



Sixth Meeting of the Pacific Meteorological Council (PMC-6)

Sustaining Weather, Climate, Water and Ocean Services for a Resilient Blue Pacific

14-16 August 2023, Sofitel Hotel, Denarau, Nadi, Fiji

Agenda item 9.3: Quality Management System (QMS) and Beyond

Purpose of the paper:

1. To provide information on Quality Management System (QMS) and its extension to Safety Management System (SMS).
2. To seek the Meeting's guidance and decision on the provision of quality management for aviation safety pertaining to the followings.
 - 1) Integrating QMS and SMS.
 - 2) International Organization of Standards (ISO) 9001: 2015 conformity to Recommended Practice – International Civil Aviation (ICAO) Annex 3 *Meteorological Service for International Air Navigation* (refer to as 'Annex 3') Chapter 2, clause 2.2.2 and 2.2.3.
 - 3) Civil Aviation Rule (CAR) Part 174.
 - 4) Integrating ISO 9001: 2015 with CAR Part 174.
 - 5) Steps to achieving ISO 9001: 2015 certificate of compliance.

Background:

1. QMS refers to a quality management system which to the World Meteorological Organization (WMO) and the International Civil Aviation Organization (ICAO) requirements for all provider of meteorological services for aviation in terms of practices and procedures, competencies and associated training, meeting regulatory and statutory requirements, documentation, resources, policies, risk-based thinking, the conduct of internal and external audits that will lead to continuous improvement.
2. The current Amendment 80 to Annex 3 (Chapter 2, clause 2.1.4 and 2.1.5) requires that each ICAO Contracting State designates a meteorological authority¹, who must provide – or arrange for provision of – meteorological information as required in the regional air navigation plan (ANP). This may include arrangements with another State to provide meteorological information on its behalf.
3. Current Amendment 80 to ICAO Annex 3 (Chapter 2, clause 2.2.2) obliges the State to ensure the designated meteorological service provider “*establishes and implement 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...*” ICAO Annex 3 (Chapter 2, clause 2.2.3) recommend that QMS based on ISO 9000 series of quality assurance standards and should be audited and certified by approved organizations.

¹ Note, the proposed Amendment 81 to Annex 3 proposes a functional separation of meteorological authority and meteorological service provider.

4. SMS is an integrated set of regulations and activities aimed at improving safety. Refer the CAR Part 100 Safety and QMS.
5. Each Pacific Island State has a Civil Aviation Act that gives power to the relevant Minister for Aviation to make rules for the operations, services provision and safety of aviation. CAR Part 174 is adopted by many Pacific Island States for Aviation Meteorological Service Organisations — Certification. As part of the implementation to achieve compliance, a NMHS that provides meteorological services to aviation must undergo an external (to the NMHS) audit to achieve an Aviation Meteorological Service Certificate.
6. A State's Civil Aviation Authority (CAA) as obligated by a national Civil Aviation Act requires a NMHS to be audited, certified and obtain CAR Part 174 Certification for Aviation Meteorological Service Provider.
7. CAR Part 174 requires the Aviation Meteorological Service Provider to implement a SMS as outlined under CAR Part 100. Hence, a NMHS audited, certified and obtained Certification for Aviation Meteorological Service must implement SMS and QMS as per CAR Part 100. Whereas a QMS focuses on internal quality assurance procedures, an SMS expands on this by advocating a risk-based approach to the structure, responsibilities, processes and procedures of an organisation.
8. There is a relationship between SMS and QMS and both share several common purposes and processes. A QMS does not include all the elements, features and activities of an SMS, as it focuses mainly on compliance, conformance, and monitoring. So, the integrated system of QMS and SMS will enable a NMHS as an Aviation Meteorological Service Provider to identify and manage risk to achieve an acceptable level of safety performance.
9. Quality Assurance (QA) Managers and QA Officers may face significant challenges in establishing documentation to meet ISO 9001: 2015, CAR Part 174 and CAR Part 100.
10. The intent of both ICAO and WMO pertaining to the adoption of a quality management approach within an ISO 9001 framework has a wholistic focus on all aspects of the management of the delivery of meteorological products and services to aviation within an internationally recognised ISO 9001 management framework and shares the majority of CAR Part 100 requirements and a number of CAR Part 174 streamlining the development and implementation of an integrated management system.
11. An Integrated Management System (IMS) would comprise of a QMS and SMS that meets the States Civil Aviation Authority requirements of compliance. The QMS remains the primary means of ensuring that a NMHS meets its overarching management requirements. An SMS adds an additional focus on safety that compliments the QMS requirements. An IMS will enable a NMHS to successfully manage all key elements for the delivery of its products and services whilst maintaining a clear focus on safety. WMO No. 1100 *Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and Other Relevant Service Providers* provides guidance through a step by step approach to achieve certification of compliance. Guide and its methodology and associated resource tools has been successfully adopted by several WMO Members to achieve certification of compliance with ISO 9001. Note: The Guide is freely available on the WMO website at: https://library.wmo.int/index.php?lvl=notice_display&id=15574.
12. Generic guidance on implementing SMS is provided on both the CAA NZ and CASA Australia websites, while ICAO has set up a website on [Safety Management Implementation](#).

Challenges:

1. Many Pacific Islands States faces major challenges in the development implementation of a QMS and the integration of CAR Part 174 and a SMS based CAR Part 100 due to unavailability of full-time qualified quality practitioners. The few trained and qualified staff are either retired or moved to another role.
2. There is a clearly identified and urgent need for NMHSs to have more staff trained in the development and implementation of QMS and SMS (IMS). The development needs to be supported by the training of staff as Management System Internal Auditors and Lead Auditors.
3. In view of the above and considering the compliance requirements for QMS and SMS, there would be merit in consulting with registered ISO 9001 accreditation bodies (who are all private sector), to establish the commercial viability, availability and feasibility of determining an affordable certification fee structure appropriate to the Pacific Island States.
4. There is a need to ensure the States' Civil Aviation Authorities also have qualified auditors for the issuance of Aviation Meteorological Service certificates (Part 174).
5. WMO has a renewed focus on quality management via a process approach to the delivery of products and services. *Service Note No. 4/2023 Amendment to Chapter 1 of the Standing Instructions Appendix 1.E – Guidelines on Process Management* refers. It was approved the WMO Secretary-General and distributed to the WMO Secretariat on the 19 January 2023.

Recommendations:

The Meeting is invited to:

1. **Note** the urgency need for full-time Quality Management Practitioners / Quality Management System Auditors and Lead Auditors.
2. **Request** funding assistance for the training of full-time Quality Management Practitioners / Quality Management System Auditors and Lead Auditors.
3. **Request** the establishment of a mentoring/twinning approach to the development of an integrated quality and safety management system for Pacific Island States' NMHSs.

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