



World Meteorological Organization

EC PANEL OF EXPERTS ON
EDUCATION AND TRAINING

Twenty-Eighth Session
Nairobi, Kenya, 17 to 19 April 2018

PAN-28/Doc. 5

Submitted by:
Secretary-General
15.3.2018
English
DRAFT 1

**AGENDA ITEM 5 : REVIEW OF BASIC INSTRUCTIONAL PACKAGES
AND WMO COMPETENCY FRAMEWORKS**

THE PANEL ARE INVITED TO:

- (a) Review current status and advise on development and implementation of WMO Competency Frameworks;
- (b) Make recommendation on whether or not it is necessary to review BIP-M frameworks; , and if yes, propose a plan for revising the BIP-M and consider how such review should take into account changing forecaster roles, and consider whether to factor in management training, knowledge of socio-economic benefits and working with the private sector;
- (c) Because uptake of the BIPs is not yet universal, discuss a plan for promotion of the BIPs and providing guidance on their use; .
- (d) The Panel is requested to continue supporting the Task Team on BIP-H in its work, by providing advice based on its experience with similar processes already completed;
- (e) With respect to Climate Services, provide advice based on its experience with similar processes already completed;

ITEMS FOR DISCUSSION:

5.1 Update on Status of WMO Competency Frameworks

Guide to Competency: The Guide to Competency was published in early February, 2018. It provides guidance on competency framework development and competency implementation, including competency assessment, competency-based training, and competency management. See WMO-No.1205 at https://library.wmo.int/opac/doc_num.php?explnum_id=4237. A second publication, Compendium of WMO Competency Frameworks is planned for later this year, and will contain all developed levels of each competency framework. Lack of complete consistency between the frameworks is of concern to the publications department, and this is under discussion.

Aeronautical meteorological personnel (2 frameworks, Forecasters and Observers): The framework continues active implementation. Competency assessment of staff is reported as completed by 50% of Members, and nearly 70% have established national competency programmes for aeronautical personnel. Competency based training is offered both through courses at RTCs and other major centers, and online resources are mapped to the frameworks under Topic 2 at <http://www.caem.wmo.int/moodle/course/view.php?id=7>. This mapping appears to be kept up to date. It is still inconsistent, but improving, whether training offered is documented as meeting specific competencies. Published on the CAEM Moodle site.

Education and Training Providers: The WMO Online Course for Trainers continues to be offered each year, and this single course addresses about 90% of the competency framework. The small gaps are treated lightly in WMO-No. 1114 and WMO-No.1169. The course has been delivered to more than 150 students in 4 languages (English, Spanish, French, and Russian) who have successfully completed the course as a Trainer, Part-Time Trainer, or Training Manager (different sets of competencies are covered by each). 45 new students have enrolled in the 2018 course for Francophones. All resources are gathered in the WMO Trainer Resources Portal, organized by competency, at <http://etrp.wmo.int/moodle/course/view.php?id=30>. French, Spanish, and Russian portals are in progress. Published on the ETR Programme Website.

WIS: WIS competencies are all included in the 2017 release of the WIS manual Section 1.8 and in appendix E. (<https://wiswiki.wmo.int/ManualWIS>) Training guides are in the Guide to WIS Section 1.8 and Appendix A. (<https://wiswiki.wmo.int/GuideWIS>) The WIS office now needs GISCs and RTCs to commit to addressing the competencies in their Training Programmes. So far RA II-17 and RA VI -17 have added training schedules from GISCs addressing this. In particular, they are looking for a West Africa center to offer training that addressed the competencies.

Climate Services: A new publication, Guidelines for the Assessment of Competencies for the Provision of Climate Services, is completed and expected to stimulate more rigorous implementation. This publication for the first time contains all 3 levels of the 5 competencies, including Performance Criteria and Learning Outcomes, to guide both assessment and training. Implementation in terms of training provision is already underway. More on this framework is covered under Doc. 8.2.

