

## Fourth Meeting of the Pacific Meteorological Council

14-18 August 2017  
Honiara  
Solomon Islands

**Agenda Item No. 12.2: Aviation Weather Services: Compliance with the International Civil Aviation (ICAO) requirements including Annex 3, Quality Management System (QMS): International Organization for Standardization (ISO) 9001-2015 Standard, Civil Aviation Rule (CAR) Document Part 174, competency assessment and capacity development of Aeronautical Meteorological Observers (AMOs) and Aeronautical Meteorological Forecasters (AMFs).**

**Sub-Agenda Item No. 12.2.2: QMS: ISO 9001: 2015 Standard.**

**Purpose:**

To establish the level of conformity for the WMO Regional Association V (South West Pacific), in response to the International Civil Aviation Organization (ICAO) *quality management requirements* stated in the ICAO Annex 3 to the Convention on International Civil Aviation, Meteorological Service for International Air Navigation.

The following is an extract from the ICAO Annex 3 (effective from 10 November 2016), pertaining to quality management states the following under 2.2 - *Supply, use and quality management of meteorological information*:

2.2.2 Each Contracting State **shall** ensure that the designated meteorological authority... **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 ....

2.2.3 **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.*

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

(Annex, 3 Chapter, 2 10 November 2016)

The ICAO Annex 3 Clause 2.2.3 recommendation states that a quality management system should be in conformity with the ISO 9000 series of quality assurance standards. As a point of clarification, this means that there is currently no ICAO requirement to be certified compliant with the ISO 9001 by a third party certification body. However, Clause 2.2.6 makes it very clear that it should be by audit and the most effective way to demonstrate conformity with the ISO Standard is through a third party certification body.

**Background:**

WMO's role is to assist its Members in meeting the regulatory requirements articulated in the ICAO Annex 3. In terms of a quality management approach, WMO encourages the implementation of the Quality Management System (QMS) for the National Meteorological and Hydrological Services (NMHSs). The WMO Strategy for Service Delivery promotes further the implementation of the QMS as a strategic priority and in particular for the delivery of weather, ocean and hydrology programmes.

The WMO Executive Council formed the WMO Task Team on Quality Management Systems (TT-QMS) following strong endorsement of the prioritisation of the implementation of the QMS, but with an initial emphasis on aviation meteorology services provided by Members in response to the ICAO Annex 3 requirement.

The terms of reference for the TT-QMS are:

- a) To promote, through the regional associations, capacity building cost-effective approaches to sustainable QMS implementation taking into consideration regional specifics and with focus on developing and least developed Members;
- b) To continue to develop a framework for "twinning/mentor arrangements" between Members with a well-developed QMS and other Members embarking on a QMS implementation; and
- c) To provide guidance to ensure smooth transition to the new ISO 9001:2015 quality management standard, and, in particular, on its implementation for the provision of aeronautical meteorological service and to other service delivery areas, as appropriate.

The TT-QMS delivered a set of highly useful resources and tools to minimise the cost of establishing a QMS. WMO-No. 1100 *Guide to the Implementation of Quality Management System for National Meteorological and Hydrological Services* provides a step by step practical guide to developing a QMS for the NMHSs that will enable certification of compliance to ISO 9001 using a simple and pragmatic approach.

A new ISO Standard 9001:2015 was released in 2015 with some fundamental changes including a greater focus on leadership and risk management. The introduction by the ISO in September 2015 of the ISO 9001:2015 Quality management systems - Requirements has been the catalyst for the update and replacement of WMO-No.1100. The update to WMO-No.1100 is currently underway and is due for release in September 2017.

To meet the objective in the terms of reference to develop twinning/mentoring arrangements between Members with a well-developed QMS and other Members embarking on a QMS, and to promote capacity building with developing and least developed Members through regional associations, in 2012 -2014 the Australian Bureau of Meteorology, supported by the Australian Government and WMO, undertook an activity to assist ten of the Pacific Island Countries and Territories to develop a quality management system to meet the ICAO Annex 3 to the Convention on International Civil Aviation, Meteorological Services for International Air Navigation, requirements to deliver their aviation weather services in conformity with the ISO 9000 series of

quality assurance standards and in particular, the international ISO 9001 Quality Management Standard. A critical success factor to this achievement is a rigorous auditing schedule conducted by internal and external auditors and participants to be qualified auditors. To achieve this, the following was undertaken:

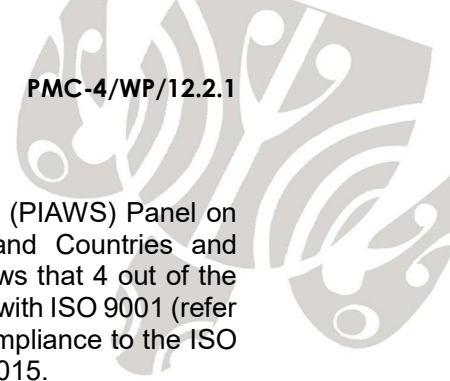
1. The first phase involved an “in-region” five-day internal auditor training course with two participants from each country. It was conducted in Port Vila Vanuatu 26 – 30 November 2012. There were 22 participants (additional staff from the Vanuatu Meteorology and Geo-Hazard Department) successfully completed the course and were awarded a recognised qualification as Internal Quality Management (QM) auditor.
2. The second phase involved inviting the participants who had successfully completed the initial internal auditor training course, to participate in real-time audits with experienced Australian Bureau of Meteorology’s auditors. Two auditors from each country (up to 20 in total) participated in audits conducted on Australian Bureau of Meteorology Sections in Canberra, Darwin, Melbourne, Perth and Sydney. This provided an opportunity to consolidate the participant’s workshop training in a practical environment and benchmark their audit techniques and performance. It also provided them with face-to-face guidance on issues they were facing whilst developing and implementing their own quality management systems.
3. The third and additional phase involved the selection of 12 participants who successfully completed Phases 1 and 2 to undertake Lead Auditor training. The training was conducted in Nadi, Fiji, by Gray Management Systems Pty Ltd, an Australian Registered Training Organisation and the Australian Bureau of Meteorology. The Lead Auditor course is approved by the International Register of Certified Auditors (IRCA). All 12 participants successfully passed the examination and have achieved the internationally recognised Lead Auditor qualification.

Overall, the training enhanced the skills and knowledge of all successful participants enabling them to provide high quality audits. Most importantly is that there is a core resource of 21 qualified internal auditors, 12 of them are fully qualified Lead Auditors. These Officers provide the solid foundation on which to continue the on-going development of the quality management approach to the delivery of aviation weather services within the Pacific region.

To provide further assistance, the Australian Bureau of Meteorology hosted a quality management forum to assist WMO Members with the development and implementation of their QMS. The purpose of the forum is to provide the opportunity for Members to ask questions relating to their quality management system, any roadblocks that they may be experiencing or to share relevant information. Currently there are over 200 members who have joined the forum.

**Update:**

Preliminary results on a survey conducted in 2016 by the WMO Commission for Aeronautical Meteorology (CAeM) - WMO Region V (South-West Pacific) on the status of implementation for Aeronautical Meteorology Service Providers (AMSPs) if their State/Territory had established a properly organized QMS for the provision of aeronautical meteorological services to international air navigation, shows that 14 out of the 21 WMO Members listed had achieved certification of compliance or were in conformity with ISO 9001, 2 had a partial QMS in place, 3 had no QMS in place and 2 were unknown (refer to Annex 1). However, less than 50% were certified by external third party certification. It is unknown if those who were not certified whether an internal audit regime had been established to meet the requirement of ICAO Annex Clause 2.2.6. WMO has also recognised that achieving certification of compliance through a third party certification body is the most effective way to demonstrate conformity.



A recent survey conducted by the Pacific Islands Aviation Weather Services (PIAWS) Panel on the implementation of quality management approach in the Pacific Island Countries and Territories' National Meteorological and Hydrological Services (NMHSs) shows that 4 out of the 12 respondents had achieved certification of compliance or were in conformity with ISO 9001 (refer to Annex 2). It is of note that two countries have achieved certification of compliance to the ISO 9001 and one country has achieved certification of compliance to ISO 9001:2015.

The challenge to implementing a QMS has been exacerbated by the upgrade to the new ISO 9001 Standard where there is now a need to be aware of and identify the new and enhanced requirements within the ISO 9001:2015 and how they may be audited. It should also be noted that auditors are also required to upgrade their knowledge and skills to be able to conduct effective audits against the new ISO 9001:2015 Standard.

**Recommendations:**

The Meeting is invited to:

- **Note**
  1. the level of conformity for WMO Region V (South West Pacific), in response to the ICAO quality management requirements stated in the ICAO Annex 3 to the Convention on International Civil Aviation, Meteorological Service for International Air Navigation.
  2. the update and replacement of WMO-No.1100 is currently underway and is due for release in September 2017.
- **Request**
  3. for a training workshop for Quality Management practitioners on the transition to the ISO 9001:2015 Quality Management Standard.

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**Attachments**

- Annex 1: Preliminary results of the WMO CAeM Survey – WMO Region V (South-West Pacific).
- Annex 2: Status of Implementing QMS including the CAR Part 174 in the Pacific Island Countries and Territories' NMHSs.

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