



World Meteorological Organization

Executive Council (EC)
Capacity Development Panel (CDP)

Report of the 3rd Meeting

15 and 16 September 2021
(videoconference)

Table of Contents

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| EXECUTIVE SUMMARY | 3 |
| FULL REPORT | 5 |
| 1. Opening of CDP-3 and Adoption of the Agenda | 7 |
| 2. Items from the 2nd Meeting of the Panel | 8 |
| 3. Outcome of EC-73 in connection with the work of the Panel | 8 |
| 3.1. Report on Capacity Development | 8 |
| 3.2. Report on Infrastructure/INFCOM | 10 |
| 3.3. Report on Services/SERCOM | 11 |
| 3.4. Report on Science and Innovations/Research Board | 11 |
| 3.5. Report on Hydrology and Water Resources/HCP | 12 |
| 3.6. Report of the Representative of WMO-IOC Joint Collaborative Board (JCB) | 13 |
| 3.7. Report on Data Policy/GBON/SOFF | 13 |
| 4. Progress report on activities of the Expert Teams (ETs)..... | 14 |
| 4.1. Report and Recommendations of the Expert Team on Policy Development and Institutional Matters (CDP-ET-PDIM) | 15 |
| 4.1.1. <i>Report on activities of CDP-ET-PDIM</i> | <i>15</i> |
| 4.1.2. <i>Progress.....</i> | <i>17</i> |
| 4.2. Report and Recommendations of the Expert Team on Human Resources Development, Education and Training (CDP-ET-HRDET) | 18 |
| 4.2.1. <i>Report on activities of CDP-ET-HRDET.....</i> | <i>18</i> |
| 4.3. Report and Recommendations of the Expert Team on Capacity Development through WMO Technical Departments (CDP-ET-TDs) | 19 |
| 4.3.1. <i>Report on activities of CDP-ET-TDs</i> | <i>20</i> |
| 4.4. Report and Recommendations of the Expert Team on Resource Mobilization, Partnerships and Development Assistance (CDP-ET-RMPDA) | 22 |
| 4.4.1. <i>Meetings and wider input.....</i> | <i>22</i> |
| 4.4.2. <i>ET-RMPDA TORs.....</i> | <i>22</i> |
| 4.4.3. <i>Drivers for proposed outputs.....</i> | <i>23</i> |
| 4.4.4. <i>Update on ET-RMPDA Activities and Outputs</i> | <i>23</i> |
| 5. Update on WMO Extra-budgetary Projects | 27 |
| 5.1. Extrabudgetary Projects & Flagship Initiatives | 28 |
| 5.1.1. <i>Partnership Flagship Initiatives.....</i> | <i>28</i> |
| 5.1.2. <i>Other programmes addressing the capacity gap on weather, water, climate and related environmental services.....</i> | <i>28</i> |
| 5.1.3. <i>Under Development: Partnership Flagship Initiatives.....</i> | <i>29</i> |
| 5.2. Independent Evaluation of WMO's Approach to Projects..... | 30 |
| 5.3. Strengthening collaboration among NMHSs and WMO Centres for effective support to Members through Extra-budgetary Projects | 31 |

| | | |
|------------|-----------------------------------------------------------------------------------------------------------|-----------|
| 6. | Progress report on revision of WMO Capacity Development Strategy (CDS) | 31 |
| 7. | Preparation for Fourteenth WMO Symposium on Education and Training | 32 |
| 8. | Concept on Education and Training Board | 35 |
| 9. | Revision of Education and Training Publications..... | 36 |
| 10. | Review of WMO Regional Training Centres (RTCs) | 36 |
| 11. | Future activities and tentative dates of the next meeting (CDP-4) . | 37 |
| 12. | Any other Business and Closure of CDP-3 | 38 |
| | ANNEXES | 39 |
| Annex-I | : List of Members of the WMO Executive Council (EC) Capacity Development Panel (CDP) | 41 |
| Annex-II | : Agenda and Workplan of the 2 nd Meeting of the CDP | 44 |
| Annex-III | : Update from INFCOM for the Capacity Development Panel..... | 46 |
| Annex-IV | : Report on SERCOM | 52 |
| Annex-V | : Report on Science and Innovations-Research Board..... | 57 |
| Annex-VI | : Report on Hydrology and Water Resources/HCP | 66 |
| Annex-VII | : Report of the Representative of WMO-IOC Joint Collaborative Board | 70 |
| Annex-VIII | : Report on Data Policy/GBON/SOFF | 74 |
| Annex-IX | : Report of the Expert Team on Policy Development and Institutional Matters (CDP-ET-PDIM) | 79 |
| Annex-X | : Report of the ET on Human Resources Development, Education and Training (CDP-ET-HRDET)..... | 85 |
| Annex-XI | : Report of the ET on Capacity Development through WMO Technical Departments (CDP-ET-TDs) | 91 |
| Annex-XII | : Report of the ET on Resource Mobilization, Partnerships and Development Assistance (CDP-ET-RMPDA) | 97 |
| Annex-XIII | : Extrabudgetary Projects & Flagship Initiative | 103 |
| Annex-XIV | : Revision of education and training publications..... | 111 |
| Annex-XV | : Review of WMO Regional Training Centres (RTCs)..... | 116 |

EXECUTIVE SUMMARY

The third meeting of the EC Capacity Development Panel (CDP-3) was held virtually on the 15th and 16th of September 2021 and chaired by John Ogren, the Vice-Chair of the Panel on behalf of the Chair Dr Agnes Kijazi who was unable to attend.

The meeting *inter alia* reviewed and deliberated on the reports of the expert and task teams, items from the second meeting of the Panel (CDP-2), and outcomes of EC-73 in connection with the work of the Panel. It was also briefed on the outcome of EC-73 by representatives of Infrastructure/INFCOM, Services/SERCOM, Science and Innovations/Research Board, Hydrology and Water Resources/HCP and WMO-IOC Joint Collaborative Board (JCB).

Other items on the agenda also include information and updates on, Data Policy/GBON/SOFF, WMO Extra Budgetary projects, progress on revision of WMO Capacity Development Strategy (CDS), preparations for the 14th WMO Symposium on Education and Training (SYMET-14), a concept on Education and Training Board, and revision of education and training publications and review of WMO Regional Training Centres (RTCs).

The following key recommendations and suggested actions emerged from the meeting:

1. As regards its future activities, the Panel will give priority to the implementation of Decision 9 (EC-73) and in this connection the Task Teams will contribute to the implementation of various aspects of the Decision, as contained in the report, in close coordination with the appropriate WMO Secretariat departments.
2. Expert Teams and Task Team will continue with their respective work plans with the aim of formulating recommendations to EC-75 on issues that are germane to capacity development in WMO.
3. Conclusion of the review process of the WMO Capacity Development Strategy.
4. Deliberate on the outcome of the Fourteenth WMO Symposium on Education and Training as an item on the agenda of the fourth meeting of the Panel.
5. Review the proposed WMO concept on Education and Training Board and formulate appropriate recommendation for consideration by EC-75.
6. Contribute to the review of various publications under preparation by the Education and Training Office.
7. On the invitation of the WMO Secretariat, take part in review of WMO projects and assessment of WMO Regional Training Centres (RTCs).
8. Convey fourth meeting of the Panel which should focus mainly on finalization of recommendations for EC-75.

The Panel agreed that the fourth meeting of the Panel (CDP-4) should be held in the week of 14-18 February 2022, preferably face-to-face in Geneva.

Following closing remarks by the Secretary-General, Professor Petteri Taalas, the Vice-chair of the Panel declared the meeting closed at 15:30 UTC on 16 September 2021.

FULL REPORT

1. Opening of CDP-3 and Adoption of the Agenda

The meeting, which was held through videoconferencing, was chaired by John Ogren, the Vice-chair of the Capacity Development Panel (CDP), and commenced at 1200 UTC on 15 September 2021. It was attended by members of the Panel listed in Annex-I with some observers and secretariat staff.

In his opening remarks, on behalf of the Secretary-General Professor Petteri Taalas, the Assistant Secretary-General Dr Wenjian Zhang, welcomed members to the its third meeting and commended them for their cooperation and hard work since the inauguration of the Panel.

He also thanked them for the effectiveness of their work and close coordination with the Secretariat, which is evident in the contributions of the Panel to two previous meeting and to Decisions of EC-72 and EC-73, as well as those of some sessions of Regional Association Sessions.

The ASG took the opportunity to reiterate that the importance of the revision of the capacity development strategy of the organization as a key responsibility of the Panel. In this regard he thanked Vice-chair John Ogren for working so hard with other members of the panel to guide the seconded Subject Matter Expert, Dr Michael Smith of the US National Weather Service, in the preparation of this strategy.

In his opening remarks, the Vice-chair John Ogren on behalf of the Chair Dr Agnes Kijazi, thanked participants for meeting of the mandate of the Panel since its mandate since its inception. He noted that the Panel has been, through designated representatives, working in close coordination with the activities of the Regional Associations, INFCOM, SERCOM, Research Board, HCP and WMO-IOC JCB. He also observed that the effectiveness of this close coordination is evident in substantive contributions of the two previous meeting to deliberations and some Decisions of EC-72 and EC-73, as well as to sessions of Regional Associations.

He concluded by noting that one very important item to be discussed was the revision of WMO Capacity Development Strategy; a strategy that is key to the delivery of Long Term Goal 4 (LTG-4) of the WMO Operating Plan, which is on closing the capacity gap on weather, climate, hydrological and related environmental services.

Following the opening remarks, the agenda was adopted along with the work plan as in Annex-II.

2. Items from the 2nd Meeting of the Panel

The Panel was briefed as follows on actions taken after its second meeting:

Recommendations to the EC-73: The CDP-2 made a number of recommendations for the EC-73 to consider. Based on these recommendations, a draft Decision 4.4(1)/1 (EC-73) was prepared by Secretariat, which turned to the [Decision 9 \(EC-73\)](#). Details of the Decision 9 (EC-73) were presented under the next Agenda Item 3.

Preparation of Capacity Development Strategy: The Vice-chair of the Panel, John Ogren, on behalf of the Task Team, is working with the Subject Matter Expert, Michael Smith, in writing the capacity development strategy inter alia by collating inputs across WMO. A draft outline of the new Capacity Development Strategy (CDS) was prepared in July; the outline was sent to the WMO Secretariat, Technical Departments, Technical Commissions, Research Board and Regional Associations for feedback. It will be opened for the inputs from wider Panel and discussed in an online meeting including focus of strategy and layout.

Future Work Plans of the Expert Teams: The Expert Teams and Task Team are continuously working through virtual means, especially via the ETRP Moodle site. Detailed progress reports on activities of the Expert Teams (ETs) were presented under Agenda Item 4.

Assignment of WMO Secretariat Focal Points: WMO Secretariat focal points for each Expert Team are supporting the activities of the Panel through the Expert Teams. A number of activities were facilitated by the Secretariat Focal Points.

3. Outcome of EC-73 in connection with the work of the Panel

3.1. Report on Capacity Development

It was reported that the outcome of the second meeting of CDP resulted in **Decision 9 (EC-73)**, which was a summary of the recommendations from the meeting to EC-73. With the EC-73 outcome, the Panel reviewed and suggested that each of the elements of the decision would be implemented as follows by the respective Teams to take charge or get involved in the listed items of the **Decision 9 (EC-73)**:

EC-73 Decision 9 (Decides 1): Compile best practices from the National Meteorological and Hydrological Services (NMHSs) considered to be meeting global standards in the

delivery of services. This compilation to be used in promotion of standards worldwide; ***(CDP-ET-PDIM to lead)***

EC-73 Decision 9 (Decides 2): Review and update the current competency frameworks as needed, and support development of new frameworks in areas not yet addressed, with the support of the Education and Training Office, as well as to benefit from the experiences and knowledge of the WMO Regional Training Centres (RTCs), in close coordination with the RTC Representatives; ***(CDP-ET-HRDET & CDP-ET-TDs to be involved)***

EC-73 Decision 9 (Decides 3): Coordinate the Technical Commissions (SERCOM and INFCOM) in the development of a capacity development framework to support the implementation of their activities; ***(CDP-ET-TDs to lead)***

EC-73 Decision 9 (Decides 4): Develop strategies to foster engagement of academic and NMHS staff at the local and regional levels on research and research transfer to operation and application to improved operational delivery; ***(CDP-ET-HRDET & CDP-ET-TDs to be involved)***

EC-73 Decision 9 (Decides 5): Make recommendations on how to foster systematic contributions from academia towards the enhancement of the research-to-operation continuum which should address approaches to promotion of capacity development and service capabilities in weather, climate, hydrology and environment at regional levels through promotion of collaboration and communication between regional centres such as Regional Specialized Centres, Regional Climate Centres, Regional Training Centres (RTCs), WMO Integrated Global Observing System (WIGOS) Centres and WMO Information System (WIS) Centres, etc; ***(CDP-ET-HRDET & CDP-ET-TDs to be involved)***

EC-73 Decision 9 (Decides 6): Support and review a publication on leadership and management, based on experiences gained from the training programmes jointly organized by WMO and the Meteorological Service Singapore for Regional Associations II and V since 2018; ***(CDP-ET-HRDET to lead)***

EC-73 Decision 9 (Decides 7): Support the development of guidelines on best practices for NMHSs in terms of working with development partners/Government, with the aim of enhancing knowledge sharing in this area; ***(CDP-ET-RMPDA to lead)***

EC-73 Decision 9 (Decides 8): Contribute to the Fourteenth WMO Education and Training Symposium (SYMET-14) which will be held in 2021, as additional input to the development and promotion of education and training activities of the Organization; ***(All CDP Members to be involved)***

EC-73 Decision 9 (Decides 9): Conduct an assessment of and clarify the roles and responsibilities of the different actors as well as the different funding mechanisms involved in WMO Capacity Development activities; *(CDP-ET-RMPDA to lead)*

EC-73 Decision 9 (Decides 10): Make recommendations and develop strategies to strengthen sub-regional, regional, inter-regional and other cooperation groups in order to establish synergies at inter-regional and sub-regional levels and to identify training and capacity-building opportunities. *(CDP-ET-RMPDA to lead)*

The agenda item was concluded with a note that expert teams are free to contribute to implementation of any aspect of the decision, in coordination with the ones in the lead.

The Expert Teams and the Task Teams need to prepare their implementation plans for the EC decisions and plan on progress report to EC-75.

Recommendation-1: As regards its future activities, the Panel will give priority to the implementation of Decision 9 (EC-73) and in this connection the Task Teams will contribute to the implementation of various aspects of the Decision, as contained in the report, in close coordination with the appropriate WMO Secretariat departments. It is also noted that there are other tasks from EC-72, including supporting of the independent evaluation of WMO projects, where the CDP-ET-RMPDA have been feeding into them.

3.2. Report on Infrastructure/INFCOM

Update from INFCOM for the Capacity Development Panel was presented by Jennifer Milton, the INFCOM representing member of the Panel. The key points that emerged from the presentation are as follows:

The new WMO Unified Policy for the International Exchange of Earth System Data, GBON and SOFF will create significant opportunities for Members. Communication, outreach and training will be key activities for the implementation of the Data Policy and roll out of GBON;

Updates on Guidelines and regulatory material are to be expected in a number of priorities such as GDPFS products, GBON, WIS 2.0 etc. Outreach and training activities are required to support their implementation and use;

INFCOM supports the coordinated work done within the CDP and its Expert Teams and will ensure continued coordination, feedback, and promotion of training and capacity development initiatives. The full report is provided in Annex-III.

3.3. Report on Services/SERCOM

The report was presented by Prof Roger Stone, the SERCOM representing member of the Panel. It contained the following recommendations:

- A strategic focus on the need for appropriate government placements and settings for NMHSs, as well as the need for government leadership in capacity development.
- Need for emphasis on twinning, partnership, pooling, sharing, communities of instructors, and regional co-operations - in order to achieve effective outcomes in capacity development and institutional cooperation.
- Focus on need to enhance the inclusion of multi-disciplinary personnel, enhance staff progression, qualifications, use of supplementary guidance, and use of case studies.
- Focus on enhancing gender equality and developing those in management positions.
- The value of user training, user agency training, "train-the trainer", distance learning, blended learning, needs to be explored.
- Need to enhance collaboration between the Capacity Development ETs in the different Standing Committees (of SERCOM).

Further details on the report are contained in Annex-IV.

3.4. Report on Science and Innovations/Research Board

The report was presented by Prof Jürg Luterbacher, Director of Science and Innovation Department. It was noted that WCRP promotes current and future leadership in climate science, making particular efforts to support and engage Early Career Researchers (ECRs) from all regions of the world, towards a sustainable climate research community. Key highlights of the presentation are as follows:

- WCRP undertakes a range of Capacity Development Activities, including e.g., summer schools, workshops, sponsorship (incl. new CliC Fellowships);

- Climate Research Forums for different regions including young researcher involvement;
- ECRs are directly involved in WCRP activities, including on panels and working groups in the WCRP Core Projects and in the new WCRP Lighthouse Activity science teams;
- Capacity development activities in 2020-21 were strongly impacted by COVID-19;
- Capacity Development initiatives (e.g. summer schools, training workshops) were postponed, cancelled, or proceeded in an online format;
- ECR involvement in WCRP activities via online meetings was generally good;
- The WCRP Academy's mission is to equip current and future climate scientists with the knowledge, skills, and attributes required to tackle the world's most pressing and challenging climate research questions, and;
- The need to actively work towards ensuring closer collaboration between WMO Regional Training Centres of and research entities.

See Annex-V for the full presentation.

3.5. Report on Hydrology and Water Resources/HCP

The report on Hydrology and Water Resources and Hydrological Coordination Panel (HCP) was presented by Claudio Caponi, Senior Scientific Officer, Water and Cryosphere Coordination. The outcomes of EC-73 related to hydrology are as follows:

- Recommended to Congress the adoption of the WMO Vision and Strategy for Hydrology and its associated Action Plan.
- Requested HCP to conduct a series of workshops to present the Vision and Strategy and its associated Plan of Action to RAs and Members using RAs fora for Hydrological Advisers and pre-Cg-Ext. (2021) consultation meetings.
- Decided to endorse the draft WMO Water Declaration.
- Noted the Secretary-General's initiative to co-organize the Water and Climate Coalition.
- Requested the Chair of HCP to facilitate a consultative process with the PRs, Presidents of RAs and TCs, Chair of the RB, Chair HCP and National Hydrological

Advisers for the purpose of finalizing and familiarizing the above-mentioned parties with the draft Declaration for consideration at Cg-Ext. (2021).

The presentation also highlighted initial ideas on how CDP can contribute to the implementation of the Plan of Action on WMO Vision and Strategy for Hydrology

- Training workshops dedicated to interested RTCs on the use of portal being developed on interoperable technologies, including models and platforms, for flood forecasting.
- Discussions on how to integrate in academic curricula the most recent outcomes of the TCs work in the area.

Full report on Hydrology and Water Resources/HCP is available as Annex-VI.

3.6. Report of the Representative of WMO-IOC Joint Collaborative Board (JCB)

The report was presented by Sarah Grimes, Head of Marine Services Division, on behalf of Omar Chafki, the JCB representing member of the Panel, with a highlight of the aim of the WMO-IOC Joint Collaborative Board (JCB) as follows:

- (1) Maximize opportunities to co-design joint work to improve the provision of information and services for societal benefit;
- (2) Suggest initiatives to improve end-to-end links; enhance connections with research;
- (3) Influence how WMO and IOC jointly enable the delivery of information and services;
- (4) Consideration of regional needs across these themes.

The full report is available as Annex-VII.

3.7. Report on Data Policy/GBON/SOFF

The report on the Systematic Observations Financing Facility (SOFF) was presented by Markus Repnik, Director of Development Partnerships. Highlights of the presentations are as follows:

What is the SOFF?

- A “UN coalition” (WMO, UNDP, UNEP) to address a foundational problem in a systematic manner – missing surface-based observations from developing countries
- A dedicated and innovative financing mechanism that will provide grants and technical assistance to achieve sustained GBON compliance, with a focus on LDCs and SIDS
- A mechanism that is **built on peer-to-peer collaboration and support** among national meteorological services, harnessing their operational experience as providers of peer technical advice and assessments (**Country Support Initiative, Country Hydromet Diagnostics**)
- A multi-partner initiative and commitment of the **Alliance for Hydromet Development** (coalition of 13 major climate and development finance partners), spearheaded by WMO and **supported by beneficiary countries and multiple stakeholders.**
- An **initiative with an exclusive focus on the initial part of the meteorological value chain** that creates the foundation for effective weather and climate information services policy and investment decisions.

How will SOFF outputs translate into last-mile benefits?

SOFF systematic focus on the initial link in the value chain, as a necessary basis for any regional or national weather and climate services.

The full presentation is available in Annex-VIII and more about SOFF in communication and knowledge products available here: <https://alliancehydromet.org/systematic-observations-financing-facility/>

4. Progress report on activities of the Expert Teams (ETs)

Under this agenda item, Capacity Development Panel Expert Teams and the Task Team reports were presented by the facilitators.

Recommendation-2: Expert Teams and Task Team will continue with their respective work plans with the aim of formulating recommendations to EC-75 on issues that are germane to capacity development in WMO.

4.1. Report and Recommendations of the Expert Team on Policy Development and Institutional Matters (CDP-ET-PDIM)

The report of the CDP-ET-PDIM was presented by Dr Winifred Jordaan, the facilitator of the team.

4.1.1. *Report on activities of CDP-ET-PDIM*

The CDP-ET-PDIM held two virtual meetings on 11 May 2021 and 16 August 2021.

She highlighted the original project details for which the Team was tasked as follows:

- (i) Legislative measures, strategic and operating plans, WMO Gender Equality Action Plan.
- (ii) Communications, outreach and negotiation needs and skills.
- (iii) Advocacy efforts to governments, end-users, decision-makers on the socio-economic benefits of investments in NMHSs.
- (iv) Assistance to NMHSs to incorporate WMO and national requirements into national policy, legislative frameworks and national development plans.
- (v) Review the activities of the technical commissions and regional associations aimed at developing, communicating and assisting NMHSs in developing countries to comply with WMO standards and recommended practices.
- (vi) Review and analyse gaps in the WMO Gender Equality Action Plan and provide guidance regarding WMO efforts in gender equality.
- (vii) Policy-related gaps in the capacity of NMHSs to exchange data, to deliver adequate services, to comply with WMO Standards and recommended practices, bearing in mind the Geneva Declaration 2019 (Public, Private partnerships included).
- (viii) Promotion of principles to global meteorology, hydrology and climatology including authoritative voice, common standards, data and product sharing.

Looking at the original scope, duplications were identified, it was decided to collapse the 8 details into the following 5 as follows:

Task A

(v): Identify the current gaps to the compliance of Members, particular developing countries, to WMO standards and recommended practices and will encourage the establishment of systems between TCs, RAs and the WMO Secretariat for improved capacity development support and:

(vii): Identify the policy gaps in capacity of NMHSs to the free exchange of data, delivery of services, to comply (as in project v) to the required standards and recommended practices,

Task A will thus concentrate on current gaps to compliance of members to WMO standards and recommended practises including identification of gaps in policies addressing capacity and free exchange of data

Task B

(i): Legislative measures, strategic and operating plans, WMO Gender Equality Action Plan

(vi): Address gender equality.

Task B will look at legislative matters, strategic and operating plans that include gender equity action plans.

Task C

(ii): Communications, outreach and negotiation needs and skills: and

(viii): Promote the principles for global meteorology, hydrology and climatology including authoritative voice, common standards, data and product sharing

Task C will look at communication, promotion of global meteorology, hydrology and climatology including authoritative voice common standards and product sharing.

Task D

(iii) stands alone: Advocacy efforts to governments, end-users, decision-makers on the socioeconomic benefits of investments in NMHSs:

Task E

(iv) stand alone: Develop strategies to assist NMHSs to implement WMO and national requirements: This item will only become active as soon as the WMO strategy has been finalized.

4.1.2. Progress

Task A: Concentrate on current gaps to compliance of members to WMO standards and recommended practises including identification of gaps in policies addressing capacity and free exchange of data:

- The WMO data policies development was important as it addresses critical issues for NNMHSs that depend on the capital that the selling of data is bringing in, thus this issued was followed.
- Noted that the WMO data policy was updated with the input given and then re-circulated to NMHSs for input by September 2021 (for October extraordinary congress). The problem is that this is for all earth data and Meteorological Services are usually not the custodian of all the mentioned data. They need now to have discussions with other national relevant institutions and that will take time and get permission from the relevant ministers.
- Another issue registered is with the implementation of the free data exchange. There need to be a gateway to withdraw the data independently and that will take development and financial commitment that is not available. It is suggested that a generic programme that can withdraw data be made available that will serve the purpose.
- A list of the standards and competencies was made. As the aviation competencies are mandatory it is of course necessary to follow that.
- Need to follow the implementation of new BIP-M and BIP-MT curriculums as soon as it is approved.
- Other standards and competencies will have to wait until there is a real need unless there is a specific request. Marine might be identified as important as well.

Task C: Communication, promotion of global meteorology, hydrology and climatology including authoritative voice common standards and product sharing:

- It was noted that the WMO country basis is not open to all and asked for permission to access the information.
- Product share will be interesting to follow, especially with the MTG implementation. The display of the MTG is becoming critical and EUMETSAT is looking at options.
- The new BIP-M and BIP-MT updated document will be important, and the communications of the draft standards will have to be communicated clearly.

- Looking at the data required for the country data base sent out to all WMO members in 2021: it links again to the competency standards and the output of that will be important to assimilate. The group need to have access to the information gathered.

Tasks B, D and E: Many of the issues common is the newly defined tasks will be included in the updated Capacity Development Strategy being developed by a separate Task Team lead by David Farrell and John Ogren. Here is the status of that project.

- A draft outline of the new Capacity Development Strategy (CDS) was prepared in July
- The outline was sent to the WMO Secretariat, Technical Departments, Tech Commissions and boards, and Regional Associations for feedback.
- Overall, the outline was accepted with a few minor changes based on comments received.
- Dr Smith is beginning to write the introduction sections of the CDS
- Other sections of the report will be assigned to the appropriate WMO department, Commission or board for draft authorship.
- It is hoped a rough draft of the CDS will be available for another round of review in the October timeframe.
- Task E is officially on hold until the WMO strategic plan is developed to give guidance to other NMHSs.

The full presentation is in Annex-IX.

4.2. Report and Recommendations of the Expert Team on Human Resources Development, Education and Training (CDP-ET-HRDET)

The report of the CDP-ET-HRDET was presented by Dr Anna Timofeeva, the facilitator of the team.

4.2.1. Report on activities of CDP-ET-HRDET

It was noted that during the reported period, the CDP-ET-HRDET held consultations with WMO ETR and the Team members by e-mail. Furthermore, also recalled that the second meeting of the EC Capacity Development Panel (CDP-2) which was held virtually on the 3rd and 4th of February 2021. ET-HRDET outlined the following recommendations to be included in the report of CDP chair to EC-73:

1. The Secretary-General is requested consider holding SYMET 14 this year.
2. The WMO Secretariat should take into account the recommendations of the WMO Global Campus Event "Responding to Challenges Beyond the New Normal" (held online 20-22 January 2020), as contribution to SYMET.
3. Given the need for closer collaboration between the TDs in education and training, to recommend to EC to set-up a programme of targeted fellowships to address the gaps in training.
4. As a way of developing resources for leadership of NMHSs, to recommend EC-73 to request the Secretary-General to prepare a publication on Leadership and Management, based on experience of the training programmes organized by WMO in collaboration with Meteorological Services of Singapore for Regional Associations II and V since 2018.

The report made reference to the fact that competency standards for Meteorologists and Meteorological Technicians are currently under review and revision. The latest draft revisions of the BIP-M and BIP-MT was made available in March 2021, with the 3rd revision of these as a joint document to appear in September-October 2021. It will be circulated to Regional Training Centers and Universities for comments with the hope of receiving feedback in November-December to submit the final version to the Executive Council in spring 2022.

The report was concluded with the following recommendations:

- Need for continuation of work on update and revision of BIP-M & BIP-MT.
- It is important to contribute to the review of a publication on leadership and management.
- Continuation of contribution to the preparation and delivery of Fourteenth WMO Education and Training Symposium (SYMET-14).

The full presentation is in Annex-X.

4.3. Report and Recommendations of the Expert Team on Capacity Development through WMO Technical Departments (CDP-ET-TDs)

The report of the CDP-ET-TDs was presented by Dr Carla Gulizia, the facilitator of the team.

4.3.1. Report on activities of CDP-ET-TDs

During the reported period, the CDP-ET-TDs members met on April 20th. Facilitators from the other CDP Expert Teams (ETs) as well as from the CDP Task Team (TT) were invited to take part in the meeting. The facilitator of the TT and the invited subject matter expert gave an update on the progress of the revision of the Capacity Development (CD) Strategy and the ET members discussed potential ways of interaction and how to contribute to the work of the TT. Ways of sharing good practices were also discussed. The meeting recommended the need to prepare a consolidated living repository including all the relevant information gathered from ET-TDs members during each inter-sessional period. This documentation should be updated accordingly after every session of the Executive Council to take into account the new requirements and approved decisions. The preparation of this repository could serve to feed into the CD Strategy update. The WMO available resources such as the Global Campus, the Learn Portal, and/or the Moodle could be explored for the preparation of the documentation, as a way of supporting the use of these useful sources of information.

It was reported that the Chair of the CDP, Dr Kijazi, as well as the facilitators of the CDP-ET-RMPDA and CDP-ET-TDs were invited to actively participate at the *"Strengthening collaboration among NMHSs and WMO Centers for effective support to Members through extra-budgetary projects"* Meeting held online between March 10th - 12th, 2021. This meeting included an overview of the WMO extra-budgetary project portfolio and types of support provided to Members with the project funds. Dr Gulizia presented an overview of the CDP-ET-TDs work and shared several recommendations and observations provided by this ET into the CDP-2 for consideration for ongoing and emerging implementation arrangements and extra-budgetary projects. A summary of the meeting's outcomes was shared through the CDP-ET-TDs Moodle Forum. The report will be widely shared for consideration to all the representatives in Technical Commissions and WMO Bodies to ensure that they can take into account the outcomes of this meeting which they can find relevant for the work at the respective TCs. These may also serve as a pertinent input for feeding into the CD Strategy revision. Several observations extracted from the outcomes of this meeting are listed below. These are put for consideration to the CDP and could also serve as input for the CD Strategy.

It was also noted that capacity development requirements are very different depending on the geographical region. Taking into account the local knowledge, building on strong examples in current and past projects and having the sufficient time to engage in the twinning arrangement and training component are some of the successful experiences shared throughout the meeting. These good practices, in line with some of the CDP-2

recommendations, should be promoted in other ongoing and emerging agreements. Other issues that came up are:

i) The need to accelerate the update in seasonal and subseasonal products as most are based on statistical approaches and this could be contributed with further collaboration involving academics and scientific institutions with the support of the WMO Research Programmes (e.g. WWRP, WCRP).

ii) The importance of close coordination with WMO including parallel projects is helpful in linking up with Partners. Interaction with Technical Commission experts, regional institutions and Regional Centers can provide continuous support to the NMHSs and link together the different projects. National and Regional Climate Forums are useful platforms for this aim.

ii) The essence of close coordination between projects in WMO and with other WMO Development Partners, with regional and sub-regional coordination mechanisms (e.g. building upon other existing coordination mechanisms).

iii) The need to engage the WMO Hydrological Community in twinning arrangements and extra-budgetary projects (both as beneficiaries and implementing partners) could be further expanded so WMO can provide wider and more integrated support to Members. Project proposals from across WMO could be supported by the Hydrological Coordination Panel (HCP) to help engage the hydrological community's needs and capabilities.

iv) That the experiences and capacities from previous cooperation in one developing country can be upscaled to neighboring countries, with similar challenges and opportunities through new projects promoting South-South cooperation.

It was also reported that the WCRP is conducting regional consultations on its new structure and implementation plan. These include the exchange of ideas, discussion of new activities and opportunities that WCRP is developing and exploring ways in which not only the scientific community but also funding agencies, other partner programs like Future Earth, as well as end-users and decision-makers using climate science, can get involved.

The facilitator of the CDP-ET-TDs, Dr Gulizia, has been co-leading the WCRP Forum for South America, taking into consideration the recommendations discussed and agreed during the CDP-2 Meeting, particularly in line with "Developing strategies to foster engagement of academics and NMHSs staff at the local and regional levels on research questions and ways in which results could be applied for improved operational delivery" and "...foster systematic contribution from the academia towards enhancement of research-to-operation connection as additional way of strengthening capacity of NMHS..".

More information about the WCRP Climate Research Forums can be found at <https://www.wcrp-climate.org/climate-research-forums>.

The full presentation is in Annex-XI.

4.4. Report and Recommendations of the Expert Team on Resource Mobilization, Partnerships and Development Assistance (CDP-ET-RMPDA)

The report of the CDP-ET-RMPDA was presented by Karen McCourt, the facilitator of the team.

4.4.1. Meetings and wider input

Since the first CDP virtual meeting in August 2020, the CDP-ET-RMPDA has held two virtual meetings. In addition, the facilitator, Karen McCourt, had several discussions with members of the WMO Secretariat around the proposed outputs outlined below, alongside discussions by mail with those in the ET.

4.4.2. ET-RMPDA TORs

Monitor and make recommendations on the following:

- (i) Provide guidance and oversight regarding WMO efforts to strengthen assistance to the NMHSs of Developing and Least Developed Countries
- (ii) The facilitation of twinning arrangements and other innovative modes of bilateral cooperation.
- (iii) Strategies to leverage initiatives in the UN system and other development partner initiatives.
- (iv) Oversee and guide the implementation of the tasks of the Executive Council according to Resolution 8.3/1 (Cg-18). In particular, ensure that WMO activities that support capacity development, including the Country Support Initiative and VCP, as well as WMO-related CREWS activities, are complementary and take into consideration the unique national context of Members.
- (v) Strategies for identifying opportunities; how to best apply extra-budgetary resources to maximise impacts; develop guidance for NMHSs on resource mobilization strategy.
- (vi) Approaches to develop, implement, monitor and evaluate projects.

(vii) Partnerships, promotion of multilateral and bi-lateral collaboration, Public-Private Engagement (PPE), interagency collaboration including WMO-IOC JCB.

4.4.3. Drivers for proposed outputs

The focus of current and future activities under the ET are focused on linking in with TORs outlined above, and making sure any activities:

- (i) Add value to the work of WMO – with a focus on providing feedback/guidance as opposed to practical implementation of specific capacity development activities (much of which is being done elsewhere across WMO, and by Members);
- (ii) Assist with the effective coordination of capacity development across WMO, which is believed to be central to the TORs of the wider Panel;
- (iii) In line with b), feed into work on the revised Capacity Development Strategy;
- (iv) Complement, rather than duplicate, any other work in the CDP-ETs and across WMO;
- (v) Recognises the busy schedules of all team members and contributors to the ET, so ensuring that we are prioritising those activities that will add most value as per a); and
- (vi) Consider feedback from relevant WMO bodies, including from Cg-18 in 2019, and EC-72 & 73 held virtually in September 2020/June 2021.

4.4.4. Update on ET-RMPDA Activities and Outputs

- (i) Assessment of key development needs/gaps in each Region (including consideration of significant upcoming initiatives under the Technical Commissions and Research Board which may require capacity development support) to feed into the revised Capacity Development Strategy (2022)

TOR link: All

Update: This links with the EC72 feedback: "To identify opportunities and complementarity between all WMO initiatives to strengthen capacity of developing Members when reviewing the WMO Capacity Development Strategy" and was recommended to EC73. It is proposed that this would not be looking in absolute detail but reviewing what are the KEY needs and assessing if these are being tackled effectively – and, if not, how/where might this be done across WMO and Members.

The ET-RMPDA has made contact with Dr Michael Smith who will be working on the CDS and requested that this activity (with input from the RAs, TCs and RB), and previous ET-RMPDA discussion around this, will be taken into consideration for the development of the CDS.

(ii) Review of current data collection platforms and methodologies and providing recommendations on how best to manage/streamline.

TOR link: (i), (v), (vi)

Update: In initial ET-RMPDA discussions it was recognised that there are already numerous data sources available/methodologies for collection of data within WMO, and the potential need for these to be rationalised. However, with the development of the new Country Hydromet Diagnostics (CHD) tool - being developed as a tool and approach to help provide NMHS peer-reviewed assessments of capacity, and to help inform and guide investments related to development projects – and which links to some of the existing collection platforms e.g. Climate Services Checklist; it was decided to adjust this activity to assist with the peer review of the CHD. The facilitator has been in contact with those leading on the CHD, and plans for the ET to assist with this peer review during September.

(iii) Review of/guidance on, initiatives (as discussed at EC72) and feedback to EC e.g. Country Hydromet Diagnostics tool, SOFF, others TBD in discussion with relevant WMO departments/programmes.

TOR link: All

Update: Discussion during CDP-2 in February 2021 emphasised the benefit of input from the CDP in major development initiatives including SOFF. Following this meeting it was discussed regarding ET-RMPDA being involved in peer review of SOFF but was decided at this time – and as SOFF development was mature – that input was not applicable at this stage. Instead it was agreed that the ET-RMPDA could best provide feedback into the CHD peer review, as above. The ET-RMPDA would welcome ongoing input and guidance from EC and the WMO Secretariat as to significant initiatives that it would be helpful for the CDP, and ET-RMPDA, to provide review and guidance on, and provide value in this way (in line with section 3.a)).

(iv) Support of the independent evaluation of WMO projects as requested by EC-72

TOR link: (i)

Update: In Decides 11 (EC-72), EC decided “To base the decision on scope and scale of future development projects implemented by the WMO Secretariat on a strategy that needs to be informed by an independent evaluation of relevance, effectiveness, efficiency and fiduciary risks of the current approach.” And the CDP to: “To support the independent evaluation of the WMO Secretariat implemented projects”.

The ET-RMPDA has fed into the initial scoping for the recruitment exercise for this consultant, and the details of the assignment are currently being finalised by WMO. The consultancy announcement is due to be issued in the first quarter of 2022 with the initiative commencing in the second quarter of 2022. At this point the ET-RMPDA will provide further input as appropriate.

It is anticipated, as part of this work, the consultant may include a review of materials/outputs related to the meeting mentioned in v.), as an introduction to the portfolio, how it is being implemented, and the perspectives of key stakeholders.

(v) Input into guidance/recommendations on the facilitation of twinning arrangements and other innovative modes of bilateral cooperation, and best practise for taking forward.

TOR link: (ii), (vi)

Update: During the period since the last CDP meeting, input was made into the meeting “Strengthening collaboration among NMHSs and WMO Centers for effective support to Members through extra-budgetary projects” facilitated by WMO 10th-12th March 2021.

There was a significant amount of useful feedback gathered from this meeting, particularly to guide future project implementation, and associated cooperation. The final approved version of the meeting report has been posted on the meeting website. It was further highlighted to WMO, and in discussion with the ET-TD, the importance of ensuring this valuable feedback could be further shared with and taken on board to be used practically, particularly by those technical departments involved in projects, and the TCs.

It should be noted that some of this feedback could also be helpful for the Capacity Development Strategy development and we would encourage the meeting output to be reviewed as part of this process.

We would also encourage that the other ET’s review the meeting output to check re links into current/future activities. For example, the ET-HRM/ET-PIM have noted some potential activity around leadership/management development. There was significant feeding during the meeting regarding the need for building capacity on project proposal writing/linking with strategic planning/working effectively with government and

development partners on resource mobilisation. Under the ET-RMPDA we also have proposed some work looking at best practise in working with Government/development partners which could hopefully also link in with this work (see vi.).

In addition, ET-HRD are due to look lessons from COVID/post COVID training and things such as blended learning approaches which were also brought up numerous times at the meeting. It was also noted regarding the need to keep curricula up-to-date and ensuring that there is consideration of upcoming initiatives and priorities from TCs. So this may also be an area which the ET-HRD could keep a watch on (and similarly may also feed into the Capacity Development Strategy).

(vi) Review and document recommendations on best practise in terms of working with development partners/Government (to enhance knowledge sharing in this area).

TOR link: (iii), (v)

Update: This links to feedback from EC-72 requesting the CDP to “To develop appropriate guidelines supporting the implementation of the WMO initiatives to strengthen the capacity of developing country Members” Professor Karnawati and her team in Indonesia have been working hard to pull together questionnaires – both online and in-person – and have been conducting numerous interviews across the WMO Membership and Secretariat. This has included LDCs, middle-income countries, and developed countries working in partnership with other NMHSs on capacity development activities. The analysis from this activity should be available in the next couple of months.

(vii) As per tasks from Res 8.3/1(Cg-18), ensure that WMO activities that support capacity development, including the Country Support Initiative and VCP, as well as WMO-related CREWS activities, are complementary and take into consideration the unique national context of Members. Reviewing how these (and other similar) initiatives can fit together and complement/benefit each other.

TOR link: (iv)

Update: A watching brief is continuing on this with some discussions with those involved with CSI, CREWS, and we hope to discuss further with VCP Members at a proposed meet later this year. It was noted that at EC73 there was an intervention (Doc 4.4): “To conduct an assessment of, and clarify the rules and responsibilities of, the different actors as well as the different funding mechanisms involved in WMO Capacity Development activities” (Decides 9) and we will look to incorporate this, in discussion with the Secretariat, in the work of the CDP and ET-RMPDA going forward.

It is proposed that this would not be looking in absolute detail but reviewing what are the KEY needs and assessing if these are being tackled effectively – and, if not, how/where might this be done across WMO and Members.

The full presentation is in Annex-XII.

5. Update on WMO Extra-budgetary Projects

The update was given by Filipe Luico, the Director of Regional Strategy Office. Steady increase in total financing and number of projects under implementation since September 2018 were highlighted.

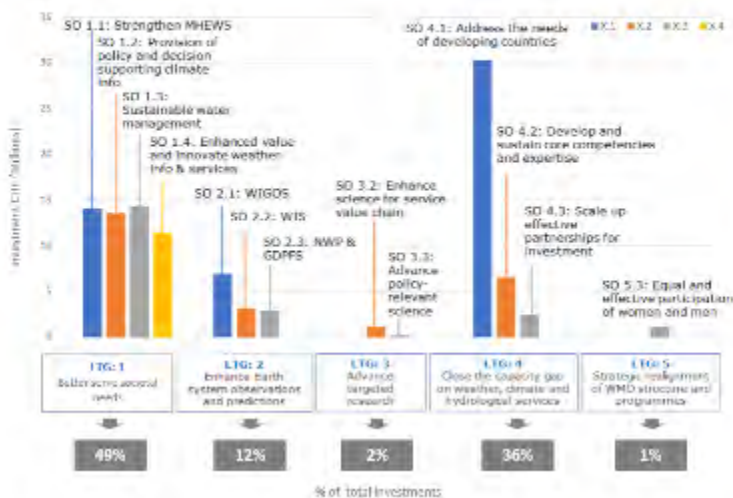
Key Developments:

- Continued increase in acquisition of resources for capacity development initiatives due to increasing request from Member States for WMO XB support through project implementation
- WMO supports implementation of over ~ CHF 250 M investments in weather, water and climate services to support WMO Members
- WMO directly manages a portfolio of 51 extra-budgetary funded projects incl. advisory services amounting to ~ CHF 112 M

Outlook:

17 projects in pipeline - approx. value ~ CHF 74 M

WMO Development Projects Projects' alignment with WMO Long Term Goals



Strategic Objectives (SOS) are inter-related and deal with strengthening MHEWS, provision of policy and decision in support of climate information, sustainable water management and enhanced value and innovation on weather information and services

Key-Developments compared to 2020

- LTG1: 1%
- LTG4: 2%
- LTG5: As the SOS activities are cross-cutting, WMO is working on extracting the data to better reflect the project portfolio's contribution.

