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|  | English only |

**REVIEW OF THE WORK PROGRAMME IMPLEMENTATION**

Report of the Expert Team on Education, Training and Competency (ET-ETC)

*(Submitted by Chris Webster and Robert Rutledge, Co-Chairs of ET-ETC)*

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| **Summary and Purpose of Document**  This document provides an overview of the activities of the ET-ETC since the last meeting of the CAeM Management Group held 12 to 14 May 2015 together with detailed information on the working arrangements and work plan of the expert team. |

**ACTION PROPOSED**

The Management Group (MG) is invited to review the progress made by ET-ETC since May 2015, to review the working arrangements and work plan of the expert team and to formulate actions accordingly.

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1. **EXECUTIVE SUMMARY**

The leadership of the team changed in January 2016 when Robert Rutledge replaced Pat Murphy (US) as co-chair (Pat had previously replaced Cynthia Abelman).

* 1. As noted in the previous report, the focus of the team is slowly shifting from competency-related matters to education and training. This has been particularly apparent in the task related to the 1 December 2016 qualification deadline for AMF, a deadline which is now imminent.
  2. Notwithstanding 1.1 above, many Aeronautical Meteorological Service Providers still require assistance with implementing competency standards, even though the deadline for implementation passed in 2013. Thus the ET-ETC continues to provide guidance on competency standards and assessment.
  3. A WMO Guide on Competency systems is in preparation, and expected to be published in early 2017. The team has been actively involved in this work, in collaboration with the WMO ETR Office.
  4. The team contains enthusiastic experts with a variety of experiences and specializations. The combination of backgrounds has enriched the quality of the team and greatly enhanced its outputs.

1. **PROGRESS/ACTIVITY REPORT**

The Key tasks and activities of the ET-ETC since the previous MG meeting are described below.

***Guidance on second-level competencies (Task 2.1.1)***

* 1. Deliverable: *Documents (& FAQs) reviewed and made available for WMO publication.*
  2. Progress

A review of the existing implementation guidance (‘second-level competencies’) was completed in September 2016, in accordance with a review process outlined at the previous MG meeting. The process included obtaining feedback from the international AMP community on the existing guidance, together with information on the status of their implementation of competency assessment. The latter acting as a kind of ‘[online compliance form](https://www.surveymonkey.com/r/FK7P5ZR)’ on competency assessment of AMP. A summary of the provided feedback is available on request from Chris.  
  
 Throughout 2016, the team has liaised with the WMO ETR Office on an upcoming general competency guide, to be published in early 2017.

***Process for dealing with requests (Task 2.1.2)***

* 1. Deliverable: *Process created and implemented. Requests logged and reported at ET-ETC meetings.*
  2. Progress

A “triage” process for dealing with enquiries was completed in January 2016. Since then the process has been running successfully, led by Kathy-Ann.

***Maintenance of ET-ETC moodle web-site (Task 2.1.3)***

* 1. Deliverable: *Website available and up-to-date.*
  2. Progress

The [ET-ETC website](http://www.caem.wmo.int/moodle/) has remained available to users at all times.  
  
 The site was upgraded to moodle 2.6 in March 2016, led by Raf and with thanks to

Ian Dale (UK) for his assistance. In the future, the team is planning an upgrade to moodle 3, plus the addition of recent meeting reports and reorganisation of some pages.

***Achieving 1 December 2016 qualification deadline for AMF (Task 3.1.1)***

* 1. Deliverable: *Raised profile of deadline, all requests for support responded to, and guidance developed on what will be required to be compliant.*
  2. Progress

In August 2015 the team shared with ETR focal points and RTCs an example of good practice in RA-I. The Tanzania Meteorological Agency had followed the recommended process by obtaining BIP-M compliance statements from their feeder universities.

In January 2016, new guidance and a carefully prepared flow-chart on how to achieve the December 2016 BIP-M deadline was prepared and widely distributed to all Members of WMO, in collaboration with the ETR Office. This guidance was subsequently translated into four additional WMO languages.

To further raise the profile of this issue and of other guidance resources including FAQs, the ET-ETC compiled, in February 2016,a list of participants at past AMP workshops (covering every Regional Association), and forwarded a useful and practical information sheet on this issue.

***Advice on competency requirements (Task 3.2.1)***

* 1. Deliverable: *Guidance document on supporting Competency Management.*
  2. Progress

Paul prepared a document on Competency Management Systems, which was reviewed by Chris, then posted to the ET-ETC website in June 2016.

The FAQs on AMP Competency Standards were updated in December 2015 and then posted onto the ET-ETC website.

***Workshops (Task 3.2.2)***

* 1. Deliverable: *Develop blended workshops dedicated to Competency implementation and assessment (to run in 2017).*
  2. Progress

Following on from the many workshops on competency systems delivered in the previous intersessional period, a competency assessment workshop was delivered in RA-III in November 2014. This meant that competency workshops had been delivered in every Regional Association.

A further workshop is planned for November 2016 at the RTC-Qatar, to be delivered by Paul and Jannie (funded by the host).

***Translation (Task 3.3.1)***

* 1. Deliverable: *Translation of some materials into another language.*
  2. Progress

Modules in Spanish on atmospheric phenomena were reviewed & added to the ET-ETC website in April 2015.

A module on Volcanic Ash from the Argentine Met Service was posted onto the ET-ETC website in June 2016.

***Educational aspects of GANP, ASBU, e.g. AvXML, Annex 3, PANS–MET (Task 3.3.3)***

* 1. Deliverable: Advise on resources and advertise as plans emerge.
  2. Progress

Bob and Chris communicated with ET-CCP on educational material related to IWXXM, in October 2016.

During 2016 ET-ETC teleconferences Chris briefed the team on the development and feasibility study of a [WMO Global Campus](http://www.wmo.int/pages/prog/dra/etrp/GlobalCampus.php).

***Advice to other bodies (Task 4.1.1)***

* 1. Deliverables:

1. *Input into a new version of WMO-No.732.*
2. *Input into Competency Standards for the ‘Met Inspectorate’.*
3. *Other requests for advice responded to.*
   1. Progress (in above order):
4. Chris advised the ET-GOV (Jaakko) on a skeleton of WMO-No.732 in February/March 2016.
5. Not started.
6. The team is responding to requests using the process of Task 2.1.2.

***WMO Competency Guide (Task 4.1.4)***

* 1. Deliverable: *Input provided to the new Guide.*
  2. Progress

Andrea visited the Secretariat in September 2016 for talks with the ETR Office, AeMP Office and other interested WMO parties.

Throughout 2016 Andrea and Chris have communicated via teleconference with the ETR Office on the new Guide. Chris was also involved in discussions on the Guide during the EC Panel on ETR session in March 2016.

The Australian Bureau of Meteorology kindly approved (in July 2016) the necessary time for Andrea to lead the development of the Guide.

***Face-to-face meeting***

A joint meeting of ET-GOV and ET-ETC took place at MetService in Wellington, Nov/Dec 2015. Hosting the joint meeting was a privilege for Chris and his colleague, James Lunny, with many working relationships established or enhanced. The meeting was a rare opportunity to host an international gathering in that part of the world.

1. **WORKING ARRANGEMENTS AND WORK PLAN**
   1. The following provides detailed information on the working arrangements of the expert team – including composition, terms of reference and communication strategies – together with a work plan comprising activities and tasks.

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| **TEAM** | | | | |
| **Commission** | **WMO Commission for Aeronautical Meteorology (CAeM)** | | | |
| **Expert Team on** | Education, Training and Competency | | | |
| **Start Date / End Date** | August 2014 | | August 2018 | |
| **Stakeholders** | Aeronautical meteorological personnel; aviation user community; educators and trainers at NMHSs and training institutes | | | |
| **Team** | **Name** | **Organization / Country** | | **E-mail** |
| **Co-chairs** | Robert Rutledge  Chris Webster | National Weather Service, NOAA  MetService, New Zealand | | robert.rutledge@noaa.gov  [chris.webster@metservice.com](mailto:chris.webster@metservice.com) |
| **Core Members** | Paul Bugeac  Kathy-Ann Caesar  Andrea Henderson  Jan Stander  Raf Windmolders | Romanian Air Traffic Services Administration, Romania  Caribbean Institute for Meteorology and Hydrology, Barbados  Bureau of Meteorology, Australia  South African Weather Service,  South Africa  Belgocontrol, Belgium | | [paul.bugeac@gmail.com](mailto:paul.bugeac@gmail.com%20)  [kacaesar@cimh.edu.bb](mailto:kacaesar@cimh.edu.bb)  A.Henderson@bom.gov.au  [Jannie.Stander@weathersa.co.za](mailto:Jannie.Stander@weathersa.co.za)    [Raf\_Windmolders@belgocontrol.be](mailto:Raf_Windmolders@belgocontrol.be) |
| **ET/ETC Other**  **(invited expert)** | Queenie CC Lam | Hong Kong Observatory, Hong Kong, China | | [cclam@hko.gov.hk](mailto:cclam@hko.gov.hk) |

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| **DESCRIPTION** | |
| **Objective** | Within the area of responsibility of the ET-ETC, to ensure the worldwide, reliable provision of high quality, timely, cost-effective and responsive meteorological service to users throughout the world in support of safe, regular and efficient aviation operations. |
| **Background** | The ET-ETC was first established by the 14th Session of CAeM (2010, Hong Kong, China) and re-established by the 15th Session of the CAeM (July 2014, Montreal, Canada). |
| **Terms of Reference** | (a) To provide guidance on the implementation of WMO standards and recommended practices related to the competency and qualifications of aeronautical meteorological personnel (AMP);  (b) To facilitate efficient methods of education and training in aeronautical meteorology by making education and training resources available online;  (c) To encourage the sharing of education and training resources as well as best practices;  (d) To look for cost-effective training opportunities and seek in-kind contributions to make these available in WMO official languages;  (e) To coordinate with the WMO EC Panel of Experts on Education and Training in developing and updating WMO provisions on the competency and qualifications of AMP for inclusion in the WMO Technical Regulations and related guides;  (f) To contribute to developing appropriate guidelines and other relevant material meeting aeronautical users’ needs for training in aeronautical meteorology ;  (g) To address emerging training and education needs for enhanced meteorological services stemming from the ICAO Global Air Navigation Plan (GANP) and the Aviation System Block Upgrades (ASBU);  (h) To report regularly on progress to the president of CAeM. |

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| **Communication Strategies** | | | | |
| **Description** | **Target Audience** | **Delivery Method** | **Frequency / Date** | **Responsibility** |
| **Work Plan** | ET-ETC | Email | Initial, and updated as required | Co-chairs |
| **General correspondence** | ET-ETC | Email | Introductions, and as required | ET-ETC |
| **Team Meetings** | ET-ETC | Conference calls  Email contact  FtF | At least biannually  At least quarterly  At least one during intersessional period (December 2015) | ET-ETC |
| **Reports** | CAeM | Email | As required | CAeM |
| **Final Report** | CAeM | Email | As required | CAeM |

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| **MILESTONES / WORKPLAN** | | | | | |
| **Activity / Task** | **ET**  **TOR(s)** | **Accountability** | **Deliverables** | **Dates** | **Status** |
| **ACTIVITY 1: COMMUNICATIONS** |  |  |  |  |  |
| *1.1: Establish communications* |  |  |  |  |  |
| Task 1.1.1: Contact members and determine capability & interest in roles | - | Co-chairs | Welcome emails sent | Nov 2014 | Closed, 2014 & February 2015 |
| Task 1.1.2: Assign liaison responsibilities by Region to core team members and invited experts | (c) | Co-chairs | Assignments agreed and implemented | Nov/December 2014 | Closed, February 2015 |
| Task 1.1.3: Communicate regularly – see Comms strategies above | (h) | Co-chairs | Regular communications | Ongoing | Ongoing.  Quarterly teleconferences, supple-mented by emails as required.  FtF joint meeting with ET-GOV, Wellington, Nov/December 2015. |
| *1.2: FtF meetings* |  |  |  |  |  |
| Task 1.2.1: Continue the global programme of workshops to assist Members with implementation of competency assessments. | (a), (c) | Co-chairs and workshop presenters | Successful completion of workshop(s) | Nov 2014, and beyond as required | Ongoing. |
| **ACTIVITY 2: DOCUMENTATION** |  |  |  |  |  |
| *2.1: Develop, maintain and review documentation* |  |  |  |  |  |
| Task 2.1.1: Prepare guidance material on AMP “second-level” competencies for formal publication, after consultation with ET-GOV. (relates to task 4.1.4 below) | (a) | AH, CW | Documents (& FAQs) reviewed  and made available for WMO publication | March 2017 | Ongoing. |
| Task 2.1.2: Develop a consistent process for dealing with requests from NMHSs and similar agencies for reviews of AMP educational documentation. | (f) | KC, PB | Process created and implemented. Requests logged and reported at ET-ETC meetings | March 2016 | Creation of process: Closed.  Use of process: Ongoing. |
| Task 2.1.3: Maintain the ET-ETC Education & Training Website at <http://www.caem.wmo.int/moodle/>, including posting of reviewed educational resources, and provision and moderation of discussion forums. | (b), (c), (d) | RW | Website available and up-to-date | on-going | Ongoing. |
| Task 2.1.4: Maintain the AMP Competency Training Mapping Database at <http://forum.14.caem.wmo.int/post14web/etet/master_list/web/>. | (b), (c), (d) | CCL | Database available and up-to-date | on-going | Ongoing.  SKYlibrary resources added,  early 2015, CCL. |
| **ACTIVITY 3: SUPPORT** |  |  |  |  |  |
| *3.1: Support Members on December 16 qualification requirement* |  |  |  |  |  |
| Task 3.1.1: Support Members and training institutes in achieving the 1 December 2016 qualification requirement for AMFs. | (a), (b), (c), (f) | JS, CW | Raised profile of deadline, all requests for support responded to, and guidance developed on what will be required to be compliant | up to & beyond  December 2016 | Ongoing. |
| *3.2: Support Members on competency requirements* |  |  |  |  |  |
| Task 3.2.1: Support Members and training institutes by advising on achieving, demonstrating, assessing and documenting AMP competency requirements, including provision of examples of good practices. | (a), (c), (f) | PB, KC | Guidance document on supporting Competency Management | March 2016 | Ongoing. |
| Task 3.2.2: Support Members in continuing to meet the AMP Competency requirements through a series of workshops as follow-ups to previous workshops dedicated to competency. | (a), (c), (f) | PB | Develop blended workshops dedicated to Competency implementation and assessment (to run in 2017) | December 2016 | See task 1.2.1 above. |
| *3.3: Provide support in other areas* |  |  |  |  |  |
| Task 3.3.1: Investigate translation of further educational materials into official WMO languages. | (d) | RW, CCL | Translation of some materials into another language | on-going | Ongoing. |
| Task 3.3.2: Follow up any relevant action items resulting from Cg-17 in May 2015. | - | Co-chairs | Covered in other Tasks | as required | See other tasks |
| Task 3.3.3: Keep up to date with developments in the ICAO Global Air Navigation Plan and Aviation System Block Upgrades, and coordinate related meteorological education and training resources as plans emerge, e.g. AvXML, ICAO Annex 3, PANS–MET. | (g) | Co-chairs | Advise on resources and advertise as plans emerge | as required | Ongoing.  Discuss at MG meeting,  Nov 2016.  ET-ETC briefed on WMO Global  Campus developments. |
| **ACTIVITY 4: RELATIONSHIPS** |  |  |  |  |  |
| *4.1: Advise on AMP education & training issues* |  |  |  |  |  |
| Task 4.1.1: Advise and assist ET-GOV and other bodies, such as RTCs, Regional Associations, Global Campus initiative and the EC Panel of Experts on Education & Training, on matters relating to AMP education and training. | (e) | CW,  AH,  Co-chairs | * Input into a new version of WMO-No.732. * Input into Competency Standards  for the ‘Met Inspectorate’ * Other requests for advice responded  to | - As in ET-GOV work plan  - As above  - on-going | Ongoing.  Not started  Ongoing. |
| Task 4.1.2: Provide advice and, where possible, experts for other relevant workshops that are not under the direct control of ET-ETC. | (c), (d) | Co-chairs | All requests for advice responded to and experts provided if available | on-going | See Task 1.2.1. No other known workshops. |
| Task 4.1.3: Support other Technical Commissions and bodies by providing guidance on implementation of competency standards outside the aviation area (e.g., marine, PWS, DRR, tropical cyclones). | relates  to (a) | Co-chairs | Requests for advice fully answered | tba | Advice to EC Panel on ETR, CW, March 2016. |
| Task 4.1.4: Assist the EC Panel of Experts on Education & Training with  a new WMO Guide on Competency Management (to relate to Ch 5 of a future edition of WMO-No. 49). | relates  to (e) | AH, CW | Input provided to the new Guide | Outline done  by March 2016 | Ongoing. |

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