World Meteorological Organization	Intergovernmental Oceanographic Commission (of UNESCO)

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WMO QUALITY MANAGEMENT AND DEVELOPMENT OF COMPETENCY REQUIREMENTS FOR METEOROLOGICAL AND HYDROLOGICAL PERSONNEL

BACKGROUND MATERIAL

SUMMARY

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Appendix A: WMO Quality management and Development of the Competency Requirements for Meteorological Personnel

Appendix B: WMO Resolution 26 (Cg-XVI) – WMO Quality Management Framework

RELATED DOCUMENT:

JCOMM-4/Doc.8.4: Quality Management

JCOMM-4/Doc.9: Capacity Development and Technology Transfer

REFERENCES:

Abridged Final Report with Resolutions of the Sixteenth World Meteorological Congress (WMO-No. 1077), including Resolution 26 (Cg-XVI) – WMO Quality Management Framework

WMO QUALITY MANAGEMENTAND DEVELOPMENT OF COMPETENCY REQUIREMENTS FOR METEOROLOGICAL PERSONNEL

WMO Quality Management

1. The WMO Congress at its 16th session (Cg-XVI, 2011) agreed that the special emphasis of the WMO on service delivery, including climate services, requires a renewed effort in documenting that all relevant processes from physical measurements in observations to forecasts and warnings issued to all user and customer groups are undertaken within a sound Quality Management (QM) Framework (QMF). In particular, the aviation and marine user communities and regulatory bodies have, or are, formulating clear requirements for the implementation of quality management systems (QMS) for the delivery of services to them. Recognizing the need for an all-encompassing approach to Quality Management, Congress noted with satisfaction the ongoing commitment of various programmes of WMO, including the initiative in the marine meteorology and oceanography area through the pilot project undertaken by the Australian Bureau of Meteorology for JCOMM.

2. Volume IV of the Technical Regulations (WMO-No. 49): "Quality Management" has been developed during the intersessional period, and the series of publications (generic QMS Guidance Document, Volume IV of the WMO-No.49, and a sample Quality Manual) constitute "living documents", with regularly updated best practice examples and references. *A Practical Guide for the Implementation of a Quality Management System for National Meteorological and Hydrological Services* has been produced and is currently available in English, Chinese, Arabic, Russian and Spanish. The Guide is available on the Australian Bureau of Meteorology hosted WMO QMF Website (http://www.bom.gov.au/wmo/quality_management/index.shtml) that also provides a QM Forum for Members, to facilitate the exchange of existing resource material, such as documentation examples, templates, sample Quality Objectives and suitable contents for Quality Manuals.

3. Congress also endorsed a concept of "QM Twinning Partnership"; to link Members with well developed QMS, with those who commence or contemplate adopting a QM approach. A strategy to implement such a partnership was developed by the CAeM Task Team on QMS Implementation in the area of Aeronautical Meteorology.

4. It was decided to establish an appropriate mechanism with the task to promote, oversee and guide the further implementation of the Quality Management Framework in a simple and efficient manner as possible. Accordingly, a new WMO Task Team on Quality Management had been established, with the following Terms of Reference:

- To promote and provide guidance on development and implementation of Quality Management Systems (QMS) in National Meteorological and Hydrological Services (NMHS) particularly in developing and least developed countries and those providing services to international civil aviation and to achieve certification of compliance, with the ISO 9001-Quality management systems – requirements;

- To liaise with and respond to the WMO regional associations and technical commissions in the field of Quality Management (QM) from raw data to product and service provision within their respective areas of responsibility;

- To propose the priorities and direction of QMS implementation activities to be undertaken by identified sectors of the WMO Secretariat in coordination with the Secretariat Task Team;

- To review QMS-relevant existing and proposed Technical Regulations, Manuals and Guides of WMO with the aim to harmonize their content and policies insofar as they are part of the regulatory framework and key components of any NMHS QMS;

- To contribute to the measurement of the success of the implementation of the WMO Strategic and Operational Plans through the development of key performance indicators to monitor and evaluate the achievement of continuous improvement as part of the WMO Strategic Plan;

- To recommend suitable information resources for QMS implementation and certification in different languages and regions based on the requirements articulated in *ISO 19011:2002 Guidelines for auditing quality management systems*;

- To assist Members, and in particular those running the existing WMO Regional Instrument Centers, in the adoption of ISO standards which are specific to testing and calibrating equipment. These ISO Standards could include 17123, 17025 and 10012; and,

To develop a framework for "twinning/mentor arrangements" between Members with a well-developed QMS and support other Members embarking on a QMS implementation.

5. The Congress adopted Resolution 26 (Cg-XVI) – WMO Quality Management Framework, as reproduced in *Appendix B*.

Development of Competency Requirements for Meteorological Personnel

6. The development of competency requirements for meteorological personnel has been led by the Commission for Aeronautical Meteorology (CAeM) and has been brought about by two related but separate issues: the introduction of QMS approach to the delivery of aviation weather services; and, mixing of job classifications (Meteorologist and Meteorological Technician) with job tasks (forecasting, briefing, observing…).

7. In the untangling of the job tasks from the job classifications, particularly for aeronautical meteorology, it became clear that the primary concern should be "is the person competent to do the job?" not "where did they undertake their education?". The competency approach is also widely used in the aviation industry and the International Civil Aviation Organization (ICAO) welcomed WMO taking this approach.

8. By looking at job tasks from a competency perspective, rather than a classification perspective, we are allowing Members to set their own levels for formal academic qualifications (which impact upon salaries, promotion, institutional hierarchy…) but at the same time we are requiring personnel to have at least a minimum level of knowledge, skills and behaviour to enable them to do the job tasks.

9. Developing education and training programmes to meet competency based requirements thus makes it necessary for the training institutions to become more outcome-focused and learner-centred than teacher-centred (i.e. courses and activities are focused on the learner not the lecturer or instructor). This is also consistent with the trend occurring in the wider education and training community.

10. WMO Congress at its sixteenth session (paragraph 6.2.14) appreciated the work being undertaken in the WMO Education and Training Programme (ETRP) and the various Technical Commissions to develop competence standards for the core job-tasks in meteorology and hydrology. Congress recommended that all technical commissions make this a high priority activity and incorporate this task into their current work programmes.

Congress requested that the technical commissions follow the model developed by the Commission for Aeronautical Meteorology in providing top level competence standards that could be incorporated into the WMO Technical Regulations, as required. More detailed guidelines to assist Members to adapt, implement and assess the top level competence standards according to their national requirements (see http://www.caem.wmo.int/moodle/) should also be published. The Executive Council was requested to engage its Panel of Experts on Education and Training to assist the technical commissions in the development of the competence standards and links with the ETRP.

11. A webpage to provide Members a central link to the competency requirements from the Technical Commissions has been created on the ETR website: http://www.wmo.int/pages/prog/dra/etrp/competencies.php. This page will be updated as the Technical Commissions develop and implement their competency requirements.

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WMO Resolution 26 (Cg-XVI)
WMO QUALITY MANAGEMENT FRAMEWORK

THE CONGRESS,

Noting the increasingly high impact of weather, water and climate information on crucial societal decision-making processes,

Noting further the increased scrutiny of the quality, reliability and accuracy of weather, water and climate products and services by critically important stakeholders,

Having considered recent developments in some application areas, such as aviation or marine meteorology, where partner organizations are mandating the implementation of Quality Management Systems (QMS) for services to them, Recognizing the high importance of the working arrangements between WMO and the International Organization for Standardization (ISO), including the recognition of WMO as a an international standardizing body for technical standards, a rare distinction given to only three organizations worldwide,

Recommends a full integration of the Quality Management Framework (QMF) into the wider WMO strategic and operational planning process as part of a holistic management system encompassing quality management, risk management, results-based management, as well as monitoring and evaluation;

Invites Members with a well-developed QMS in place to share experiences, expertise and documentation with other Members currently developing or planning such systems;

Agrees with the conclusions of the Inter-Commission Task Team on Quality Management Framework (ICTT-QMF) and the Executive Council concerning the need for a twinning partnership system;

Requests the Executive Council to establish an appropriate mechanism with the task to promote, oversee and guide the further implementation of the Quality Management Framework in the simplest and most efficient manner as possible;

Requests the Secretary-General, in cooperation with the Executive Council, to undertake an in-depth gap analysis of the WMO Secretariat in terms of QMS, with a view to developing a business case for a QMS implementation pilot project;

Urges the technical commissions to explore opportunities to develop new common Technical Standards under the Working Arrangements between ISO and WMO;

Encourages Members to provide in kind and extra budgetary resources to help achieve these goals;

Further encourages Members to subject their QMS to regular monitoring and evaluation to ensure continuous improvement and sustained compliance with ISO 9001:2008.

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Note: This resolution replaces Resolution 32 (Cg-XV), which is no longer in force.