Marine Forecasters: This framework has been developed to 2 levels, and implementation is expected to begin this year in terms of assessment guidance and use in developing new and identifying existing training.

Public Weather Services: (4 frameworks, General Forecaster, Broadcasters, Weather Advisors to DRR and Others, Developers of New Products and Services) These frameworks have undergone significant revision since EC approval, distilled from 5 to 4 frameworks and will have rewritten performance criteria (2nd level) to be internally consistent and in line with new guidance (WMO-No. 1205). The revised frameworks will be sent to CBS for approval in March, and implementation will follow.

Observations (4 frameworks, Observers, Maintenance, Observing Network Managers, Calibration): These frameworks have been drafted to 2 levels, revised to a small extent during the past year, and will be presented to CBS management group for approval in March. They have not yet been implemented in terms of assessment or training guidance.

Hydrologists (# frameworks TBD): Several frameworks are intended to be developed starting this year, in conjunction with the revision of the Basic Instructional Packages for Hydrology. The goal for the first set of competencies is late 2019 or early 2020.

Skills and Knowledge Frameworks: (Satellite, NWP, Radar) The Guidelines on Satellite Skills and Knowledge for Operational Meteorologists framework has been published since and available on the WMO Online Library site, available in six languages. It is actively promoted to guide training through VLab and also by the ETR Office. The NWP and Radar frameworks have been through several revisions, including by the ETR Office, and was handed over to WDS in 3rd Quarter 2017 for provision to an expert team of CBS for review and submission for approval. This review is ongoing.

Table on Competency Framework status

Competency Framework audience (and oversight body)	Status, or date it came into force	Guidance material and Implementation Notes
Aeronautical Meteorological forecasters (CAEM)	1 Dec 2013	Note: All competency frameworks are expected to be incorporated in the Compendium of WMO Competency Frameworks. To be incorporated into WMO-No. 732. Implementation is underway for both training and competency assessment
Aeronautical Meteorological Observers (CAEM)	1 Dec 2013	To be incorporated into WMO-No. 732. Implementation is underway for both training and competency assessment
Marine Weather Forecasters (JCOMM)	Approved by CG-17 for implementation January 2016	Guidance material to be developed. Second level being implemented. To be hosted on the JCOMM website. Exploring implementation actions through the establishment of its new regional centers, including competency assessment of

		personnel, and incorporation into planned training on observations and wave forecasting.
Training Providers (EC Panel of Experts on ETR)	Approved by EC-65. Implementation date 1 July 2014.	Guidance within WMO-No. 1114. Being implemented through WMO Courses for Trainers and revised RTC criteria. Additional guidance in WMO-No. 1169.
WIS ICT personnel (CBS)	Approved by CG-17 for implementation after 1 July 2015	WIS competencies are all included in the 2017 release of the WIS manual Section 1.8 and in appendix E. https://wiswiki.wmo.int/ManualWIS Training guides are in the Guide to WIS Section 1.8 and Appendix A. https://wiswiki.wmo.int/GuideWIS Need GISCs and RTCs to commit to addressing the competencies in their Training Programmes. RA II-17 and RA VI-17 have added training schedules from GISCs addressing this.
Climate Services personnel (CCI)	Approved by EC-68 for implementation in 2017.	Competency framework implementation underway with recent draft of the Guidelines for the Assessment of Competencies for the Provision of Climate Services.
Public Weather Forecasters (CBS)	Approved by CBS and Cg-17 but a revision will go to EC-70 and WMO-No.49. For implementation in 2018.	CBS is expected to approve a substantial revision in 2 nd quarter, 2018. CBS will begin providing guidelines for competency assessment of personnel, operational implementation guidelines, and training guidelines.
Tropical Cyclone Programmes (RSMCs and RAs)	Approved by Regional Associations (not all in place)	The competency frameworks are being developed by region, and in some cases, sub-region. Many already are being used to guide training events and operations. The intent is still to look for common competencies to be included in the WMO Technical Regulations
Observing (CIMO)	Draft to be submitted to CBS	To be included in the planned revision of the CIMO Guide, in development. Moving toward approval by CIMO Management Group and approval by EC.
Calibration (CIMO)	Draft to be submitted to CBS	""
Maintenance (CIMO)	Draft to be submitted to CBS	""

Observing Programme and Network Management	Draft to be submitted to CBS	""
--	------------------------------	----

5.2 Basic Instructional Packages (BIP-M, MT WMO No 1083) next Update

The purpose of the BIP-M qualification frameworks is to facilitate a common understanding of the basic qualifications required of individuals who are to be recognized either as Meteorologists or as Meteorological Technicians, as defined by WMO, while assisting NMHSs in establishing their respective personnel classification systems and training programmes to satisfactorily meet international standards. The first sections of Part I of the present WMO-No. 1083 edition presents an overview of the WMO classification of personnel in meteorology. The second Part starts with an outline of the aims of the BIP-M, then specifies the learning outcomes associated with foundation topics. The last Part starts with an outline of the aims of the BIP-MT and then specifies the learning outcomes associated with foundation topics.

The purpose of this agenda item is to discussion of the general purpose and strategy for BIPs, and whether the changing role of forecasters needs to be considered in the next editions of the BIP-M and MT. It is important to ensure that the next edition take into account changing forecaster roles, and consider whether to factor in management training, knowledge of socio-economic benefits and working with the private sector. The Panel also needs to consider a plan for review and revision

5.3 Basic Instructional Package – Hydrology (BIP-H)

The latest editions of the BIP-H and BIP-HT were published in 2003 (WMO-No.258, Volume II: Hydrology). Given the many changes in related professions, CHy has established a Task Team to review the Basic Instruction Package for Hydrologists (BIP-H) and Basic Instruction Package for Hydrological Technicians (BIP-HT) and develop competencies standards for a few core job tasks in critical areas. The Task team initially was to be a joint one with UNESCO only, but in the course of its first meeting in 2015 it was agreed that the final output of the work of the Task Team would be a joint WMO/UNESCO/IAHS/IAHR publication on internationally agreed competency standards for hydrologists.

This wider composition of the Task Team, while ensuring greater recognition of its outcomes by the hydrological community, has complicated slightly its coordination. However, work has now reinitiated and currently first drafts of the BIP-H and BIP-HT are being prepared, the objective being that of having them approved by the different constituent bodies of the 4 partner organizations in late 2019-early 2020.

Note:

IAHS = International Association of Hydrological Sciences

IAHR = International Association for Hydro-Environment Engineering and Research

5.4 Basic Instructional Package Climate Services (BIP-CS)¹

During the drafting process of the Guidelines for the Assessment of Competencies for Provision of Climate Services, learning outcomes have been written for each of the competency units and performance criteria. With this task nearly completed, the stage is now set for the development of a Basic Instructional Package for Climate Services. This is likely to be proposed as a next task of the ET on Human Resources Development of the CCI Focus Area on Capacity Development for Climate Service. Some clarification on how it would be used is required, because the competency framework itself is broad, covering many elements of climate services delivery and many jobs. Writing a BIP-CS in a way that is practical for a general qualification and a university curriculum must be considered.

¹ References:

[Meteorological training for the digital age: A Blueprint for a new curriculum \(SHORT\)](#)
[Meteorological training for the digital age: A Blueprint for a new curriculum \(LONG\)](#)
[Basic Instruction Packages via a Distributed Learning Network](#)
[Regarding a Shared Online BIP-M Curriculum](#)
[EUMETLearn 2018, ERASMUS+ Proposal](#)
[BIP-M and BIP-MT \(from WMO-No. 1083\) for EC Panel Review](#)
[Guidelines for the Assessment of Competencies for Provision of Climate Services](#)
[BIP-H and BIP-HT \(WMO-No. 258 Volume II: Hydrology \(see chapters 3 and 4\)\)](#)