 1.5 Establishment of the Nomination Committee

### **2. Reports**

Report by the president of the association, including reports of Working Groups and the Regional Office for Asia and the South-West Pacific (RAP)

### **3. Regional Reform**

- 3.1 Regional Concept — Comprehensive Reform
- 3.2 Working structure of Regional Association II
- 3.3 Regional partnership and subregional cooperation

### **4. Capacity Development**

### **5. Flagship Initiatives**

- 5.1 Report on State of Climate in Asia 2020
- 5.2 Public and Private Engagement (PPE)
- 5.3 Systematic Observations Financing Facility (SOFF)

### **6. WMO Strategic and Operational Plan — Regional Implementation**

- 6.1 Enhanced Services
- 6.2 State of Climate Report in Asia
- 6.3 Observations and data exchange
- 6.4 Research and Innovation
- 6.5 RA II Operating Plan 2021–2024

### **7. Election of officers**

**8. Review of previous resolutions of the association**

**9. Any other business**

**10. Closure of the session**

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## APPENDIX 2. RESOLUTIONS ADOPTED BY THE SESSION

### RESOLUTIONS ADOPTED IN PART I

#### Resolution 1 (RA II-17)

##### Regional Concept – Comprehensive Reform

REGIONAL ASSOCIATION II (ASIA),

**Recalling:**

- (1) [Resolution 6 \(Cg-18\)](#) – WMO Regional Associations,
- (2) [Resolution 11 \(Cg-18\)](#) – WMO Reform – Next Phase,
- (3) [Resolution 1 \(EC-72\)](#) – Effective coordination between regional associations, technical commissions and the Research Board,
- (4) [Resolution 2 \(EC-72\)](#) – Activities and working mechanisms of the regional associations.

**Noting** the guidance by the Executive Council (EC) Task Force on Comprehensive Review of the WMO Regional Concept and Approaches,

**Having examined** the decisions of the sixteenth session of the RA II Management Group (RA II MG-16) held on 30 March 2021,

**Decides** to adopt a phased approach for organizing the seventeenth session of RA II;

**Endorses** the establishment by the President of the Task Teams on the Regional Concept (TT-RC) and the Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP) with the Terms of Reference and membership provided in the [annex](#);

**Designates** Dr Sahar Tajbakhsh Mosalman (Islamic Republic of Iran) as Chair of the Task Team on the Regional Concept (TT-RC), and Dr R. VENKATESAN (India) as the Vice-Chair;

**Designates** Dr Mrutyunjay Mohapatra (India) as Chair of the Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP), and Dr Ahad VAZIFEH (Islamic Republic of Iran) as the Vice-Chair;

**Invites** Members to fully engage with the work of TT-RC and TT-RP and nominate additional volunteers to join the TTs;

**Requests** the Secretary-General to make the necessary resources available in order to facilitate the activities of these Task Teams.

---

## **Annex to Resolution 1 (RA II-17)**

### **Terms of Reference of Task Team on the Regional Concept (TT-RC) and Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP)**

#### **1. Task Team on the Regional Concept (TT-RC)**

1.1 The Task Team on the Regional Concept (TT-RC) shall:

- (1) Guide the reform of approaches towards Regional Association business processes and working mechanisms by considering all relevant high-level guidance by the WMO Congress and Executive Council on how the regional work could be conducted;
- (2) Regularly review the new regional working structure focusing on RA II priorities, taking into account the different priorities among the Members and sub-regions in RA II, and recommend changes as necessary;
- (3) Regularly review the terminology of the RA II subsidiary bodies, taking into consideration updates on the Rules of Procedure for Technical Commissions, and recommend revisions when necessary;
- (4) Submit recommendations to the president of RA II and the Executive Council (EC) Task Force (TF) on a Comprehensive Review of the WMO Regional Concept and Approaches for further consideration, if necessary.

1.2 The Task Team shall be composed of:

- (1) A Chair and a Vice-Chair;
- (2) RA II Working Group Chairs;
- (3) INFCOM Management Group member(s), SERCOM Management Group member(s) and Research Board member(s) from RA II;
- (4) Volunteers nominated by RA II Members;

#### **2. Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP)**

2.1 The Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP) shall:

- (1) Analyse and map existing cooperation and collaboration in RA II, including WMO Regional Centres (e.g. WMO Global Data-processing and Forecasting Systems (GDPFS) centres, Regional Training Centres, Regional Instrument Centres and other regional centres managed by WMO bodies), between RA II Members, sub-regional and cross-regional cooperation;
- (2) Analyse and map existing cooperation with other regional organizations and extra-budgetary opportunities, including United Nations regional bodies, regional political bodies, funding agencies and technical entities;
- (3) Develop and regularly update a RA II Partnership Strategy to propose the way forward to further enhance regional and sub-regional partnership bearing in mind the characteristics of the region, including existing partnership frameworks, diversity and capacity among Members (e.g. level of development, membership to different technical and political

organizations, policy relevant issues such as: data policy, relation to the private sector, cooperation and collaboration with academic institutions, etc.), at regional and sub-regional levels.

2.2 The Task Team shall be composed of:

- (1) A Chair and a Vice-Chair;
- (2) Advisors to RA II Management Group members;
- (3) Representatives from Regional Centres in RA II;
- (4) Representatives from RA I/V/VI;
- (5) Volunteers nominated by RA II Members.

### **Membership of the Task Team on the Regional Concept (TT-Regional Concept)**

**Chair:** Dr Sahar Tajbakhsh Mosalman, [sahartajbakhsh@gmail.com](mailto:sahartajbakhsh@gmail.com), [affairs.intl@gmail.com](mailto:affairs.intl@gmail.com)

**Members:**

<b>Name</b>	<b>Member/Designation</b>	<b>Email</b>
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Mr Yasushi TAKATSUKI	Japan	<a href="mailto:y_takatsuki@met.kishou.go.jp">y_takatsuki@met.kishou.go.jp</a>
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Name	Member/Designation	Email
<b>Volunteers Nominated by RA II Members</b>		
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Mr Yashar FALAMARZI	Hydrology Expert, Climate Research Institute (CRI), IRIMO	<a href="mailto:falamarzi@cri.ac.ir">falamarzi@cri.ac.ir</a>

**Membership of the Task Team on review of the regional partnership and sub-regional cooperation (TT-RP)**

**Chair:** Dr Mrutyunjay MOHAPATRA, [mohapatraimd@gmail.com](mailto:mohapatraimd@gmail.com)

**Members:**

Name	Member/Designation	Email
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Name	Member/Designation	Email
<b>Representatives from Regional Centres in RA II</b>		
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<b>Representatives from RA I/V/VI</b>		
TBD		
<b>Volunteers Nominated by RA II Members</b>		
Mr Eiad KHATEB	Saudi Arabia	<a href="mailto:E.Khateb@gamep.gov.sa">E.Khateb@gamep.gov.sa</a>

## Resolution 2 (RA II-17)

### Working Structure of Regional Association II

REGIONAL ASSOCIATION II (ASIA),

#### Recalling:

- (1) [Resolution 1 \(Cg-18\)](#) – WMO Strategic Plan,
- (2) [Resolution 6 \(Cg-18\)](#) – WMO Regional Associations,
- (3) [Resolution 7 \(Cg-18\)](#) – Establishment of WMO Technical Commissions for the Eighteenth Financial Period,
- (4) [Resolution 8 \(Cg-18\)](#) – Research Board,
- (5) [Resolution 11 \(Cg-18\)](#) – WMO Reform – Next Phase,
- (6) [Resolution 1 \(EC-72\)](#) – Effective Coordination between Regional Associations, Technical Commissions and the Research Board,
- (7) [Resolution 2 \(EC-72\)](#) – Activities and Working Mechanisms of the Regional Associations.

**Having examined** the recommendations of the recently established RA II Task Team on the Regional Concept (TT-RC),

#### Decides:

- (1) To establish the following RA II subsidiary bodies and adopt the Terms of Reference and composition as provided in the [annex](#):
  - (a) Management Group (MG);
  - (b) Working Group on Observation, Infrastructure and Information Systems (WG Infrastructure);
  - (c) Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services);

- (d) Coordination Panel on Hydrology and Water Resources (CP Hydrology);
- (2) To designate Mr SATO Yoshiaki (Japan) as the Chair of WG Infrastructure and Ms SHI Lijuan (China), Dr K.S. HOSALIKAR (India) and Mr Ahad VAZIFEH (Islamic Republic of Iran) as Vice-Chairs;
- (3) To designate Mr ZHOU Qingliang (China) as the Chair of WG Services and Dr Kamaljit RAY (India), Ms Saviz SEHAT KASHANI (Islamic Republic of Iran) and Mr KYODA Masayuki (Japan) as Vice-Chairs;
- (4) To designate, in accordance with [Regulation 135](#) of the WMO General Regulations, Dr Sung KIM (Republic of Korea) as the Regional Hydrological Adviser (RHA) to the president of RA II;
- (5) To designate Ms CHEN Jing (China), Dr Ashis Kumar MITRA (India) and Dr Mai Van KHIEM (Viet Nam) as the Regional Focal Points on Research (RFP/R);
- (6) To designate Dr Nitya Nand RAI (India) as the Chair of CP Hydrology (Thematic Coordinator on Hydrology and Water Resources).

**Requests** the Management Group, to develop a draft RA II Operating Plan (2021–2024), before 15 August 2021, for endorsement by Part II of the seventeenth session of RA II;

**Authorizes** the president of RA II, supported by the Management Group to review and approve the proposals submitted by the Chairs of Working Groups on the sub-structure of Working Groups, including Terms of Reference, suggested composition and expected deliverables to implement agreed activities, at the regional and sub-regional levels and to address the priorities of the region and capacity-development of Members, keeping active interaction with relevant groups in the Technical Commissions, Research Board and other regions;

**Invites** Members to nominate experts who are committed to serve the Association actively and update their profiles on the WMO Expert Network frequently;

**Further invites** Members to actively support the work of subsidiary bodies, and propose or co-sponsor regional pilot and demonstration projects, to be included in the RA II Operating Plan;

**Further authorizes** the president to take the necessary decisions on behalf of the Association, after consultation with the Management Group, on emerging matters requiring action during the intersessional period;

**Requests** the Secretary-General to make the necessary resources available in order to facilitate the activities of these subsidiary bodies.

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Note: This resolution replaces [Resolution 3 \(RA II-16\)](#), [Resolution 4 \(RA II-16\)](#), [Resolution 5 \(RA II-16\)](#), [Resolution 6 \(RA II-16\)](#), [Resolution 7 \(RA II-16\)](#), which are no longer in force.

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## **Annex to Resolution 2 (RA II-17)**

### **Terms of Reference and Composition of RA II Subsidiary Bodies**

#### **1. Management Group (MG)**

##### 1.1 Terms of Reference of the Management Group (MG):

- (1) Prioritize, plan and coordinate the work of the Association and its subsidiary bodies with coordinated efforts for the development of the RA II Operating Plan in accordance with the Congress and Executive Council Resolutions, and promote the execution of resolutions of Congress and the Executive Council in the region contributing to the implementation of the WMO Strategic Plan;
  - (2) Oversee and guide the Reform in RA II; Review the recommendations from the Task Teams on the Regional Concept (TT-RC) and the Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP), and oversee the implementation of the recommendations, including those approved by EC and Congress;
  - (3) Select members of the Working Groups from among candidates nominated by Members and propose to the president of the association the replacement of a member should the member not contribute at the expected level; Establish specific Task Teams, as needed;
  - (4) Review, monitor and update the progress of the RA II Operating Plan, including the implementation of Congress and Executive Council resolutions, and the regional structure and work of the subsidiary bodies on a regular basis, advise on the implementation of their recommendations, and make proposals to terminate or reorganize these bodies as necessary;
  - (5) Keep under review the requirements and priorities for developing the capacity of National Meteorological and Hydrological Services (NMHSs) of Members, training and other events to be organized in the region for the implementation of WMO Programmes and activities;
  - (6) Oversee the activities of the regional centres, such as Regional Specialized Meteorological Centres (RSMCs), Regional Climate Centres (RCCs), Regional WIGOS Centres (RWCs), Regional Instrument Centres (RICs), Regional Marine Instrument Centres (RMICs), WMO Information System (WIS) Centres and Regional Training Centres (RTCs);
  - (7) Advise the president of RA II on all matters related to the work of the association and regional reform, in particular on emerging matters requiring action during the intersessional period; Assist the president for the organization of Regional Association Sessions and high-level regional activities, and facilitate the regional association for making recommendations to Congress and the Executive Council on matters within the purpose of the Organization;
  - (8) Address issues on the strengthening of strategic partnerships with regional organizations and other partners, including Public-Private Engagement (PPE).
- 1.2 The president of RA II shall chair the Management Group (MG), which is composed of the president, the vice-president, and the Executive Council Members from the region, as well as the Regional Hydrological Adviser (RHA). The president should invite the Chairs of RA II Working Groups and Coordination Panel/s to MG sessions. The president would also invite, as appropriate, other Directors of NMHSs, subject to the relevance of the MG items and the availability of financial resources.

## **2. Working Group on Observation, Infrastructure and Information Systems (WG Infrastructure)**

### 2.1 Terms of Reference of the Working Group on Observation, Infrastructure and Information Systems (WG Infrastructure):

Under the guidance of the president of RA II and the MG, and in collaboration with the relevant bodies of the Commission for Observation, Infrastructure and Information Systems (INFCOM),

- (1) Follow up on the resolutions, decisions and recommendations of the World Meteorological Congress, the Executive Council, RA II and RA II MG, Technical Commissions and the Research Board, addressing observation and infrastructure related matters (Strategic Goals 2 and 4), for the activities to be undertaken at a regional level;
- (2) Identify and regularly monitor critical gaps and needs for improvement in RA II Members' capabilities, particularly for developing Members, to implement WMO standards and regulations, including the implementation of the regional aspects of the WMO Integrated Global Observing System (WIGOS), the Global Basic Observing Network (GBON), the WMO Information System 2.0 (WIS 2.0) and WMO Global Data-processing and Forecasting System (GDPFS) implementation plans, and develop a regional roadmap and implementation plan to support Members as needed and promote and support capacity-development activities (Strategic Goal 4);
- (3) Draft and update the infrastructure component of the RA II Operating Plan, with regards to activities pertaining to Observation, Infrastructure, Information and Data-processing and Forecasting Systems for the approval of the RA II sessions; Establish, with the support of the regional office, the regional infrastructure systems baselines and benchmarks in the RA II Operating Plan for each RA II Member, brief the progress to the RA II MG on a regular basis, for facilitating the improvements, supports and monitoring progress;
- (4) Provide feedback to INFCOM on RA II Members' requirements and needs on Observation, Infrastructure and Information Systems including providing inputs to the proposed work plan of the Commission;
- (5) Collaborate with RA II Members, INFCOM and other bodies, as necessary, to support, monitor and regularly review and audit relevant regional centres established by WMO bodies, ensuring that the services and functions being delivered by them continue to respond to the needs of the region and are in compliance with WMO standards and guidelines;
- (6) Consult with INFCOM on the identification of common experts to assist with the sharing of regional priorities and requirements and the implementation of technical priorities and associated capacity-building activities;
- (7) Propose and monitor RA II pilot and demonstration projects, workshops and forums, and share information on these in advance, with the support of Members;
- (8) Facilitate the sharing of knowledge, experience and technology among RA II Members;
- (9) Submit annual reports to the president of RA II, according to the RA II Operating Plan and share the report with Members and the Management Group of INFCOM.

### 2.2 The working group shall be composed of:

- (1) A Chair and Vice-Chair/s;

- (2) The representatives from RA II Members who are engaged in the coordination of national infrastructure systems;
  - (3) The leaders of Expert Teams;
  - (4) Experts from RA II Members who are serving in working structures of INFCOM as ex-officio members;
- 2.3 The experts should be registered in the WMO expert database and the selection process must ensure appropriate geographical representation and gender balance.
- 2.4 The Chair may invite the Chairs of other RA II Working Groups and Coordination Panel/s, representatives from regional centres, and the Regional Focal Point/s on Research to attend meetings, as appropriate.

### **3. Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services)**

- 3.1 Terms of Reference of the Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services):

Under the guidance of the president of RA II and MG, and in collaboration with the relevant bodies of the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM),

- (1) Follow up on the resolutions, decisions and recommendations of the World Meteorological Congress, the Executive Council, RA II and RA II MG, Technical Commissions and the Research Board, addressing services and application related matters (Strategic Goal 1), for the activities to be undertaken at a regional level;
- (2) Identify and regularly monitor critical gaps and needs for new and improved services and analyse related capabilities among Members, particularly for developing Members, including (but not exclusively) the implementation of the regional aspects of the Global Multi-hazard Alert System (GMAS), operationalization of objective seasonal forecasts and associated tailored products, Regional Climate Forums (RCFs) and develop a roadmap and regional implementation plan to support improvements and capacity-development activities (Strategic Goal 4), to be included in the RA II Operating Plan;
- (3) Draft and update on a regular basis the RA II Operating Plan of the relevant components pertaining to services and applications, and monitoring the progress of the implementation for the RA II Session review and approval;
- (4) Provide feedback to SERCOM on RA II Members' requirements and needs on weather, climate, water and related environmental services and applications including providing inputs to the proposed work plan of the Commission;
- (5) Collaborate with RA II Members, SERCOM and other bodies, as necessary, to support, monitor and regularly review and audit relevant regional centres established by WMO bodies, ensuring that the services and functions being delivered by them continue to respond to the needs of the region and are in compliance with WMO standards and guidelines;
- (6) Consult with SERCOM on the identification of common experts to assist with the sharing of regional priorities and requirements and the implementation of technical priorities and associated capacity-building activities;
- (7) Facilitate the production of the pilot report on State of the Climate in Asia and the further development of the concept leading to the publication of a regular report on the State of the Climate in Asia;

- (8) Propose and monitor RA II pilot and demonstration projects, workshops and forums, and share information on these in advance, with the support of Members;
- (9) Facilitate the sharing of knowledge, experience and technology among RA II Members;
- (10) Submit annual reports to the president of RA II, according to the RA II Operating Plan and share the report with Members and the Management Group of SERCOM.

3.2 The working group shall be composed of:

- (1) A Chair and Vice-Chair/s;
- (2) The representatives from RA II Members who are engaged in services related to the WG at the national level;
- (3) The leaders of Expert Teams;
- (4) Experts from RA II Members who are serving in working structures of SERCOM as ex-officio members;

3.3 The experts should be registered in the WMO expert database and the selection process must ensure appropriate geographical representation and gender balance.

3.4 The Chair may invite the Chairs of other RA II Working Groups and Coordination Panel/s, representatives from Regional Centres, and the Regional Focal Point/s on Research to attend meetings, as appropriate.

#### **4. Coordination Panel on Hydrology and Water Resources (CP Hydrology)**

4.1 Terms of Reference of the Coordination Panel on Hydrology and Water Resources (CP Hydrology):

Under the guidance of the president of RA II and MG, led by the Chair of CP Hydrology and in collaboration with the Working Group on Observation, Infrastructure and Information Systems (WG Infrastructure) and Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services),

- (1) Support the Regional Hydrological Adviser in ensuring that the contributions in operational hydrology pertaining to the region's priorities are coordinated across infrastructure, services and research domains, and are coordinated with weather, climate and other thematic areas; Contribute to the RA II Operating Plan relevant to the hydrological and water resource matters;
- (2) Recommend hydrological-related sub-structures under the WG Infrastructure and the WG Services according to specific tasks;
- (3) Liaise with the Hydrological Coordination Panel (HCP) of the Executive Council (EC), ensuring alignment on behalf of the association;
- (4) Serve as the organizing committee for the Regional Hydrological Assembly and the Regional Hydrological Advisers' Forums, as necessary.

4.2 The panel shall be composed of:

- (1) A Chair serving as the Thematic Coordinator on Hydrology and Water Resources;
- (2) The Regional Hydrological Adviser to act as the Co-chair;
- (3) Leaders of Expert Teams on hydrology to be established under the Working Groups;

(4) Other members appointed by the president of the association in consultation with the Regional Hydrological Adviser to the president.

4.3 The Chair may invite the Chairs of other RA II Working Groups, the Regional Focal Point/s on Research and other experts to attend meetings, as appropriate.

## **5. Regional Focal Point on Research**

5.1 Terms of Reference of the Regional Focal Point on Research:

The focal point shall preferably be selected from the group of RA II experts appointed to the Research Board and under the guidance of the president of RA II and MG, in collaboration with the Working Groups and Thematic Coordinators,

- (1) Follow up on the resolutions, decisions and recommendations of the World Meteorological Congress, EC, RA II and RA II MG, addressing research matters (Strategic Goal 3), for the activities to be undertaken at a regional level;
- (2) Identify research needs among Members, including the implementation of the regional aspects of the World Weather Research Programme (WWRP), the World Climate Research Programme (WCRP) and the Global Atmosphere Watch Programme (GAW), and support capacity-development activities (Strategic Goal 4), to be included in the RA II Operating Plan;
- (3) Reach out and promote collaboration with research institutions, academia and other stakeholders to enhance national and regional partnerships for weather, climate, water and environmental related research, on behalf of the association.

### **Resolution 3 (RA II-17)**

#### **Regional Association II (RA II) Partnership Strategy**

REGIONAL ASSOCIATION II (ASIA),

#### **Recalling:**

- (1) [Resolution 6 \(Cg-18\)](#) – WMO Regional Associations,
- (2) [Resolution 11 \(Cg-18\)](#) – WMO Reform – Next Phase,
- (3) [Resolution 68 \(Cg-18\)](#) – Voluntary Cooperation Programme,
- (4) [Resolution 70 \(Cg-18\)](#) – Country Profile Database,
- (5) [Resolution 71 \(Cg-18\)](#) – The Education and Training Programme and Delivery Mechanism,
- (6) [Resolution 72 \(Cg-18\)](#) – The WMO Global Campus Initiative,
- (7) [Resolution 73 \(Cg-18\)](#) – Strengthening the Capacity of Members in Service Delivery,
- (8) [Resolution 74 \(Cg-18\)](#) – Closing the Capacity Gap: Scaling Up Effective Partnerships for Investments in Sustainable and Cost-efficient Infrastructure and Service Delivery,
- (9) [Resolution 79 \(Cg-18\)](#) – Open Consultative Platform “Partnership and Innovation for the Next Generation of Weather and Climate Intelligence”,

(10) [Resolution 80 \(Cg-18\)](#) – Geneva Declaration – 2019: Building Community for Weather, Climate and Water Actions,

(11) [Resolution 2 \(EC-72\)](#) – Activities and working mechanisms of the regional associations,

**Having examined** the recommendations of the RA II Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP),

**Decides** to develop and regularly update an RA II Partnership Strategy as outlined in the [annex](#);

**Requests** the TT-RP to continue its review of regional partnerships and sub-regional cooperation and submit a draft RA II Partnership Strategy to the RA II Management Group (MG) before 1 August 2021, to be endorsed by the seventeenth session of RA II (RA II-17), Part II;

**Invites** Members to regularly update their profiles on the WMO Country Profile Database (CPDB) to support partner engagement and Monitoring and Evaluation (M&E);

**Requests** the Secretary-General to facilitate the WMO Secretariat's support for the implementation of the RA II Partnership Strategy.

### **Annex to Resolution 3 (RA II-17)**

#### **Outline of Regional Association II Partnership Strategy**

##### **1. Purpose**

A strategy for improving synergy, coherence and efficiency at national, sub-regional, regional and inter-regional levels to enhance political advocacy and support, engender strategic partnerships for capacity development requirements of Regional Association II (RA II) Members on Weather, Climate, Water and related Environmental services and align WMO and Members National Meteorological and Hydrological Services (NMHS) activities to support the attainment of key political and development agendas. The strategy will be guided by WMO's Earth Systems Approach and regional goals under the United Nations Sustainable Development Goals (UN SDGs), the Paris Agreement and the Sendai Framework.

##### **2. Elements of the Strategy**

###### 2.1 Mapping of RA II Partnerships and Opportunities

- 2.1.1 A review of the Memorandums of Understanding (MoUs) and Agreements signed by the Secretary-General of WMO effective in RA II;
- 2.1.2 An overview of partner organizations and stakeholders, including three categories of partners in the region, i.e., policy and political partners, capacity development and financing partners, and science and technology partners;
- 2.1.3 An overview of the function, operation and effectiveness of regional centres in RA II established by WMO bodies;
- 2.1.4 A review of training and fellowship requirements, gaps and opportunities for RA II Members;
- 2.1.5 A regularly updated overview and benefit assessment of WMO regional and national projects funded by extrabudgetary resources and relevant projects of development partners;

- 2.1.6 A review of cross-regional, regional and sub-regional collaboration mechanisms;
- 2.1.7 Other opportunities for the capacity development of RA II Members, including engagement of the private sector and academia.

## 2.2. Gap Analysis

A gap analysis for RA II Members according to the *Guidelines on the Role, Operation and Management of National Meteorological and Hydrological Services* (WMO-No. 1195) and using the available data and statistics in the WMO Community Platform/Country Profile Database (CPDB), various WMO surveys and diagnostics such as the Climate Services Checklist and data generated by the Country Hydromet Diagnostics (CHD).

## 3. Issues to be addressed

Develop a set of recommendations, including a mechanism for implementation, monitoring and evaluation, to be considered by the president of RA II, the RA II Management Group (MG) and the Association. Recommendations should strive to:

- 3.1 Ensure that WMO is visible and recognized in the region, and engage stakeholders in regional initiatives and projects related to the strategic priorities of the Organization;
  - 3.2 Promote visibility and institutional capacity-building of RA II Members, and identify and address critical deficiencies for long-term sustainable modern services through supporting Members in the development of national strategic plans on meteorological and hydrological services;
  - 3.3 Facilitate the exchange of best practices to communicate the socioeconomic benefits of meteorological and hydrological services;
  - 3.4 Facilitate collaboration with Members, technical commissions and other bodies, as necessary, to support, monitor and regularly review all the regional centres established by WMO bodies, ensuring excellent performance, sustainable operations and effective services to regional Members;
  - 3.5 Promote cooperation and efficiency by establishing regional networks and facilities based upon identified regional needs, in close coordination with the technical commissions concerned;
  - 3.6 Monitor the performance of regional networks and facilities, and the open sharing of data and technical expertise, and require corrective measures, as necessary;
  - 3.7 Build and promote cooperation and partnerships with relevant regional organizations, including the United Nations Regional Economic Commissions, other United Nations bodies, sub-regional organizations, development partners, non-governmental organizations, professional associations and academic and research organizations;
  - 3.8 Advocate, through the president, to regional political and economic entities, and support Permanent Representatives in advocating to their governments, the necessary political and financial support to Members' capabilities to ensure the provision of and access to vital meteorological, climatological, hydrological and other related environmental information and services.
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## RESOLUTIONS ADOPTED IN PART II

### Resolution 4 (RA II-17)

#### Regional activities in aeronautical meteorology

REGIONAL ASSOCIATION II (ASIA),

**Recalling** [Decision 17 \(RA II-16\)](#) – Regional Activities in Aeronautical Meteorology, which, inter alia, urged Members to provide regular updates on the status of their compliance with International Civil Aviation Organization (ICAO) and World Meteorological Organization (WMO) requirements, to utilize cooperative mechanisms to resolve existing deficiencies, and to strengthen national institutional arrangements and business models,

**Convinced** that the importance of these outcomes has been elevated by the impacts of the Coronavirus (COVID-19) pandemic on international civil aviation and aeronautical meteorology sectors,

**Noting** the continuing importance to aeronautical meteorological service provision of the qualification and competency of aeronautical meteorological personnel, implementation of a properly organized quality management system and, where applicable, cost recovery mechanisms based on ICAO's four key charging principles of non-discrimination, cost-relatedness, transparency and consultation with users (ICAO Doc 9082),

**Noting also**, through 2020 and 2021 updates to the WMO *Technical Regulations* (WMO-No. 49), Volume II, corresponding with Amendments 79 and 80 to ICAO Annex 3, *Meteorological Service for International Air Navigation*, that international standards and recommended practices have been improved in respect of, inter alia, the implementation of the ICAO meteorological information exchange model (IWXXM), the upper-air forecasts supplied by the world area forecast centres (WAFCs) and the bilateral and/or multilateral coordination of significant meteorological information (SIGMET) between meteorological watch offices (MWOs),

**Mindful** that an aviation system block upgrades (ASBU) methodology in ICAO's Global Air Navigation Plan (GANP) ([ICAO Doc 9750](#)) is contributing to a revolution in the air transport sector,

**Appreciating** the development by the former Commission for Aeronautical Meteorology (CAeM) of a long-term plan for aeronautical meteorology ([AeM SERIES No. 5](#)), which provides a framework for aeronautical meteorological service providers to plan a progressive transformation from a conventional "product-centric" approach to a modern "information-centric" approach to services,

#### **Decides to request Members:**

- (1) To continue their efforts to comply with WMO and ICAO requirements pertaining to the qualification and competency of aeronautical meteorological personnel and the implementation of a properly organized quality management system for aeronautical meteorological service provision, making effective use of cooperative mechanisms such as twinning, mentoring and sharing of expertise across Members wherever necessary;
- (2) To ensure the effective implementation of the international standards and recommended practices in the 2020 and 2021 updates to *Technical Regulations* (WMO-No. 49), Volume II, corresponding with Amendments 79 and 80 to ICAO Annex 3, *Meteorological Service for International Air Navigation*;

- (3) To consider the long-term plan for aeronautical meteorology ([AeM SERIES No. 5](#)) and the ICAO Global Air Navigation Plan ([ICAO Doc 9750](#)) with a view to proactively informing national plans for aeronautical meteorology service delivery;
- (4) To proactively respond to and mitigate to the extent practicable the impacts of the COVID-19 pandemic on aeronautical meteorological service delivery, taking note of preliminary guidelines available on the [WMO Services for Aviation website](#);

**Further decides** to request the president to forward to the president of the Services Commission any feedback received from Members in respect of the foregoing, so that timely support can be provided to the Member(s) concerned.

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### **Resolution 5 (RA II-17)**

#### **Regional progress on WMO Global Multi-hazard Alert System (GMAS) framework components**

REGIONAL ASSOCIATION II (ASIA),

#### **Recalling:**

- (1) [Resolution 13 \(Cg-18\)](#) – WMO Global Multi-hazard Alert System,  
[Resolution 26 \(Cg-18\)](#) – Provision of Impact-based Forecast and Warning Services in an Innovative and Integrated Way,  
[Resolution 11 \(RA II-16\)](#) – Pilot project on Impact-Based Forecasting,  
[Resolution 12 \(RA II-16\)](#) – Pilot Project to Enhance Meteorological Disaster Risk Reduction Capability in Regional Association II
- (2) Congress endorsement of the implementation of the Common Alerting Protocol (CAP) standard and the need for further guidance and technical assistance to Members for the implementation of the CAP standard ([Cg-17 report, paragraphs 3.1.53 and 3.1.59](#)),
- (3) Congress emphasis on the importance of the [WMO Register for alerting authorities](#) in achieving a “single official voice for the dissemination of weather warnings” and request to Members to keep the Register updated and to make reference to their membership in this Register when asserting their authoritative role in issuing national warnings ([Cg-17 report, paragraph 3.1.58](#)),

**Noting** the background information on CAP implementation in RA-II and GMAS-A provided with the initial draft of the present resolution,

**Convinced** that the combination of implementing both Impact-based Forecasting and Warning Services (IBFWS) and CAP greatly enhances the capacity of a National Meteorological and Hydrological Service (NMHS) to provide effective warning services that enable early action in anticipation of hazardous situations,

#### **Endorses:**

- (1) The implementation of IBFWS by Members through active engagement between NMHSs, Disaster Management and Civil Protection Agencies (DMCPAs) and other national stakeholders;

- (2) The function of the WMO Register of Alerting Authorities in enabling aggregators of warnings to effectively recognize the official and authorized sources of warnings and the provision of proper credit to these sources in line with the objectives of GMAS;
- (3) The adoption of CAP as an additional dissemination channel, apart from those that may already be in use, for warnings to stakeholders;
- (4) The sub-regional and inter-regional cooperation and collaboration between RA II and RA VI on further developments of MHEWS Advisory Systems such as SEE-MHEWS (in RA VI) and CASC-MHEWS (in both RA II and RA VI) under the GMAS Framework and consultations of the relevant bodies of RA II and RA VI on further collaboration aiming at strengthening national efforts and mobilization of human, technical and financial resources enabling the successful development and further implementation of these Systems and the GMAS Framework;

**Requests** Members who lead the RA II pilot project to enhance meteorological DRR capability to further enhance the GMAS-A website to include more advisory products in consultation of Member users and providers;

**Decides** to establish a team on the further development of GMAS framework for Asia, as a substructure of the RA II Working Group on Services;

**Urges** Members, where feasible, to consider providing support to Members that are not operating comprehensive early warning systems through appropriate collaboration, to enable them to issue their warnings, including in CAP format, by adopting relevant approaches, methods and technologies, including support to Members in other regions as appropriate;

**Invites** the Services Commission to progress on the GMAS framework implementation plan development and the incorporation of CAP in WMO Technical Regulations;

**Requests** the Secretary-General to support Members in their engagement with the technical and procedural components of the GMAS framework.

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## Resolution 6 (RA II-17)

### Regional progress on Hydrological and Water Resources components

REGIONAL ASSOCIATION II (ASIA),

**Recalling** [Resolution 24 \(Cg-18\)](#) – Vision, Strategy and Organizational Arrangements for Hydrology and Water Resources in WMO, and [Resolution 25 \(Cg-18\)](#) – Major Hydrological Initiatives,

**Noting** that Cg-18 defined the following eight long-term ambitions to address the global water challenge:

- (1) No one is surprised by a flood,
- (2) Everyone is prepared for drought,
- (3) Hydroclimate and meteorological data support the food security agenda,
- (4) High-quality data supports science,

- (5) Science provides a sound basis for operational hydrology,
- (6) We have a thorough knowledge of the water resources of our world,
- (7) Sustainable development is supported by information covering the full hydrological cycle,
- (8) Water quality is known,

**Noting also** that Cg-18 decided that the following ongoing hydrological activities and systems, in view of their relevance to the fulfilment of the long-term ambitions for the operational hydrological community are fundamental pillars that support the WMO Strategic Plan and its further development:

- (1) Quality management framework – Hydrology,
- (2) Assessment of the performance of flow measurement instruments and techniques,
- (3) The Global Hydrometry Support Facility (HydroHub),
- (4) Hydrological data operations and management,
- (5) The WMO Flood Forecasting Initiative including development of the Global Flash Flood Guidance Strategy for sustainability, the strategic priority to develop a Multi-hazard Early Warning System (MHEWS), and hydrological contributions to disaster risk management, including flooding (APFM) and drought (IDMP),
- (6) WMO Global Hydrological Status and Outlook System (HydroSOS),
- (7) Capacity building in hydrology and water resources management,
- (8) The World Water Data Initiative (WWDI),

**Noting with satisfaction** the recent initiative of the Secretariat to organize quarterly regional online fora between the regional hydrological adviser and the national hydrological advisers, directors of National Hydrological Services and Permanent Representatives of RA II, aimed at providing consistent hydrological regional input and requirements to the technical commissions, Research Board, Hydrological Coordination Panel and the Hydrological Assembly,

**Taking note** that several hydrological experts from the region have been selected to become members of the different subsidiary bodies of the technical commissions and the Research Board,

**Decides** to entrust the regional hydrological adviser, with the assistance of the RA II Coordination Panel (CP) on Hydrology and Water Resources (CP Hydrology) and support from the WMO HCP, with the development of the Hydrological Action Plan for RA II (as per [Resolution 5 EC-71](#)) as a contribution to the Regional Operating Plan (see [Decision 9 \(RA I-18\)](#)). In preparing the road map, due consideration should be given to the regional priorities ([Annex to Resolution 6 \(RA II-17\)](#)), [Resolution 24 \(Cg-18\)](#) and [Resolution 25 \(Cg-18\)](#);

**Requests** the regional hydrological adviser and the president of RA II to hold an information session with respect to the Water and Climate Coalition ([Decision 3 \(EC-72\)](#)) and to prepare regional input to the Extraordinary session of Congress in 2021 (Cg-Ext(2021));

**Requests** the RA II CP Hydrology to develop a regional implementation plan for HydroSOS and to present this plan to Cg-19(2023), conditioned to the availability of the documents on results of the pilot phase of HydroSOS three months in advance of Cg-19(2023);

**Further requests** the RA II CP Hydrology to design, with the assistance of the Secretariat, capacity building activities in hydrology and water resources of relevance to the less advanced NMHSs of the region;

**Further requests** the RA II CP Hydrology to support the implementation of ongoing projects (including extrabudgetary projects such as the Climate Risk and Early Warning Systems (CREWS) Afghanistan, Southeast Asia Flash Flood Guidance System (FFGS), South Asia FFGS, CREWS Cambodia and Lao PDR, Central Asia Region FFGS, Strengthening Early Warning of Mountain Hazards in Central Asia, Central Asia Hydrometeorology Modernization Programme among others) related to hydrology and water resources and the development of new project proposals and facilitating and promoting countries' consultations;

**Requests** the Secretary-General to continue facilitating the online regional hydrological fora on a regular basis and support the regional and subregional hydrological outlook fora;

**Requests** the WMO Hydrological Coordination Panel to share its experience in developing the WMO Plan of Action for hydrology, in particular the methodology, methods of consultation and planning approach used, and assist in their adaptation to the requirements of RA II;

**Further requests** the RA II CP Hydrology to coordinate within the RA II management structure the integrated inclusion of hydrology to support the implementation of the WMO Strategic Plan for an Earth-system approach to weather, water and climate;

**Invites** Members that have not already done so, to designate their national hydrological adviser in accordance with [General Regulation 5\(b\)](#) or request the assistance of the Secretariat should the procedure be unclear or prove difficult.

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### **Annex to Resolution 6 (RA II-17)**

#### **Regional Priorities for hydrology and water resources in RA II**

The following regional hydrological priorities have been identified:

- (a) Promote knowledge and understanding on the capabilities to provide hydrological services among RA II member countries through the organization of a survey or through a series of interviews to assess the current capabilities and needs of the RA II Members;
- (b) Improve the availability of risk-based information upon which to base risk-based riverine flood forecasting and flood management activities and to make available flood hazard and risk mapping tools through the implementation of a pilot project. This pilot project will aim to improve the risk assessment, early warning, and disaster management decision making outcomes by enhancing capacity within the national disaster management;
- (c) Enhance the use of national and regional hydrological forecasting for water-related disaster management that will lead to an improved understanding by forecast user institutions of forecast products, including their limitations and uncertainties. This will involve the development of a pilot Decision Support System (DSS) for flood and drought forecasting. This activity, in line with the Flood Forecasting Initiative (FFI) and with Resolution 8 SERCOM-1, will improve the capability to issue hydrological warnings through enhanced and effective cooperation between National Meteorological Services (NMSs) and National Hydrological Services (NHs) and promote the role of hydrological centres in GDPFS;
- (d) Improve water-related disaster risk reduction at the urban, basin and country level by identifying and implementing recommended practices and procedures for more accurate

hydrological forecasting, including floods, droughts and mass movements, reflecting cryosphere processes, with sufficient lead time, especially for riverine and flash flood hazards, for better preparedness and response to extreme hydrological conditions making use of hydrometeorological observations and advances in Numerical Weather Prediction (NWP), including climatological prediction and hydrological process modelling;

- (e) Ensure hydrological warnings are disseminated and acted upon in an appropriate way and consider the application of the CAP to hydrological hazards, providing case studies of CAP application for hydrology and further elaborate on the linkage between flood forecasting, issuance of flood alerts (riverine, flash and urban) and appropriate response actions, building on guidance material available through the Associated Programme on Flood Management (APFM);
- (f) Support water resources management by implementing at the basin and country level water resources assessment practices and procedures, to support inter alia food security and sustainable development, to have clear and accurate indications of existing and future availability and quality of water resources for water planning and management purposes;
- (g) Improve management of hydrometric networks and data collection practices at the basin and country level by developing and implementing recommended practices and procedures on hydrometric operations including Quality Management Systems and Quality Assurance and Control practices for hydrometric data to support water management decision making.

## **Resolution 7 (RA II-17)**

### **Regional Activities in Marine Meteorology and Oceanographic Services**

REGIONAL ASSOCIATION II (ASIA),

#### **Recalling:**

- (1) [Resolution 15 \(Cg-18\)](#) – Strengthening Multi-hazard early warning services in areas prone to all flooding types and severe weather,
- (2) [Resolution 29 \(Cg-18\)](#) – Strengthening Marine and Coastal Services,
- (3) [Resolution 30 \(Cg-18\)](#) – Exploring Costing Options For Marine Services in the Future,
- (4) [Resolution 65 \(Cg-18\)](#) – WMO and the Ocean
- (5) [Resolution 26 \(EC-70\)](#) – Amendments to the Manual on the Global Data-processing and Forecasting System (WMO-No. 485) approving the amendments to the Manual and in particular the formal designation of centres as Regional Specialized Meteorological Centres (RSMCs) for numerical ocean wave prediction and marine meteorological services,
- (6) [Resolution 4 \(EC-72\)](#) – Strengthening Marine Services,
- (7) [Resolution 10 \(EC-71\)](#) – Amendments to the *Guide to Wave Analysis and Forecasting* (WMO-No. 702),

**Acknowledging:**

- (1) That early warnings for coastal inundation are a critical service needed in the Region,
- (2) Inclusion of the marine weather competency framework within the *Guide to Competency* (WMO-No 1205),
- (3) The revised publications available on the WMO Library for the *Guide to Wave Analysis and Forecasting* (WMO-No. 702) (2019) and *Sea-ice Information and Services* (WMO-No. 574) (2021) providing guidance in wave forecasting, and sea-ice information services,
- (4) The results of the Online Assessment of National Marine and Coastal Services published in 2019 by WMO (MMO. Series 1) demonstrating significant gaps within the Regional Association II (RA II) region,

**Acknowledging further, with appreciation** all Members that:

- (1) Provide marine and coastal services within their respective areas of responsibility,
- (2) Completed recent surveys issued by the WMO Secretariat, to help assess the status of their marine services, and associated costs,
- (3) Provided experts to the work of the Standing Committee for Marine Meteorological and Oceanographic Services (SC-MMO) in support of strengthening marine weather, coastal and marine climate services,

**Notes with satisfaction:**

- (1) The completion of the Coastal Inundation Forecasting Demonstration Project (CIFDP) in Bangladesh, in 2017, and the resultant operationalization, and successful early warnings that have been issued during subsequent coastal flood events;
- (2) The RA II contributions that have led to the successful completion and assessment of the overall CIFDP concept, whereby the 'demonstration' aspect has been removed, and the following establishment of the Coastal Inundation Forecasting Initiative (CIFI), approved at Cg-18 [Resolution 15 \(Cg-18\)](#) – Strengthening Multi-hazard early warning services in areas prone to all flooding types and severe weather and [Resolution 29 \(Cg-18\)](#) – Strengthening Marine and Coastal Services;
- (3) The WMO public awareness material about the [dangers of coastal flooding](#), and the value of [ocean buoys](#) for people's safety that have been produced in 2019 and 2020, so far available in English and French [on the WMO website](#);
- (4) The contributions of RA II Members at WMO-International Maritime Organization (IMO) Symposium for Extreme Maritime Weather (London, October 2019);

**Invites** Members to:

- (1) Designate their national marine services focal points, and/or update the list, if they have not already done so. (List of RA II members with respective focal points as in the [annex](#));
- (2) Participate in any service delivery assessments and surveys sent by the WMO Secretariat to assess the strengths and gaps in marine services of Members;
- (3) Participate in and offer support to the second WMO-IMO Symposium for Extreme Maritime Weather, to be held in Indonesia (date yet to be confirmed, pending COVID travel situation), as an opportunity to highlight to a global audience, the important role and work of marine services in the region;

**Encourages** Members:

- (1) To nominate relevant Experts to the WMO Expert Network, for future contributions to the marine-related work within the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM), and in particular contributions to the SC-MMO and its subsidiary teams, in addition to the work of the Commission for Observation, Infrastructure and Information Systems (INFCOM), Research Board and the WMO Climate and Capacity Development Panels, that contribute to marine weather, coastal and marine climate services;
- (2) With wave and ocean modelling capability to apply to become a wave and/or ocean model RSMC;
- (3) Interested in accessing the marine-related RSMC standard products to consult the WMO Information System catalogue;
- (4) To use, promote and widely distribute the videos specifically targeted to coastal communities, explaining coastal flooding and its dangers, and what to do during an event; and the value of ocean buoys for people's safety; to inform vulnerable communities in the RA II subregions;
- (5) Consider establishing and/or strengthening CIFI;
- (6) To gather, refine to the extent possible and share bathymetry data to improve numerical prediction in support of coastal inundation forecasting and warning services;
- (7) Utilize the WMO publications available for strengthening marine and coastal services, including the recently revised [Sea Ice Information and Services](#) (WMO-No. 574), [Guide to Wave Analysis and Forecasting](#) (WMO-No. 702) and [Guide to Competency](#) (WMO-No. 1205);

**Decides** to:

- (1) Identify Members requiring assistance to prepare for the IMO Member State Audit Scheme on met-ocean services under the International Convention for the Safety of Life at Sea and request assistance from the president of SERCOM;
- (2) Continue prioritizing training needs in coastal inundation and marine services;

**Urges** Members to strengthen their engagement with the Global Drifter Array to improve coverage of ocean observations and use of their data for their marine service products;

