

# Report on Hydrology, Water Resources and Cryosphere/HCP

CDP-7  
20 March 2023



**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale

# WMO Plan of Action for Hydrology 2022-2030

- The hydrological community under the lead of HCP prepared the WMO Plan of Action for Hydrology, approved by Cg-Ext(2021).
- For each capacity development activity present in the plan, a leading responsibility was assigned, and approved by EC 76.
- SC-HYD is implementing the activities according to the role assigned to it in the plan. [WMO Plan of Action for Hydrology 2022-2030](#)

# Role of CDP for the implementation of the WMO Plan of Action for Hydrology 2022-2030

- CDP leads 12 activities among which 5 need action in 2023
- In addition, CDP contributes to 2 other activities
- Milestones need to be set for the activities under CDP's responsibility

# WMO Plan of Action for Hydrology 2022-2030

**Note:** This online version of the Plan of Action is a living document. Various groups are working throughout the first half of 2022 on defining milestones and timelines for specific activities. Furthermore, additional filtering functionalities will be progressively added. Therefore it is suggested to visit this page periodically to check the up-to-date status of the Plan of Action

- [WMO Vision and Strategy for Hydrology and its associated Plan of Action \(PDF version\)](#)
- [List of acronyms](#)

**Ambitions**

A. Cross-cutting issues

----- Select an ambition -----

All ambitions

A. Cross-cutting issues

B. No one is surprised by a flood

C. Everyone is prepared for drought

D. Hydro-climate and meteorological data support the food security agenda

E. High-quality data supports science

F. Science provides a sound basis for operational hydrology

G. We have a thorough knowledge of the water resources of our world

H. Sustainable development is supported by hydrological information

I. Water quality is known

## Outputs

----- Select an output -----

## Milestone year

----- Select a year -----

## Status

----- Select a status -----

## Milestone year

----- Select a year -----

**Annex WMO Plan of Action for Hydrology – List of proposed leading entities**

	Action	Entity receiving the invitation	Subsidiary body suggested by HGP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QMF	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

## Ambition A: Cross-cutting issues

**Output A.2: Increased management skills of NHS managers supports the effectiveness and development of services**

EC-76/INF. 2.5(6), p. 6

### Annex WMO Plan of Action for Hydrology – List of proposed leading entities

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QMF	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

## Ambition A: Cross-cutting issues

# CDP as Leader

## Activity planned for 2023



attention please!

### ▼ A.2.1: Development of a curriculum for top and middle management training

A basic instruction package (similar to the basic instruction package for meteorology and hydrology) should be developed regarding NHS management. This package should include a description of the skills needed in the areas of HR, operations, project management, strategy, finance, and information marketing and should be tailored to the conditions of NHSs.



0%

#### Responsibility

CDP

#### Contributors

HCP, RAs

#### Partners

UN System Staff College, UNOG

#### Linkages

Capacity development programme

#### Success criteria

Curriculum approved by Hydrological Assembly in 2023

#### Activity End Date

2023



## Ambition A: Cross-cutting issues

**Output A.4: Enhanced customer orientation and better marketing skills generate better services and products with higher added value**

EC-76/INF. 2.5(6), p. 6

### Annex WMO Plan of Action for Hydrology – List of proposed leading entities

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSS	EC	CDP
A.2.3	Guidance on managing NHSS	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSS	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QMF	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP



## Ambition A: Cross-cutting issues

EC-76/INF. 2.5(6), p. 6

### Annex WMO Plan of Action for Hydrology – List of proposed leading entities

**Output A.6: Institution development plans and monitoring network development programmes are in place and implemented, taking into account the catalogue of products and services**

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QMF	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

**Ambition C: Everyone is prepared for a drought**

**Output C.5: Training to increase the capacities of Members in drought management (drought monitoring, modelling and early warnings, drought vulnerability and impact assessments, and drought adaptation, mitigation, preparedness and response measures)**

EC-76/INF. 2.5(6), p. 6

**Annex WMO Plan of Action for Hydrology – List of proposed leading entities**

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QMF	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

**Ambition C: Everyone is prepared  
for a drought**

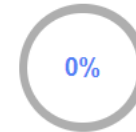
# CDP as Leader

## Activity planned for 2023



▼ **C.5.1: Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities**

Training materials are to be included for: (i) drought monitoring, modelling and early warnings, (ii) drought vulnerability and impact assessments, and (iii) drought adaptation, mitigation, preparedness and response measures



**Responsibility**

CDP

**Contributors**

SC-AGR, SC-HYD

**Partners**

GWP, UNESCO-IHP, FAO

**Linkages**

IDMP

**Success criteria**

Curricula developed

**Activity End Date**

2023

Pillar 1: "Drought monitoring, modelling and early warnings" completed:

- [Capacity Building – Integrated Drought Management Programme](#)
- [Integrated Drought Management: Monitoring and Early Warning - Cap-Net](#)

Milestones for pillar 2 and 3 need still to be added to this activity

## Ambition E: High-quality data supports science

## Output E.2: Quality assured hydrometeorological data by NHSs are generated through increased compliance with the culture of Quality Management Framework-Hydrology

EC-76/INF. 2.5(6), p. 6

### Annex WMO Plan of Action for Hydrology – List of proposed leading entities

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
<del>C.5.2</del>	<del>Training materials based on curricula developed to support Members</del>	<del>EC</del>	<del>CDP</del>
E.2.2	Training materials and e-learning on QMF	EC	CDP
<del>G.4.3</del>	<del>Training curriculum for WRA developed as a part of the capacity development strategy of the WMO</del>	<del>EC</del>	<del>CDP</del>
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

**Ambition E: High-quality data supports science**

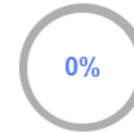
# CDP as Leader

## Activity planned for 2023



### ▼ E.2.2: Training materials and e-learning on QMF

Review of requirements of Members on training in the field of QMF/QMS should lead to the development of a training plan for NHSs and its implementation based on identified priorities



#### Responsibility

CDP

#### Contributors

JET-HYDMON, SC-HYD, HCP

#### Partners

UNESCO

#### Linkages

#### Success criteria

Review of requirements ready by 2023, training plan (curriculum) by 2024, first training course launched in 2025

#### Activity End Date

2025

**Ambition G: We have a thorough knowledge of the water resources of the world**

**Output G.4: Increased national capacities to collect water-related data and transform them to useful/relevant products through capacity development**

EC-76/INF. 2.5(6), p. 6

**Annex WMO Plan of Action for Hydrology – List of proposed leading entities**

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QME	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

**Ambition G:** We have a thorough knowledge of the water resources of the world

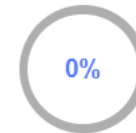
# CDP as Leader

## Activity planned for 2023



▼ **G.4.3: Training curriculum for WRA developed as a part of the capacity development strategy of the WMO**

Needs (topical, and on form) of Members are properly identified to propose curricula of courses and training materials in support of capacity building in the domain of WRA



**Responsibility**

CDP

**Contributors**

SC-HYD, RAs, HCP

**Partners**

Members

**Linkages**

Capacity development, HydroSOS

**Success criteria**

Capacity development strategy updated in 2023

**Activity End Date**

2023



## Ambition I: Water quality is known

**Output I.2: Increased NHS involvement in the co-production of water quality related data and products thanks to promotion of IWRM principles**

EC-76/INF. 2.5(6), p. 6

### Annex WMO Plan of Action for Hydrology – List of proposed leading entities

	Action	Entity receiving the invitation	Subsidiary body suggested by HCP
A.2.1	Development of a curriculum for top and middle management training	EC	CDP
A.2.2	Development of e-learning training courses for the management of NHSs	EC	CDP
A.2.3	Guidance on managing NHSs	EC	CDP
A.2.4	Twinning projects targeted at management skills	EC	CDP
A.4.1	E-learning training course(s) on marketing	EC	CDP
A.6.2	E-learning training course(s) for management of NHSs	EC	CDP
C.5.1	Capacity building activities organized through IDMP, including curricula and training material based on needs identification, developed to enhance Members' drought management capacities and capabilities	EC	CDP
C.5.2	Training materials based on curricula developed to support Members	EC	CDP
E.2.2	Training materials and e-learning on QMF	EC	CDP
G.4.3	Training curriculum for WRA developed as a part of the capacity development strategy of the WMO	EC	CDP
G.4.4	E-learning training course(s) for water resources assessment	EC	CDP
I.2.1	Water quality training materials development	EC	CDP

**Ambition I: Water quality is known**

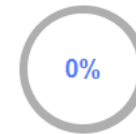
# CDP as Leader

## Activity planned for 2023



### ▼ I.2.1: Water quality training materials development

After identification of the priority needs for training from Members' NHSs, needs training materials and activities are developed building on WWQA Capacity Development Consortium (CDCm).



#### Responsibility

CDP

#### Contributors

JET-HYDMON, SC-HYD

#### Partners

UNEP

#### Linkages

capacity development

#### Success criteria

Basic training curricula for water quality available for Members by the end of 2025, at least 25 participants finalized (e-course).

#### Activity End Date

2025

#### Milestone(s)

- **2023:** Identification of priorities
- **2025:** Priority training materials ready

# CDP as Contributor

## ► B.9.1: APFM capacity building

Capacity building activities in flood forecasting and integrated flood management

0%

## ► C.2.3: Operational guidance and tools for verification of available products

Guidelines / training materials / tools for interpretation for using products of GDPFS drought centres are available together with a tool and guidance how to verify derived products at National/local scale.

0%

# First CD activity following WCDS “Santa Fe”

- CDP and HCP have initiated a pilot on capacity development in relation to the “Guidelines for the assessment of national needs and capabilities for end-to-end early warning systems for flood forecasting”.
- This cooperation, combines the technical expertise of SC-HYD members with the didactical expertise of the RTC of Santa Fe, Argentina.
- Lessons learned from this pilot activity, will help in the implementation of other capacity development activities.

## What is missing?

- ETR focal point nomination

# Thank you



**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale