



ASSEMBLY — 39TH SESSION

TECHNICAL COMMISSION

Agenda Item 33: Aviation safety and air navigation monitoring and analysis

SMS, FROM STANDARDS TO PRACTICE: IMPLEMENTATION IN ASECNA

(Presented by the Agency for Air Navigation Safety in Africa and Madagascar (ASECNA))

EXECUTIVE SUMMARY

This information paper focuses on the implementation of the Safety Management System (SMS) and Quality Management System (QMS) in ASECNA and their integration into a single system, called Integrated Management System (IMS).

It presents a practical case of implementation of SMS and QMS by an air navigation services provider (ANSP).

<i>Strategic Objectives:</i>	This information paper relates to the Safety Strategic Objective
<i>Financial implications:</i>	N/A
<i>References:</i>	Annex 19 - Safety Management; Doc 9935, Report of the High-Level Safety Conference (2010); Doc 9859, Manual of Safety Management; General Policy Statement on Safety Management, adopted by the Board of Ministers of ASECNA; ASECNA 2012-2014 Strategic Plan.

¹ English and French versions provided by ASECNA

1. INTRODUCTION

1.1 ASECNA, the Agency for Air Navigation Safety in Africa and Madagascar, a public multinational organization, is the Air Navigation Service Provider for its 17 African member states.

1.2 In 2005, in accordance with ICAO's Standards and Recommended Practices on Safety Management, the Board of Ministers of ASECNA, by the Resolution No. 2005/CM 44-7, adopted a Document affirming a general policy statement for safety management. Throughout that document, the Statutory Authority requires ASECNA to establish a Safety Management System.

1.3 In July 2011, by the Resolution No. 2011 CA 120-10, ASECNA's Board of Directors requested that the Agency's headquarters achieve, by 31 December 2014, a certification level of SMS/QMS as required.

1.4 This paper gives an overview of SMS and QMS implementation status in ASECNA and the intended integration of all the management systems into a single Integrated Management System (IMS). It also focuses on the benefits of the SMS implementation on the services provided by ASECNA.

2. PLANIFICATION OF SAFETY AND QUALITY MANAGEMENT SYSTEMS

2.1 SMS implementation project

2.1.1 An implementation plan of SMS has been developed and approved by the Director General of ASECNA in November 2011.

2.1.2 The implementation activities, as recommended by ICAO, were planned in four phases as follows:

- Phase 1: Planning;
- Phase 2: Development, training and deployment of reactive processes;
- Phase 3: Development, training and deployment of proactive and predictive processes;
- Phase 4: Development, training and deployment of safety surveillance.

2.1.3 The achievement of this plan's activities was projected in the period from 2011 to 2014. The four phases are not necessarily deployed sequentially: several activities from different phases can be performed simultaneously as they were not interdependent.

2.2 QMS implementation project

2.2.1 A plan for QMS implementation has been developed and approved by the Director General in 2011

2.2.2 In this project, activities were planned in three phases as follows:

- Phase 1: Planning;

- Phase 2: Development, training and deployment of quality processes and procedures;
- Phase 3: Development, training and deployment of quality assurance.

2.2.3 The achievement of QMS activities were planned from 2011 to 2014. Particular emphasis was placed on the QMS in meteorological services (MET) and aeronautical information services (AIM), this to meet the ICAO requirements in this area.

3. STATUS OF THE SMS AND QMS IMPLEMENTATION PROJECTS

3.1 Status of implementation and operation of the SMS in ASECNA

3.1.1 The activities carried out to date are listed below:

- Adoption of a Safety Policy by the relevant authorities of ASECNA;
- Adoption of the new organization chart of ASECNA taking into account the implementation and the operation of SMS and the internal safety oversight;
- Gap analysis between the existing practices in ASECNA and the provisions of ICAO's Doc 9859;
- Development of a comprehensive plan for SMS implementation;
- CEO's Commitment for safety;
- Creation of steering bodies for the implementation of SMS;
- Creation of SMS operational follow up bodies;
- Appointment of officials responsible for the management of safety and quality in ASECNA's Headquarters, its schools and its Operational Centers in the Member States ;
- Development of a SMS Manual;
- Staff training sessions including the qualification for Safety Assessment Specialists and Internal SMS Auditors;
- Establishment and publication of safety-related accountabilities for all ASECNA personnel;
- Development and implementation of proactive and reactive processes and relevant procedures.

