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## REPORT OF THE CHAIR OF THE CAPACITY DEVELOPMENT PANEL

### Report of the Chair on Activities of the Capacity Development Panel (CDP) from August 2020 to November 2022

### Introduction

The CDP of the Executive Council (EC), hereinafter the Panel, was established in 2019 by [Resolution-7 (EC-71)](https://library.wmo.int/doc_num.php?explnum_id=10248/#page=28). The first meeting of the Panel was held in August 2020, marking the start of its work. In its first session, the Panel established four Expert Teams (ET) and one Task Team (TT) to assist with work under the responsibility appointed to the Panel. These Teams have been working independently, coordinating activities to fulfil their respective terms of reference, reporting to the members of the Panel, and discussing important capacity development matters.

This report summarizes the activities of the CDP Expert Teams and Task Team from inception until November 2022. It also provides recommendations arising from their activities and findings. Finally, the report concludes with a reflection on the experiences of the Teams, exploring challenges and opportunities leading to recommendations for the coordination of work of the Capacity Development Panel as it moves forward.

### Main activities and achievements

The activities of the Capacity Development Panel were largely driven by the terms of reference decided by the Executive Council in its seventy-first session ([Resolution 7 (EC-71)](https://library.wmo.int/doc_num.php?explnum_id=10248/#page=28)). These were further discussed by the Panel during its first meeting, when four Expert Teams and one Task Team were established. The Terms of Reference of the Panel, ETs and TT, and their respective memberships are presented in [Annex](#_ANNEXES) (ANNEX I to VI).

The focus of activities of the Panel has been to add value to the work of WMO by providing feedback and guidance rather than implementing specific capacity development activities, much of which is already being done elsewhere across WMO, and by Members. In addition, activities of the Panel focus on:

1. Assisting with the effective coordination of capacity development across WMO, which is believed to be central to the TORs of the Panel;
2. Complementing, rather than duplicating, any other work in the CDP-ETs and across WMO;
3. Ensuring that priority is given to those activities that will add most value
4. Considering feedback and requests from relevant WMO bodies, including from Congress and EC.

Discussions and presentations of the activities of the ETs and TT take place in CDP meetings, which have been regularly organized. Six meetings of the Panel have been held since its inception. The full reports of these meetings can be accessed using the information provided in ANNEX VII.

The following are the main activities and achievements of the ETs and TT from the time they were established in August 2020 to November 2022:

1. Assessment of key development needs/gaps in each Region (including consideration of significant upcoming initiatives under the Technical Commissions and Research Board) to feed into the revised Capacity Development Strategy (CDS).

Several discussions were held with the CDS Task Team regarding this activity. Integration was dependent on decisions around the purpose and audience of the CDS which is now more orientated towards a ‘framework’ for capacity development to help guide the approach across WMO, as opposed to identifying key outputs around WMO LTGs, especially LTG4. The latter should be covered by the WMO Strategic Plan/Operating Plan 2024–27 developments, and it was proposed that the CDP could potentially peer review these developments and the proposed outputs as per CDP TORs and to “…monitor the priorities of, and activities under, the WMO Strategic Plan…” (tbc).

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

In initial ET-RMPDA discussions it was recognized that there are already numerous data sources available/methodologies for collection of data within WMO, and the potential need for these to be rationalized.

However, with the development of the new Country Hydromet Diagnostics (CHD) tool it was decided to adjust this activity to assist with the peer review of the CHD, and input was provided in September 2021.

1. Review of/guidance on, significant WMO capacity development initiatives 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 emphasized the benefit of input from the CDP in “significant” upcoming capacity development initiatives. A discussion was held with WMO 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 output of activity ii).

1. Support of the independent evaluation of WMO projects as requested by EC-72.

In [Decision 11 (EC-72),](https://library.wmo.int/doc_num.php?explnum_id=10504/#page=120) 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 support the independent evaluation of the WMO Secretariat implemented projects”.

The facilitator of CDP-ET-RMPDA has fed into the scoping and design of the recruitment exercise for this consultant and assessing applications. Further guidance/input will be provided during the work of the recruited consultant during the latter part of 2022.

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

Input, including facilitation, was made into the meeting “Strengthening collaboration among NMHSs and WMO Centres for effective support to Members through extrabudgetary projects” held by WMO 10th-12th March 2021.

There was a significant amount of useful feedback gathered from this meeting ([https://community.wmo.int/meetings/strengthening-collaboration-among-nmhss-and-wmo-centres-effective-support-members-through-extrabudgetary-projects](https://community.wmo.int/meetings/strengthening-collaboration-among-nmhss-and-wmo-centers-effective-support-members-through-extrabudgetary-projects)). It was further highlighted to WMO, and in discussions between CDP-ET-RMPDA and CDP-ET-TD, the importance of ensuring this valuable feedback could be communicated and taken on board to be used practically, particularly by those technical departments involved in projects, and the Technical Commissions. In light of this, recommendation was also made for the output to be utilized in the development of the Capacity Development Strategy, as applicable.

Several key observations were extracted from the outcomes of the above mentioned meeting. 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. Meanwhile, there is a need in accelerating the update in seasonal and sub-seasonal 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). Furthermore, close coordination with WMO including parallel projects is helpful in linking up with Partners. Interaction with Technical Commission experts, regional institutions and Regional Centres can provide continuous support to the NMHSs and link together the different projects. National and Regional Climate Forums are useful platforms for this aim. 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) is helpful. It was recommended to promote coordination among partners at the design stage when opportunities for new projects arise. On the other hand, the engagement of the WMO Hydrological Community in twinning arrangements and extrabudgetary 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. Finally, experiences and capacities from previous cooperation in one developing country can upscale to neighbouring countries, with similar challenges and opportunities through new projects promoting South-South cooperation.

1. Review and document recommendations on best practice 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”

This activity was led by Professor Karnawati and her team at BMKG Indonesia. Significant effort was made to implement questionnaires and interviews – both online and in-person – across the WMO Membership and Secretariat. This included LDCs, middle-income countries, and developed countries working in partnership with other NMHSs on capacity development activities. The goal of this activity was to identify ways to improve resources mobilization amongst WMO members. This was to be achieved through gaining further information on how resource mobilization activities were currently being conducted, and to identify what has worked well or not so well.

The report can be accessed at: [Booklet Survey on RMPDA](https://etrp.wmo.int/pluginfile.php/56473/mod_resource/content/2/Booklet%20Survey%20on%20RMPDA%20rev.pdf) It has been discussed with the Task Team on the Capacity Development Strategy re incorporating findings into the CDS, where applicable.

1. To 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”.

The original activity, when the CDP-ET-RMPDA was set up, was focused on the CDP TORs and [Resolution 74 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=240),“*Closing The Capacity Gap: Scaling Up Effective Partnerships For Investments In Sustainable And Cost-Efficient Infrastructure And Service Delivery*”. While work was initiated, and meetings held around the original activity, the activity was later absorbed into a request from Executive Council [Decision 9 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008/#page=530): “To 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”

Initial discussions around approach for achieving this output have been held. This has included discussions with WMO Member Services and Development Department (WMO-MS) regarding potential synergies with work being completed by the consultant for activity iv) Support of the independent evaluation of WMO projects as requested by EC-72.

Work will continue to agree how CDP/ET-RMPDA can support this activity effectively. It was agreed that this would also be a useful input into the new Capacity Development Strategy; however, integration will depend on timing of related work and outputs.

1. 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.

This was one of two activities recommended to CDP during discussions at EC-73. It was agreed at CDP-4 (February 2022) that WMO-MS would lead on this and draw in resources from CDP-ET-RMPDA and CDP-ET-HRDET as required at a later date.

1. Assistance to the external review process and reconfirmation of status of WMO Regional Training Centres

WMO Regional Training Centres are reviewed every two financial periods with the aim to reconfirm their status. In 2022, on the invitation of the WMO Secretariat, the facilitators of CDP-ET-RMPDA and CDP-ET-PDIM lead the external review teams visiting the RTCs in Italy and Indonesia. The Panel also contributes to the reconfirmation process by commenting on the reports of the review and recommending the reconfirmations to EC.

1. Organization of SYMET-14

CDP was a major contributor to the organization of the Fourteenth WMO Symposium on Education and Training Symposium (SYMET-14), counting on the facilitator of CDP-ET-HRDET co-chairing the International Advisory Committee, which was composed in its majority by members of CDP. The Symposium took place from 22 to 25 November 2021, being held online for the first time due to COVID-19 travel restrictions. The theme “Education and Training in a Period of Rapid Change” was chosen to emphasize the challenges 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. The Symposium was attended by 280 registered participants from 65 WMO Members, representing developed, developing and least developed countries, and all WMO languages. Plenary sessions saw over 160 attendees at many times during the four-day event.

The discussions taken during SYMET-14 provided ground to identify challenges and successes, but most importantly, opportunities for the global Earth system science research and operations communities to move forward within this climate of rapid change. These important discussions led to drawing several recommendations, some for general application, others specific to policymakers and governments, to the World Meteorological Organization and other international organizations, and to the education and training community. The recommendations were captured in the SYMET-14 Statement, which was translated into all WMO official languages and distributed by the Secretary-General to all Members for consideration. The Education and Training Programme has reportedly been the first consumer of the recommendations made by SYMET-14, as the Secretariat is already benefiting from it in the planning of activities for 2022 and beyond.

CDP-ET-HRDET was also involved in the “Meeting of Directors of Regional Training Centres and Education and Training Collaborators”, which followed SYMET-14 (26 November 2021), contributing to the facilitation of the meeting.

The report of the Symposium was published as [“Education and Training in a Period of Rapid Change: Highlights of the Fourteenth WMO Symposium on Education and Training” (WMO-No. 1291).](https://library.wmo.int/index.php?lvl=notice_display&id=22147) publication explores the importance of discussing the challenges and opportunities of education and training in a period of rapid change, summarizing the main conclusions and recommendations from SYMET-14, including the Statement agreed by the participants on the final day of the Symposium.

1. Review and update of the Basic Instructional Packages for Meteorologists and Meteorological Technicians (WMO-No. 1083)

The review of the Basic Instruction Package for Meteorologists and Meteorological Technicians (BIP-M and BIP-MT) was requested by [Resolution 32 (EC-70)](https://library.wmo.int/doc_num.php?explnum_id=4981/#page=109) and started shortly after. Some members of the Panel were part of the Review Teams of BIP-M and BIP-MT, contributing throughout the whole process which included global surveys, meetings, and online seminars to discuss the necessary changes. These were followed by extensive consultation to procure feedback and address possible concerns. Comments received from WMO Members, including universities, NMHSs, learned society, and WMO Technical Departments and Commissions, contributed substantially to finalize the manuscript that will be published as a new edition of WMO-No.1083.