5.1. Extrabudgetary Projects & Flagship Initiatives

5.1.1. Partnership Flagship Initiatives

Country Hydromet Diagnostics (CHD):

The CHD aims at informing members of the Alliance for Hydromet Development and Governments investment decisions and tracking progress in closing the hydromet capacity gap.

- The CHD is a standardized, practical, integrated approach for peer-to-peer review of the performance of public national hydrometeorological services, their operating environment, and their contributions
- It is an analytical foundation of the “readiness phase” of SOFF support that will be provided through the Country Support Initiative

Alliance for Hydromet Development & Alliance Hydromet Gap Report:

The Alliance aims to unite efforts to close the capacity gap on high-quality weather forecasts, early warning systems and climate information as the foundation for resilient and sustainable development

The Gap-Report aims at tracking progress and establishing a baseline for the Alliance commitments, capture lessons learned, guide investments and identify high impact priority actions

- Launched during COP-25 in Madrid, the Alliance brings together major climate and development finance partners
- The first Report was launched in July 2021 at the UN High-level Political Forum

5.1.2. Other programmes addressing the capacity gap on weather, water, climate and related environmental services

Checklist for Climate Services Implementation: WMO Members assess their capacity for providing climate services, documenting associated socio-economic outcomes and benefits through a checklist that addresses functional capacities across the climate services value chain.

State of Climate Services Report: This is a WMO coordinated multiagency report for assessing adaptation needs in climate-sensitive socio-economic sectors. It highlights

progress made in EWS implementation globally and identifies where and how governments can invest in effective EWS to strengthen countries' resilience to multiple weather, climate and water-related hazards.

Help Desk on Integrated Flood Management: The help desk provides guidance to Members on different aspects of flood mgmt., integrating the technical aspects of flood forecasting and flood risk mapping into other institutional, socio-economic and environmental aspects related to the management of floods.

WMO Hydrology Survey: The Survey aims to collect information on governmental and non-governmental organizations that are responsible for operational hydrology within countries, their capabilities, structure, hydrological networks, data management and hydrological forecasting characteristics.

CREWS Initiative & CREWS Trust Fund: CREWS aims to save lives, assets and livelihoods through increased access to early weather warnings and risk information in LDCs and SIDS. Its overall objective is to substantially reduce disaster mortality by 2030 by significantly increasing access to early warnings and risk information.

CREWS is a financing mechanism leveraging the expertise and specialist networks of its Implementing Partners, the WMO, WB GFDRR and UNDRR. As of December 2020, contributions to the CREWS Trust Fund totalled to US\$ 66.16 million.

Community Platform (previously WMO Country Profile Database - CPDB): Features provided for WMO Members:

- Centralized experts database with self-service functionality to ensure contact information, roles and group memberships are up to date.
- Information collected regarding countries and territories are available in the Member profiles.

Based on the consolidated data available in the Community Platform, monitoring and evaluation can be systematically improved, more comprehensive Member profiles can be created as well as thematic dashboards for different stakeholders to better support evidence-based decision-making.

5.1.3. Under Development: Partnership Flagship Initiatives

Systematic Observations Financing Facility (SOFF): Strengthen local and global resilient development and climate adaptation through improved observing systems leading to better weather forecasts and climate services

- SOFF will provide technical & financial assistance by applying internationally agreed metrics to guide investments based on:
 - The requirements of the GBON
 - Using data exchange as a measure of success
 - Creating local benefits while delivering on global public good
- SOFF will provide grant support to LDCs and SIDS for capital investments
- The creation of SOFF is a commitment/priority action of the Alliance for Hydromet Development.

Global Basic Observing Network (GBON): GBON sets out a clear obligation for all WMO Members to acquire and internationally exchange the most essential surface-based observational weather data.

- GBON was established in 2019 by the World Meteorological Congress
- Contributes to the SOFF
- Substantial investments and strengthened capacity are required by many countries to achieve and maintain compliance with GBON requirements

5.2. Independent Evaluation of WMO's Approach to Projects

It is noted that assisting with the Decision 11 (EC-72), "*To base the decision on scope and scale of future development projects implemented by the WMO Secretariat on a strategy that needs to be informed by an independent evaluation of relevance, effectiveness, efficiency and fiduciary risks of the current approach*" is also one of the tasks of CDP-ET-RMPDA.

Zero draft Terms of Reference (ToR) developed and presented: Development in consultation with Capacity Development Panel focal point & Internal Oversight Office. Presented at PMB 30, where a brief discussion was held on the nature of the independent evaluation.

Review of the zero draft through PMB: PMB 30 Members were invited to comment on the draft TOR.

TOR revised: Based on additional comments provided by PMB in June 2021, ToR were revised.

Finalization of ToR: Several internal documents (e.g. GFCS) are being used as reference material to ensure the design of a standard and robust approach for the consultancy.

5.3. Strengthening collaboration among NMHSs and WMO Centres for effective support to Members through Extra-budgetary Projects

The meeting was held from 10 to 12 March 2021, and below are some of the conclusions from the meeting relevant to the CDP:

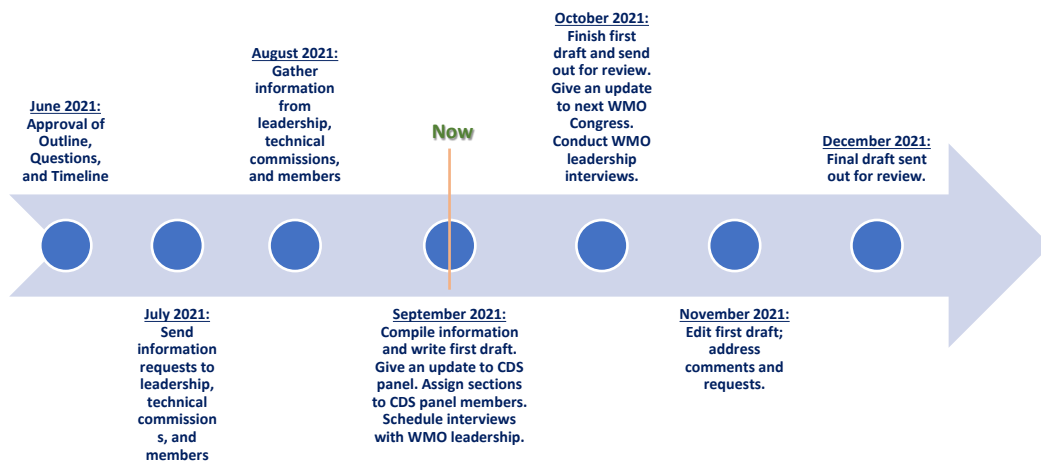
- Local knowledge, building on strong examples in current and past projects and having the sufficient time to engage in the twinning arrangement and training component.
- Accelerating the update in seasonal and sub-seasonal products as most are based on statistical approaches - involving academics and scientific institutions - support of the WMO Research Programmes (e.g. WWRP, WCRP).
- Interaction with TCs experts, regional institutions and RCs for continuous support to the NMHSs.
- Coordination among partners at the design stage - building upon other existing coordination mechanisms.
- Project proposals could be supported by the HCP to help engage the hydrological community's needs and capabilities.
- Experiences and capacities from previous cooperation in one developing country can upscale to neighboring countries, with similar challenges and opportunities through new projects promoting South-South cooperation.

The full presentation is in Annex-XIII.

6. Progress report on revision of WMO Capacity Development Strategy (CDS)

Update on the work of Task Team (TT) on Capacity Development Strategy (CDS) was given by John Ogren, the facilitator of the Task Team and Vice-chair of the CDP, as follows:

- A draft outline of the new Capacity Development Strategy (CDS) was prepared in July 2021.
- The outline was sent to the WMO Secretariat, Technical Departments, Tech Commissions and boards, and Regional associations for feedback.
- Overall the outline was accepted with a few minor changes based on comments received.
- Introduction sections beginning to be written.
- Other sections of the report will be assigned to the appropriate WMO department, Commission or board for draft authorship.
- It is hoped a rough draft of the CDS will be available for another round of review in the October timeframe.



Recommendation-3: Conclusion of the review process of the WMO Capacity Development Strategy.

7. Preparation for Fourteenth WMO Symposium on Education and Training (SYMET-14)

The Symposium on Education and Training (SYMET) is organized by the WMO Education and Training Office once every four years to assist the international community in meeting current meteorological and hydrological education and training challenges and those that are foreseen to arise over the next five to ten years. This year, the fourteenth SYMET will be held online from 22 to 25 November 2021. The theme of SYMET-14 will be "Education

and Training in a Period of Rapid Change”, chosen to emphasize the challenges we all face in confronting the rapidly progressing technology, service delivery expectations, globalization of the meteorological enterprise, growth in urban environments, and impacts of climate change, among others. A meeting of Directors of Regional Training Centres and Education and Training Collaborators will follow on 26 November 2021. An update on preparation of SYMET-14 was provided by Dr Anna Timofeeva.

International Advisory Committee (IAC):

The Panel was informed that an IAC was established with the the following as members:

- Prof Andrew Charlton-Perez, UK (Co-Chair)
- Dr Anna Timofeeva, Russian Federation (Co-Chair)
- Mr Omar Chafki, Morocco,
- Prof Christophe Cudennec, France
- Dr Somenath Dutta, India
- Dr David Farrell, British Caribbean Territories
- Dr Winifred Jordaan, South Africa
- Ms Jennifer Milton, Canada
- Prof Christoph Mueller, Germany
- Prof Peter Odjugo, Professor, Nigeria
- Mr John Ogren, USA
- Dr Mary Scholes, Professor, South Africa
- Prof Roger Stone, Australia
- Dr Zhiqiang Wang, China
- Mr Christopher Webster, New Zealand

Two online meetings were held between the Secretariat and the co-chairs of the organizing committee and a Provisional Agenda has been developed. Invitations were sent to members of the organizing committee with an invitation to join the discussion of the agenda. “Eastern” and “Western” hemisphere meetings of the IAC were held to ensure wider participation (in total 13 IAC members + WMO ETR attended). A [SYMET-14 Website](#) on ETRP Moodle Platform has been created for the organizing committee was organized to discuss the preparation for the symposium. The same website will be used for SYMET-14 registration and abstract submissions.

Format of the Symposium:

The SYMET-14 will be fully online and interactions will be held in two main forms:

Live discussions and presentations – Zoom with interpretation (all 6 WMO official languages) available in plenary sessions (no interpretation in working group discussions). Time for live interactions will be limited to keynotes, plenary talks and working group discussions.

Virtual poster sessions – SYMET-14 participants will be invited to submit posters for virtual display. This will allow the symposium participants to view and comment on posters, connecting directly with poster presenters. These asynchronous interactions will support participants from various time zones to make important connections and share their ideas.

Discussions:

Working Groups – The working Groups will be set up to discuss pre-defined themes. Themes will be defined by IAC. Participation in the working group discussions may have to be limited in order to allow manageable and effective discussions.

- Working Group-1: Securing institutional commitment to share learning resources
- Working Group-2: Newly proposed WMO ETR Education and Training Board
- Working Group-3: Micro-credentials and credit transfer, how could we proceed
- Working Group-4: Considering new pedagogical approaches and assessment methods, including the future uses of blended learning
- Working Group-5: Technological barriers to online learning, and using partnerships between online education providers to overcome them
- Working Group-6: Supporting the lifecycle of professionals: From the decision to enter the discipline, to continuous learning, to maintaining job satisfaction and competency
- Working Group-7: Where are the content area expertise gaps within in our academic teaching staff members? How do we identify and fill these?
- Working Group-8: Review and input on the new Capacity Development Strategy draft developed by the Capacity Development Panel
- Working Group-9: How do we identify the critical regional needs for the professional development of operational staff? How do we ensure that appropriately qualified participants who need to apply the planned training attend our training events?

Regional working groups – These sessions are intended to support discussions and coordination of efforts specific to each Region. The live sessions for these working groups will be time-zone dependent.

Symposium Statement - The symposium statement should contain SYMET-14 participants' observations and recommendations, serving as an important document to support and

influence institutional, national and regional authorities on the implementation of SYMET-14 recommendations.

Recommendation-4: Deliberate on the outcome of the Fourteenth WMO Symposium on Education and Training as an item on the agenda of the fourth meeting of the Panel.

8. Concept on Education and Training Board

The draft concept note on a proposed WMO Education and Training Board was introduced by Dr Yinka Adebayo, Director of the Education and Training Office. He noted that the objective the proposed board is to strengthen coordination and sustainability of education and training efforts by providers on meteorology, hydrology and related environmental disciplines.

The aimed overall benefits are:

- Increased training opportunities to support broadening of the knowledge-base, skills and job competencies of NMHS staff, especially NMHSs in Least Developed Countries (LDCs), Small Island Developing States (SIDS) and Developing Countries in general;
- Increased cooperation among WMO RTCs and other training institutions and access to existing training for WMO competencies resulting in streamlining the development of education and training programmes and resources by participants;
- Narrowing of the gap in the quality of training programmes and resources between training institutions;
- Increased interaction with WMO programmes and Commissions and promotion of compliance with WMO standards;
- Reduction in the overall cost of some training events, thus allowing more persons to receive high quality training because of the Global Campus quality assurance process;
- Reduction in the environmental impact of training;
- And ultimately, contribute to development and delivery high quality products and services by NMHSs and other beneficiaries.
- CD activities in hydrology and water resources

Consultation and review of Concept:

The concept on the Education and Training Board was presented to the WMO Education and Training Commission in recent meeting (ETCOM 21-1) and was well received.

Following recommendation by ETCOM, WMO Technical Departments were invited to review the concept and provide comments, which are being collected. We invite the Capacity Development Panel to review the Concept note and provide comments and suggestions to ETR. The Concept will be presented and further discussed during the 14th Symposium on Education and Training (SYMET-14) in November 2021.

The [draft concept note](#) is available on the CDP Moodle Website and comments from the CDP members are welcomed.

Recommendation-5: Review the proposed WMO concept on Education and Training Board and formulate appropriate recommendation for consideration by EC-75.

9. Revision of Education and Training Publications

A revision of education and training related publications, including new publications and publications to be reviewed, was provided by Secretariat. The list of these publications and their status is in Annex-XIV.

Recommendation-6: Contribute to the review of various publications under preparation by the Education and Training Office.

10. Review of WMO Regional Training Centres (RTCs)

The Panel was informed by Secretariat that 43 components including, universities, training centres, and education and training institutions, hosted in 28 Members are the recognized WMO Regional Training Centres.

The Forty-eighth session of the WMO Executive Council (EC-48) established mechanisms for the continuous monitoring of WMO RTC activities. In addition to the WMO Education and Training Office (ETR) monitoring their activities on an ongoing basis, it is required that a two-step review process should be applied to every WMO RTC after every two financial periods (eight years), if possible. The review process consists of the completion of a Self-assessment Questionnaire followed by an external review led by a nominated expert. This exercise is a necessary oversight function that ensures that the standard of the RTCs, and their performances are kept at desired levels.

Consequently, the review looks at the quality of the education and training (e.g. the level of benefit that the individual receives from training, and to the extent possible, trends in trainees' achievements following the training completion) and the quantity (e.g. number of training programmes, number of trainees, particularly the number of foreign students). Hence the review process supports the WMO RTCs in providing high quality training programmes not only for Members in their respective regions, but also globally. In addition, the external review ensures that the WMO RTCs meet regional/international training needs.

The process includes a self-assessment made by the WMO RTC components by completing a Self-assessment Questionnaire and an external review carried out by an External Review Team. A representative of the Secretary-General and a local member nominated by the Permanent Representative of the Member with WMO will also join the External Review Team as member. The External Review Team consider: (1) the Self-assessment Questionnaire, (2) the EC Criteria for the Recognition of WMO RTCs, (3) implementation of the recommendation made during previous review, (4) contributions of RTC to regional/international education and training in meteorology, (5) qualifications of faculty, curricula, facilities and, (6) evaluation methods, funding and future plans.

The Panel agreed on the conveners of the following RTCs: RTC China (Anna Timofeeva, tbc), RTC Turkey (Marina Baldi), RTC Italy (Karen McCourt), Indonesia (Winifred Jordaan), Israel (Jennifer Milton).

Recommendation-7: On the invitation of the WMO Secretariat, take part in review of WMO projects and assessment of WMO Regional Training Centres (RTCs).

11. Future activities and tentative dates of the next meeting (CDP-4)

The Panel agreed that the fourth meeting of the Panel (CDP-4) to be held in the week of 14-18 February 2022. The intention to host the meeting face-to-face in Geneva remains, but confirmation will depend on WMO guidelines.

Recommendation-8: Convey fourth meeting of the Panel which should focus mainly on finalization of recommendation for EC-75.

12. Any other Business and Closure of CDP-3

Following the closing remarks of the Secretary-General, the Vice-chair of the Panel declared the meeting closed at 15:30 UTC on 16 September 2021.

ANNEXES

Annex-I: List of Members of the WMO Executive Council (EC) Capacity Development Panel (CDP)

Chair

Dr. Agnes L. KIJAZI (advised by Wilbert Muruke, wilbert.muruke@meteo.go.tz)
Director General, Tanzania Meteorological Authority (TMA)
3rd Vice-President of WMO
agnes.kijazi@meteo.go.tz

Vice-Chair

John OGREN (advised by Elizabeth Page, epage@comet.ucar.edu)
Chief Learning Office, U.S. National Weather Service
USA
john.ogren@noaa.gov

Regional Association I

Dr. Winifred JORDAAN
Head of the Regional Training Centre
South Africa
Winifred.Jordaan@weathersa.co.za

Raholijao NIRIVOLOLONA
Director General of Meteo Madagascar
Madagascar
niriraholijao@gmail.com

Regional Association II

Dr. Somenath DUTTA
Scientist-F & Head of Meteorological Training Institute (MTI)
India
dutta.dr.somenath@gmail.com

Dr. Zhiqiang WANG
Deputy Director-General
China Meteorological Administration (CMA) Training Centre (CMATC)
China
wzq@cma.gov.cn

Regional Association III

Dr. Carla GULIZIA

Assistant Researcher, Universidad de Buenos Aires (UBA)
Argentina
gulizia@cima.fcen.uba.ar

Regional Association IV

Dr. David FARRELL

Principal, Caribbean Institute for Meteorology and Hydrology (CIMH)
British Caribbean Territories
dfarrell@cimh.edu.bb

Regional Association V

Prof. Dr. Dwikorita KARNAWATI (advised by Anni ARUMSARI,
anni.arumsari@bmkg.go.id)

Head, Indonesia Agency for Meteorology, Climatology and Geophysics
(BMKG)
Indonesia
international.cooperation@bmkg.go.id

Regional Association VI

Karen McCOURT

Chair of the WMO VCP Informal Planning Meeting (IPM), MetOffice
United Kingdom
karen.mccourt@metoffice.gov.uk

Dr. Anna TIMOFEEVA

Executive Director of the WMO RTC in the Russian Federation
Russian Federation
ipkfin@yandex.ru

Representative of the Presidents of the WMO Regional Associations (RAs)

Evan THOMPSON

PR of Jamaican Meteorological Services and President of RA-IV
Jamaica
e.thompson@metservice.gov.jm

Representative of the WMO Regional Training Centres (RTCs)

Prof. Dr. Peter ODJUGO

Professor, Director of RTC Nigeria
Nigeria

paoodjugo@yahoo.com

Representative of the Services Commission (SERCOM)

Prof. Dr. Roger Stone

Director (Centre for Applied Climate Sciences)
University of Southern Queensland
Australia

Roger.Stone@usq.edu.au

Representative of the Hydrological Coordination Panel (HCP)

Prof. Dr. Christophe CUDENNEC

Professeur, L'institut Agro, Agrocampus Ouest, IAHS
France

cudenec@agrocampus-ouest.fr

Representative of the Research Board (RB)

Prof. Dr. Mary Scholes

Professor, University of the Witwatersrand, Johannesburg
South Africa

mary.scholes@wits.ac.za

Representative of the WMO-IOC Joint Collaborative Board (JCB)

Omar CHAFKI

Director, Directorate of National Meteorology
Morocco

omar_chafki@yahoo.fr

Representative of the Infrastructure Commission (INFCOM)

Jennifer MILTON

Retired Director, Canadian Meteorological Centre Operations Division, MSC
Canada

jennifer01.milton@gmail.com

Annex-II: Agenda and Workplan of the 2nd Meeting of the CDP

Approved Agenda and Workplan

Day-1

15 September 2021

Ref: 2810J/2021-11 MS/ETR

| No | Agenda Item/Sub-item | Lead Department/Presenter | Presentation/Report | Time (UTC) | Duration |
|----------------------|-------------------------------------------------------------------------|---------------------------|---------------------|---------------|----------|
| 1 | Opening of CDP-3 and adoption of the agenda | Chair | Document | 12:00 - 12:15 | 15' |
| 2 | Items from the report of the Second Meeting of the Panel (CDP-2) | Yinka Adebayo | Document | 12:15 - 12:25 | 10' |
| 3 | Outcome of EC-73 in connection with the work of the Panel | | | | |
| 3.1 | Report on Capacity Development | Lu Veeck | Presentation | 12:25 - 12:40 | 15' |
| 3.2 | Report on Infrastructure/INFCOM | Jennifer Milton | Presentation | 12:40 - 13:00 | 20' |
| 3.3 | Report on Services/SERCOM | Roger Stone | Presentation | 13:00 - 13:20 | 20' |
| <i>Break</i> | | | | 13:20 - 13:30 | 10' |
| 3.4 | Report on Science and Innovations/Research Board | Jürg Luterbacher | Presentation | 13:30 - 13:50 | 20' |
| 3.5 | Report on Hydrology and Water Resources/HCP | Claudio Caponi | Presentation | 13:50 - 14:10 | 20' |
| 3.6 | Report of the Representative of WMO-IOC Joint Collaborative Board (JCB) | Sarah Grimes | Presentation | 14:10 - 14:30 | 20' |
| 3.7 | Report on Data Policy/GBON/SOFF | Markus Repnik | Presentation | 14:30 - 14:50 | 20' |
| <i>Wrap-up Day-1</i> | | | | 14:50 - 15:00 | 10' |

Approved Agenda and Workplan

Day-2

16 September 2021

Ref: 2810J/2021-11 MS/ETR

| No | Agenda Item/Sub-item | Lead Department/Presenter | Presentation/Report | Time (UTC) | Duration |
|--------------|---------------------------------------------------------------------------------------------------|---------------------------|-----------------------|---------------|----------|
| 4 | Progress report on activities of the Expert Teams (ETs) | | | | |
| 4.1 | Report of the ET on Policy Development and Institutional Matters (CDP-ET-PDIM) | Winifred Jordaan | Presentation & Report | 12:00 - 12:15 | 15' |
| 4.2 | Report of the ET on Human Resources Development, Education and Training (CDP-ET-HRDET) | Anna Timofeeva | Presentation & Report | 12:15 - 12:30 | 15' |
| 4.3 | Report of the ET on Capacity Development through WMO Technical Departments (CDP-ET-TDs) | Carla Gulizia | Presentation & Report | 12:30 - 12:45 | 15' |
| 4.4 | Report of the ET on Resource Mobilization, Partnerships and Development Assistance (CDP-ET-RMPDA) | Karen McCourt | Presentation & Report | 12:45 - 13:00 | 15' |
| 5 | Update on WMO extrabudgetary projects | Jean-Paul Gaudechoux | Presentation | 13:00 - 13:15 | 15' |
| <i>Break</i> | | | | 13:15 - 13:20 | 5' |
| 6 | Progress report on revision of WMO Capacity Development Strategy (CDS) | John Ogren | Presentation | 13:20 - 13:50 | 30' |
| 7 | Preparation for Fourteenth WMO Symposium on Education and Training (SYMET-14) | Anna Timofeeva | Presentation | 13:50 - 14:05 | 15' |
| 8 | Concept on Education and Training Board | Yinka Adebayo | Presentation | 14:05 - 14:25 | 20' |
| 9 | Revision of education and training publications | Hong Fan | Presentation | 14:25 - 14:35 | 10' |
| 10 | Review of WMO Regional Training Centres (RTCs) | Mustafa Adiguzel | Presentation | 14:35 - 14:45 | 10' |
| 11 | Future activities and tentative dates of the next meeting (CDP-4) | Chair | Discussions | 14:45 - 14:55 | 10' |
| 12 | Any other Business and Closure of CDP-3 | Chair | Discussions | 14:55 - 15:00 | 5' |

Annex-III: Update from INFCOM for the Capacity Development Panel

Ref.: 28101/2021-11 MS/ETR



**Update from INFCOM for
the Capacity Development Panel**

3rd Meeting of the Capacity Development Panel (CDP)
15 and 16 September 2021 (Virtual Session)


WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

Contributions from the INFCOM MG - Secretariat and Standing
Committees
Jennifer Milton, Interim Representative for CDP for INFCOM
Retired Director - Meteorological Service of Canada

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Outline

- Contributions of INFCOM to Capacity development processes as per decisions from EC-72
- Recent training and outreach activities
- Outcomes of EC-73 on INFCOM workplan and CD initiatives
- Outcomes of EC-73 linked to CDP recommendations
- Considerations

INFCOM 1-III (April 2021) linked with EC-72

- Information paper (INF. 5.2.3): contributions from INFCOM to be aligned with CD decisions from EC-72:
 - [Decision 12 \(EC-72\)](#) - **Recommendations for Revision of the WMO Capacity Development Strategy (WMO-No. 1133)**
 - Status (Sept 2021): INFCOM has reviewed and provided suggestions for the draft outline for the revision of the [WMO Capacity Development Strategy and Implementation Plan](#).
 - Provision of additional input and expert revision is expected as a function of future developments and requirements.
 - [Decision 13 \(EC-72\)](#) - **Developing and Sustaining Core Competencies and Expertise**, in which INFCOM is requested to contribute to expert reviews in the finalization of revisions of the Basic Instructional Packages for Meteorologists (BIP-M) and for Meteorological Technicians (BIP-MT).
 - Status (Sept 2021): Initial review and contributions have been provided to the revisions of BIP-M and BIP-MT



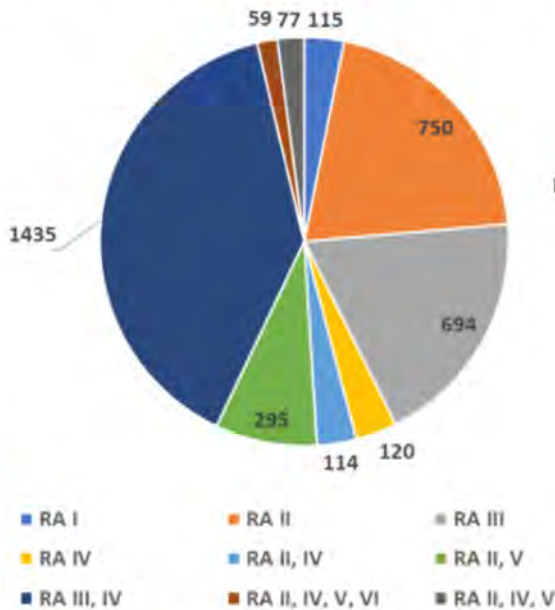
Some Recent Training and Outreach Activities

- WMO online Workshop on Transition to automatic ground-based measurements, RA-I (22-25 March 2021)
- Side event on WIGOS Tools (INFCOM 1 – III, April 2021) <https://etrp.wmo.int/mod/folder/view.php?id=15822>
- WMO online training workshop on quality, traceability, and compliance – General Metrology and Temperature, for RICs and RMICs (8-15 June 2021).
- WMO online RA II Training workshop on Regional WIGOS Centers Functions and Tools (5-12 July 2021). <https://etrp.wmo.int/course/view.php?id=226>
- Webinars, of which:
 - Observing Systems Capability Analysis - OSCAR/Surface (Feb and April 2021)
 - WIGOS Data Quality Monitoring System - WDQMS (June 2021) <https://etrp.wmo.int/course/view.php?id=146§ion=4>
- WIGOS Learning Portal <https://etrp.wmo.int/course/view.php?id=146>
- OSCAR/Surface training tutorials <https://etrp.wmo.int/course/view.php?id=146§ion=2>
- WMO-CGMS Virtual Laboratory for Education and Training in Satellite Meteorology
 - 65 training events organized with 3659 participants from 129 countries

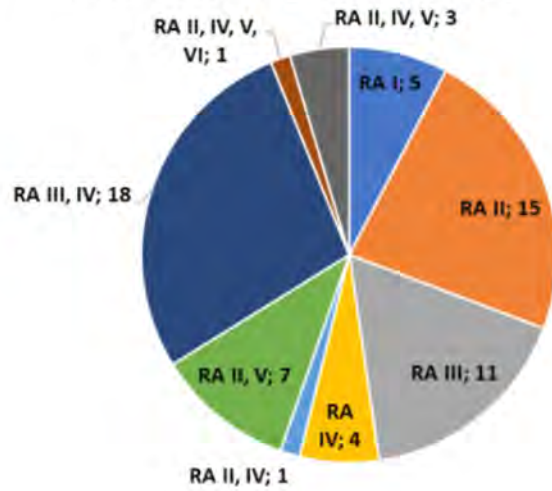


VLab training distribution by WMO regions

Number of people trained (Sum: 3659)



Number of training events (Sum: 65)



Of which:
 Online 55
 Classroom 4
 Blended 6



Outcome of EC-73 and impacts on the work of INFCOM, of interest to the work of the Panel

WMO Unified Data Policy – Draft recommendation 4.1/1 (Cg. Ext (2021))

'As a fundamental principle of the World Meteorological Organization (WMO) and in consonance with the expanding requirements for its scientific and technical expertise, WMO commits itself to broadening and enhancing the free and unrestricted international exchange of Earth system data; "Free and unrestricted" defined in Annex 4.'

Requests the President of the Commission for Observation, Infrastructure and Information Systems, in coordination with the President of the Commission for Weather, Climate, Water and Environmental Services and Applications and the Chair of the Research Board to:

- (1) Provide draft technical regulations to support implementation of this resolution, to be submitted to the World Meteorological Congress in 2023;
- (2) Develop a process for systematic and regular review of the types or domains of data that fall within the established practice and categories of Earth system data, as described in [Annex 1](#), in order to meet both the changing needs of Members, the changing availability of data, and the continued development of modelling capabilities;
- (3) Ensure that the regional associations are kept informed of initiatives related to the implementation of this resolution and consulted on developments as necessary;
- (4) To take any necessary steps to ensure that WMO technical systems and guidelines will develop and evolve to accommodate the exchange and interoperability of Earth system data envisaged in this policy;

Including Guidelines for national implementation and public-private engagement & Outreach initiatives. [Summary Presentation on the WMO Unified Data Policy Resolution](#)



Outcome of EC-73 and impacts on the work of INFCOM, of interest to the work of the Panel

- Implementation of Global Basic Observing Network (GBON) as of January 2023:
 - Implementation Road Map (to be completed by CG. Ext. 2021) and implementation guide.
 - Guide for use of WDQMS and OSCAR.
 - Further requirements for Capacity Development activities to be determined.
- Assessing how to expand GBON to other domains
- Guidelines for using Systematic Observations Financing Facility (SOFF)
- Evolution of WIS 2.0: links with the new Data Policy, training and demonstration projects
- Implementation of the WIGOS integration concept at regional and national levels and ensuring environmental sustainability of observations (guidance & training)
- GDPFS products: availability, changes to regulatory material, potential additional need for training
- WMO Hydrological Observing System (WHOS) Phase II implementation



Outcome of EC-73 in connection with the work of the Panel – Recommendations from the CDP and their links with INFCOM

Decision 4.4(1)/1:

- Review and update the current competency frameworks as needed, and support development of new frameworks in areas not yet addressed, with the support of the Education and Training Office;

Ensure that changes to new technologies or required competencies are reflected. For example: implementation of GBON; new technologies in Satellite information; exchange and access to new data through the revised Data Policy; additional products in GDPFS, etc

- Make recommendations on how to foster systematic contributions from academia towards the enhancement of the research-to-operation continuum... promotion of capacity development and service capabilities in weather, climate, hydrology and environment at regional levels ... collaboration and communication between regional centres such as Regional Specialized Centres, Regional Climate Centres, Regional Training Centres (RTCs), WMO Integrated Global Observing System (WIGOS) Centres and WMO Information System (WIS) Centres, etc;

Aim for a holistic approach to capacity development initiatives to enhance linkages with the RTCs, other regional centers, academia and TCs in supporting these initiatives and to consider (1) current gaps identified by Members and regional organisations (2) evolving requirements for training (3) required resources and infrastructures to support these initiatives (coordination of training)

Consider that regulatory material be complemented by outreach and training adapted to regional and national requirements.

- Contribute to the Fourteenth WMO Education and Training Symposium (SYMET-14) which will be held in 2021, as additional input to the development and promotion of education and training activities of the Organization.

Opportunities for INFCOM to outreach have been discussed recently.



Outcome of EC-73 in connection with the work of the Panel – Recommendations from the CDP

Decision 4.4(1)/1:

- Coordinate the Technical Commissions (SERCOM and INFCOM) in the development of a capacity development framework to support the implementation of their activities
- **Considerations:**
 - *Further discussion with INFCOM MG and ETs, SERCOM, members of the ET-TDs, the CDP, Ras, etc, to shape the development (and links with the WMO CDS). Further assessments of gaps and requirements related to capacity development initiatives are required.*
 - *Multilateral collaborative initiatives and partnering could be further encouraged and help support capacity building initiatives in INFCOM through the sharing of resources and knowledge (hands-on/apprenticeships/fellowships).*
 - *Ensure linkages with the WMO Global Campus and the ETR Community. Assess further opportunities within Fellowships. Promote the sharing of expertise with universities and colleges in education and training activities in support to capacity development.*
 - *Ensure sustainability of CD/training initiatives: resources/material should be available, accessible, adaptable and updated for further use and in various formats. Build on lessons learned from capacity building initiatives.*
 - *Blended/online training approaches and webinars can reach wider groups. The benefits and ROI related to these approaches should be assessed.*
 - *Encourage 'Train the trainer' approaches which can increase perennity to local capacity development while further developing training competencies.*
 - *Promote and ensure gender equality in the development, delivery and access to capacity development initiatives, leadership roles, and research-to-operation continuum*



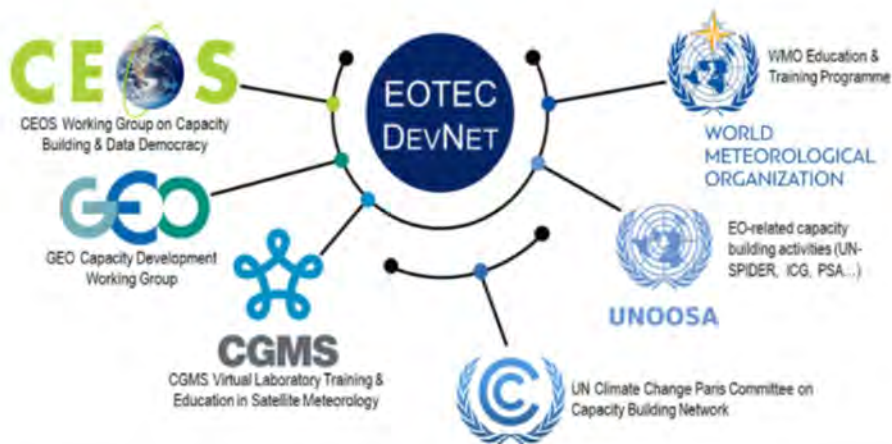
WMO Supports EOTEC DevNet

The Earth Observation Training, Education and Capacity Development Network

A CEOS (Committee on Earth Observing Satellites) initiative

EOTEC DevNet aims to fill a gap in the coordination of Earth Observation capacity building

Pilot project on flood monitoring



Outcome of EC-73 and impacts on the work of INFCOM, of interest to the work of the Panel Considerations

- The new WMO Unified Policy for the International Exchange of Earth System Data, GBON and SOFF will create significant opportunities for Members. Communication, outreach and training will be key activities for the implementation of the Data Policy and roll out of GBON;
- Updates in Guidelines and regulatory material are to be expected in a number of priorities such as GDPFS products, GBON, WIS 2.0 etc. Outreach and training activities are required to support their implementation and use;
- INFCOM supports the coordinated work done within the CDP and its Expert Teams and will ensure continued coordination, feedback, and promotion of training and capacity development initiatives.



Thank you

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Annex-IV: Report on SERCOM

Ref.: 28101/2021-11 MS/ETR

SERCOM: Capacity Development issues and recommendations.

The following provides an overview of some highlighted issues and recommendations obtained from the Standing Committees (and their predecessors as Commissions) within SERCOM.

Prof Roger C Stone, Vice President, Commission for Weather, Climate, Water, and Related Environmental Services and Applications.

Acknowledgements: WMO Secretariat, SC Chairs, Mr Lisk, Dr Elena Mateescu.

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale



SERCOM

Standing Committee on Services for Disaster Risk Reduction and Public Services (SC-DRR)

Standing Committee on Hydrological Services (SC-HYD)

Standing Committee on Marine, Meteorological and Oceanographic Services (SC- MMO)

Standing Committee on Services for Aviation (SC-AVI)

Standing Committee on Climate Services (SC-CLI)

Standing Committee on Services for Agriculture (SC-AGR).



Summary of key points/Recommendations from SERCOM:

- “Capacity development is not a one-off intervention, but *an on-going improvement process* with feedback mechanisms, encompassing activities, approaches, strategies and methodologies” (SC-CLI).
- Strategic vision for capacity development in NMHS’s *needs strong visionary leaders* who can see the big picture and think strategically to bring about innovative changes to develop institutional and infrastructural capacity and to sustain it.
- *Placement of the NMHSs within an appropriate government institutional structure* is an important consideration – in order to achieve high visibility of services to enable government policies that will lead to sustained capacity development.
- Note the importance of institutional good governance in management capacity development activities and programmes..



- Suggest promoting NMHS capacity development through “*twinning*” or “*pooling*” services, training and support, through regional cooperative entities (eg WMO Regional Centres/WMO Global Data-processing and Forecasting Systems (GDPFS) centres, Regional Climate Centre networks and Regional Agrometeorology Centres), or by partnering with other NMHSs or specialist institutions to share capabilities, skills, data and/or resources.
- Be adaptive and flexible: the process of building human capacity for areas such as “climate services” in the applications domain needs to be adaptive and flexible. This implies a *review of the education qualifications, skills and job training required for groups such as climate specialists*, as well as for groups and specialists covering weather, climate, hydrological and marine services including those in management positions.
- Human capacity for climate information providers requires input from *multi-disciplinary personnel* including meteorologists, climatologists, engineers, geographers, statisticians, mathematicians, economists, sociologists, etc.



- There is a need to hire new graduates from universities - *allow current staff to attend postgraduate studies* (MSc. or Ph.D.) in areas such as climate science.
- Meteorologists and climatologists need to be well trained in both operational weather and climate forecasting, from short-range through to sub-seasonal, seasonal and inter-annual timescales. A pool of well-trained meteorologists must be supplemented by another *interdisciplinary* pool of professionals who understand climate and can work with specific climate-sensitive sectors (eg ag, health).
- Capacity-building and education and training activities supported by WMO should, in principle, be demand-driven. The requirements will be determined on the basis of the inputs from the Members, regional association working groups, and surveys undertaken by the WMO Secretariat.



- “Particular emphasis to be placed on *developing partnerships* with academic institutions and professional and scientific associations, including exchanges of academic staff” (SC-HYD).
- Some SCs have a strong focus on capacity building for *user agencies* (eg within SC-AGR emphasis on training external agricultural extension officers) (as distinct from the training of agrometeorologists within NMHS’s).
- the need to promote agricultural meteorological training opportunities/activities from *externally funded projects* (eg: 17 out of the 53 identified ag-met training programmes in RAIII are from externally funded projects).



- Enhance access to new outputs in supplementary guidance, case studies, tools or such-like which will help Members/met service providers when a staff member is found to be 'not yet competent' after a competency assessment has taken place (SC-AVI). (Within the SC-AVI's Expert Team on Education, Training and Competency)..
- Regional co-operation: Promote and support NMHSs *of the same region* in specific topics, especially in such aspects as financing missions of experts from one country to train on-the-job colleagues from a different country.
- "Emphasis needs to be put on activities of *short duration, low cost, and great potential impact with regard to number of beneficiaries*, without compromising quality. Some attention to be given to train-the-trainer and roving seminar programs including certification awards associated with lectures" (SC-HYD).
- Enhance the *use of distance-learning and blended-learning techniques*, using latest available information technologies should be explored. In doing so, inclusion of Regional Training Centres and academic institutions should be made to provide increased outreach.



- Gender equality must be considered (at all stages of climate service development and delivery) including promotion of gender equality for those producing, communicating. Engagement and training activities should not exclude or favour men or women.
- It is recommended that closer collaborations are encouraged between *external funding agencies* and NMHSs in the regions towards achieving the desired increase in capacity development (SC-AGR).
- Develop a Community of Instructors in order to jointly design the curricula, share teaching material and experiences, and discuss common problems. The Community of Instructors will also constitute a pool of trainers.
- *Enhance collaboration between Capacity Development ETs* in the different Standing Committees. At present (suggest, due to previous separate Commissions) there appears to be little cross-communication between such ETs.



Final Summary:

- A *strategic focus* on the need for appropriate government placements and settings for NMHSs, need for government leadership in capacity development.
- Need for emphasis on twinning, partnership, pooling, sharing, communities of instructors, and *regional co-operations* - in order to achieve effective outcomes in capacity development and institutional cooperation.
- Focus on need to enhance the inclusion of multi-disciplinary personnel, *enhance staff progression*, qualifications, use of supplementary guidance, and use of case studies.
- Focus on *enhancing gender equality* and developing those in management positions.
- The value of user training, user agency training, "train-the-trainer", distance learning, blended learning, needs to be explored.
- Need to *enhance collaboration between the Capacity Development ETs* in the different Standing Committees (of SERCOM).



WMO OMM

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you
Merci



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Annex-V: Report on Science and Innovations- Research Board

Ref.: 28101/2021-11 MS/ETR

Third Meeting of the Capacity Development Panel (CDP)

Report on Science and Innovations/Research Board

15 September 2021

Jürg Luterbacher, Oksana Tarasova, Estelle de Coning, Claudia Volosciuk, Narelle van der Wel, Mike Sparrow, WMO SI Department and Mary Scholes and Faten Attig Bahar (Research Board)



WMO OMM
World Meteorological Organization
Organisation météorologique mondiale



WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

World Climate Research Programme (WCRP): Capacity Development Activities



WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

World Climate Research Programme (WCRP)

WCRP promotes current and future leadership in climate science, making particular efforts to support and engage *Early Career Researchers (ECRs)* from all regions of the world, towards a sustainable climate research community.

- WCRP undertakes a range of *Capacity Development Activities*, including e.g., summer schools, workshops, sponsorship (incl. new CliC Fellowships)
- Climate Research Forums for different regions including young researcher involvement (**see presentation of Carla Gulizia tomorrow**)
- *ECRs* are directly involved in WCRP activities, including on panels and working groups in the WCRP Core Projects and in the new WCRP Lighthouse Activity science teams.



International
Science Council



Activities in 2020-21

- Capacity development activities in 2020-21 were strongly impacted by COVID-19.
- *Capacity Development* initiatives (e.g. summer schools, training workshops) were postponed, cancelled, or proceeded in an online format.
- ECR involvement in WCRP activities via online meetings was generally good.