**Requests the Secretary-General** to facilitate:

- (1) Training on relevant instrumentation, improved access to ocean forecasting products, especially for search and rescue services required of those party to the International Convention for the Safety of Life at Sea (SOLAS) Convention;
- (2) Further capacity development for marine and coastal services, including the rollout of the WMO Marine Services Course in RA II;
- (3) Improved training for Port Meteorological Officers and those working in the WMO-IOC Voluntary Observing Ship Programme;
- (4) Further enhancement in marine service capabilities using the Marine Competency Framework to help advance marine services in RA II;
- (5) Support for Members wishing to establish and/or strengthen coastal inundation forecasting early warning initiatives;

**Requests the president of SERCOM** to facilitate the technical assistance for all the above, especially through the SC-MMO and its subsidiary teams;

**Requests National Marine Service Focal Points** to strengthen communication about the value of the marine services work, within their services and to national counterparts and partners working in marine-related safety activities such as Maritime Safety Agencies, Port Authorities, Hydrographic agencies, national disaster management organizations, etc.;

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### **Annex to Resolution 7 (RA II-17)**

#### **List of RA II National Marine Services Focal Points**

Bangladesh	Captain Muktadir
China	Zenghai Zhang
Hong Kong, China	Sai-tick Chan
India	Dr R. Venkatesan
Iran, Islamic Republic of	Maziar Gholami
Japan	Mr Koji Kato
Kazakhstan	Ms Natalya IVKINA
Kuwait	Yasser M. Albloushi
Myanmar	Than Naing
Pakistan	Shahid Abbas
Qatar	Mohammad Ali Al Kubaisi
Republic of Korea	Dr Sung Hyup YOU
Saudi Arabia	Mr Badee Ali KHAYYAT
Thailand	Dr Wattana Kanbua
United Arab Emirates	Mr Majed Alsheikili
Viet Nam	Nguyen Ba Thuy
Yemen	Abdulrazzaq Muthanna

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## Resolution 8 (RA II-17)

### Regional WIGOS Centres (RWC) in RA II

REGIONAL ASSOCIATION II (ASIA),

**Recalling** [Resolution 1 \(RA II-16\)](#) – Regional WMO Integrated Global Observing System (WIGOS) Implementation Plan 2017–2020, the decision of RA II Management Group Thirteenth Session (RA II MG-13), and Decision 3.2/1 (RA II MG-16) - Next steps to establish RA II Regional WIGOS Centres,

**Having examined** [Resolution 9 \(EC-73\)](#) – Plan for the WMO Integrated Global Observing Initial Operational Phase (2020–2023) and [Resolution 12 \(EC-73\)](#) - Regional WMO Integrated Global Observing System Centres Audit Process,

**Having considered** [Recommendation 13 \(INFCOM-1\)](#) – Regional WMO Integrated Global Observing System Centres audit process,

**Welcomes** the operation of RWC-Beijing (China) and RWC-Tokyo (Japan) in pilot phase since 2018, and joint operation from 1 July 2021, according to the RA II RWC concept;

**Takes note** the report by the INFCOM ad hoc evaluation team in September 2021 (see RA II-17/INF. 6.3);

**Decides** to designate RWC-Beijing and RWC-Tokyo as Regional WMO Integrated Global Observing System (WIGOS) Centres (RWC) in RA II established by China and Japan, in support to the Members of the Region as operational RWCs with a certification, based on the following background and on INFCOM recommendation:

- (1) An ad hoc process for the evaluation of both RWCs has been put in place, which is aligned, to the extent possible, with the RWCs Audit Process, including establishing an INFCOM evaluation team;
- (2) Both RWCs conform to the defined specification of a RWC, according to the report by the INFCOM ad hoc evaluation team;

**Adopts** INFCOM recommendation (*based on the ad hoc evaluation team report*) that both RWCs be re-evaluated not before two years' time, taking into account that the evaluation criteria used in this ad hoc process will be further reviewed by INFCOM before being applied for the evaluation of RWCs established in pilot mode in all regions;

**Requests** China and Japan to consider implementing the measures proposed by the INFCOM ad hoc evaluation team;

**Requests** Members to actively participate in the activities of the RWCs, in particular following up on issues relevant using the WIGOS Data Quality Monitoring System (WDQMS)-Incident Management System (IMS);

**Also requests Members** to nominate or to update their National Focal Points (NFPs) on WIGOS, NFPs on OSCAR/Surface, and NFPs on WDQMS, allowing their regular interaction with the RWCs;

**Requests** RA II WG Infrastructure to coordinate and support RA II RWC related activities, in close collaboration with Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON) of INFCOM;

**Requests** the RA II MG and WG Infrastructure to include relevant activities in the RA II Operating Plan (2021–2024) and take these into consideration when establishing substructures;

**Requests** the Secretary-General to provide necessary support to facilitate RA II RWC activities.

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### **Resolution 9 (RA II-17)**

#### **Observations and Data exchange in support of polar and high mountain activities**

REGIONAL ASSOCIATION II (ASIA),

**Recalling,**

[Resolution 48 \(Cg-18\)](#) – Key Directions of the Polar and High Mountain agenda for the next WMO financial period (2020–2023),

[Resolution 30 \(EC-73\)](#) – Executive Council Panel on Polar and High Mountain Observations, Research, and Services,

[Resolution 18 \(EC-73\)](#) – Transition and the pre-operational plan of the Global Cryosphere Watch (GCW),

[Resolution 22 \(EC-73\)](#) – WMO Information System 2.0 Implementation Plan, Functional Architecture and Demonstration Projects,

[Decision 46 \(EC-69\)](#) – Development and Implementation of the Arctic Polar Regional Climate Centre Network and of Polar Regional Climate Outlook Forums,

[Decision 47 \(EC-70\)](#) – Polar Regional Climate Centres and Regional Climate Outlook Forums,

[Decision 11 \(RA II-16\)](#) – Implementation and coordination of Regional Climate Centre Operations in Regional Association II (RA II),

**Having considered** the agreed RA II priorities for 2020–2023 – Provision of climate information and services and contribution to the Global Framework for Climate Services (GFCS); RWC, the Global Basic Observing Network (GBON)/Regional Basic Observing Network (RBON) and the WMO Information System (WIS) - data sharing and assimilation,

**Welcomes** the [Call to Action of the 2019 WMO High Mountain Summit](#);

**Decides** that a focus approach is required to accelerate the development and provision of climate information in the framework of the Third Pole Regional Climate Centre – Network (TPRCC-Network) by concerned Members, as defined in the Implementation Plan (IP), as a living document (RA II-17/INF. 6.3), to be included in the RA II Operating plan (2021-2024);

**Endorses** an increased engagement of Members and partners for enabling the access to cryosphere data, in support of the delivery of the WMO strategic goals;

**Requests** Members:

- (1) To enhance the access to the available cryosphere and ancillary data, in-situ and remotely sensed, in the framework of WIS and through the GCW Data Portal;
- (2) To register their observations in the polar and mountain regions, in OSCAR/Surface, with priority given to those observations supporting the implementation of the TPRCC-Network;

**Urges** Members:

- (1) To facilitate the access to cryosphere and ancillary observations and data maintained by partners, as identified in the IP of the TPRCC-Network;
- (2) To rescue and digitize historical records and make them available for climate research and services;

**Requests** INFCOM, that through the Advisory Group of GCW:

- (1) To support Members, and in particular those in the Asia High Mountain regions, with the access to available cryosphere observations and data, in-situ, remotely sensed, and space-based;
- (2) To organize workshops and training sessions in collaboration with the RA II WG Infrastructure, on best practices for the measurement of the cryosphere in mountain regions, and on the access to, and use of cryosphere data to generate climate information reflecting changes in high mountain regions;

**Further requests** INFCOM that in collaboration with the Commission for Weather, Climate, Water and Related Environmental Services and Applications (SERCOM) and RA II WGs, to facilitate the organization of workshops for addressing gaps on technical issues, e.g. verification of remote sensing and reanalysis data relevant to high mountain regions, and on specific functions being developed by the TPRCC-Network, for consideration in the framework of the Global Data-Processing and Forecasting System (GDPFS);

**Requests** the RA II WGs to take into consideration the composition and Terms of Reference of the current Task Team on TPRCC-Network when designing relevant substructures, and ensure that appropriate guidance is provided to it;

**Invites** the RA II Regional Climate Centres (RCCs) to assist the development of the TPRCC-Network;

**Encourages** Members of the TPRCC-Network to organize the first Third Pole Climate Outlook Forum (TPCOF) with guidance from the WMO relevant subsidiary bodies and the existing RA II RCCs;

**Invites** partner organizations to actively cooperate with Members and the relevant RA II and other WMO substructures to fulfil the goals identified in the TPRCC-Network IP;

**Requests** the Secretary-General to facilitate the organization of workshops in support of developing specific functions as defined in the TPRCC-Network IP and of the first session of the TPCOF.

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**Resolution 10 (RA II-17)****RA II Operating Plan 2021–2024**

REGIONAL ASSOCIATION II (ASIA),

**Recalling:**

- (1) [Resolution 1 \(Cg-18\)](#) – WMO Strategic Plan,
- (2) [Resolution 6 \(Cg-18\)](#) – WMO Regional Associations,
- (3) [Resolution 1 \(EC-72\)](#) – Effective Coordination between Regional Associations, Technical Commissions and the Research Board,
- (4) [Resolution 2 \(EC-72\)](#) – Activities and Working Mechanisms of the Regional Associations,
- (5) WMO Operating Plan 2020–2023 (Cg-18/INF. 3(1)),
- (6) [Resolution 13 \(RA II-16\)](#) – Regional Association II Operating Plan 2016–2019,
- (7) [Resolution 2 \(RA II-17\)](#) – Working Structure of Regional Association II,
- (8) [Recommendation 1 \(EC-73\)](#) – Comprehensive review of the WMO regional concept and approaches,

**Adopts** the RA II Operating Plan 2021–2024 as given in the RA II-17/INF. 6.5, as a living document;

**Authorizes** the president of RA II, supported by the Management Group to make the necessary updates to the Operating Plan regularly, in consultation with the RA II Working Groups, Coordination Panel/s and Regional Focal Points on Research (RFP/R), in light of the resolutions/decisions of Congress and the Executive Council, and recommendations received in the monitoring and evaluation process;

**Urges** Members to co-sponsor and actively participate in the activities and projects in the Operating Plan, and take it into account in developing, carrying out and enhancing their national programmes in meteorology, hydrology and related disciplines to better respond to the demand for a widening range of services to meet the sustainable development goals and social-economic needs;

**Requests** regional specialized centres, such as Regional Specialized Meteorological Centres (RSMCs), Regional Climate Centres (RCCs), Regional WIGOS Centres (RWCs), Regional Instrument Centres (RICs), Regional Marine Instrument Centres (RMICs), WMO Information System (WIS) Centres and Regional Training Centres (RTCs) to support the implementation of the Operating Plan, at the request of Working Groups;

**Invites** Members to further consider submitting additional activity/project proposals addressing regional priorities and needs, if not yet covered, to be included in the Operating Plan;

**Further Invites** Members to increase the effectiveness of the WMO Community Platform as a source of information to identify capacity needs, track progress on the implementation of the Operating Plan and to track status changes in Members' capabilities, by actively taking part in the [Monitoring Data Collection Campaign](#) regularly;

**Requests** the president, supported by the Management Group to take the Operating Plan into consideration when reviewing the proposals submitted by the Chairs of Working Groups on the substructure of Working Groups and Coordination Panel(s), including the Terms of Reference, suggested composition and expected deliverables;

**Further Requests** the president, in collaboration with relevant constituent bodies:

- (1) To monitor, evaluate and report to Members on the progress in implementation of the RA II Operating Plan, at least annually;
- (2) To seek, in collaboration with the Secretary-General, partnerships with, and the cooperation of, relevant partners in the United Nations system, multilateral donors, and international/regional agencies, private sector actors and academic institutions, particularly in the provision of technical and financial support for the implementation of the RA II Operating Plan;

**Requests** the Secretary-General to assist Members in mobilizing resources to implement the RA II Operating Plan.

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Note: This resolution replaces [Resolution 13 \(RA II-16\)](#) – Regional Association II Operating Plan 2016–2019, which is no longer in force.

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## Resolution 11 (RA II-17)

### Review of Previous Resolutions of the Association

REGIONAL ASSOCIATION II (ASIA),

**Taking note** of paragraph 3.7.1 of the general summary of the [Abridged Report with Resolutions of the ninth session of the Executive Committee](#) (WMO-No. 67),

**Considering:**

- (1) That some of the resolutions adopted prior to the seventeenth session of Regional Association II (second part) have been revised and incorporated into the seventeenth session resolutions (as contained in the [annex](#) to this resolution),
- (2) That some of the previous resolutions have been incorporated into the appropriate publications of the World Meteorological Organization (WMO) or have become out of date,
- (3) The possibility of publishing the text of the resolutions that remain in force in the [annex](#) to this resolution,

**Decides** to keep in force the resolutions in the [annex](#) of this resolution.

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Note: This resolution replaces [Resolution 14 \(RA II-16\)](#) – Review of Previous Resolutions and Recommendations of the Association, which is no longer in force.

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**Annex to Resolution 11 (RA II-17)****List of Previous Resolutions of Regional Association II (Asia) in Force at the Time of the Seventeenth Session**

Resolution No.	Resolution Title	Proposed measure		
		It will remain in force	Will be replaced	It will not remain in force
9 (VII-RA II)	Inclusion of Information on Waves and Pressure Systems in Weather and Sea Bulletins	X		
11 (VII-RA II)	Provision of Marine Meteorological Services for Coastal and Off-shore Activities	X		
12 (X-RA II)	Use of INMARSAT for the Collection of Ships' Meteorological and Oceanographic Reports	X		
14 (XII-RA II)	Support for Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM)	X		
1 (RA II-15)	Implementation of the WMO Strategy for Service Delivery in Regional Association II (Asia)	X		
1 (RA II-16)	Regional WMO Integrated Global Observing System Implementation Plan 2017-2020		X	
2 (RA II-16)	Regional Basic Synoptic Network and Regional Basic Climatological Network in Region II		X	
3 (RA II-16)	Regional Association II Management Group		X	
4 (RA II-16)	Regional Association II Working Group on Weather Services		X	
5 (RA II-16)	Regional Association II Working Group on Climate Services		X	
6 (RA II-16)	Regional Association II Working Group on Hydrological Services		X	
7 (RA II-16)	Regional Association II Working Group on the WMO Integrated Global Observing System and WMO Information System		X	

Resolution No.	Resolution Title	Proposed measure		
		It will remain in force	Will be replaced	It will not remain in force
8 (RA II-16)	Pilot Project to Develop Support for National Meteorological and Hydrological Services in Numerical Weather Prediction		X	
9 (RA II-16)	Pilot Project to Sustain and Enhance the Capacity of National Meteorological and Hydrological Services in the Provision of Official Medium-Range Weather Forecasts		X	
10 (RA II-16)	Pilot Project to Develop Support for National Meteorological and Hydrological Services in the Collection and Application of Data from Aircraft Meteorological Data Relay		X	
11 (RA II-16)	Pilot Project on Impact-Based Forecasting		X	
12 (RA II-16)	Pilot Project to Enhance Meteorological Disaster Risk Reduction Capability in Regional Association II		X	
13 (RA II-16)	Regional Association II Operating Plan 2016-2019		X	
14 (RA II-16)	Review of Previous Resolutions and Recommendations of the Association			X

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## **APPENDIX 3. DECISIONS ADOPTED BY THE SESSION**

### **DECISIONS ADOPTED IN PART I**

#### **Decision 1 (RA II-17)**

##### **Report by the President of the Association**

##### **Regional Association II (Asia) decides:**

- (1) To note with satisfaction the reports in RA II-17/INF. 2.1 from the president of RA II, Chairs of Working Groups and the WMO Regional Office for Asia and the South-West Pacific describing the achievements during the intersessional period;
- (2) To recognize the Members' contribution towards the implementation of the RA II Operating Plan 2016-2019, and with extended period until 2021;
- (3) To encourage the Secretary-General, regional associations and technical commissions to engage further in regional activities and launch new initiatives that would lead to more aligned and closer regional cooperation, including sharing actions in respective Operating Plans that involve regional response.

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Decision justification: See RA II-17/INF. 2.1

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#### **Decision 2 (RA II-17)**

##### **Regional High-level Conference**

##### **Regional Association II (Asia) decides:**

- (1) To organize a Regional High-level Segment and a Regional Technical Segment, including a Regional Hydrological Assembly and launch of the pilot report on State of the Climate in Asia for the year 2020, in conjunction with the Seventeenth Session of Regional Association II (RA II-17), Part II, by videoconference;
- (2) To request the RA II Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP) to work together with the RA II Task Team on the Regional Concept (TT-RC) and the Secretariat to further develop the programme for the Regional High-level Segment to:
  - (a) Promote visibility and institutional capacity-building of RA II Members, to communicate the socioeconomic benefits of meteorological and hydrological services;
  - (b) Promote cooperation and efficiency through regional networks and facilities based upon identified regional needs and identify priorities at regional and sub-regional levels;
  - (c) Promote cooperation and partnerships with relevant regional organizations, including the United Nations Regional Economic Commissions, other United Nations

bodies, sub-regional organizations, development partners, non-governmental organizations, professional associations and academic and research organizations;

- (d) Engage stakeholders in regional initiatives and projects related to the strategic priorities of the Organization, and the necessary political and financial support to Members' capabilities to ensure provision of and access to vital meteorological, climatological, hydrological and other related environmental information and services.
- (3) To invite officials of RA II Members at Ministerial level or higher to head the delegation to the Regional High-level Segment;
- (4) To encourage Members to consider the broader composition of the delegation and to include participants from academia, the private sector and potential funding agencies in addition to delegates from National Meteorological and Hydrological Services (NMHSs);
- (5) To request the Secretary-General to provide secretariat support to the organization of the Regional High-level Conference (RHLC) and the Regional Conference (RECO), according to the practices of virtual sessions;
- (6) To invite partner organizations to actively participate in the Regional High-level Segment, with representation from the highest levels possible.

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Decision justification: Recommendations of the RA II Task Team on Review of the Regional Partnership and Sub-regional Cooperation (TT-RP).

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### **Decision 3 (RA II-17)**

#### **Capacity Development in RA II**

##### **Regional Association II (Asia) decides:**

- (1) To further develop and promote capacity development initiatives of the association by taking into account the key strategic areas of focus identified by the EC Capacity Development Panel, namely:
  - (a) Policy Development and Institutional Matters,
  - (b) Human Resources Development, Education and Training,
  - (c) Capacity Development through WMO Technical Departments,
  - (d) Capacity Development through Resource Mobilization, Partnerships and Development Assistance,
  - (e) Revision of Capacity Development Strategy,
- (2) Urge its Members to submit information on capacity development needs and initiatives in their respective countries to the WMO Secretariat, in coordination with the Regional Office, for the purpose of ensuring harmonized WMO support in the region;

- (3) Request the Secretary-General to provide support when reviewing a capacity development strategy for the region;
- (4) Urge its Members to provide useful information to the Capacity Development Panel during the revision process, towards ensuring that the assessment of development needs/gaps in the region feeds into the revised Capacity Development Strategy (2022);
- (5) Appreciate the continued support of the Meteorological Service of Singapore to the delivery of the WMO leadership and management development programme in RA II and V;
- (6) Also appreciate the continued support of the Secretary-General to the leadership and management development of NMHSs;
- (7) Request the Secretary-General to continue with the support to leadership and management development activities, particularly with an emphasis on socioeconomic issues, strategic planning and communication skills.

See RA II-17/INF.4(1) for more information.

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Decision justification: Taking into consideration [Resolution 7 \(EC-71\)](#) on the establishment of the Capacity Development Panel, [Decision 11 \(EC-72\)](#) on Scaling up Effective Partnerships and Scope, Scale and Progress of WMO Development Projects, [Decision 12 \(EC-72\)](#) on Recommendations for Revision of the WMO Capacity Development Strategy, [Decision 13 \(EC-72\)](#) on Developing and Sustaining Core Competencies and Expertise, as well as (1) the need for more interaction and cooperation among the RTCs in and outside the region and (2) the need to innovate in such a way as to provide education and training activities.

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## **Decision 4 (RA II-17)**

### **Annual Report on the State of the Climate in Asia**

#### **Regional Association II (Asia) decides:**

- (1) To acknowledge the decision of the Management Group, on its sixteenth session, and the ongoing effort to develop a pilot report on the State of the Climate for Asia in 2020, expected to be published in autumn 2021, and to be launched at a series of high-level events;
- (2) To review workload and lessons learned through the pilot to establish a regular process for the publication of the State of the Climate in Asia, on an annual basis, availing of scientific and technical guidance of the Expert Team on Climate Monitoring and Assessment (ET-CMA) of the Standing Committee on Climate Services (SC-CLI) in the Commission for Weather, Climate, Water and related Environmental Services and Applications (SERCOM). The report will rely on regional expertise and build on existing material from the region, the data provided by Members and global and regional data centres, the analysis performed by Regional Climate Centres (RCCs) and Regional Climate Forums (RCFs) and the approach taken in the annual WMO State of the Global Climate and State of Climate Services reports;
- (3) To entrust the Management Group, with the support of the Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services) and the Secretariat from WMO technical departments and the RA II Regional Office to oversee the delivery of this report in a timely manner;

- (4) To partner in this process with the regional entities of the United Nations System organizations and other relevant organizations, and to consult with them and invite them to collaborate on this report, particularly on high-impact events data and input regarding the climate impacts on socioeconomic sectors, and on climate adaptation and mitigation policies and practices;
- (5) To request the Secretary-General to facilitate collaboration among Members and involved parties for data collection, analyses and review, and support the publication, launch and communication of the report to be referred in policy-making processes in the region, including those at the highest levels.

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Decision justification:

- (1) [Resolution 20 \(Cg-18\)](#) – WMO Contributions to the Provision of Climate Information and Services in Support of Policy and Decision-making;
- (2) [Resolution 2 \(EC-72\)](#) – Activities and Working Mechanisms of the Regional Associations.

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### **Decision 5 (RA II-17)**

#### **Coordination through Regional Climate Centres (RCCs) and Regional Climate Forums (RCFs) to support improved climate prediction for applications in climate sensitive sectors**

##### **Regional Association II (Asia) decides:**

- (1) To increase collaboration, coordination and capacity development mechanisms to ensure consistency, harmonization of operations and mutual support of the RCCs in RA II, with the guidance of the RA II Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services);
- (2) To establish coordination and cooperation mechanisms through RCFs in the region for the implementation of objective seasonal forecasts and tailored products on subregional scales (including country-level service delivery), and to facilitate collection of users' requirements in agriculture and food security, water resources management (including flood and drought status and outlook through the HydroSOS (WMO Global Hydrological Status and Outlook System) initiative, health, energy and disaster risk reduction, as well as scientific discussion forums in order to support progress towards sub-seasonal predictions.

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Decision justification:

- (1) [Resolution 20 \(Cg-18\)](#) – WMO Contributions to the Provision of Climate Information and Services in Support of Policy and Decision-making;
- (2) [Resolution 58 \(Cg-18\)](#) – Future Integrated Seamless Global Data-processing and Forecasting System Collaborative Framework;
- (3) [Decision 9 \(EC-72\)](#) – Operationalization of Objective Seasonal Forecasts and Tailored Products on Sub-regional Scales;

- (4) The WMO *Guidance on Operational Practices for Objective Seasonal Forecasting* (WMO-No. 1246).
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## Decision 6 (RA II-17)

### Public-Private Engagement

#### Regional Association II (Asia) decides:

- (1) That the RA II president and the management group should give due consideration to *Guidelines for Public-private Engagement* (WMO-No. 1258) in planning relevant regional activities, in particular those for raising mutual awareness and building trust between the sectors, and utilizing the potential of public-private engagement in bridging the capacity gap;
- (2) To encourage the RA II Members to use the guidelines in establishing cooperation and collaboration and partnership at a national level across the public, private, academic and civil society sectors that pursue common goals for the public good, taking into account the circumstances of each Member, and to consider appropriate mechanisms for engagement with the above-mentioned sectors when designing and implementing existing and future projects and initiatives in RA II;
- (3) To further encourage Members to share cases of good national practices of cooperation and collaboration with the private and academic sectors, and provide those to the Secretariat for inclusion in the Compendium of Good Practices;
- (4) To consider organizing, in partnership with associations of the private sector, a Regional Forum on public-private engagement, linked to [the Open Consultative Platform \(OCP\)](#) to discuss region-specific issues, opportunities and initiatives for leveraging cooperation and collaboration between sectors that enhance socioeconomic benefits.
- (5) To request the Management Group to consider the Pilot Project on Public-private Engagement for Smart Meteorological Services in Mega-cities co-hosted by China Meteorological Administration (CMA), Hong Kong Observatory (HKO) and Macao Meteorological and Geophysical Bureau (SMG). Following Management Group consideration, invite RA II Members to participate in and contribute to the pilot project (please see concept note in INF. 5.2).

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#### Decision justification:

- (1) [Resolution 11 \(EC-72\)](#) – Guidelines for Public-private Engagement (edition 2020);
- (2) [Resolution 33 \(EC-70\)](#) – Public-private engagement;
- (3) [Resolution 79 \(Cg-18\)](#) – Open Consultative Platform “Partnership and Innovation for the Next Generation of Weather and Climate Intelligence”;

(4) [Resolution 80 \(Cg-18\)](#) – Geneva Declaration — 2019: Building Community for Weather, Climate and Water Actions.

1. EC-72 endorsed the Guidelines for Public--Private Engagement, which has been published (2020 edition) on the WMO website as a guiding document for Members pursuing cooperation with non-State entities. The aim of these guidelines is to inform and facilitate global, regional and national actions by WMO and its Members undertaken to encourage proactive engagement among stakeholders in the public, private and academic sectors for the purpose of providing better services to governments, economies and citizens.

2. Since Cg-18, there have been several PPE activities specifically related to RA II which aimed at raising awareness of the Members and identifying challenges and opportunities through better partnerships with the private sector, including the following:

- PPE Office's briefing to the Regional Office for RA II and RA V to update the status of PPE-related policies and activities and to provide advice on possible regional activities at the RA II Regional Consultation Meeting held on 29 October 2020;
- Collection and sharing of good practices and case studies on legal frameworks governing public-private relationships from some Members of RA II;
- Consultation and coordination with the regional office and relevant Members (China, Hong Kong, China and Macao, China) for the development of a subregional demonstration project on PPE.

3. Through consultations with the regional office, it has been recognized that RA II needs further efforts to raise awareness of the potential benefits of the PPE, and also the potential risks, to build trust between the sectors and work better together for the benefits of society. Realizing that this was a paradigm change that needed a substantial cultural change, it was proposed to organize a regional mechanism (e.g. conference or forum), to inform Members on PPE and discuss issues of primary importance for the future of the NMHS, such as:

- PPE business models — how to build scalable models for various national scenarios;
- Long-term vision for NMHSs and for the enterprise as a whole;
- Legal frameworks enabling PPE;
- Data policy implementation;
- Sustainability of national systems — how the PPE could help;
- Human resources development;
- Resolving critical deficiencies within a clear time frame.

Such a regional mechanism will help RA II Members to adapt to the changing landscape of the weather and climate enterprise at global, regional and national levels.

4. The PPE Office also provided advice and coordination, jointly with the regional office, in the development of a concept paper on a future demonstration project showcasing the potential of public-private engagement for the delivery of smart urban services for megacities. The proposal will be presented to the RA II Session for approval as a subregional PPE demonstration project. It is expected that this project will demonstrate the benefits of the multi-stakeholder engagement approach to the management of weather-, climate- and water-related risks, including in urban areas.

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**Decision 7 (RA II-17)****Flagship Initiatives****Regional Association II (Asia) decides:**

- (1) To invite RA II Members to join the Secretary-General in advocating and mobilizing resources for the creation of the Systematic Observations Financing Facility (SOFF), including by securing the highest level political support and voicing the urgency of the SOFF creation;
- (2) To urge RA II Members to commit to contribute to the further development and prompt implementation of the SOFF and its related initiatives, the Country Support Initiative and the Country Hydromet Diagnostics;
- (3) To invite RA II Members to actively engage with the Secretary-General and the RA II president on the implementation of these WMO development partnership initiatives.

## Decision justification:

- (1) [Resolution 74 \(Cg-18\)](#) – Closing the capacity gap: scaling up effective partnerships for investments in sustainable and cost-efficient infrastructure and service delivery;
- (2) [Decision 11 \(EC-72\)](#) – Scaling up effective partnerships and scope, scale and progress of WMO development projects.

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**DECISIONS ADOPTED IN PART II****Decision 8 (RA II-17)****WMO World Weather Information Service (WWIS) platform****Regional Association II (Asia):**

**Considering** the progress and accomplishments made by the WWIS in strengthening the recognition of National Meteorological and Hydrological Services (NMHSs) by providing a centralized and authoritative source of official weather forecasts, climatological information to the public and the media,

**Noting** the current status of participation in the WWIS by RA II Members as summarized below:

- (1) Based on statistics from 1 May to 31 July 2021, the number of Members providing forecast information on WWIS in RA II was 26 out of 34 Members,
- (2) Of the 26 Members that provide forecasts to WWIS, 19 of them provided forecasts for more than 25 days per month, which is an acceptable rate. The other Members provided forecasts for less than 25 days for at least one month during the period described in (1),
- (3) 12 out of the 26 Members were providing forecasts for a recommended minimum of 10 cities, which is the recommended minimum. Other Members were providing forecasts for a smaller number of cities,

- (4) 16 of the 26 Members provide forecasts with a recommended forecast ranges of 5 days or more. The others were providing forecasts for shorter range,

Strongly urges Members to provide official city forecasts for display on the WWIS and to ensure that city forecasts are provided for at least 10 cities (where possible), in a five-day or longer forecast range on a daily basis.

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Decision justification:

- (1) The WMO WWIS website presents official weather observations, weather forecasts and climatological information for selected cities supplied by NMHSs. WWIS enables NMHSs to increase the reach of the official forecasts that they produce. The following are the recommended levels of participation of Members in the WMO WWIS initiative:
  - (a) Members to participate in WWIS and provide city forecast information every day (to view the WWIS website click [here](#)),
  - (b) Members to submit forecasts for at least 10 cities. It is noted that some small Island states may not be able to meet this condition.
- (2) Through [Resolution 5 \(Cg-17\)](#) – Public Weather Services Programme, Congress requested commissions to provide further guidance to Members in enhancing their city forecasts with longer lead times, higher spatial and temporal resolutions, and additional weather elements.
- (3) To assist in Member participation and visibility on WWIS, the European Centre for Medium-Range Weather Forecasting (ECMWF) has offered technical support in which it provides easy access to city forecast data for 10 cities, for any Member in need of such data.
- (4) To view the status of Members' participation in the WMO WWIS initiative, please click [here](#).

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## Decision 9 (RA II-17)

### Operationalization of Objective Sub-Seasonal and Seasonal Forecasts in Asia Region

**Regional Association II (Asia) decides to:**

- (1) Adopt objective sub-seasonal and seasonal forecasts approach (OSF) as an overarching technical strategy in RA II for strengthening regional implementation of the Climate Services Information System (CSIS) including through Regional Climate Outlook Forums (RCOF) in the region;
- (2) Strengthen technical coordination with the Commission for Weather, Climate, Water and Related Environmental Services and Applications (Services Commission), Commission for Observation, Infrastructure and Information Systems (Infrastructure Commission, INFCOM), the Research Board, and other bodies identified in the annex to Decision 9 (EC-72) for the purpose of guiding the operationalization of objective seasonal forecasts and tailored products on sub-regional scales;

**Requests the relevant subsidiary bodies in RA II dealing with climate matters to:**

- (a) Contribute to the implementation process working closely with relevant subsidiary bodies of SERCOM and INFCOM and technical units in WMO Secretariat;
- (b) Facilitate collaboration and coordination between Regional Climate Centres (RCCs)/RCC-Networks in RA II both designated and emerging, such as the Third Pole RCC-Network, during the operationalization of OSF;
- (c) Facilitate collection of users' requirements in agriculture and food security, water resources management, health, energy and disaster risk reduction;

**Requests RCCs/RCC-Networks in RA II** to work closely towards the operationalization of objective sub-seasonal and seasonal forecasts in the sub-regions, and to exchange the relevant knowledge and experience;

**Requests the Management Group, with the support of the RA II subsidiary bodies in charge of climate services and the Secretariat,** to oversee the implementation of the rolling process of OSF operationalization;

**Invites Members** to closely align national-level operations to optimally benefit from the available objective seasonal forecasts at the sub-regional levels, including through the RCOFs and with active engagement of their respective National CSIS Focal Points, in support of improved delivery of tailored products to national users.

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Decision justification:

- (1) [Decision 9 \(EC-72\)](#) – Operationalization of objective seasonal forecasts and tailored products on sub-regional scales,
- (2) [Resolution 58 \(Cg-18\)](#) – Future Integrated Seamless Global Data-processing and Forecasting System Collaborative Framework,
- (3) [Resolution 20 \(Cg-18\)](#) – WMO Contributions to the Provision of Climate Information and Services in Support of Policy and Decision-Making,
- (4) [Decision 11 \(RA II-16\)](#) – Implementation and Coordination of Regional Climate Centre Operations in Regional Association II.

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**Decision 10 (RA II-17)**

**Development of the Region II Aircraft Meteorological Data Relay (AMDAR) Programme under the WMO-IATA Collaborative AMDAR Programme (WICAP)**

**Regional Association II (Asia) decides:**

- (1) To develop and implement the RA II AMDAR Programme under WICAP, with a view to beginning the development of the regional programme in October 2021 and with an aim to compile its requirements for AMDAR observations by June 2022, potentially beginning its operation of the programme in 2023;

- (2) To request the RA II WG Infrastructure to coordinate the development and implementation of the RA II AMDAR Programme, supported by the planned activities listed in the RA II Operating Plan (2021–2024);
- (3) To establish an Expert Team on WICAP (ET-WICAP) under RA II WG Infrastructure to lead the development and implementation, and authorize the Management Group to approve the Terms of Reference and composition of this Expert Team;
- (4) To request the RA II WG Infrastructure and RA II ET-WICAP to work closely with the Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON), Coordination Group on WICAP and Joint Expert Team on Aircraft-based Observing Systems (JET-ABO) of the INFCOM;
- (5) To request the Members to fully support the development and implementation of RA II AMDAR Programme;
- (6) To request the Secretary-General to provide the necessary technical assistance and Secretariat support for the development and implementation of RA II AMDAR Programme;
- (7) To invite regional partner organizations, stakeholders and programmes to participate in relevant implementation activities;
- (8) To invite the INFCOM to support the development of RA II AMDAR Programme, including relevant regulatory and guidance material, in consultation with the regional association.

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Decision justification: [Resolution 39 \(Cg-18\)](#) – Establishment of Collaboration between the International Air Transport Association and WMO on the Development and Operation of the Aircraft Meteorological Data Relay Programme; [Resolution 8 \(EC-72\)](#) – Collaboration with IATA on the Development of the AMDAR Programme (WICAP); [Resolution 14 \(EC-73\)](#) – Collaboration with the International Air Transport Association on the Development of the Aircraft Meteorological Data Relay Programme, approved the WICAP Data Policy; [WICAP Implementation Plan](#).

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### **Decision 11 (RA II-17)**

#### **RBON initial composition**

#### **Regional Association II (Asia) decides:**

- (1) To initiate the foundation of RBON in Region II by designating all selected observing stations from the Regional Basic Synoptic (RBSN) and Regional Basic Climatological Network (RBCN) as the RBON stations, noting that the GBON stations will form the core of RBON;
- (2) To request the RA II WG Infrastructure to undertake the following activities in support of the implementation of the RBON in the region:
  - (a) To prioritize application areas relevant to the region, and catalogue regional observational user requirements related to those areas to be met by RBON;

- (b) To define specific criteria for the further selection of RBON stations, in consideration of regional needs, priorities, and processes to be defined by the Commission for Observation, Infrastructure and Information Systems (INFCOM);
  - (c) To coordinate with the Regional WIGOS Centre(s) in the region, on their support for the design of RBON;
  - (d) To develop the roadmap for the RBON implementation, in compliance with the RBON related regulations specified in the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160), including section 3.2.3 Regional Basic Observing Network and Appendix 2.1 Observing Network Design Principles;
  - (e) To monitor the implementation of the RBON and addressing non-compliance in consultation with the Member concerned and the Secretary-General;
  - (f) To include RBON related activities in the RA II Operating Plan (2021–2024) and take these into consideration when designing substructures;
- (3) To request Members:
- (a) To make sure that all RBON stations are properly registered in OSCAR/Surface according to the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160);
  - (b) To nominate more observing stations/platforms for inclusion in RBON in accordance with the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160), 3.2.3 Regional Basic Observing Network;
- (4) To further request the RA II WG Infrastructure:
- (a) To develop an initial RBON list based on RBSN and RBCN stations and to review additional candidate RBON stations nominated by Members, in accordance with (2.a) and (2.b) above, and to make recommendations to the president of the Association for including them in the RBON in the region;
  - (b) To explore the interest among Members in establishing a RBON pilot activity on regional data exchange of certain types of observations, with an initial focus on radar observations and hydrological observations relevant to the prioritized application areas;
  - (c) To work closely with the Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON), and the Joint Expert Team on Earth Observing System Design and Evolution (JET-EOSDE) of the INFCOM on the implementation of RBON in the region;
- (5) To authorize the president of the Regional Association to approve, at the request of the Members concerned, and in consultation with the RA II WG Infrastructure and the Secretary-General, the changes in the RBON composition, in accordance with the regulations laid down in the *Manual on the WMO Integrated Global Observing System* (WMO-No. 1160), 3.2.3 Regional Basic Observing Network;
- (6) To request the Secretary-General to provide the necessary technical assistance and Secretariat support for the implementation of RBON in the region, and to facilitate the merging of RBSN and RBCN networks into RBON;
- (7) To invite regional partner organizations and programmes to participate in relevant implementation activities;

- (8) To invite the INFCOM to undertake the development of the process for the design of RBON, including relevant regulatory and guidance material, in consultation with the regional association.

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Decision justification: [Resolution 1 \(RA II-16\)](#) – Regional WMO Integrated Global Observing System Implementation Plan 2017–2020, [Decision 13 \(RA II-16\)](#) – Pilot Regional Basic Observing Network in Regional Association II, [Resolution 34 \(Cg-18\)](#) – Global Basic Observing Network, [Resolution 9 \(EC-73\)](#) – Plan for the WMO Integrated Global Observing System Initial Operational Phase (2020–2023), [Recommendation 4 \(EC-73\)](#) – Update of Regulatory Material Related to the Establishment of the Global Basic Observing Network, *The Manual on the WMO Integrated Global Observing System* (WMO-No. 1160), 3.2.3 Regional Basic Observing Network.

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## Decision 12 (RA II-17)

### Research Priorities in Regional Association II

#### Regional Association II (Asia) decides:

- (1) To promote convergence and integration of the regional activities supporting the WMO sponsored and co-sponsored research programmes World Climate Research Programme (WCRP), the World Weather Research Programme (WWRP), the Global Atmosphere Watch Programme (GAW) as well as the Global Framework for Climate Services (GFCS) within the National Meteorological and Hydrological Services (NMHSs) and with the broader academic and research community;
- (2) To request the RA II Regional Focal Points on Research (RFP/R), engaging with RA II Members, with the support of and the collaboration with the Research Board and Working Group on Observation, Infrastructure and Information Systems (WG Infrastructure), Working Group on Weather, Climate, Water and Related Environmental Services and Applications (WG Services) and Coordination Panel on Hydrology and Water Resources (CP Hydrology) to define the research and innovation priorities 2021-2024 for the region, and submit to the Management Group for approval;
- (3) To engage with the Research Board to contribute to the execution of the WMO research programmes according to the priorities established for the region and focusing on the transformation of scientific knowledge to operations and services;
- (4) To enhance efforts to obtain resources for research and build partnerships with research institutions in the region with the assistance of WMO.

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Decision justification:

[Resolution 6 \(Cg-18\)](#) – WMO Regional Associations,  
[Resolution 8 \(Cg-18\)](#) – Research Board,  
[Resolution 1 \(EC-72\)](#) – Effective Coordination Between Regional Associations, Technical Commissions and the Research Board.

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## APPENDIX 4. LIST OF PARTICIPANTS

### LIST OF PARTICIPANTS PART I

#### 1. Officers of the session

##### **United Arab Emirates**

Abdullah A. AL MANDOOS                      President of RA II

##### **Viet Nam**

Hong Thai TRAN                              Vice-President of RA II

#### 2. WMO Members within RA

##### **Afghanistan**

Abdul Ahad HABIBI                      Principal Delegate

##### **Bahrain**

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Nader ABDULLA                      Delegate  
Khalid YASEEN                      Delegate

##### **Bhutan**

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##### **Cambodia**

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Sokkoeurn AN                      Delegate

##### **China**

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Xianghua XU                      Alternate  
Zhiqiang GONG                      Delegate  
Xiaodan NA                      Delegate  
Qingliang ZHOU                      Delegate

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Lap-shun LEE                      Alternate  
Shing Cheong, Edwin LAU                      Delegate

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S.D. ATTRI                      Delegate  
R.K. GIRI                      Delegate  
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Ainur ABENOVA	Delegate
Nonna LOYENKO	Delegate
Almas SHABDANOV	Delegate
Marina SHMIDT	Delegate
Didar ZHANIBEKULY	Delegate

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Abdulaziz ALQARAWI	Principal Delegate
Dherar AL-ALI	Delegate
Hasan AL-DASHTI	Delegate
Salah ALANSARI	Delegate
Naser ALFADHLI	Delegate

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Kuok Hou HO	Delegate

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Erdenemunkh BYAMBAA	Delegate
Ulambayar DASHZEVGE	Delegate
Gomboluudev PUREVJAV	Delegate

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May Khin CHAW	Delegate
Htay THAN	Delegate

**Oman**

Juma AL-MASKARI	Principal Delegate
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Haeyeop SEO	Alternate
Junho CHA	Delegate
Dohyeong KIM	Delegate
Hyeonjun KIM	Delegate
Insun KIM	Delegate
Sung KIM	Delegate
Byunghwan LIM	Delegate
Youngsin ROH	Delegate
Eunjeung SHIM	Delegate
Jiyoun SUNG	Delegate

**Russian Federation**

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Tatiana DMITRIEVA	Delegate
Alexander GUSEV	Delegate
Vladimir KATTSOV	Delegate
Dmitry KIKTEV	Delegate
Tatiana LABENETS	Delegate
Maria MAMAEVA	Delegate
Yury SIMONOV	Delegate
Vasily SMOLYANITSKY	Delegate
Sergey SOLDATENKO	Delegate
Sergei ZHURAVLYOV	Delegate

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Mohammed BABAIDHAN	Alternate
Mohammed ALAMRI	Delegate
Samirah Mansour M ALASIRI	Delegate
Anwar ALMATRAFI	Delegate
Yasser KHALLAF	Delegate

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Athula Kumara KARUNANAYAKE	Principal Delegate
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Yousef N. AL KALBANI	Delegate
Monikumar RAMAKRISHNAN	Delegate

**Uzbekistan**

Sherzod KHABIBULLAEV	Principal Delegate
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Duc Cuong HOANG	Alternate
Thu Phuong TRINH	Delegate

### 3. Invited experts

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 Shakeep Qassim AL TAIB  
 Abdulrahman Saleh Alansari AL-ANSARI  
 Mohammad ALKUBAISI  
 Omar ALOBAIDAN  
 Rajan BHATTARAI  
 Karolin EICHLER  
 Sajda HASSAN  
 Kamal Ram JOSHI  
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 John NANGLE  
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 Firuz SAFAROV  
 Archana SHRESTHA  
 Punjamaporn SIENGLERT  
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### 4. Representatives of international organizations and other bodies

#### Gulf Cooperation Council (GCC)

Said Hamed ALSARMI Observer

#### Association of Hydro-Meteorological Equipment Industry (HMEI)

Rene GRASSELT Observer

#### International Environmental Data Rescue Organization (IEDRO)

Richard CROUTHAMEL Observer

### 5. Presidents of constituent bodies and Chairs of other bodies

Gerhard ADRIAN President  
 Ian LISK President of SERCOM

### 6. Regional Hydrological Adviser

Sung KIM Regional Hydrological Adviser

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Tran Hong THAI	Vice-president of RA II

**2. WMO Members within RA****Bahrain**

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Nader ABDULLA	Delegate
Khalid Hussain YASEEN	Delegate

**Bhutan**

Karma DUPCHU	Principal Delegate
Singay DORJI	Delegate

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Wei XIAOLIN	Delegate
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Zhikai ZHANG	Delegate

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Krishnanand HOSALIKAR	Delegate
Ashis MITRA	Delegate
D. R. PATTANAIK	Delegate
Kamaljit RAY	Delegate
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Yoshiaki SATO	Alternate
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Nasser ALFADHLI	Delegate

**Lao People's Democratic Republic**

Veingxay MANIVONG	Principal Delegate
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**Mongolia**

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Ganbat AMGALAN	Delegate
Dashdondog BATDORJ	Delegate
Byambaa ERDENEMUNKH	Delegate
Khalzan PUREVDAGVA	Delegate
Dashzegve ULAMBAYAR	Delegate

**Myanmar**

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Htay THAN	Delegate

**Oman**

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Abdullah Rashid AL-KHADOURI	Delegate

**Qatar**

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Dohyeong KIM	Alternate
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Daeseok HAN	Delegate
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Sung KIM	Delegate
Yeonghun KIM	Delegate
Byunghwan LIM	Delegate

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Alexander GUSEV	Delegate
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Abdulkareem ALMAUASHI	Delegate
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Abdulrhman ALZHRANI	Delegate
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