The Panel also reviewed, discussed and provided feedback on the drafts shared in 2021 and 2022, making a recommendation of the final draft in CDP-4 (February 2022). Recalling that the Basic Instructional Packages (BIPs) are presented in the [*Technical Regulations Vol. I*](https://library.wmo.int/index.php?lvl=notice_display&id=14073#.Y5iBrnbMI2w) (Part VI, Appendix A) (WMO-No. 49), the update of the latter was also required. In accordance with the approval process of WMO regulatory material, further coordination with Technical Commissions (TCs) was needed to present the proposed updates in the documents.

The revised documents (WMO-No. 1083 and the resulting changes in the technical regulations WMO-No. 49), have since been presented and recommended by the Technical Commissions SERCOM and INFCOM during their annual meetings.

1. Elaboration of concept for the Consortium of WMO Education and Training Collaborating Partners – CONECT

Since the initial concept of the “Board of Education and Training Collaborating Partners” was presented and discussed at CDP-3, the concept was also shared with WMO technical departments and Regional Offices, and it was discussed during SYMET-14, receiving substantial support and recommendations that contributed to further improve the concept. Participants of SYMET-14 have strongly endorsed the “Board of Education and Training Collaborating Partners” as a formal mechanism to achieve the goals of the WMO Global Campus initiative. This was formally expressed in the SYMET-14 Statement, where two activities were already recommended to be under the responsibility of the entity.

The improved concept on the Education and Training Collaborating Partners was widely discussed during CDP-4, receiving additional support and suggestions from the Panel, which provided guidance to clarify the role of the Consortium, its membership, and the foreseen engagement with CDP. Particularly, a suggestion was made to change the name of the entity, as the use of the term “Board” could mislead Members into considering the entity as part of governance. As the entity is not intended to be directly involved in governance, the name should more clearly reflect the purpose of the “Group”.

Considering all comments and interventions from CDP-4 and beyond, the concept was further developed by the secretariat under a newly proposed name: “Consortium of WMO Education and Training Partners (CONECT)”. The revised version of CONECT was circulated to the Panel for final comments and approval. The facilitator of CDP-ET-HRDET assisted the dissemination and discussion of the concept of the Consortium in various meetings, most recently at the Twentieth Meeting of the Project Team on Implementation of Meteorological Services in the Eastern Part of the EUR Region (PT/EAST/20) ICAO, 29 – 30 June 2022. The concept of CONECT was then endorsed by the Executive Council [Decision 8 (EC-75)](https://library.wmo.int/doc_num.php?explnum_id=11331/#page=71).

1. Support and review a publication on leadership and management

Following [Decision 49 (EC-70)](https://library.wmo.int/doc_num.php?explnum_id=4981/#page=218), which requested the Secretary-General to strengthen the Organization’s support to fellowships and continuing education, and to capacity development overall, to provide a strong basis for strengthening the capacity of Members and, in particular, to focus also on leadership and management skills as well as technical skills; WMO and the Meteorological Service Singapore (MSS) had closely collaborated in the delivery of three training programmes for senior managers of NMHSs.

The material for the training programmes was jointly developed by WMO, MSS and Lee Kuan Yew School of Public Policy (LKYSPP). This was compiled into a new manuscript, which received feedback from the CDP-ET-HRDET prior its publication as [“A Primer on Public Policy and Management with a Focus on National Meteorological and Hydrological Services” (WMO-No. 1289).](https://library.wmo.int/index.php?lvl=notice_display&id=22117) The aim of this publication is to convey content on concepts and methods of public policy and management to professionals engaged in Meteorological Services. The manuscript is currently being translated to French and Spanish for publication.

1. Collection of RTCs Successful Capacity Development practices and innovations implemented (locally and Regionally), Priority/needs and Recommendations

The representative of the Regional Training Centres in CDP, Prof. Odjugo Peter, gathered and synthesized information provided by several RTCs worldwide addressing three main issues: successes, priorities/gaps, recommendations, and suggestions. For this activity he prepared a questionnaire distributed to all RTCs and based on the responses received he was able to consolidate a final summary report which provides relevant insights on good practices and ways of fostering collaborations among regions. The report was presented during CDP-2 and is available in the CDP-ET-TDs working files folder in the CDP Moodle site ([RTCs Successful Capacity Development Practices and Innovations Implemented](https://etrp.wmo.int/pluginfile.php/32544/mod_folder/content/0/RTCs%20Successful%20Capacity%20Development%20practices%20and%20innovations%20implemented.pdf?forcedownload=1)).

1. Contribution to the WCRP Forum for South America

The facilitator of the CDP-ET-TDs co-lead the WCRP Forum for South America, taking into consideration the recommendations discussed and agreed during the CDP-2 meeting, particularly in line with [Decision 9 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008/#page=530) including: "*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 *"Make recommendations on how to 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).

1. Activities in close collaboration with the appropriate departments in the Secretariat as well as with WMO Bodies and Technical Commissions

Feedback from CDP-ET-TDs facilitator and HCP representative was provided to the review HCP-4/Doc.10 on Regional needs/proposals, for inclusion as HCP recommendations to Technical Commissions. Principles and process of updating the Strategy on Capacity-Building in Hydrology and Water Resources were reported to the CDP-ET-TDs by HCP representative whenever there was a progress in this review process. In addition, as several activities of the Hydrology Action Plan (AP) have associated capacity development components, initial discussions between CDP-ET-TDs and Claudio Caponi were taken to evaluate how CDP could best support the implementation of the AP. At that moment, the SC-HYD had finalized the “Assessment Guidelines for End-to-End Flood Forecasting and Early Warning Systems (E2E FFEWS)” and was about to start the development of training material. The FICH-UNL (WMO RTC Hydrological component in Argentina) was contacted by Dr Carla Gulizia and accepted to actively contribute with HCP in the development of the training material which will be used in the training for the Assessment Guidelines for End-to-End Flood Forecasting and Early Warning Systems (E2E FFEWS). Training plans are ongoing and include online asynchronous and in-person training covering all possible issues of flood forecasting in line with their specific level of implementation and requirements – from basic levels of services to state-of-the-art practices and services according to WMO recommendations. This CDP-HCP-RTC collaboration is a clear successful example of how the articulation, communication and coordination of several WMO actors was initiated through the awareness raised by the work of the CDP-ET-TDs.

The representative of the INFCOM, Ms Jennifer Milton, has been providing a continuous report and overview of the identification and monitoring of Capacity Development activities supporting the implementation of new or modified technological systems, observations and infrastructure supporting weather, water, climate and the environment, since the beginning of her nomination approval as representative of INFCOM in the CDP (and member of CDP-ET-TDs). Related reports on INFCOM aspects were presented during CDP-2 and CDP-5.

Meanwhile, the representative of the SERCOM, Prof. Dr Roger Stone, gathered and synthesized relevant information regarding capacity developments issues and recommendations based on several Standing Committees feedback. This documentation was uploaded into the Moodle site and was presented by CDP-ET-TDs during CDP-2. Particular issues and recommendations that were more aligned with the ToRs of other CDP-ETs were shared with the respective facilitators, taking into account ToR vi of CDP-ET-TDs.

Contributions from the Standing Committee on Marine Meteorological and Oceanographic Services (SC‑MMO), particularly from the Expert Team on Competencies and Capacity Development (CCD) expected deliverables were reported to the CDP-ET-TDs facilitator and she presented these during CDP-5.

CDP-ET-TDs facilitator sent letters to WMO Technical Departments Directors prepared together with the CDP-HRDET facilitator, and with the approval of the Chair of CDP, Dr Kijazi, in order that the Technical Departments could identify potential regional meetings where representatives of the Regional Centres mentioned in [Decision 9 (EC-73)](https://library.wmo.int/doc_num.php?explnum_id=11008/#page=530) could be invited, so that communication between these actors be established and/or further promoted. National examples of satisfactory collaboration with the Regional Centres, and particular statements from the WMO Symposium on education and training SYMET-14, were also mentioned in the letter.

The representative of the Research Board, Prof. Mary Scholes, provided several recommendations and issues on capacity development gaps according to each region, mainly focused on developing countries. The emphasis was put on recommending targeting programmes taking into account what kind of capacity development is needed, for whom and by whom. In addition, capacity development for Early Career Researchers (ECRs) needs to be addressed independently of the region of origin. Connection between WMO Programmes and ECRs networks, potential integration of ECRs community with international high-level panels, are possible ways of bridging this capacity gap. Finally, there is a need to change the paradigm and think not only in terms of capacity development but also in capacity recognition. This would erase the stigma of the geographical region of origin, if from a developed or a developing country.

All the developments and collaborations presented above contribute to fostering 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.

1. Assessment of current gaps to compliance of members to WMO standards and recommended practices including identification of gaps in policies addressing capacity and free exchange of data Feedback

Activities of CDP-ET-PDIM concentrated on data policies, as this was identified as a critical issue for NNMHSs that depend on the capital that the selling of data is bringing. The 2021 Extraordinary World Meteorological Congress (11–22 October) approved the WMO Unified Data Policy, along with two other sweeping initiatives – the Global Basic Observing Network (GBON) and the Systematic Observations Financing Facility (SOFF) – to dramatically strengthen the world’s weather and climate services through a systematic increase in much-needed observational data and data products from across the globe. The ultimate goal of the activities coordinated through WMO is to enable the citizens and economies of all WMO Members to benefit from weather, climate and related environmental services. This is accomplished via the meteorological value chain, which starts with observations, our basic source of knowledge about the atmosphere and the climate system and ends with effective decision-making based on the services they enable. With the acceptance of the WMO data policy and the enhanced data sharing, the capacity development of the whole value chain of this process came to light and it is important to take note of the resulting capacity development requirements. It is also noted that it will be difficult for some NMHSs to include the free data sharing into their policies as they are dependent on the sale of data. They should be encouraged to take part in the free data exchange processes. Encouragement may be provided by making available a gateway to withdraw the data. It is acknowledged that financial investment to develop such gateway will be necessary, and some NMHSs may not be ready for such commitment. It is suggested that a generic programme that can withdraw data be made available by WMO that will serve the purpose.

While investigating the current gaps to compliance of members to WMO standards and recommended practices, CDP-ET-PDIM listed standards and competencies, noting that the only mandatory assessment is for aviation competencies, which is handled by ICAO. It was also noted that the acceptance of the qualifications stipulated in WMO-No. 1083 was in some cases not widely followed. These identified countries should be encouraged to accept the guidelines and refer to the WMO-No. 1083 classification of meteorological personnel. The expected adoption of the revised BIP-M and BIP-MT by Congress in 2023 is identified as a good opportunity to encourage countries through a thorough communication campaign.

1. Compiling 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 the promotion of standards worldwide

A list of published best practices from the NMHSs to be meeting the global standards in the delivery of services was prepared by CDP-ET-PDIM. This is not a complete list, but most of the published best practiced are listed. The list should be made available and given good visibility to promote good standards.

1. Communicating and promoting global meteorology, hydrology and climatology including authoritative voice common standards and product sharing.

Product sharing is encouraged, and it is of interest to all Members. CDP-ET-PDIM noted that while a lot of products are already shared, this is not well documented, and one needs to look for the products at specific places. The idea of listing these products at one place (possibly under the WMO-ETRP Moodle site) is encouraged by the Panel, as it will then link all the available products in one place with direct links to the original sites. This is a new initiative by WMO.

The Panel advises that product sharing should also include a collection of training materials, including any reference, module, guidance, and best practice materials. For wide access to all Members, this should be made available using the WMO Library.

1. Revision of the WMO Capacity Development Strategy

Following [Decision 12 (EC-72)](https://library.wmo.int/doc_num.php?explnum_id=10504/#page=140), which requested the Capacity Development Panel to review the WMO Capacity Development Strategy (CDS), a Task Team was constituted (CDP-TT-WCDS). The Task Team, chaired by Mr John Ogren and assisted by a subject matter expert Dr Michael Smith, spent extensive time and effort preparing the first draft of the revised CDS, which was submitted to CDP in December 2021. Comments and suggestions on this version were received from CDP members, Technical Departments, TCs, SYMET-14, the Hydrological Coordination Panel (HCP), and Member Services and Development Department. The Chair of CDP gave a brief presentation to provide updates on the writing of the new WMO CDS in the meeting of the Technical Coordination Committee (TCC) in April 2022.

Several challenges experienced by the Task Team were highlighted during CDP-4. CDP members and Executive Management provided feedback on the draft of CDS and expressed their support and recommendations to finalize the document. Following the recommendations from CDP-4, the secretariat engaged a consultant, Mr Dimitar Ivanov, to assist finalizing the writing of the WMO CDS. This collaboration with CDP-TT-WCDS was in place for six months, starting in May 2022.

Following this action, substantial progress was made in the review of the Strategy. The 4th draft of the CDS was presented at the 5th meeting of the Capacity Development Panel (CDP-5) in September 2022, when a 3-days workshop was held to gather detailed input from the Panel. A final draft version was submitted by CDP-TT-WCDS and approved by the Panel during the 6th meeting of CDP (CDP-6), pending the addition of case studies that are being collected.

Collection and incorporation of inputs received from all CDP-ETs throughout the review process coordinated by CDP-TT-WCDS has been vital to complete this extensive revision. Some inputs have been mentioned in activities above and include, inter alia, aspects of development needs and gaps in each region, collaborations among NMHSs and WMO Centres, and important guidance on the way the Strategy should address gender equality.

In addition, the Panel continues discussing the importance of assisting WMO Members to implement the capacity development strategic framework that is being presented in the WCDS and intends to develop guidance material for this support.

### Activities up until Congress-19

The work of the Panel will continue through its Expert and Task Teams on various aspects of its mandate until Congress-19, and continuity to the activities afterwards is foreseen. This may be suggested to the new membership, when established. The following are some of the activities of the ETs and TT that are ongoing:

* Capacity development requirements for the implementation of data sharing policy to be identified;
* A list of “shared products” to be developed and tested to ensure that all the products that are already made available are included. The list to be made available on the WMO site;
* The process to identify and publish best practices from NMHSs meeting global standards in the delivery of services will continue. Decisions to be made on the process to make the list available to WMO Members using the WMO website;
* Finalization of the BIP review – presentation of recommendations to EC-76 and Congress. This should be followed by a communications campaign to raise awareness of the updates made;
* Implementation of CONECT initiative, as discussed at CDP-5 – This includes stakeholder invitation mechanism and the organization of the first meeting (with support from secretariat), to assist the formation of the management group;
* Collaboration in external reviews of RTCs, including finalization of reports of RTCs reviewed in 2022 and contribution to the upcoming reviews;
* Submission of external review outcomes to EC-76 for RTC reviews already completed for reconfirmation of their status;
* Publication of the revision of two WMO documents: Guide to the Management and Operation of WMO Regional Training Centres and Other Institutions (WMO-No. 1169), and Guidelines for Trainers in Meteorological, Hydrological and Climate Services (WMO-No. 1114);
* Collect cases showing examples of good practices followed by WMO Members applying the capacity development framework. This will be included in the revised WMO Capacity Development Strategy;
* Provide support to the development of the capacity development framework of high-level principles for each WMO Technical Commission;
* Continue fostering communication and interaction among CDP-ETs, representatives from RB, HCP, JCB, SERCOM and INFCOM, as well as with Technical Departments Directors at a regular basis for improvement of coordination and delivery of WMO capacity development activities;
* Ongoing support to activity iv) “Support of the independent evaluation of WMO projects as requested by EC-72” in cooperation with WMO Secretariat;
* Agreement of approach and timeline for activity vii) requested by EC73 “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”;
* Potential input into Resource Mobilization Strategy currently being developed by WMO Secretariat;
* Ongoing input into the development of the Capacity Development Strategy (CDS) and guidance to its implementation.

### Recommendations of the Panel

As outlined in the previous section, some of the activities of the ETs and TT are still to be concluded, and recommendations from these activities will follow once work is complete. However, the following recommendations are made from the work already completed by the Panel:

1. Members are encouraged to note the recommendations made in the [*Education and Training in a Period of Rapid Change: Highlights of the Fourteenth WMO Symposium on Education and Training*](https://library.wmo.int/index.php?lvl=notice_display&id=22147#.Y5iDgXbMI2w) (WMO-No. 1291).
2. Members are encouraged to further distribute the Statement of SYMET-14 (contained in the WMO-No. 1291) to assist broadening the reach of the recommendations to stakeholders that can support the WMO education and training community to address the changing and increasing education and training requirements.
3. Members are requested to support the implementation of the Consortium of WMO Education and Training Collaborating Partners (CONECT), encouraging the engagement of experienced members from education and training stakeholders worldwide.
4. Members are encouraged to adopt the updated Basic Instruction Package for Meteorologists and Meteorological Technicians described in the WMO-No. 1083, as a recommended standard which is recommended by the Capacity Development Panel (CDP), Services Commission (SERCOM) and Infrastructure Commission (INFCOM); and to adapt to it as a matter of policy.
5. WMO to encourage and support NMHSs to engage with national and international Universities across a range of relevant research areas.
6. WMO to support and encourage country level governments’ local policy for improving interaction with civil society (e.g. ‘last mile’ and community level behavioural work to support the implementation of early warning systems) as well as to align social science actors with information from NMHSs.
7. WMO to encourage twinning, partnership, pooling, sharing, communities of practice, and regional co-operations, in order to achieve effective outcomes in capacity development and institutional cooperation.
8. WMO to continue promoting and encouraging RTCs and Education and Training partners to organize demand-driven capacity development and education and training activities. The requirements for these activities can be determined on the basis of the inputs from the Members, regional association working groups, and surveys undertaken by the WMO Secretariat, as well as through development of technical and scientific innovations and service requirements.
9. WMO secretariat to identify the appropriate page within the WMO website where the “list of best practices from NMHSs meeting the global standards in the delivery of services” should be published.
10. WMO secretariat to note the feedback received, and recommendations of, the ‘Survey of RMPDA’ focused on best practice in terms of working with development partners/Government and resource mobilization. These findings include (further detail in report): Focus on enhancing visibility amongst Government and partners; Enhanced capacity development/skills development in resource mobilization and proposal development, including linking with development partner priorities and ensuring clear communication with stakeholders on proposed activities; support with skills development for strategic planning and linking with national priorities; sustainability planning. It is proposed that the findings from the report should be considered for the WMO Operating Plan and proposed activities.
11. WMO secretariat to encourage Memorandum of Understanding (MoUs) between WMO ETR and Members (possessing one or more RTC components) to enhance resource mobilization and support to potential trainees of NMHSs from LDCs/SIDCs.
12. WMO secretariat to assist promoting and encouraging interdisciplinary research at national and regional levels, with good practice guidance and capacity development support.
13. Secretary-General to emphasize the need for governments on policy level to take into account any social benefit of any measures what they take.
14. WMO Technical Commissions and secretariat (particularly Technical Departments), to note the recommendations from the meeting “Strengthening collaboration among NMHSs and WMO Centres for effective support to Members through extrabudgetary projects” (10-12 March 2021). The feedback from Members regarding considerations around implementation of projects is highlighted as particularly important.
15. WMO Science and Innovation Dept. to play a key role in brokering and matching research needs and funding calls with appropriate sources of regional expertise.
16. WMO Regional Offices, Technical Commissions, Regional Association Working Groups and Regional Centres are encouraged to develop value chains at the regional level to identify what and how each of them can contribute to the research-to-operation continuum, including approaches to promotion of capacity development and service capabilities.
17. Regional Associations and NMHSs are encouraged to take advantage of Regional Projects looking for opportunities of engagement between research and operational communities.
18. NMHSs are encouraged to facilitate and support the development of scientific networks, and the inclusion of multi-disciplinary personnel.
19. NMHS are encouraged to enhance staff development of qualifications by providing opportunities for continuous learning, including through the use of supplementary guidance, and case studies.
20. NMHSs are encouraged to build up institutional capacity to establish mutually beneficial and effective collaboration with private sector and other stakeholders, including data/information sharing, service delivery, and advocacy for the essential public functions of meteorological services in issuing warnings, maintaining basic infrastructure and promoting the uptake of WMO standards and recommended practices by all.
21. NMHSs are encouraged to implement the relevant competencies by using advocacy and advertising of the benefits of competency implementation and its complexity.
22. RTCs to monitor success and challenges of the implementation of capacity development activities and share this information.
23. RTCs are encouraged to increase the use of distance-learning and blended-learning techniques, using technologies available to them. RTCs and partners to provide increased outreach and training on how to use these techniques.
24. RTCs are encouraged to develop partnerships with academic institutions and professional and scientific associations, including exchanges of academic staff.
25. Meteorological training institutions beyond RTCs are encouraged to make relevant training resources available to WMO secretariat as open access for other to use free of charge
26. Meteorological Training Institutions are encouraged to list their education and training opportunities in the WMO Global Campus Calendar of Events
27. ETR to assist RTCs monitoring of training activities by sharing good practices.

### Challenges and recommendations on the work of CDP moving forward

Being the first time WMO has set up a Capacity Development Panel to advise the Executive Council, it provides a good opportunity to learn from the current setup and reflect on opportunities to improve conditions on future work as the Panel continues its function post-Congress 2023.

During this first period of work (from August 2020 to November 2022), some key challenges were identified across the CDP-ETs, and these are presented below. Despite these challenges a significant amount of work was accomplished during this period. However, it is the view of the Panel that the outputs could be enhanced further by the careful consideration of the following points:

1. Late approval of member nominations

Challenges during the first intersessional period of the CDP Expert Teams started with late approval of nominations of representatives for the Non-Constituent Bodies that have been established by Cg-18 and EC-71. This happened in the course of the second semester of 2020, though several of them were implemented only by the end of 2020. This meant, interactions with some members of the Panel started only quite late in 2020. Nevertheless, once the full membership of the Panel was approved, the facilitators of the ETs were able to encourage communication and receive inputs for the CDP meetings as requested.

A recommendation for the Executive Council is that in the next call for CDP members, the ongoing projects of CDP-ETs are listed, so that those that apply to become members of CDP can have a clearer idea of what work is needed to complete. In that way selection can be made by matching projects with interested Panel members.

1. Limited number of members implementing activities of the Panel

Expert Team members had external work and additional ET commitments that limited and sometimes even prevented their capacity for input to activities. Therefore, with resources limited overall, activities had to be prioritized and at times, restricted. Team facilitators were expected to lead and monitor the progress of the different projects taken by the ETs, but in some cases as the teams disintegrated, the facilitators ended taking actions assisted by a minimum number of members. This placed a lot of pressure on ET facilitators in order to be able to move forward the activities planned.

Going forward there would be good opportunity to enhance the outputs of the Expert Teams to add to the value of WMO work. This could be done by increasing the number of Panel members and consequently, the opportunity to increase the number of members contributing to each Expert Team while reducing the necessity of members to commit to more than one ET.

It is also recommended that when new members are nominated for CDP, that they are made aware of the expectation of working offline between meetings of CDP and, that they may need to request designated assistance from their own NMHSs in order to have appropriate time to dedicate to contributing effectively to activities of CDP-ETs.

1. Wide and general nature of the ET Terms of Reference (ToRs)

Unlike other Panels and Expert Teams whose ToRs and expected outputs may be led by TC/RA decisions, the CDP-ETs had very wide ToRs, generally not defined by previous decisions at the outset. This challenge was identified by CDP-ETs from the start and while it gave some leeway for ETs to pursue what they regarded as most critical, it also made impossible for the teams to address all aspects of the TORs. In addition, there were some requests from EC which arose later in the period, and for which work continues.

It is recommended that, going forward, the ToRs of CDP and respective ETs are revised and written in written in such a way that the objectives are clearer to ensure activities add value to the work of WMO, be driven by WMO, and also not overlap existing work undertaken elsewhere. This would also help to mitigate challenge b) and resources available.

It may also be helpful to review ways in which the Panel could add value to some of the significant upcoming capacity development initiatives by providing peer review to important initiatives, such as the *Early Warnings For All*. Contributing into such initiatives was discussed at CDP-2 and it may be beneficial to explore this further.

It should be noted that for some CDP-ETs, especially CDP-ET-HRDET, the focus of activities was arguably less of a challenge, as activities were taken forward from the previous Executive Council Panel of Experts on Education and Training, in addition to already having resources working on these activities outside of the CDP.

It is also proposed that it would be helpful to share experiences across the other new Panels reporting to the Executive Council, in terms of challenges and opportunities to plan more effective approaches going forward.

### Concluding remarks

Despite the challenges above mentioned, it is important to acknowledge that a significant amount of work was completed by the Panel during this reporting period, resulting in valuable achievements and recommendations. The achievements of the Panel as presented in this report are mainly due to the commitment of its members and the support provided by the secretariat. The Panel looks forward to continuing working with all stakeholders in its future activities, assisting and providing guidance to the Executive Council on matters related to the capacity development of WMO Members.

## ANNEXES

Annex I

Terms of Reference of the Executive Council Capacity Development Panel (Annex to Resolution 7(EC-71))

**Terms of Reference:**

The Panel will be responsible to the Executive Council through the Technical Coordination Committee and the Policy Advisory Committee. It will monitor the priorities of, and activities under, the WMO Strategic Plan, the WMO Capacity Development Strategy and WMO Gender Equality Policy, including institutional, infrastructural, procedural and human resources capacity development specifically:

1. Identify 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.
2. Provide guidance and oversight regarding WMO efforts to strengthen assistance to the NMHSs of developing countries. Guidance could be along the lines enumerated in the annex to these Terms of Reference.
3. Review education and training policies, qualification and competency standards, Regional Training Centre assessments, and WMO Global Campus activities.
4. Identify training needs and give guidance on how to strengthen the capacity of training institutions, as well as recommend training activities to address gaps in formal and continuing education.
5. Oversee and guide the implementation of the tasks of the Executive Council according to [Resolution 74 (Cg-18).](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=240) 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.
6. Review and analyse gaps in the WMO Gender Equality Action Plan and provide guidance regarding WMO efforts in gender equality.
7. Provide reports and recommendations on WMO capacity development to the Policy Advisory and Technical Coordination Committees for consideration by the EC.
8. Take into account the work of the Technical Commissions and other subsidiary bodies of the Executive Council as it pertains to capacity development.

Annex II

Expert Team on “Policy Development and Institutional Matters”  
(CDP-ET-PDIM), and its Terms of Reference (ToR) and Composition

**Terms of Reference:**

Monitor and make recommendations on the following:

1. Legislative measures, strategic and operating plans, WMO Gender Equality Action Plan.
2. Communications, outreach and negotiation needs and skills.
3. Advocacy efforts to governments, end-users, decision-makers on the socioeconomic benefits of investments in NMHSs.
4. Assistance to NMHSs to incorporate WMO and national requirements into national policy, legislative frameworks and national development plans.
5. 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.
6. Review and analyse gaps in the WMO Gender Equality Action Plan and provide guidance regarding WMO efforts in gender equality.
7. 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.
8. Promotion of principles for global meteorology, hydrology and climatology including authoritative voice, common standards, data and product sharing.

**Memberships:**

**Facilitator**: Dr Winifred Jordaan

**Members**: Dr David Farrell, Prof Dwikorita Karnawati, John Ogren, Ms Nirivololona Raholijao, Mr Evans Thompson

**Invited members**:  All CDP members

**WMO Secretariat Focal Point**: Stefano Belfiore

Annex III

Expert Team on Human Resources Development, Education and Training  
(CDP-ET-HRDET), and its Terms of Reference (ToR) and Composition

**Terms of Reference:**

Monitor and make recommendations on the following:

1. Efforts to increase training and long-term education for developing countries.
2. Address gaps, qualification standards and competency implementation, WMO Regional Training Centres, education and training collaborators and implementation of education and training activities, WMO Global Campus initiative and opportunities.
3. Review education and training policies, qualification and competency standards, Regional Training Centre assessment practices, and WMO Global Campus activities.
4. Identify training needs and give guidance on how to strengthen the capacity of training institutions, as well as recommend training activities to address gaps in formal and continuing education.
5. Leadership and management issues.

**Memberships:**

**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

**WMO Secretariat Focal Point:** Yinka Adebayo

Annex IV

Expert Team on Capacity Development through WMO Technical Departments (CDP-ET-TDs), and its Terms of Reference (ToR) and Composition

**Terms of Reference:**

Monitor and make recommendations on the following:

1. Capacity development in relation to technological infrastructure
2. Capacity development in Service delivery
3. Capacity development in hydrology and water resources
4. Capacity development in research, science and innovations
5. Work in close collaboration with the appropriate departments in the Secretariat as well as with WMO Bodies and Technical Commissions
6. Work in close collaboration with the rest of the CDP-ETs identifying possible interactions based on the contributions received by the CDP-ET-TDs invited members
7. Promotion of existing strategies on capacity development in various areas of service delivery, hydrology and water resources, by way of providing advisory on how to support least developed and developing countries.
8. Promotion of existing strategies in the areas of research, science and innovation.

**Memberships:**

**Facilitator**: Dr Carla Gulizia

**Members**: Dr Somenath Dutta, Prof Dwikorita Karnawati, Prof Peter Odjugo, Ms Nirivololona Raholijao, Dr Anna Timofeeva, Prof Mary Scholes, Ms Jennifer Milton, Prof Roger Stone, Prof Christophe Cudennec, and Mr Omar Chafki

**Invited members**: All CDP members

**WMO Secretariat Focal Point:** Yinka Adebayo

Annex V

Expert Team on Capacity Development through Resource Mobilization, Partnerships and Development Assistance (CDP-ET-RMPDA)  
and its Terms of Reference (ToR) and Composition

**Terms of Reference:**

Monitor and make recommendations on the following:

1. Provide guidance and oversight regarding WMO efforts to strengthen assistance to the NMHSs of developing countries.
2. The facilitation of twinning arrangements and other innovative bilateral cooperation.
3. Strategies to leverage UN system and other development partner initiatives.
4. 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.
5. Opportunities, how to best apply extrabudgetary resources for greatest impacts, guidance to NMHSs on resource mobilization strategy.
6. Efforts to develop, implement, monitor and evaluate projects.
7. Partnerships, promotion of multilateral and bilateral collaboration, Public-Private Engagement (PPE), interagency collaboration including WMO-IOC JCB.

**Memberships:**

**Facilitator**: Ms Karen McCourt

**Members**: Dr Somenath Dutta, Dr David Farrell, Prof Dwikorita Karnawati, Mr John Ogren, Mr Evans Thompson,

**Invited members**: All CDP members

**WMO Secretariat Focal Point:** Jean-Paul Gaudechoux

Annex VI

Task Team on Revision of WMO Capacity Development Strategy (CDP-TT-WCDS)  
and its Terms of Reference (ToR) and Composition

**Terms of Reference:**

1. Revise the WMO Capacity Development Strategy and Implementation Plan (2015) WMO-No 1133 in the light of the reform and new direction of the organization.
2. Prepare a new capacity development strategy for consideration by the Panel.
3. Ensure relevant contributions from the Expert Teams.
4. Seek, as appropriate, contributions of WMO recognized institution or NMHS towards the delivery of the work.

**Memberships:**

**Facilitators**: John Ogren and Dr David Farrell

**Members**: All CDP members

**Subject Matter Expert**: Dimitar Ivanov

Annex VII

Meetings of the Capacity Development Panel

Since its inception, the Capacity Development Panel met six times. The format of the meetings and its dates are presented below. Full meeting reports can be accessed using the respective links.

|  |  |  |  |
| --- | --- | --- | --- |
| Meeting | Date | Format | Link to access the report |
| CDP-1 | 26–27 August 2020 | Online | <https://filecloud.wmo.int/share/s/uwEbhwMKSFW4YV1vIPY_Tg> |
| CDP-2 | 3–4 February 2021 | Online | <https://filecloud.wmo.int/share/s/QFkQeb_5QvaCipTklWF3zA> |
| CDP-3 | 15–16 September 2021 | Online | <https://filecloud.wmo.int/share/s/7h6qytoaRUSyZP-H1nu-kA> |
| CDP-4 | 15–16 February 2022 | Online | <https://filecloud.wmo.int/share/s/ppbX_aweSom4M8gboeqVaA> |
| CDP-5 | 19–23 September 2022 | Hybrid | <https://filecloud.wmo.int/share/s/mnBhMXxYQn2yeL96jJq-6g> |
| CDP-6 | 1–2 November 2022 | Online | <https://filecloud.wmo.int/share/s/mnBhMXxYQn2yeL96jJq-6g> |

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