A couple of examples:

October 2020: **Regional Climate Change Projections: Climate change analysis using CORDEX regional climate models over South Asia** – six-day online training event
(ICIMOD, Met Office, WCRP, CORDEX)

October 2021: **ECS Training Sessions of the WCRP Workshop on Extremes in Climate Prediction Ensembles (ExCPEns)** – two-day training workshop
(WCRP WGSIP, WCRP Grand Challenge on Weather and Climate Extremes, WWRP/WCRP Subseasonal to Seasonal Prediction Project (S2S))



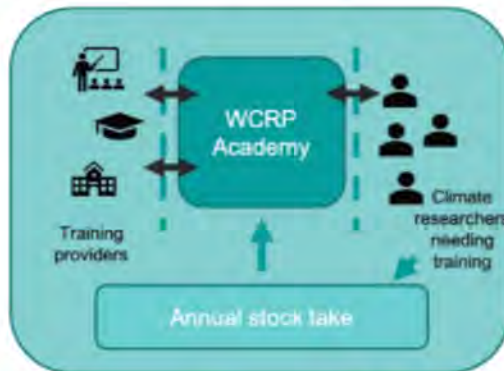
International
Science Council



WCRP Academy

The WCRP Academy's mission is to equip current and future climate scientists with the knowledge, skills, and attributes required to tackle the world's most pressing and challenging climate research questions.

The Academy is planning to build an online marketplace for climate science training, supported by an annual climate training stocktake survey (now open for comment)



2021 Stocktake Survey

www.wcrp-climate.org/academy-survey



International
Science Council



Global Atmosphere Watch Programme (GAW): Capacity Development Activities

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale



Hands-on training: instrumentation



GAWTEC Course on 'R' Studio Online Tutorial on Data Evaluation

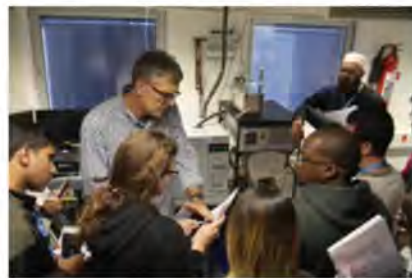
General

WMO OMM

With support by ETR Office

WMO OMM

- Continue established capacity development
- Hands-on training not possible during pandemic
- Webinars as additional resource → no substitute of hands-on component
- Towards a blended approach of combining virtual and physical hands-on elements



Source images: GAWTEC

Station twinning, audit, intercomparison campaigns



Source: EMPA



Source: AEMET



Source: MeteoSwiss

- training of the station personnel and knowledge exchange during station audit and comparison campaigns;
- twinning programmes and personnel exchange
- Activities of central facilities
- → many visits were cancelled due to COVID but we hope that these important elements become possible soon again

Modelling training



Training course on Seamless Prediction of Air Pollution in Africa

Training on atmospheric composition modelling will be continued

- Further use of training material (published in 2020) for trainings
- Collaboration with ETR Office
- A first webinar took place December 2020 / January 2021 on "Greenhouse gases and atmospheric composition measurements"
- The topic of the second webinar will be on *Reactive Gases* (joint activity between YESS-community and GAW).



Early career scientist engagement

- GAW supports early career scientists and improved the connection with the YESS community (YESS-member Julie Nicely joined the SSC)
- > 40% of the registered GAW Symposium (virtual) participants from all over the world indicated being early career scientists
- Panel discussion on capacity development during GAW Symposium explored challenges to entraining early career researchers in atmospheric composition measurements and research, and explored possible solutions to these barriers

GAW Symposium 2021

World Meteorological Organization
Organisation météorologique mondiale

GLOBAL ATMOSPHERE WATCH

Synergies and partnerships



A successful week of hands on work on atmospheric composition satellite data closes today in #Cluj! Thanks to all the students and colleagues at @ESA EO @CopernicusECMWF @WMO @FMISpace @KNMI and @UnivBabesBolyai for hosting the course.



6:22 AM · 21 Nov 2020

First joint training course on atmospheric composition

- To optimize the use of resources:
 - Partnering with other organizations
 - Synergies through joining existing efforts
 - Mapping existing efforts of atmospheric composition trainings will be beneficial
- Translation of training/outreach material and activities in local language increase the success



World Weather Research Programme (WWRP): Capacity Development Activities

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



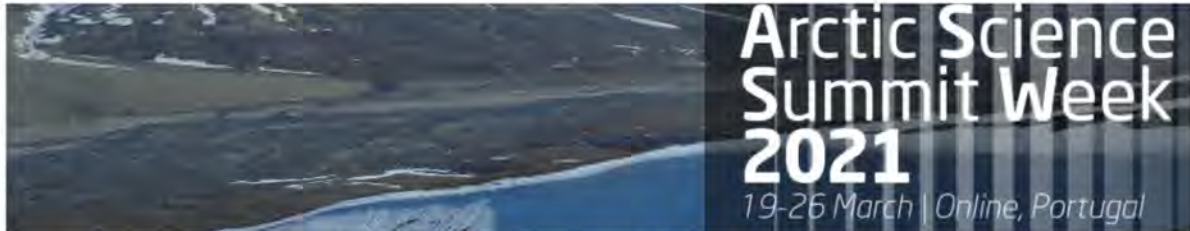
WMO OMM

World Meteorological Organization
Organisation météorologique mondiale



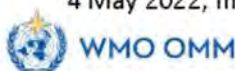
WWRP: Capacity building within the HIGH impact Weather (HIGHWAY) in E Africa

- From 15-18 July 2019 radar interpretation workshop in Dar es Salaam forecast offices
- Training was provided by NCAR radar meteorologists on interpretation of the radar data and how to make its use for nowcasting thunderstorms & severe winds
- By the end of the training workshop, forecasters and engineers were able to make 1 and 2-hour nowcasts of severe weather



Polar Prediction Programm ARCTIC SCIENCE SUMMIT WEEK (ASSW) 2021

- The ASSW 2021 on “The Arctic: Regional Changes, Global Impacts” took place virtually between 20-26 March 2021.
 - The Summit invited international experts on the Arctic and indigenous peoples to discuss the “New Arctic” and also its impacts and interactions to and with the lower latitudes
- Some of the science conference themes included:
 - The Changing Arctic Ocean: Dynamics and Impacts
 - Arctic Climate Dynamics
 - Living in the Arctic
 - Education and Capacity Building for the Polar Regions
- A **Polar Prediction School** is planned to be held prior to the YOPP Final Summit between 1–4 May 2022, in Montreal (QC), Canada.



TROPICAL CYCLONE-PROBABILISTIC FORECAST PRODUCTS (TC-PFP) WORKSHOP

- A **three-day TC-PFP workshop** was virtually held on 15, 17, 18 June 2021 to coordinate across RSMCs and other forecast centers to **identify best practice guidance for probabilistic forecasts of TC position** (including TC formation).
- The topics discussed during the workshop included the physical and social science as well as the currently available and needed resources.
- Follow up workshops are planned as part of this topic in the next 2-3 years.



WWRP Subseasonal to Seasonal (S2S) SUMMER COLLOQUIUM & WORKSHOP

- **2021 Advanced Study Program Summer Colloquium** was held 12-23 July 2021 on "The Science of Subseasonal to Seasonal (S2S) Predictions":
 - Virtual event with live lectures and debates followed by guided hands-on application of S2S diagnostic tools.
- **A scientific workshop on S2S Science and Predictions** was held 2-6 August 2021:
 - The workshop provided an opportunity for the lecturers and additional invited speakers to present their latest work in this fast moving field.
 - **A second in-person workshop** will be held in the **summer of 2022** (date TBD) in Boulder, Colorado

2021 ASP Summer Colloquium

July 12-23, 2021



Workshop on Subseasonal to Seasonal (S2S) Science and Predictions

August 2-6, 2021

THE SCIENCE OF SUBSEASONAL TO SEASONAL (S2S) PREDICTIONS

Scientific leads: Justin Truesdell (NCAR), Anesh Subramanian (CU Boulder)



HIWEATHER Education/Capacity development examples

- HIW webinars as joint activity between YESS-community and WWRP explored the topic of *"Exploring the role of citizen science in weather, climate, and related projects"* (September/November 2020/)
- A joint discussion meeting between the *Warning Value Chain and Citizen Science working groups* took place virtually on 27 July 2021.
- September/October 2021: Summerschool in the frame of the H2020 SECLI-FIRM Project (*The Added Value of Seasonal Climate Forecasting for Integrated Risk Assessment*), (<https://www.secli-firm.eu/secli-firm-summer-school-2021/>)





HIWeather Joint Discussion

Warning Value Chain
X
Citizen Science

JULY 27TH
07:00-09:00
OR
19:00-21:00
UTC

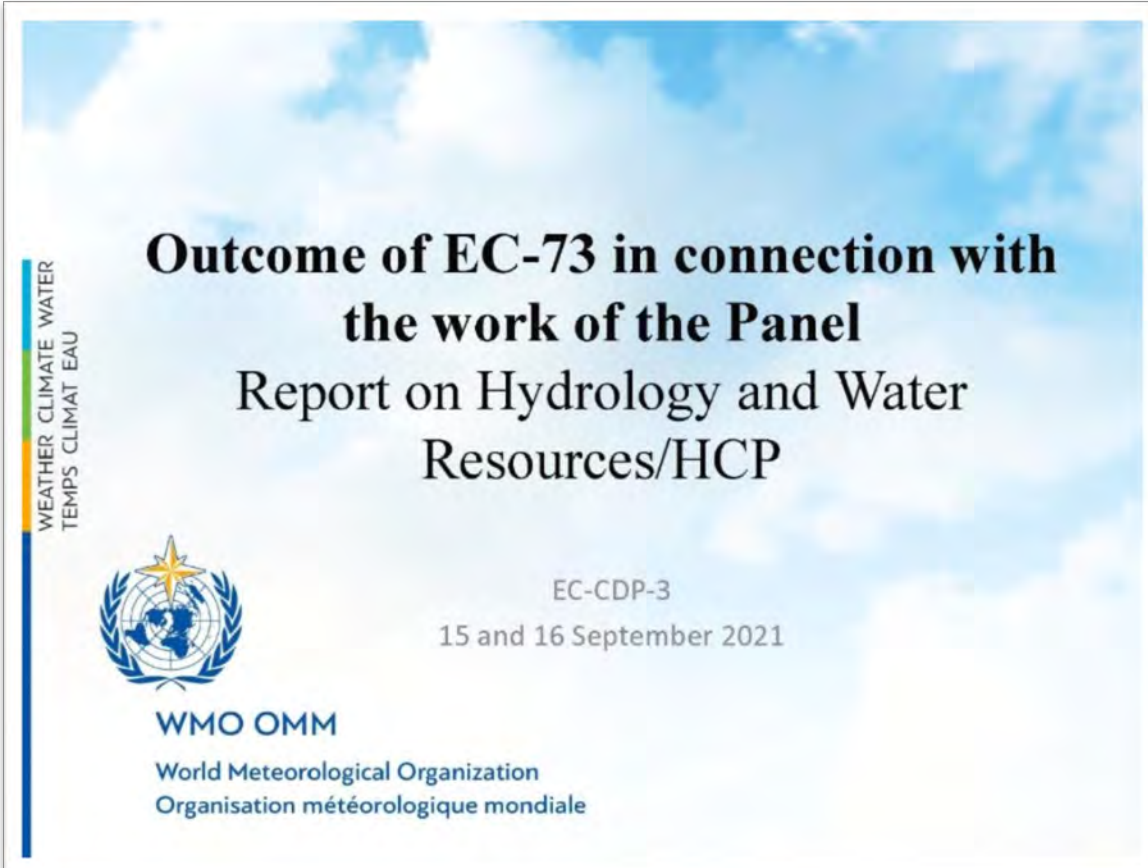
Discussion Topic

How Can Citizens and Citizen Science
Contribute to Effective Warnings?




Annex-VI: Report on Hydrology and Water Resources/HCP


Ref.: 28101/2021-11 MS/ETR



WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Outcome of EC-73 in connection with the work of the Panel Report on Hydrology and Water Resources/HCP

EC-CDP-3
15 and 16 September 2021



WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

Outcomes of EC-73 related to hydrology

EC-73:

- Recommended to Congress the adoption of the WMO Vision and Strategy for Hydrology and its associated Action Plan
- Requested HCP to... conduct a series of workshops to present the Vision and Strategy and its associated Plan of Action to RAs and Members using RAs fora for Hydrological Advisers and pre-Cg-Ext.(2021) consultation meetings
- Decided to endorse the draft WMO Water Declaration
- Noted the Secretary-General's initiative to co-organize the Water and Climate Coalition
- Requested the Chair of HCP... to facilitate a consultative process with the PRs, Presidents of RAs and TCs, Chair of the RB, Chair HCP and National Hydrological Advisers for the purpose of finalizing and familiarizing the above-mentioned parties with the draft Declaration for consideration at Cg-Ext.(2021)

Cg-Ext (2021) documents related to hydrology

- Doc. 3.1 WMO Vision and Strategy for Hydrology and its associated Plan of Action
- Doc. 3.1(2) Advanced implementation of elements of the Plan of Action for Hydrology
- INF. 3.1 Report of the Hydrological Assembly (finalized during the session)
- Doc. 3.2 WMO Water Declaration
- INF. 3.2 Water and Climate Coalition



Doc. 3.1 - WMO Vision and Strategy for Hydrology and its associated Plan of Action

- Cg-18 adopted **8 long-term ambitions (LTA) for hydrology** and requested EC to develop, with the support of HCP, a WMO Vision and Strategy and associated Plan of Action for hydrology for consideration of Cg-Ext (2021) (Res. 24; Cg-18)
- Open consultations on Members needs and gaps (Sep-Oct 2020) and on elements of the draft Plan of Action (May-June 2021) were held
- The Plan of Action is structured around the LTAs detailing the outputs, activities, measures of success, assumptions and risks related to each LTA
- The timeline of the Plan of Action is 2022-2030

- (a) No one is surprised by a flood;
- (b) Everyone is prepared for drought;
- (c) Hydro-climate and meteorological data support the food security agenda;
- (d) High-quality data supports science;
- (e) Science provides a sound basis for operational hydrology;
- (f) We have a thorough knowledge of the water resources of our world;
- (g) Sustainable development is supported by information covering the full hydrological cycle;
- (h) Water quality is known;



Vision statement

*'By 2030 a cooperative global community is successfully addressing the growing challenges related to hydrological extremes, water availability and quality, and food security, by advancing operational hydrology through enhanced science, infrastructure, **capacity building** and related services, in the context of sustainable development and enhanced resilience.'*



Doc. 3.1(2) - Advanced implementation of elements of the Plan of Action for Hydrology

Noting that several elements of the Action Plan are already in an advanced state of implementation, **Cg Decides**:

- 1) To endorse the WMO Hydrological Research Strategy 2022-2030: "Operational Hydrology Research Priorities", which was prepared by the Research Board as a fundamental element that underpins the whole Plan of Action for Hydrology, and lays out concrete steps for the way forward to achieve Long Term Ambition "*Science provides a sound basis for operational hydrology*";
- 2) To approve the Sustainability Strategy for the Flash Flood Guidance System with Global Coverage (FFGS/WGC);
- 3) To approve the End of Pilot Phase Report of the WMO Hydrological Status and Outlook System (HydroSOS);
- 4) To close the HydroSOS pilot phase and to start operationalising the global HydroSOS through regional implementation plans led by the Regional Associations based on the recommendations on the way forward



How can EC-CDP contribute?

- All the documents mentioned have important capacity development implications, including the Water Declaration (at a political level)
- Initial discussions with Chair of ET on Capacity Development through WMO Technical Departments (CDP-ET-TDs) on how CDP can contribute to the implementation of the Plan of Action

Initial ideas:

- Training workshops dedicated to interested RTCs on the use of portal being developed on interoperable technologies, including models and platforms, for flood forecasting
- Discussions on how to integrate in academic curricula the most recent outcomes of the TCs work in the area
- Initial brainstorming meeting CDP-ET-TDs and SC-HYD is being planned



WMO OMM

Thank you

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Annex-VII: Report of the Representative of WMO-IOC Joint Collaborative Board (JCB)

Ref.: 28101/2021-11 MS/ETR

WEATHER CLIMATE WATER
 TEMPS CLIMAT EAU

Report from the WMO-IOC Joint Collaborative Board

(Presented to the WMO CD Panel, September 2021)




WMO OMM
 World Meteorological Organization
 Organisation météorologique mondiale

JCB Member for Capacity Development
Mr Omar Chafki
 PR, Morocco

WMO-IOC Joint Collaborative Board (JCB)

- Maximize opportunities to co-design joint work to improve the provision of information and services for societal benefit
- Suggest initiatives to improve end-to-end links; enhance connections with research
- Influence how WMO and IOC jointly enable the delivery of information and services
- Consideration of regional needs across these themes

| | IOC | | WMO |
|----------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| | Assembly, EC | | Cg, EC |
| | Joint Collaborative Board | | |
| Observations | | GOOS <small>Global Ocean Observing System</small> | INFCOM <small>Commission for Observation, Infrastructure and Information Systems</small> |
| | | GCOS <small>Global Climate Observing System</small> | |
| Data | IODE <small>International Oceanographic Data and Information Exchange</small> | | |
| Forecast Systems | | GOOS | |
| Services | TOWS <small>Working Group on Tsunamis and Other Hazards Related to Sea-Level Warming and Mitigation Systems</small> | | SERCOM <small>Commission for Weather, Climate, Water and Related Environmental Services and Applications</small> |
| Research | Associated research community | WCRP | Research Board |
| Capacity development | Group of Experts CD | | CD Panel |



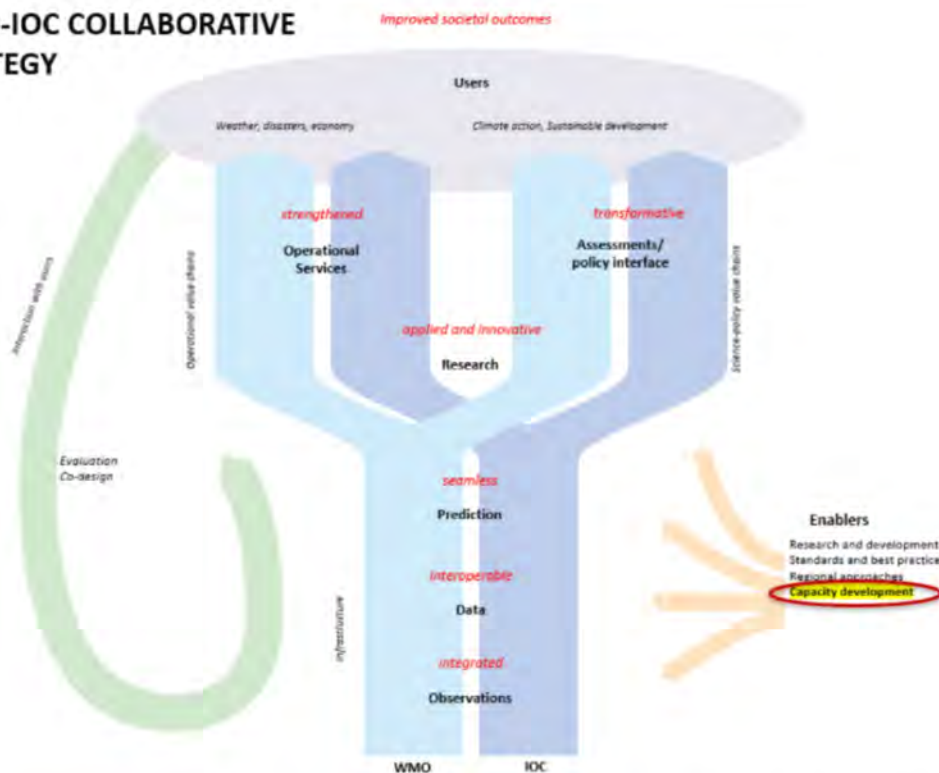
JCB Membership (Since June 25 2021)

| WMO | | | IOC | | |
|-------------------------------|--------------------------------------------------|-------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------|---------------------------------------------------------|
| Co-chair (until Ext-Cg, 2021) | Louis Uccellini | USA IV North America, Central America and the Caribbean | Co-chair | Srinivasa Kumar Tummala IOC Vice chair | India IV Asian and Pacific States |
| Co-chair (after Ext-Cg, 2021) | Albert Martis | Curacao IV North America, Central America and the Caribbean | | | |
| Observing system | Sidney Thurston V-Chair SC-ON INFCOM | USA IV North America, Central America and the Caribbean | Observing system | Toste Tanhua Co-chair, GOOS SC | Germany I W. European and North American States |
| Data processing & management | Jeremy Tandy V-Chair SC-INT INFCOM | UK VI Europe | Data and information management | Sergey Belov Co-chair, IODE; former JCOMM Data Management Chair | Russian Federation II Eastern European States |
| Forecasting systems | David Richardson Chair SC-ESMP INFCOM | UK/ECMWF VI Europe | Forecasting systems | Fraser Davidson Co-chair, OceanPredict | Canada I W. European and North American States |
| Services | Thomas Cuff Chair SC-MMO SERCOM | USA IV North America, Central America and the Caribbean | Early warning and services | Alexander Frolov Chair, TOWS WG | Russian Federation II Eastern European States |
| Research | Matthew Wheeler Member of Research Board | Australia V South-West Pacific | Research | Lisa Alexander CLIVAR | Australia IV Asian and Pacific States |
| WMO EC Members | Hasegawa Naoyuki (alternate: Mizuno Takanori) | Japan II Asia | IOC Member State Representatives | Hamid Alizadeh Lahijani | Islamic Republic of Iran IV Asian and Pacific States |
| | Ken Takahashi Guevara | Peru III South America | | Alvaro Santiago Scardilli | Argentina III Latin America and Caribbean |
| | Omar Chafki * | Morocco I Africa | | Ashley Johnson | South Africa V African and Arab Stat |

* JCB representative on WMO CD Panel



WMO-IOC COLLABORATIVE STRATEGY



Value chains (blue), feedback cycles (green), & enablers (orange) across meteorological & oceanographic infrastructure, service delivery & science-policy interfaces

WMO-IOC JCB

- First Session (online): May – July 2020.
- Joint WMO-IOC Strategy – endorsed June 2021 – strengthen partnership including through 6 approaches – one being capacity development:
 - CD, training, transfer of technology in areas of mutual interest. Reducing the duplication of ocean CD activities, closer cooperation between initiatives and infrastructure eg WMO RTCS and IODE Training Centres, NMHS and oceanographic institutions.
 - SIDS and LDCs with coastal communities - priority
- Chair of WMO CD Panel participated in IOC CD Group of Experts (2020)
- **Revision of IOC CD Strategy – anticipated new Strategy 2023 to 2030 – seek WMO engagement – recommend alignment with revision process for WMO CD Strategy**



Recap: WMO Ocean CD

- Cross cutting –
Research/Obs/Data/Forecasting/Services
- Support to Members:
 - Marine weather and coastal services
 - Marine climate services
 - Contributions to global climate/ocean action
 - Regional Associations
- WMO SC-MMO and ET-CCD
 - Competencies – ensuring quality skills
 - Customer needs and training (eg IMO-WMO Symposium)



WMO Ocean CD activities - snapshot

Obs and Data Management – jointly with IOC (eg DBCP, GOOS) – including training in deployment and maintenance of equipment, including for polar areas.