3.1.2 The SMS is fully implemented in ASECNA through the three major functions of safety management which are: Risk Management, Safety Insurance and Safety Promotion. following activities:

- Systematic analysis of safety events;

- Monitoring of established safety performance indicators;
- Periodic Review Meetings to evaluate the level of both the SMS implementation and the safety performance of the Agency;
- Safety assessment before any significant safety-related change to the ATS system;
- Conduct inspections and safety audits;
- Establishment and monitoring of the implementation of corrective and preventive actions plans;
- Staff sensitization and training for SMS implementation;
- Sharing of the best practices, the outcomes of safety-related events analysis and safety audit results.

3.1.3 Various audits concluded that ASECNA's SMS is functional since 2014.

3.1.3.1 The Commission of Safety Verification, an independent body established by the Board of ASECNA, conducted a SMS survey and concluded that the system performed ICAO standards.

3.1.3.2 Another SMS audit was conducted from 15 to 30 April 2014 by independent experts. This blank audit highlighted that the SMS is fully operational. A second blank audit of the SMS was performed from 2 to 22 March 2016 and it confirmed the progress of the SMS' maturity and it identified the efforts necessary for a continuous improvement of the system.

3.1.3.3 The ATNS (ANSP in South Africa) and ASECNA conducted a safety-related peer review in April and May 2016 in the framework of the AQSA initiative. The review concluded that ASECNA provides air navigation services in compliance with ICAO requirements.

3.2 **Status of implementation and operation of the QMS in ASECNA**

3.2.1 The activities carried out are listed below:

- Development of Project for QMS implementation, taking into account the requirements of ISO 9001;
- Updating the Quality Policy of the Director General and the Quality Commitments of the Managers of the various entities;
- Updating decisions on QMS structures;
- Updating general mapping of ASECNA activities;
- Sensitization and training of all stakeholders on the ISO 9001: 2008 requirements, according to the appropriate level;
- Development of QMS Manual;

- Formalization and dissemination of mandatory quality approach procedures;
- Identification, description and deployment of processes related to MET, AIM, ATS, CNS, RFF, including the definition of key quality indicators;
- Quality auditors' training;
- Internal quality audits;
- Dissemination of crucial information for the quality management.

3.2.2 An ISO certification audit was conducted in 2014, in order to review the achievement of the QMS implementation level, according to Resolution No. 2011 CA 120-10 of ASECNA Board meeting.

3.2.3 Since October 2014, ASECNA has achieved ISO 9001: 2008 certification for all its provided services, including the Air Traffic Management (ATM), Aeronautical Information Management (AIM), Aeronautical meteorology (MET), Rescue and Fire Fighting (RFF), Communication, Navigation, Surveillance (CNS), Flight Procedures Design (PANS-OPS), maintenance of infrastructure, equipment and technical installations (including In Flight NAVAID Calibration) and training activities in civil aviation.

3.2.4 This ISO certification is valid until October 2017 following the conclusive results of the follow up audits No. 1 in 2015 and No. 2 in 2016.

3.2.5 The certification deals with all activities of the Agency, and leads its Member States to meet the ICAO requirements related to the implementation of quality management in AIM and MET services.

4. SMS IMPLEMENTATION IMPACT ON SAFETY PERFORMANCES

4.1 In the ASECNA area, there were a total of 1848 safety-related events recorded and analyzed in 2013, a total of 3034 in 2014, a total of 4973 in 2015 and a total of 2355 for the first five months of 2016 (instead of 1965 on the same period of 2015). Thus, the number of safety-related events increased from 2012 to 2016 as follows: 75% from 2012 to 2013, 64% from 2013 to 2014 and 60% from 2014 to 2015. There was an increase of 19.84% over the period January/May 2016 compared to the same period of 2015.

4.2 ASECNA did not establish any objectives concerning safety events increase, but it was expected as a positive response to the gradual introduction of the Safety Culture, including increase in voluntary reporting of safety-related events. As an example; the rate of voluntary reporting of Airprox by Air Traffic Controllers increased as followed: 43% in 2012, 59% in 2013, 74% in 2014 and 83% in 2015.

4.3 The number of Airprox recorded in ASECNA area were as follow: 29 in 2013; 19 in 2014 and 18 in 2015. 3 Airprox were recorded over the period January/May 2016 versus 7 Airprox during the same period in 2015. Thus the number of Airprox decreased by 34% from 2013 to 2014, 5% from 2014 to 2015. The number of Airprox recorded over the period January/May 2016 decreased by 71% compared to the records of the same period in 2015.

4.4 This downward trend of Airprox, despite the increase of the number of safety-related events and the traffic one, is due to the effective implementation of corrective actions plans as identified from the safety-related events analysis, but also to preventive implementation of safety requirements from change safety cases.

4.5 These safety performances were the positive consequences of the effective implementation of SMS, including safety management principles in ASECNA services.

5. INTEGRATION OF MANAGEMENT SYSTEMS: INTEGRATED MANAGEMENT SYSTEM (IMS)

5.1 The implementation of both the SMS and the QMS plans, clearly shows an interdependence and the need for coherence between the two systems. Moreover, achieving a good level of performance always need a risk assessment related to Security and Environment. It is in this context that the Agency is committed to the implementation of an Integrated Management System (IMS): Safety, Quality, Security and Environment.

5.2 This option taken by ASECNA is part of its 2012-2014 Strategic Plan, of which the first major objective is "Improving the safety of air navigation". This option can simultaneously meet the ICAO SARPs in terms of management systems for Safety (SMS), Security (SeMS), Environment (EMS) and Quality (QMS) by pooling resources for the management of the systems.

5.3 The implementation of the system is performed through a "process approach" covering all activities of the Agency. In this IMS, safety remains predominant and quality serves to support the whole system. These processes cover all the requirements of Annex 19 and ISO 9001 (see Appendices 1 and 2).

5.4 In order to effectively achieve the above mentioned objective and, in compliance with its Member States' requirements, which were deriving from ICAO relevant SARPs, ASECNA started integrating SMS and QMS in 2013. Other activities are planned during 2016 for the integration of Security and Environmental aspects into the management system, as respectively required in ICAO Annex 17 and ISO 14001 standard; mainly, ASECNA will develops and implements an environmental management plan and another plan for security management of Technical Installations, buildings and Information System, including standard operational procedures related to each domain.

5.5 In order to meet these challenges and taking into account the perimeters of its activities, ASECNA created the Direction for Controls, Safety, Quality and Environment (DCS), which is in charge of the design, the planning and the coordination of the implementation of its systems management.

6. CONCLUSION

6.1 The implementation of Safety and Quality management systems by an Air Navigation Service Provider is a major challenge in achieving the ICAO Safety Strategic Objective. It requires a lot of commitment from the staff including the Top Managers, and Financial and Human resources.

6.2 From experience, it is clear that management systems such as SMS, SeMS, EMS and QMS have many similarities and are interdependent because the first three systems in the list above use the principles of QMS as support. In addition, the safety performance could be affected by security and

environmental issues. The Integration of these systems may lead to greater efficiency and ensure good performance.

6.3 With regards to the scope of the activities of ASECNA and their dissemination in the 17 Member States, creating a structure in charge of safety management was the more appropriate option for the safety management of such a broad organisation; as result that option allows to effectively deal with all the relevant responsibilities.

7. ACTION

7.1 The Assembly is invited to:

- a) Note the experience of ASECNA in the implementation of safety and quality management systems through an Integrated Management System (IMS);
- b) Note the availability of ASECNA to share its SMS implementation experience with any Air Navigation Service Provider (ANSP) who may wish to have this information;

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