International Civil Aviation Organization

SIXTEENTH MEETING OF THE COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND METEOROLOGY SUB-GROUP (CNS/MET SG/16) OF APANPIRG

Bangkok, Thailand, 23 – 27 July 2012

Agenda Item 15: Other MET issues (e.g. QMS, Competency & Training)

IMPLEMENTATION OF A QUALITY MANAGEMENT SYSTEM

(Presented by Australia)

SUMMARY

This paper presents guidance on the requirements for implementation of a quality management system which will become a standard for the provision of aviation meteorological services from 15 November 2012.

This paper relates to –

Strategic Objectives:
A: Safety - *Enhance global civil aviation safety*
C: Environmental Protection and Sustainable Development of Air Transport - *Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:
GPI-19 Meteorological Systems

1. Introduction

1.1 *ISO 9000:2005 Quality management systems – Fundamentals and vocabulary* states that quality management is the *'the coordinated activities to direct and control an organization with regard to quality'*, which *'generally includes establishment of the quality policy and quality objectives, quality planning, quality control, quality assurance and quality improvement.'*

1.2 *ISO 9000:2005 Quality management systems – Fundamentals and vocabulary* states that:

> *'The quality management system approach encourages organizations to analyse customer requirements, define the processes that contribute to the achievement of a product which is acceptable to the customer, and keep these processes under control. A quality management system can provide the framework for continual improvement to increase the probability of enhancing customer satisfaction and the satisfaction of other interested parties. It provides confidence to the organization and its customers that it is able to provide products that consistently fulfil requirements.'*

1.3 Annex 3 to the Conventional on International Civil Aviation, Meteorological Services for International Air Navigation, requires the implementation of a QMS from 15 November 2012.

Annex 3 Chapter 2, paragraph 2.2.2 – 2.2.7 refers:

‘2.2.2 **Recommendation.—** *Until 14 November 2012, in order to meet the objective of meteorological service for international air navigation, the Contracting State should ensure that the designated meteorological authority referred to in 2.1.4 establishes and implements a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users listed in 2.1.2.*

2.2.3 From 15 November 2012, each Contracting State shall ensure that the designated meteorological authority referred to in 2.1.4 establishes and implements a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users listed in 2.1.2.

2.2.4 **Recommendation.—** *The quality system established in accordance with 2.2.2 should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and should be certified by an approved organization.*

Note.— The International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme. The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization. Guidance on the establishment and implementation of a quality system is given in the Manual on the Quality Management System for the Provision of Meteorological Service to International Air Navigation *(Doc 9873).*

2.2.5 **Recommendation.—** *The quality system should provide the users with assurance that the meteorological information supplied complies with the stated requirements in terms of the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity, as well as the accuracy of measurements, observations and forecasts. When the quality system indicates that meteorological information to be supplied to the users does not comply with the stated requirements, and automatic error correction procedures are not appropriate, such information should not be supplied to the users unless it is validated with the originator.*

Note.— Requirements concerning the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity of meteorological information to be supplied to aeronautical users are given in Chapters 3, 4, 6, 7, 8, 9 and 10 and Appendices 2, 3, 5, 6, 7, 8 and 9 of this Annex and the relevant regional air navigation plans. Guidance concerning the accuracy of measurement and observation, and accuracy of forecasts is given in Attachments A and B, respectively, to this Annex.

2.2.6 **Recommendation.—** *In regard to the exchange of meteorological information for operational purposes, the quality system should include verification and validation procedures and resources for monitoring adherence to the prescribed transmission schedules for individual messages and/or bulletins required to be exchanged, and the times of their filing for transmission. The quality system should be capable of detecting excessive transit times of messages and bulletins received.*

Note.— Requirements concerning the exchange of operational meteorological information are given in Chapter 11 and Appendix 10 of this Annex.

2.2.7 **Recommendation.—** *Demonstration of compliance of the quality system applied should be by audit. If nonconformity of the system is identified, action should be initiated to determine and correct the cause. All audit observations should be evidenced and properly documented.'*

2. Discussion

2.1 The Australian Bureau of Meteorology hosts a World Meteorological Organization (WMO) website to provide meteorological service providers with information on quality management systems (see http://www.bom.gov.au/wmo/quality_management.shtml). The website also includes a link to a restricted access website that you can join on request. This website provides detailed information on how to effectively implement a quality management system, but also includes a wide range of resources, tools and publications and a member forum to enable users to ask questions and share ideas.

2.2 The publication *'WMO-No. 1001 – Guide to the Quality Management System for the Provision of Meteorological Services for International Air Navigation'* (or its equivalent '*ICAO Doc. 9873 – Manual on the Quality Management System for the provision of Meteorological Service for International Air Navigation'*) outlines the steps involved in implementing a QMS. Further to this a new guide titled *'A Practical Guide for the Implementation of a Quality Management System for National Meteorological and Hydrological Services'* is completed and is available in six languages on the Bureau hosted WMO website. The purpose of the document is to provide the guidance required to develop and implement a quality management system. It also details the steps that need to be taken to achieve certification of compliance of your organization's QMS.

2.3 COMET has developed an online training module titled: '*Quality Management Systems: Implementation in Meteorological Services'*. This one-hour online learning module provides an overview of the key concepts, benefits and principles of an effective quality management system (QMS) based on the ISO 9001:2008 quality management standards. It introduces guidelines for the successful implementation of a QMS in aviation weather service agencies and is available on their MetEd website at: https://www.meted.ucar.edu/training_module.php?id=869

2.4 In WMO Region V covering the Southwest Pacific countries, a Task Team on Quality Management has been established as part of the RA-V Working Group on Weather Services. Currently 9 of the 20 member countries have a mature QMS. Of the other 11 countries only 2 have requested access to the WMO Quality Management website.

2.5 WMO is encouraging the following activities:

a) Building a 'WMO QM Community' to actively promote the WMO QM website and Forum;

b) Member countries operating a well-developed QMS to form twinning partnerships with countries currently planning or developing a QMS;

c) Development of proposals to aid organizations for the establishment of 'twinning partnerships' to promoting the capacity building benefits that QM brings with it;

d) Continue to update and analyse the results of the ongoing WMO QMS Implementation Status survey and identify remedial actions to rectify problem areas;

e) Facilitate internal auditor training by encouraging Member countries to send a 'Silent Observer' to participate in a mature internal audit program of another country; and

f) Encourage Member countries to facilitate a 'mock audit' with participation of an expert from a country with a mature QMS, in person or via remote media.

2.6 In March 2012 the Australian Bureau of Meteorology was approached with a request to extend their visit to Morocco post the WMO Task Team on Quality Management. The objective was to provide practical auditor training for their two QM staff and conduct a gap analysis and a series of internal audits on the Moroccan Meteorological Service's QMS. This was the first practical and formal 'QM twinning project' to be conducted under the WMO QM twinning concept.

2.7 The meeting is asked to consider the following draft Decision:

Draft Decision 16/x – Implementation of Quality Management Systems for Aviation Meteorological Services

That the MET SG considers ways to improve the implementation of quality management systems in the Asia/Pacific Region in conjunction with WMO.

3. Action by the Meeting

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) discuss any relevant matters as appropriate; and

c) consider the draft Decision regarding Quality Management.

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