Forecasting Systems – eg Severe Weather Forecasting Projects in several regions (Africa, Pacific, Asia) - learning the new tools in prediction, Satellite – new tools and products.

Services – Traditional Marine Met Courses, competencies, new Online Marine Services Course, coastal hazards (eg. Waves/storm surge); marine aspects in Tropical Cyclone training; coastal hazards. Early career scientist opportunities for SIDS and Developing countries

Research – ocean-atmosphere training in cyclones, early career scientist opportunities

Raising capacity of people; institutions; offering tools to learn; public awareness (including links to DRR, NDMOs)



Other

- Working in partnership – IOC, IMO, IHO, UNDRR, UN Oceans and others
- *IMO-WMO-IOC-IHO-IALA-IMPA CD Group*
 - Annual meeting
 - Potential for a joint CD Project
- *Ocean Decade – Ocean Literacy*



Annex-VIII: Report on Data Policy/GBON/SOFF

Ref.: 28101/2021-11 MS/ETR

Third Meeting of the Capacity Development Panel

Systematic Observations Financing Facility (SOFF)

15 September 2021

Markus Replik, Director Development Partnerships

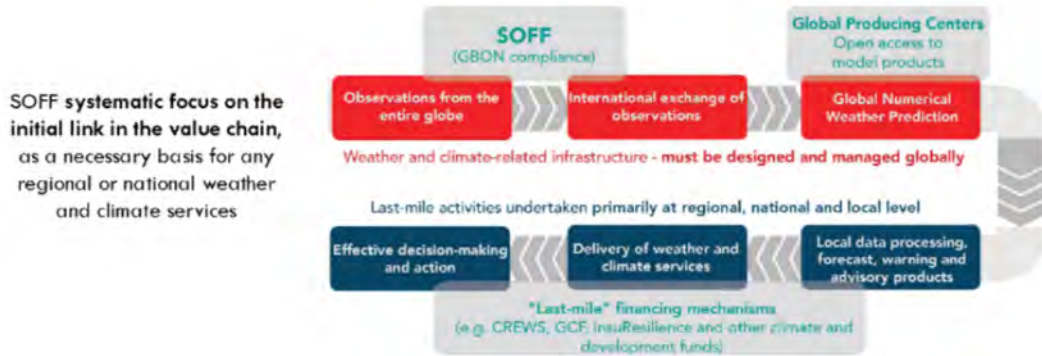


What is the SOFF?

- **A "UN coalition" (WMO, UNDP, UNEP) to address a foundational problem in a systematic manner** – missing surface-based observations from developing countries
- **A dedicated and innovative financing mechanism** that will provide grants and technical assistance to achieve sustained GBON compliance, with a focus on LDCs and SIDS
- A mechanism that is **built on peer-to-peer collaboration and support** among national meteorological services, harnessing their operational experience as providers of peer technical advice and assessments (**Country Support Initiative, Country Hydromet Diagnostics**)
- **A multi-partner initiative and commitment** of the **Alliance for Hydromet Development** (coalition of 13 major climate and development finance partners), spearheaded by WMO and **supported by beneficiary countries and multiple stakeholders**.
- An **initiative with an exclusive focus on the initial part of the meteorological value chain** that creates the foundation for effective weather and climate information services policy and investment decisions.

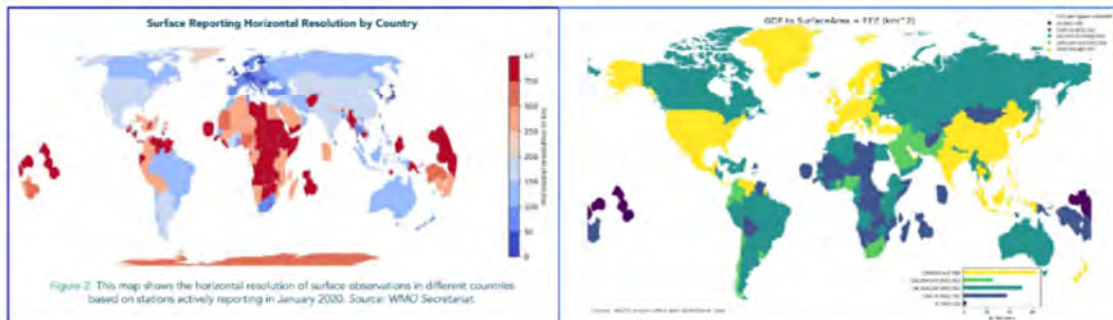


How will SOFF outputs translate into last-mile benefits?



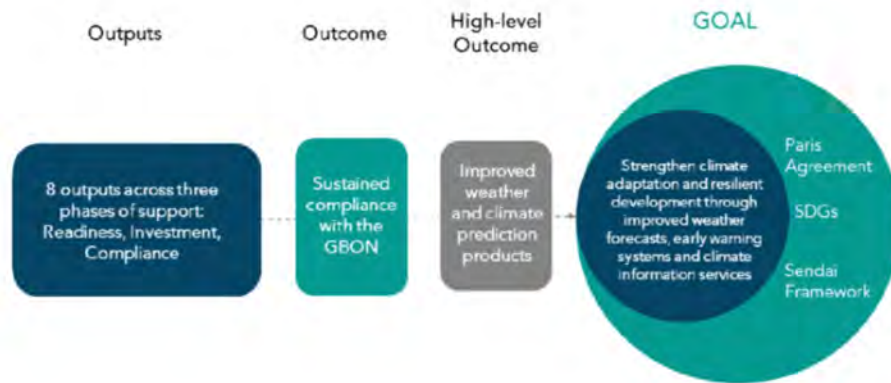
Availability of observations versus national resources

WMO Convention and Paris Agreement implicitly assume that observations is solely a national responsibility



- **Ability to observe (left panel):** Observing systems in countries depicted in red fail to meet minimum observations requirements for weather and climate analysis and prediction
- **Ability to pay (right panel):** Affordability of observing responsibility (GDP/km² of surface area) of countries in yellow up to ten million times higher than for countries in dark blue

SOFF Theory of Change



SOFF value proposition: Effective combination of 10 features

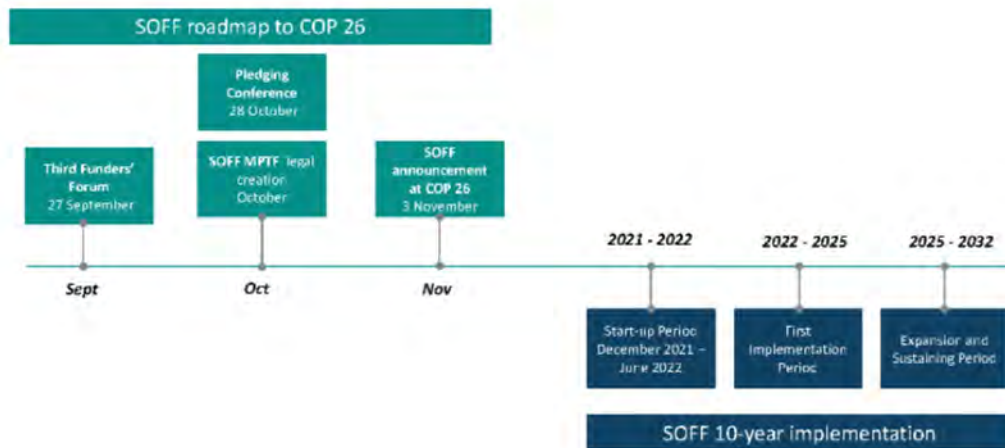
- **Provision of innovative finance**
 - **Long-term predictable grant** finance – beyond short term project cycles
 - Finance for **operations and maintenance** – instead of only investments
 - **Results-based** finance – retroactive financing upon verification of data sharing
- **Global approach with sustained data exchange as measure of success**
 - **GBON metrics** to guide investments – ensure right level of investments
 - Long-term **GBON data sharing compliance** single measure of success
 - **Unified investment** approach to close GBON gap in one single intervention
- **Enhancement of technical competency and coordination**
 - GBON-specialized **peer-to-peer** technical and institutional support incl. South-South
 - Coalition of strong **Implementing Entities** for economies of scale
 - SOFF as **centre of competency** on “what does it take”
 - Effective **collaboration and coordination** among the main stakeholders and partners

Who is supporting SOFF creation?

Beneficiary countries and international organizations have urged bilateral and multilateral partners to fund SOFF, including:

- Several **Prime Ministers** and **Ministers** from Africa, Pacific, Caribbean (e.g. Fiji Prime Minister)
- All **African Ministers** responsible for meteorology
- **Least Developed Countries Group**
- **Alliance of Small Island States**
- **African Group of Negotiators**
- **UN Secretary-General**
- Heads of **Alliance for Hydromet Development**
- **IMF** Managing Director
- **UNFCCC** Executive Secretary
- **European** Meteorological Agencies

SOFF roadmap to COP 26 and beyond



More information

- 1 Find out more about SOFF in our communication and knowledge products available here:
<https://alliancehydromet.org/systematic-observations-financing-facility/>

Annex-IX: Report of the Expert Team on Policy Development and Institutional Matters (CDP-ET-PDIM)

Ref.: 28101/2021-11 MS/ETR

Expert Team on Policy Development and Institutional Matters (CDP-ET-PDIM)

Team: Winifred Jordaan, David Farrell, John Ogren, Nirivololona RAHOLIJAQ, Evan Thompson, Prof Dwikorita Karnawati

CDP-ET-PDIM

Meetings and other discussions

- With the meeting just before CDP-2, the working programmes has been decided on.
- During the reported period, the CDP-ET-PDIM has held two virtual meetings
- May 11th, 2021 and August 16th, 2021.
- With the attendance of the meetings at a very low point, it became apparent that the team had diminished and only two active participants of the team were left.

CDP-ET-PDIM

Originally the project details consisted out of 8 points:

- **Legislative measures, strategic and operating plans, WMO Gender Equality Action Plan.**
- **Communications, outreach and negotiation needs and skills.**
- **Advocacy efforts to governments, end-users, decision-makers on the socio-economic benefits of investments in NMHSs.**
- **Assistance to NMHSs to incorporate WMO and national requirements into national policy, legislative frameworks and national development plans.**
- Review the activities of the technical commissions and regional associations aimed at developing, communicating and assisting NMHSs in developing countries to comply with WMO standards and recommended practices.
- Review and analyse gaps in the WMO Gender Equality Action Plan and provide guidance regarding WMO efforts in gender equality.
- Policy-related gaps in the capacity of NMHSs to exchange data, to deliver adequate services, to comply with WMO Standards and recommended practices, bearing in mind the Geneva Declaration 2019 (Public, Private partnerships included).
- Promotion of principles to global meteorology, hydrology and climatology including authoritative voice, common standards, data and product sharing.

CDP-ET-PDIM

Looking at the original scope, duplications were identified.

Decided to collapse the 8 details into the following 5 details/tasks.

A) v) Identify the current gaps to the compliance of Members, particular developing countries, to WMO standards and recommended practices and will encourage the establishment of systems between TCs, RAs and the WMO Secretariat for improved capacity development support **and: vii):** Identify the policy gaps in capacity of NMHSs to the free exchange of data, delivery of services, to comply (as in project V) to the required standards and recommended practices,

Task A will thus concentrate on current gaps to compliance of members to WMO standards and recommended practises including identification of gaps in policies addressing capacity and free exchange of data

CDP-ET-PDIM

- B) i): Legislative measures, strategic and operating plans, WMO Gender Equality Action Plan: and: vi): Address gender equality.

Task B will look at legislative matters, strategic and operating plans that include gender equity action plans.

CDP-ET-PDIM

- C) ii): Communications, outreach and negotiation needs and skills and: viii): Promote the principles for global meteorology, hydrology and climatology including authoritative voice, common standards, data and product sharing

Task C will look at communication, promotion of global meteorology, hydrology and climatology including authoritative voice common standards and product sharing.

CDP-ET-PDIM

- D) **iii)** stands alone: Advocacy efforts to governments, end-users, decision-makers on the socioeconomic benefits of investments in NMHSs:
- E) **iv)** stand alone: Develop strategies to assist NMHSs to implement WMO and national requirements:
This item will only become active as soon as the WMO strategy has been finalized.

CPD-ET-PDIM : Progress A

Current gaps to compliance of members to WMO standards and recommended practises including identification of gaps in policies addressing capacity and free exchange of data

- The data policies development was important as it addresses critical issues for NNMHSs that depend on the capital that the selling of data is bringing in, thus this issued was followed.
- Noted that the WMO data policy was updated with the input given and then re-circulated to NMHSs for input by September 2021 (for October extraordinary congress). The problem is that this is for all earth data and Meteorological Services are usually not the custodian of all the mentioned data. They need now to have discussions with other national relevant institutions and that will take time and get permission from the relevant ministers.
- Another issue registered is with the implementation of the free data exchange. There need to be a gateway to withdraw the data independently and that will take development and financial commitment that is not available. It is suggested that a generic programme that can withdraw data be made available that will serve the purpose.

CPD-ET-PDIM : Progress A

Current gaps to compliance of members to WMO standards and recommended practises including identification of gaps in policies addressing capacity and free exchange of data

- A list of the standards and competencies was made. As the aviation competencies are mandatory it is critical to follow implementation of that standard.
- Need to follow the implementation of new BIP-M and BIP-MT curriculums as soon as it is approved.
- Other standards and competencies will have to wait until there is a real need, unless there is a specific request. Marine might be identified as important as well.

CPD-ET-PDIM : Progress C

Communication, promotion of global meteorology, hydrology and climatology including authoritative voice common standards and product sharing.

- It was noted that the WMO country basis is not open to all and asked for permission to access the information. This will cur surveys to NMHSs and statistics can be drawn from it.
- Product share; one aspect important to NMHss are critical display systems. An example is the MTG implementation. The display of the MTG is becoming critical and EUMETSAT is looking at options.
- The new BIP-M and BIP-MT updated document will be important, and the communications of the draft standards will have to be communicated clearly.
- Looking at the data required for the country data base sent out to all WMO members in 2021: it links again to the competency standards and the output of that will be important to assimilate. The group need to have access to the information gathered.

CPD-ET-PDIM: Progress B an D

Many of the issues common is the newly defined tasks will be included in the updated Capacity Development Strategy being developed by a separate Task Team lead by David Farrell and John Ogren. Here is the status of that project.

- A draft outline of the new Capacity Development Strategy (CDS) was prepared in July
- The outline was sent to the WMO Secretariat, Technical Departments, Tech Commissions and boards, and Regional Associations for feedback.
- Overall, the outline was accepted with a few minor changes based on comments received.
- Dr. Smith is beginning to write the introduction sections of the CDS
- Other sections of the report will be assigned to the appropriate WMO department, Commission or board for draft authorship.
- It is hoped a rough draft of the CDS will be available for another round of review in the October timeframe.
- Please note that task E is officially is on hold until the WMO strategic plan is developed to give guidance to other NMHSs.

CPD-ET-PDIM: Progress E

Please note that task E is officially is on hold until the WMO strategic plan is developed to give guidance to other NMHSs.

In General:

Progress will be slow for this task team until additional members has been identified to work with the remaining members

Annex-X: Report of the ET on Human Resources Development, Education and Training (CDP-ET-HRDET)

Ref.: 28101/2021-11 MS/ETR

**THE EXPERT TEAM ON HUMAN
RESOURCES DEVELOPMENT,
EDUCATION AND TRAINING
(CDP-ET-HRDET)**

Activity Report

Dr Anna Timofeeva,

Director,
Institute for Continuing Education,
RSHU,
WMO RTC in Russia

3rd Meeting of the Capacity Development Panel (CDP)
15 and 16 September 2021 (Videoconference)

Report on CDP-ET-HRDET activities

Facilitator: Dr Anna Timofeeva

Members:

Dr David Farrell,
Dr Winifred Jordaan,
Prof Peter Odjugo,
Dr Somenath Dutta,
Mr Zhiqiang Wang

Invited members: All CDP Members

4.2(2) Future work plan of CDP-ET-HRDET (as of 04 Feb 2021)

1. To develop recommendations to RTCs on sustainability of education and training under COVID19 pandemic;
2. To continue work on revised and updated BIP-M and BIP-MT;
3. To outline a roadmap for developing competencies in relevant areas;
4. To recommend the mechanisms for WMO Regional Training Centres and other WMO Education and Training Partners to ensure and document that their curricula follow WMO standards;
5. To amend the Global Campus roadmap when necessary for further achievement of its objectives.

Decision 4.4/1 (EC-73) Recommendations from the Capacity Development Panel

The Executive Council decides to request the Capacity Development Panel to:

(2) Review and update the current competency frameworks as needed, and support development of new frameworks in areas not yet addressed, with the support of the Education and Training Office, as well as to benefit from the experiences and knowledge of the WMO Regional Training Centres (RTCs), in close coordination with the RTC Representatives

Refer to plan: "To continue work on revised and updated BIP-M and BIP-MT"

Discussions on Review & Update of BIP-M and BIP-MT Documents

| | |
|------------------------|-----------------------------------------------------------------------------------|
| March 2021 | Draft Revisions of BIP-M & BIP-MT made available for comments |
| September-October 2021 | 3 rd Revision of BIP-M & BIP-MT will be circulated as a joint document |
| November-December 2021 | Feedback collected from RTCs and Universities |
| Spring 2022 | (Almost) final version for consideration of the Executive Council |

New competencies for future forecasters

3.4.4 Education and training for future operational meteorologists/forecasters:

... excel in multisource data application; know about NEWP systems; understand the requirements of various users from different sectors for meteorological services; have in-depth knowledge of historical events so they can provide perspective on upcoming events; and possess relevant interdisciplinary expertise so they can develop impact-based and risk-based meteorological disaster forecasts.



Decision 4.4/1 (EC-73) Recommendations from the Capacity Development Panel

(6) Support and review a publication on leadership and management, based on experiences gained from the training programmes jointly organized by WMO and the Meteorological Service Singapore for Regional Associations II and V since 2018;

Refer to plan: To develop recommendations to RTCs on sustainability of education and training under COVID19 pandemic;

Decision 4.4/1 (EC-73) Recommendations from the Capacity Development Panel

(8) Contribute to the Fourteenth WMO Education and Training Symposium (SYMET-14) which will be held in 2021, as additional input to the development and promotion of education and training activities of the Organization;

Refer to plan:

1. To outline a roadmap for developing competencies in relevant areas;
2. To amend the Global Campus roadmap when necessary for further achievement of its objectives.

Fourteenth WMO Education and Training Symposium (SYMET-14)

and

Meeting of Directors of Regional Training Centres and Education and Training Collaborators

Date: 22 – 26 November 2021



Theme: “Education and Training During a Period of Rapid Change”

Recommendations:

- Item (2). To continue work on update and revision of BIP-M & BIP-MT, and to take note of the White Paper #1 Future of weather and climate forecasting;
- Item (6). To create a group of representatives from the Secretariat and a few volunteers to prepare a review of a publication on leadership and management;
- Item (8). To continue work on preparation of Fourteenth WMO Education and Training Symposium (SYMET-14).

**Thank you
for your
attention!**



**Dr Anna Timofeeva,
a.timofeeva@rshu.ru**

Annex-XI: Report of the ET on Capacity Development through WMO Technical Departments (CDP-ET-TDs)

Ref.: 28101/2021-11 MS/ETR

Agenda Item 4: PROGRESS REPORT OF THE EXPERT TEAM ON CAPACITY DEVELOPMENT THROUGH WMO TECHNICAL DEPARTMENTS (CDP-ET-TDS)



World Meteorological Organization
Executive Council (EC)
Third Meeting of the Capacity Development Panel (CDP)
Videoconference

EC-CDP-3
15 and 16 September 2021
12 00 – 15 00 (UTC)
14 00 – 17 00 (Geneva)

PROGRESS REPORT OF THE EXPERT TEAM ON CAPACITY DEVELOPMENT THROUGH WMO TECHNICAL DEPARTMENTS (CDP-ET-TDS)

Facilitator:

Dr Carla Gulizia

Members:

Dr Somenath Dutta,

Prof Dwikorita Karnawati,

Prof Peter Odjugo,

Ms Nirivololona Raholijao,

Dr Anna Timofeeva,

Mary Scholes (representative of the Research Board – RB),

Jennifer Milton (representative of Infrastructure Commission - INFCOM),

Roger Stone (representative of Services Commission - SERCOM),

Christophe Cudennec (representative of the Hydrological Coordination Panel - HCP),

Omar Chafki (representative of Joint WMO-IOC Collaborative Board (JCB))

CDP-ET-TDs Meeting – April 20th, 2021

ET members discussed potential ways of interaction and how to contribute to the work of the TT. Ways of sharing good practices were also discussed.

Outcomes of this meeting:

- Facilitators of the CDP ETs were suggested to act as focal points to ensure that the work of the different CDP-ETs and Technical Commissions (TCs) can feed into the updated Capacity Development Strategy.
- Providing recommendations to the EC is a way of promoting some of the successful existing CD strategies.
- The guidance of the WMO TCs representatives in the CDP in giving an account of the provided recommendations into their TCs work is also a way of promoting these potential actions.

Recommendation of action for the CDP-ET-TDs: Prepare a consolidated **living repository** including all the relevant information gathered from ET-TDs members during each inter-sessional period. This documentation **should be updated accordingly** after every session of the Executive Council to take into account the new requirements and approved decisions. The preparation of this repository could serve to **feed into the CD Strategy update**.

The **WMO available resources** such as the Global Campus, the Learn Portal, and/or the Moodle could be explored for the preparation of the documentation, as a way of supporting the use of these useful sources of information.

"Strengthening collaboration among NMHSs and WMO Centers for effective support to Members through extra-budgetary projects" Meeting , March 10-12, 2021

- Dr Kijazi, as chair of the CDP, as well as Ms McCourt and Dr. Gulizia, as facilitators of the CDP-ET-RMPDA and CDP-ET-TDs, respectively, were invited to participate actively during the meeting.
- The meeting overviewed the WMO extra-budgetary project portfolio and types of support provided to Members with the project funds.
- Dr. Gulizia presented an overview of the CDP-ET-TDs work and shared several recommendations and observations provided by the ET into the CDP-2 for consideration for ongoing and emerging implementation arrangements and extra-budgetary projects.

Recommendation: The meeting report to be widely shared for consideration to all the representatives in Technical Commissions (TCs) and WMO Bodies to ensure that they can take into account the issues raised which they can find relevant for the work at the respective TCs. These may also serve as a pertinent input for feeding into the CD Strategy revision.

"Strengthening collaboration among NMHSs and WMO Centers for effective support to Members through extra-budgetary projects" Meeting , March 10-12, 2021

Some of the conclusions from the meeting relevant to the CDP:

1. Local knowledge, building on strong examples in current and past projects and having the sufficient time to engage in the twinning arrangement and training component
2. Accelerating the update in seasonal and subseasonal products as most are based on statistical approaches - involving academics and scientific institutions - support of the WMO Research Programmes (e.g. WWRP, WCRP)
3. Interaction with TCs experts, regional institutions and RCs for continuous support to the NMHSs
4. Coordination among partners at the design stage - building upon other existing coordination mechanisms
5. Project proposals could be supported by the HCP to help engage the hydrological community's needs and capabilities.
6. Experiences and capacities from previous cooperation in one developing country can upscale to neighboring countries, with similar challenges and opportunities through new projects promoting South-South cooperation.

Interaction between RAs and the respective CDP permanent representatives

The facilitator of the CDP-ET-TDs has been invited to the RA-III Joint Working Groups Meetings held during May 27, July 7, and August 23, 2021.

During the first of these meetings, Dr. Gulizia gave an overview of the approved CDP-2 report and listed some of the outcomes of the *"Strengthening collaboration among NMHSs and WMO Centers for effective support to Members through extra-budgetary projects"* Meeting for consideration by the RA-III Members.

World Climate Research Programme (WCRP) Climate Research Forums

The WCRP is conducting regional consultations on its new structure and implementation plan. These include the exchange of ideas, discussion of new activities and opportunities that WCRP is developing, and exploring ways in which not only the scientific community but also funding agencies, other partner programs like Future Earth, as well as end-users and decision-makers using climate science, can get involved.

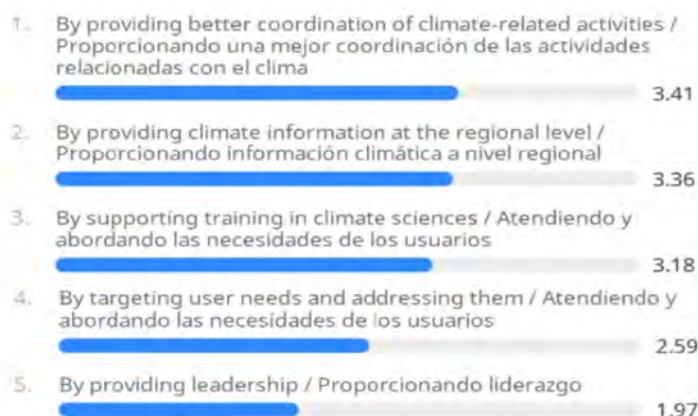
Dr. Gulizia has been co-leading the **WCRP Forum for South America** held on September 8-9, 2021, taking into consideration the recommendations from CDP-2, particularly in line with

- "Developing strategies to foster engagement of academics and NMHSs staff at the local and regional levels on research questions and ways in which results could be applied for improved operational delivery" and
- "...foster systematic contribution from the academia towards enhancement of research-to-operation connection as additional way of strengthening capacity of NMHS..".

• Given that the Forum for South America was held in English, in order to tackle the *language barrier* in the region, the **WMO provided simultaneous Spanish translation for this Forum**, whereas the regional focal points for the continent prepared the translation of all the advertisement material (flyer and website content). More information can be found [here](#).

Recommendation: Support the continuation of the WCRP Climate Research Forums and foster involvement of academics and regional scientific community with the WCRP activities, while also enhance articulation and participation of the NMHSs personnel and permanent representatives of the RAs contributing with the WMO TCs and Bodies to engage in the discussions of these regional Forums. These could be a complementary way of gathering information on regional needs and research gaps, while strengthening the articulation between the scientific community, the NMHSs in the region and the stakeholders using climate science.

Rank areas where WCRP could help to make a difference to the climate research in the region (61 respondents)



Note: These are preliminary results from WCRP Climate Research Forum for South America

Identify areas where WCRP can make a difference to climate research 24 respondents. Open text, answers synthesised below

| | |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Climate Modelling | <ul style="list-style-type: none"> • Help scientists to access computing resources and training in their use |
| Funding | <ul style="list-style-type: none"> • Facilitating funding for projects and access to international funding • Seed funding for collaborative projects between SA countries |
| Training | <ul style="list-style-type: none"> • Basic education; University teachers/lecturers; Professionals in charge of monitoring and forecast systems; disaster risk management |
| Data provision | <ul style="list-style-type: none"> • Ocean data and Open access |
| Connections with existing networks | <ul style="list-style-type: none"> • Helping to provide the bridge connecting research to operational centers • Working on relevant aspects and topics |
| Other topics where WCRP could make a difference | <ul style="list-style-type: none"> • Impact of climate change on socioecological systems • Adaptation measures in vulnerable communities • New economic models based on ecological limits • Social sciences • Climate change indicators (adaptation and mitigation) • Disaster risk management, hydrological resources, food security • Climate Change and Variability • Modelling and AI Applications (incl. for post processing) • Modelling and post-processed results at all timescales |

Note: These are preliminary results from WCRP Climate Research Forum for South America

Q14: WCRP role in supporting local and regional communities: gaps & needs? (Ranked Poll)

50 respondents

Q15: Some other suggestions:

- Acquiring and sharing datasets – exploiting cloud computing. WCRP can play a role in developing this and protocols
- Approach national stakeholders
- Become a strong actor in the impact sector (Water, Disaster Risk etc)
- Providing Advisory services and supporting project development
- Support in project elaboration



Note: These are preliminary results from WCRP Climate Research Forum for South America

Thank you
Gracias
Merci

Contact information:
Dr. Carla Gulizia
gulizia@cima.fcen.uba.ar

Annex-XII: Report of the ET on Resource Mobilization, Partnerships and Development Assistance (CDP-ET-RMPDA)

Ref.: 28101/2021-11 MS/ETR

CDP-EC-Capacity Development through Resource Mobilisation, Partnerships, and Development Assistance

Facilitator: Ms Karen McCourt

Members:

Dr Somenath Dutta

Dr David Farrell

Prof Dwikorita Karnawati

Mr John Ogren

Mr Evans Thompson

CDP-EC-RMPDA – Activities to date

ET meetings: Oct 2020, Jan 2021

Further meets and **feedback from WMO**

Interaction with other ETs including ET-TDs

- All focussed towards determining potential outputs under the current ET Terms of Reference
- Note: Very much a *starting point* to be added to from further discussion/feedback with WMO and relevant WMO meets, and as the CDP evolves and remit is refined

CDP-EC-RMPDA – TORs

Monitor and make recommendations on the following:

- i. Provide guidance and oversight regarding WMO efforts to strengthen assistance to the NMHSs of Developing and Least Developed Countries
- ii. The facilitation of twinning arrangements and other innovative modes of bilateral cooperation.
- iii. Strategies to leverage initiatives in the UN system and other development partner initiatives.
- iv. Oversee and guide the implementation of the tasks of the Executive Council according to Resolution 8.3/1 (Cg-18). In particular, ensure that WMO activities that support capacity development, including the Country Support Initiative and VCP, as well as WMO-related CREWS activities, are complementary and take into consideration the unique national context of Members.
- v. Strategies for identifying opportunities; how to best apply extra-budgetary resources to maximise impacts; develop guidance for NMHSs on resource mobilization strategy.
- vi. Approaches to develop, implement, monitor and evaluate projects.
- vii. Partnerships, promotion of multilateral and bi-lateral collaboration, Public-Private Engagement (PPE), interagency collaboration including WMO-IOC JCB.

CDP-EC-RMPDA – Drivers for proposed outputs

The focus of current and future activities under the ET are focussed on linking in with TORs and making sure any activities:

- a) Add value to the work of WMO – with a focus on providing feedback/guidance as opposed to practical implementation of specific capacity development activities (much of which is being done elsewhere across WMO, and by Members);
- b) Assist with the effective coordination of capacity development across WMO, which is believed to be central to the TORs of the wider Panel;
- c) In line with b), feed into work on the revised Capacity Development Strategy;
- d) Complement, rather than duplicate, any other work in the CDP-ETs and across WMO;
- e) Recognises the busy schedules of all team members and contributors to the ET, so ensuring that we are prioritising those activities that will add most value as per a); and
- f) Consider feedback from relevant WMO bodies, including from Cg-18 in 2019, and EC-72 & 73 held virtually in September 2020/June 2021.

Update on ET-RMPDA Activities and Outputs

i) Assessment of key development needs/gaps in each Region (including consideration of significant upcoming initiatives under the Technical Commissions and Research Board which may require capacity development support) to feed into the revised Capacity Development Strategy (2022)

- This links with the EC72 feedback: "To identify opportunities and complementarity between all WMO initiatives to strengthen capacity of developing Members when reviewing the WMO Capacity Development Strategy"
- It is proposed that this would not be looking in absolute detail, but reviewing what are the KEY needs and assessing if these are being tackled effectively – and, if not, how/where might this be done across WMO and Members
- The ET-RMPDA has made contact with Dr Michael Smith who will be working on the CDS and requested that this activity (with input from the RAs, TCs and RB), and previous ET-RMPDA discussion around this, will be taken into consideration for the development of the CDS.

Update on ET-RMPDA Activities and Outputs

ii) Review of current data collection platforms and methodologies and providing recommendations on how best to manage/streamline.

- In initial ET-RMPDA discussions it was recognised that there are already numerous data sources available/methodologies for collection of data within WMO, and the potential need for these to be rationalised.
- However, with the development of the new Country Hydromet Diagnostics (CHD) tool - and which links to some of the existing collection platforms e.g. Climate Services Checklist - it was decided to adjust this activity to assist with the peer review of the CHD.
- The facilitator has been in contact with those leading on the CHD, and plans for the ET to assist with this peer review during September.

Update on ET-RMPDA Activities and Outputs

iii) Review of/guidance on, initiatives (as discussed at EC72) and feedback to EC e.g. Country Hydromet Diagnostics tool, SOFF, others TBD in discussion with relevant WMO departments/programmes.

- Discussion during CDP-2 in February 2021 emphasised the benefit of input from the CDP in major development initiatives including SOFF.
- Following this meeting it was discussed regarding ET-RMPDA being involved in peer review of SOFF but was decided at this time – and as SOFF development was mature – that input was not applicable at this stage. Instead it was agreed that the ET-RMPDA could best provide feedback into the CHD peer review, as per previous output.
- The ET-RMPDA would welcome ongoing input and guidance from EC and the WMO Secretariat as to significant initiatives that it would be helpful for the CDP, and ET-RMPDA, to provide review and guidance on, and provide value in this way.

Update on ET-RMPDA Activities and Outputs

iv) Support of the independent evolution of WMO projects as requested by EC-72

- In Decides 11 (EC-72), EC decided "To base the decision on scope and scale of future development projects implemented by the WMO Secretariat on a strategy that needs to be informed by an independent evaluation of relevance, effectiveness, efficiency and fiduciary risks of the current approach." And the CDP to: "To support the independent evaluation of the WMO Secretariat implemented projects".

- The ET-RMPDA has fed into the initial scoping for the recruitment exercise for this consultant, and the details of the assignment are currently being finalised by WMO. The consultancy announcement is due to be issued in the first quarter of 2022 with the initiative commencing in the second quarter of 2022. At this point the ET-RMPDA will provide further input as appropriate.

- It is anticipated, as part of this work, the consultant may include a review of materials/outputs related to the meeting mentioned in v.), as an introduction to the portfolio, how it is being implemented, and the perspectives of key stakeholders.

Update on ET-RMPDA Activities and Outputs

v.) Input into guidance/recommendations on the facilitation of twinning arrangements and other innovative modes of bilateral cooperation, and best practise for taking forward.

- Input was made into the meeting “Strengthening collaboration among NMHSs and WMO Centers for effective support to Members through extra-budgetary projects” facilitated by WMO 10th-12th March 2021.
- There was a significant amount of useful feedback gathered from this meeting. It was further highlighted to WMO, and in discussion with the ET-TD, the importance of ensuring this valuable feedback could be further shared with and taken on board to be used practically, particularly by those technical departments involved in projects, and the TCs.
- Some of this feedback could also be helpful for the CDS development and we would encourage review.
- We would also encourage review of output by other ET’s to check re links into current/future activities. E.g. the meeting gave feedback re leadership and management training which the ET-HRD/PIM has some activities linked to.

Update on ET-RMPDA Activities and Outputs

vi.) Review and document recommendations on best practise in terms of working with development partners/Government (to enhance knowledge sharing in this area).

- This links to feedback from EC-72 requesting the CDP to “To develop appropriate guidelines supporting the implementation of the WMO initiatives to strengthen the capacity of developing country Members”
- Professor Karnawati and her team in Indonesia have been working hard to pull together questionnaires – both online and in-person – and have been conducting numerous interviews across the WMO Membership and Secretariat. This has included LDCs, middle-income countries, and developed countries working in partnership with other NMHSs on capacity development activities.
- The analysis from this activity should be available in the next couple of months.
- As part of this it would be good to look at recommendations on related initiatives e.g. WMO strategic planning with NMHSs; should further training be provided on resource mobilisation and project proposals (may be link with ET-HRD/ET-PDIM)
- Good to discuss further how we can add value in this area e.g. providing guidance/highlighting WMO initiatives and proposals to EC

Update on ET-RMPDA Activities and Outputs

vii.) As per tasks from Res 8.3/1(Cg-18), ensure that WMO activities that support capacity development, including the Country Support Initiative and VCP, as well as WMO-related CREWS activities, are complementary and take into consideration the unique national context of Members. Reviewing how these (and other similar) initiatives can fit together and complement/benefit each other.

- A watching brief is continuing on this with some discussions with those involved with CSI, CREWS, and we hope to discuss further with VCP Members at a proposed meet later this year.

- It was noted that at EC73 there was an intervention (Doc 4.4): *"To conduct an assessment of, and clarify the rules and responsibilities of, the different actors as well as the different funding mechanisms involved in WMO Capacity Development activities"* (Decides 9) and we will look to incorporate this, in discussion with the Secretariat, in the work of the CDP and ET-RMPDA going forward.

CDP-EC-RMPDA – Questions/Comments...

- i) It would be good to understand further the route/mode of feeding back into EC, as well as requests from the EC (and other bodies?) to the CDP/ETs, to help determine relevant outputs
- ii) In terms of Governance, and recognising this is a new body, it may be helpful to learn any experience from the other new Panels and how focussed activities are decided upon and informed by different parts of WMO?
- iii) Good to understand expectation of output for EC at end of October.

Annex-XIII: Extrabudgetary Projects & Flagship Initiative

Ref.: 28101/2021-11 MS/ETR



WORLD
METEOROLOGICAL
ORGANIZATION


**3rd meeting of WMO
EC Capacity
Development Panel
(CDP-3)**

15 & 16 September 2021
Filipe Lucio - MS | PMID



5 Update on WMO
Extrabudgetary Projects &
Flagship Initiatives

»» Extrabudgetary Projects & Flagship Initiatives
»» Independent Evaluation of WMO's Approach to
Projects



16/09/2021 3rd Meeting of WMO EC Capacity Development Panel (CDP-3) 2

WMO Development Projects General Overview



Key Developments

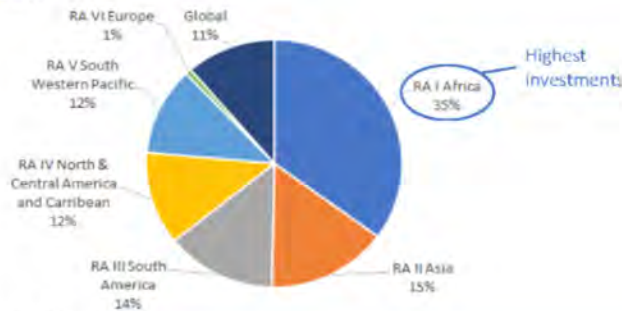
- **Continued increase** in acquisition of resources for **capacity development initiatives** due to increasing request from Member States for WMO XB support through project implementation
- WMO supports implementation of over **~ CHF 250 M investments** in weather, water and climate services to support WMO Members
- WMO directly manages a **portfolio of 51 extra-budgetary funded projects** incl. **advisory services** amounting to **~ CHF 112 M**

Outlook

- **17 projects** in pipeline - approx. value **~ CHF 74 M**

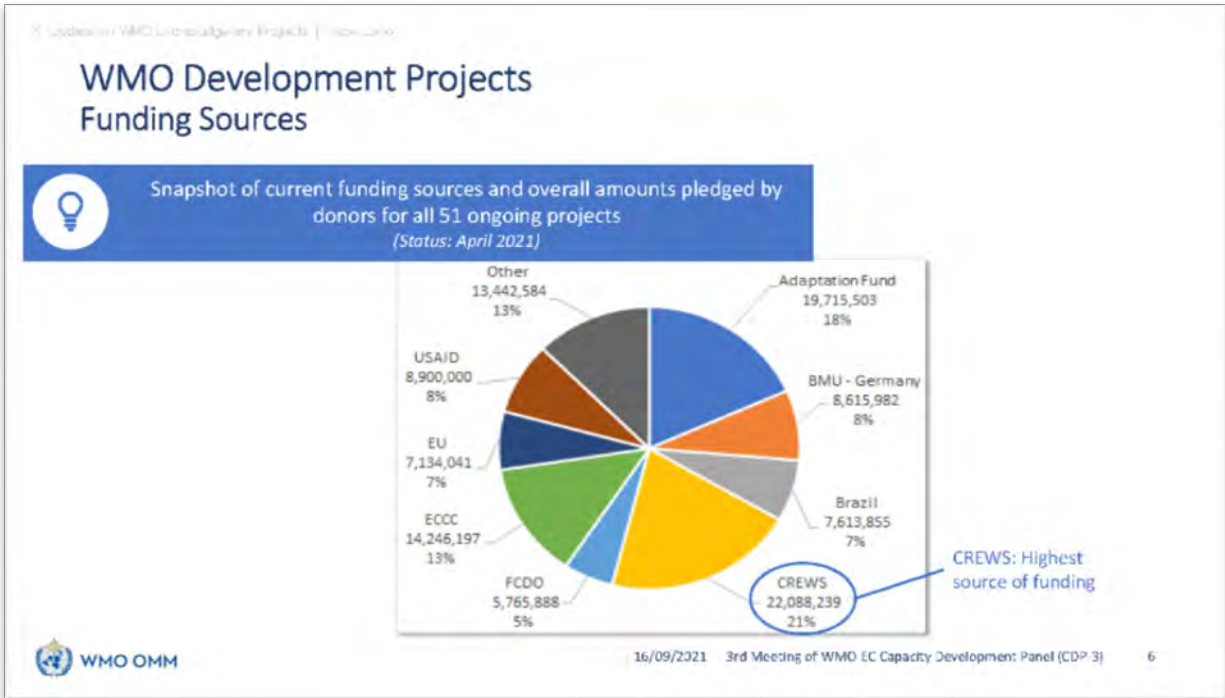
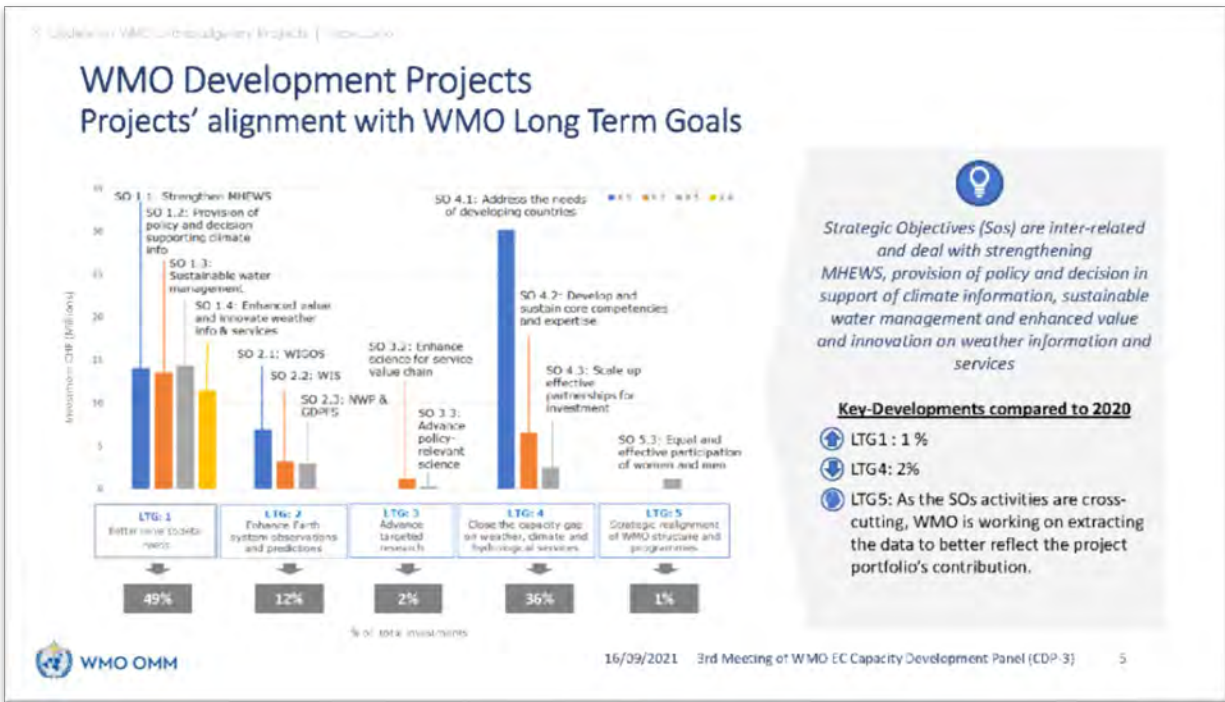
Steady increase in total financing & number of projects under implementation since September 2018

WMO Development Projects Beneficiaries by Region



Key Developments compared to 2020

- Investment in Region RA I Africa increased by 2%
- Investment in RA II Asia slightly decreased by 4%
- Investment in global projects slightly decreased by 1%



Funding Partners ...for the ongoing 51 projects



Partnership Flagship Initiatives

Country Hydromet Diagnostics (CHD)

CHD aims at informing members of the Alliance for Hydromet Development and Governments investment decisions and tracking progress in closing the hydromet capacity gap

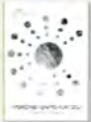
- The CHD is a standardized, practical, integrated approach for peer-to-peer review of the performance of public national hydrometeorological services, their operating environment, and their contributions
- It is an analytical foundation of the "readiness phase" of SOFF support that will be provided through the Country Support Initiative

Alliance for Hydromet Development & Alliance Hydromet Gap Report

The Alliance aims to unite efforts to close the capacity gap on high-quality weather forecasts, early warning systems and climate information as the foundation for resilient and sustainable development

The Gap-Report aims at tracking progress and establishing a baseline for the Alliance commitments, capture lessons learned, guide investments and identify high impact priority actions

- Launched during COP-25 in Madrid, the Alliance brings together major climate and development finance partners
- The first Report was launched in July 2021 at the UN High-level Political Forum



Other programmes addressing the capacity gap on weather, water, climate and related environmental services (1/2)

Checklist for Climate Services Implementation

WMO Members assess their capacity for providing climate services, documenting associated socio-economic outcomes and benefits through a checklist that addresses functional capacities across the climate services value chain.

State of Climate Services report

This is a WMO coordinated multiagency report for assessing adaptation needs in climate-sensitive socio-economic sectors. It highlights progress made in EWS implementation globally and identifies where and how governments can invest in effective EWS to strengthen countries' resilience to multiple weather, climate and water-related hazards.



Help Desk on Integrated Flood Management

The help desk provides guidance to Members on different aspects of flood mgmt., integrating the technical aspects of flood forecasting and flood risk mapping into other institutional, socio-economic and environmental aspects related to the management of floods.

WMO Hydrology Survey

The Survey aims to collect information on governmental and non-governmental organizations that are responsible for operational hydrology within countries, their capabilities, structure, hydrological networks, data management and hydrological forecasting characteristics.

Other programmes addressing the capacity gap on weather, water, climate and related environmental services (2/2)



CREWS Initiative & CREWS Trust Fund

CREWS aims to save lives, assets and livelihoods through increased access to early weather warnings and risk information in LDCs and SIDS. Its overall objective is to substantially reduce disaster mortality by 2030 by significantly increasing access to early warnings and risk information.

CREWS is a financing mechanism leveraging the expertise and specialist networks of its Implementing Partners, the WMO, WB GFDRR and UNDRR. As of December 2020, contributions to the CREWS Trust Fund totalled to US\$ 66.16 million.

Community Platform

(previously WMO Country Profile Database - CPDB)

Features provided for WMO Members:

- Centralized experts database with self-service functionality to ensure contact information, roles and group memberships are up to date.
- Information collected regarding countries and territories are available in the Member profiles.

Based on the consolidated data available in the Community Platform, monitoring and evaluation can be systematically improved, more comprehensive Member profiles can be created as well as thematic dashboards for different stakeholders to better support evidence-based decision-making.



Example of a Country Profile (under development)

Under Development: Partnership Flagship Initiatives



Systematic Observations Financing Facility (SOFF)

Under development



Strengthen local and global resilient development and climate adaptation through improved observing systems leading to better weather forecasts and climate services

- SOFF will provide technical & financial assistance by applying internationally agreed metrics to guide investments based on:
 - The requirements of the GBON
 - Using data exchange as a measure of success
 - Creating local benefits while delivering on global public good
- SOFF will provide grant support to LDCs and SIDS for capital investments
- The creation of SOFF is a commitment/priority action of the Alliance for Hydromet Development.



Global Basic Observing Network (GBON)

Under development



GBON sets out a clear obligation for all WMO Members to acquire and internationally exchange the most essential surface-based observational weather data

- GBON was established in 2019 by the World Meteorological Congress
- Contributes to the SOFF
- Substantial investments and strengthened capacity are required by many countries to achieve and maintain compliance with GBON requirements

5

Update on WMO Extrabudgetary Projects & Flagship Initiatives

- »» Extrabudgetary Projects & Flagship Initiatives
- »» Independent Evaluation of WMO's Approach to Projects

Executive Council Decision 11 (EC-72) Current Status | Ongoing and completed activities



Decision: "To base the decision on scope and scale of future development projects implemented by the WMO Secretariat on a strategy that needs to be informed by an independent evaluation of relevance, effectiveness, efficiency and fiduciary risks of the current approach"



Zero draft Terms of Reference (ToR) developed and presented: Development in consultation with Capacity Development Panel focal point & Internal Oversight Office. Presented at PMB 30, where a brief discussion was held on the nature of the independent evaluation.

Review of the zero draft through PMB: PMB 30 Members were invited to comment on the draft TOR.

TOR revised: Based on additional comments provided by PMB in June 2021, ToR were revised.

Finalization of ToR: Several internal documents (e.g. GFCS) are being used as reference material to ensure the design of a standard and robust approach for the consultancy.

Executive Council Decision 11 (EC-72) Next Steps





WORLD
METEOROLOGICAL
ORGANIZATION



**Thank
you!**

Annex-XIV: Revision of education and training publications

Ref.: 28101/2021-11 MS/ETR

CDP-3

Revision of education and training publications

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

WMO library

| Governance publications | Technical Publications | General information Publications |
|----------------------------------------|-------------------------------------------|---------------------------------------------------------|
| Policy Documents and Standards | WMO Guidelines | Bulletin |
| WMO Manuals and Guides | Programmes Publications | WMO Statement on the state of the Global Climate |
| Congress Reports | Technical Notes (no longer published) | Greenhouse Gas Bulletin |
| Executive Council Reports | Technical Documents series (discontinued) | Meteoworld |
| Regional Associations Reports | | WMO Airborne Dust Bulletin |
| Technical Commissions Reports | | WMO Reactive Gases Bulletin |
| Technical Commissions Reports (Former) | | World Meteorological Day Booklets (no longer published) |
| Reports of the Audit Committee | | Posters |
| Financial Statements | | |

Agenda Item 9:

Revision of education and training publications

- Two types of WMO publications
 - Governance publications-1
 - Policy documents and standards
 - Rules of procedure and basic documents etc.
 - WMO Manuals and Guides
 - Constitutions Body session reports
 - Congress Reports
 - Executive Council Reports
 - Regional Associations Reports
 - Technical Commissions Reports

Agenda Item 9:

Revision of education and training publications

- Two types of WMO publications
 - Technical documents-2
 - WMO Guidelines
 - Programme Publications
 - Technical Notes(no longer published)
 - Technical Documents Series(discontinued)

Agenda Item 9:

Revision of education and training publications

- Governance publications
 - Have a WMO number and an ISBN number.
 - Need additional approval by WMO Executive Management.
 - Need full editing by WMO language service.

Agenda Item 9:

Revision of education and training publications

- Technical publications
 - Used to be Technical documents (WMO-TD number)
 - Have been discontinued for a while.
 - Are proof-read by WMO language service.
 - Technical publications continue to be produced.
 - ETR series assigned to education and training publications

Agenda Item 9:

Revision of education and training publications

- ETR publications fall in both types
 - Examples of Governance publication
 - Compendium of WMO Competency Frameworks(WMO-No. 1209)
 - Guide to the Management and Operation of WMO Regional Training Centres and Other Training Institutions (WMO-No. 1169)
 - ~~Guidelines for the education and training of personnel in meteorology and operational hydrology – Vol.1 Meteorology (WMO-No. 258)~~
Replaced by
 - Guide to the Implementation of Education and Training Standards in Meteorology and Hydrology, volume I – Meteorology (WMO-No. 1083)
 - (2015 edition) which contains updated BIP-M
 - WMO Capacity Development Strategy and Implementation Plan(WMO-No. 1133)
 - Guidelines for Applying for a WMO Fellowship (WMO-No. 1104)
 - Examples of technical publications
 - Manual on Policies and Procedures for WMO Fellowships(ETR-No. 18, WMO/TD-No. 1356)
 - Status of Human Resources in National Meteorological and Hydrological Services (ETR-21)



ETR planned new Publications

| Title | Status | CDP review required | Likely to be published by |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------|
| Impact of Training Programme on Climate Change Adaptation and Disaster Risk Reduction in Agriculture (PACC-RRC) | This Evaluation Report was submitted for publication. | No | Early September 2021 |
| Responding to Challenges Beyond the New Normal. A Global Campus Event | The Proceedings for the January Global Campus meeting interim publication is nearly complete. This is being finalized for use in SYMET. | No | October 2021 |
| Status of Human Resources in NMHS (2021) | The survey has been sent out and the submissions will be analysed by the end of 2021 | No | Q1, 2022 |
| Fellowship activities review report (2011 to 2020) including the post fellowship status | Outline drafted and survey feedback partially received. | TBD | Q1, 2022 |
| Leadership and management guidelines | In preparation | TBD | 2022 |



ETR planned updated publications

| Title | Status | CDP review required | Likely to be published by |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------|
| WMO-No. 1169(2017) Guide to the Management and Operation of WMO Regional Training Centres and Other Training Institutions | The first draft of section 1: Introduction was completed. This section required substantial revision following the changes to WMO during the period of reform, and places new emphasis on the strategic role of RTCs in the WMO. | To be requested once document review is complete | After EC-75 approval (2022) |
| WMO-No. 1114(2013) Guidelines for Trainers in Meteorological, Hydrological and Climate Services | Revision of this document will start in September 2021. | | After EC-75 approval (2022) |
| WMO-No. 1205(2018) Guide to Competency | A new section describing options for courses of action when a staff member does not succeed in a competency assessment was revised. Feedback was provided to author, who will rework the new 8-page section and resubmit. | | After EC-75 approval (2022) |
| WMO-No. 1083(2015) Basic Instructional Package(BIP) | Writing is well advanced, including inputs from consultation. The document is in final stages of editing. | To be requested by the Review Team early Sept. 2021. | After Congress approval (2023) |
| WMO Capacity Development Strategy and Implementation Plan(WMO- No. 1133) | | Yes | 2022 |



Thank you

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Annex-XV: Review of WMO Regional Training Centres (RTCs)

Ref.: 28101/2021-11 MS/ETR



Agenda Item 10:
Review of WMO Regional Training Centres (RTCs)

CDP-3

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



- How many RTCs have been recognized?
- Why do we review the RTCs?
- Why does it matter?
- How do we review the RTCs?
- How long does it take?
- What is the status of the RTC reviews?
- Who are involved in the review?

WMO OMM

6 WMO Regions, 28 Members Hosting, 43 Components



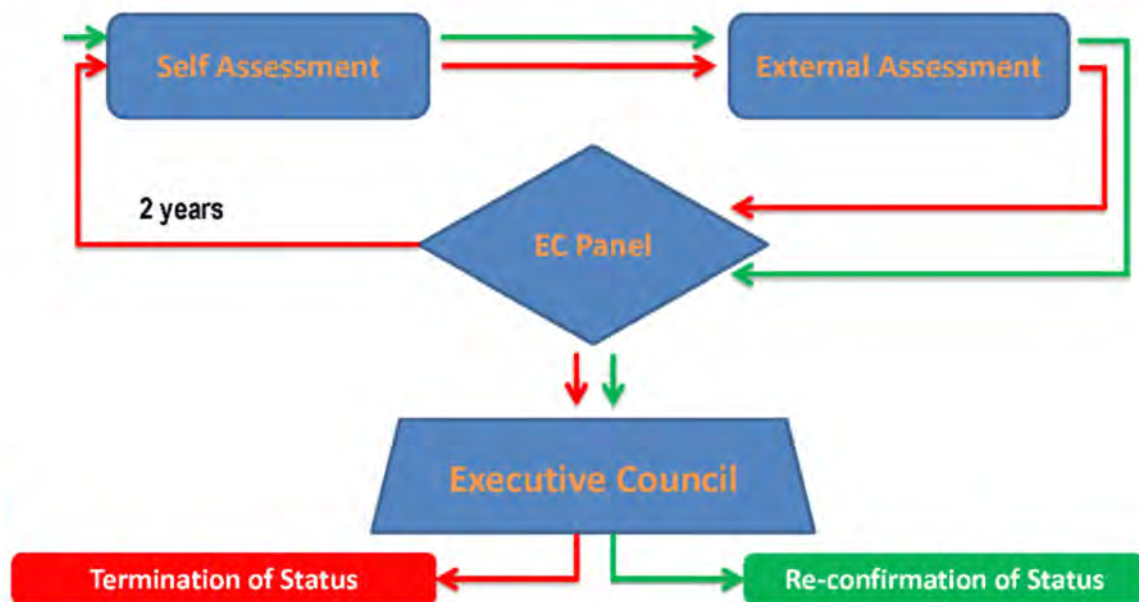
WMO Global Campus Initiative Contributors



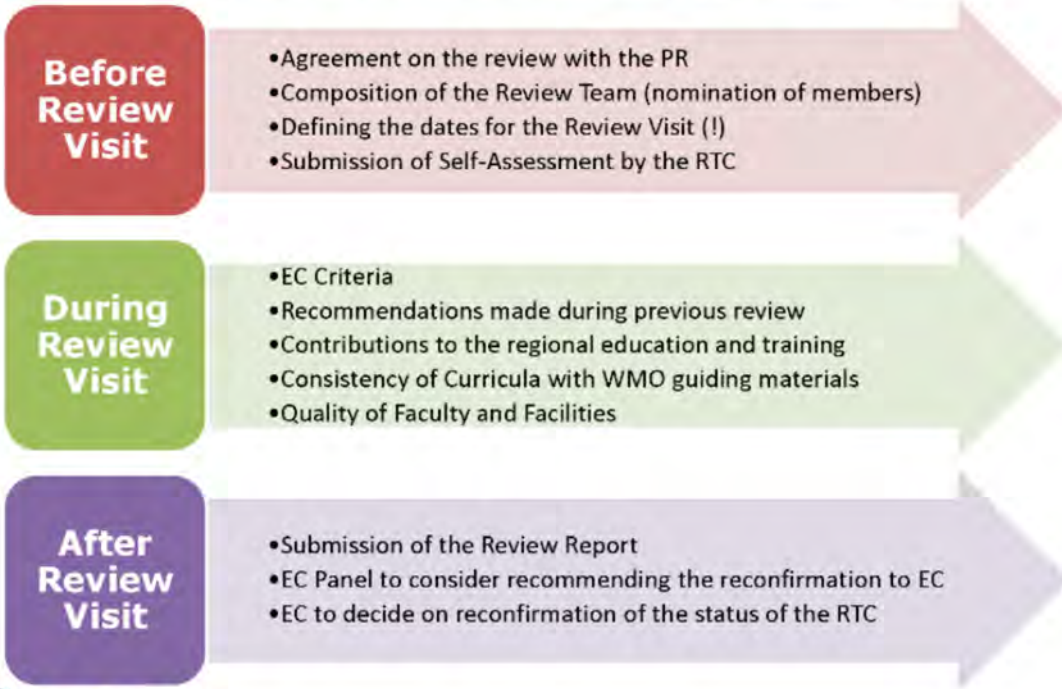
Why do we review the RTCs?

- **48th EC** requested monitoring the RTCs
- Every two financial periods (**8 years**)
- A **two-step** review process
 - Self Assessment & External Assessment
- Purpose:
 - To assess the degree to which an RTC satisfies the **EC Criteria**
 - To **reveal the strengths** of the training programmes
 - To **support RTC** in developing its training programmes
 - To monitor the support given to **WMO fellows**
 - To **help RTC** in obtaining needed resources

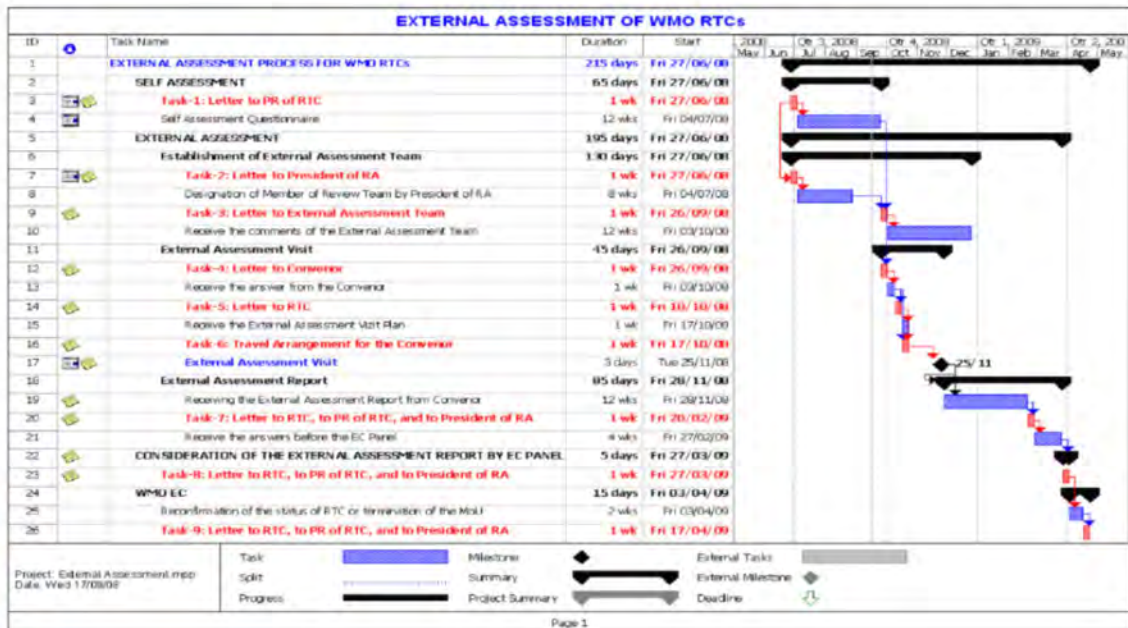
Why does it matter?



How do we review the RTCs?



How long does it take?



What is the status of the RTC reviews?

| RTC | Last Reviews | Status |
|--------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------|
| India | (1) December 2002 (2) March 2011 (3) February 2020 – ongoing | Close to final stage |
| Russian Federation | (1) June 2004 (2) June 2011 (3) September 2019 – ongoing | Close to final stage |
| Costa Rica | (1) April 1999 (2) March 2008 (3) April 2017 – ongoing | Close to final stage |
| China (*Proposed Candidate as Hydro Component) | Not reviewed yet | Under consideration |
| Nigeria (*Proposed Candidate as Hydro Component) | Not reviewed yet | Under consideration |
| Italy | (1) November 2004 (2) November 2013 | Process initiated, convenor to be nominated |
| China | (1) October 2003 (2) April 2011 | Process initiated, convenor to be nominated |
| Turkey | (1) April 2004 (2) December 2011 | Process initiated, convenor to be nominated |
| Indonesia | Designated in 2012 | Process initiated, convenor to be nominated |
| Israel | (1) February 2007 (2) December 2013 | Process initiated, convenor to be nominated |



Who are involved in the review?

- WMO Member hosting the RTC
 - Permanent Representative of Member with WMO
 - Director of the RTC
 - Local member for Review Team, nominated by PR
- WMO Region hosting the RTC
 - President of the Regional Association concerned
 - Regional member for Review Team, nominated by PRA
- Convenor
 - ETR Expert, nominated by the Panel, to led the review
- WMO Secretariat
- EC Capacity Development Panel
- Executive Council



Proposed convenors for the RTC reviews in 2021-2022

| RTC | Last Review | Proposed Convenor (to be confirmed) |
|-----------|--------------------------------|----------------------------------------|
| China | April 2011 | Anna Timofeeva |
| Turkey | December 2011 | Marina Baldi |
| Italy | November 2013 | Karen McCourt |
| Indonesia | Not reviewed after designation | Winifred Jordaan |
| Israel | December 2013 | Jennifer Milton |



Thank you

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale