



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE B

- Agenda Item 6.2: Implementation of safety management**
6.2.1 State safety programmes (SSPs)
6.2.2 Safety management systems
6.2.3 Developing safety intelligence

SUPPORT FOR EFFECTIVE SAFETY MANAGEMENT IMPLEMENTATION

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This paper suggests some areas where further work is needed to support the implementation of effective State safety programmes (SSPs) and safety management systems (SMSs) in order to safely achieve the aviation system of the future. These areas include: a) reinforcement of key safety management concepts; b) development of essential safety management competencies; c) development of mechanisms to monitor and assess the effectiveness of SSPs and SMSs; and d) the evolution toward an integrative approach to managing risk. Action: The Conference is invited to agree to Recommendation 6.2/x – Supporting Effective Safety Management Implementation, in paragraph 6, and to suggest other areas for future work to support effective safety management implementation.	
<i>Strategic Objectives:</i>	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives.
<i>Financial implications:</i>	<i>Impact for the aviation community:</i> There is a potential for significant savings if support for SSPs and SMSs implementation is provided in a way that is tailored to the needs of each region so that States and service providers can continue to make progress and achieve the desired outcomes effectively and efficiently. <i>Impact for ICAO (relative to the current Regular Programme Budget resource levels):</i> Since the implementation roll-out of safety management Standards and Recommended Practices (SARPs) will continue over the next triennia, additional resources are required, both financial and human, to support ICAO's efforts in supporting safety management implementation.
<i>References:</i>	Annex 13 — <i>Aircraft Accident and Incident Investigation</i> Annex 19 — <i>Safety Management</i> Doc 9750, <i>2016-2030 Global Air Navigation Plan</i> Doc 9859, <i>Safety Management Manual (SMM)</i> Doc 10004, <i>2014-2016 Global Aviation Safety Plan</i> Doc 10075, <i>Assembly Resolutions in Force as of 6 October 2016</i> Doc 10084, <i>Risk Assessment Manual for Civil Aircraft Operations Over or Near Conflict Zones</i> State letter AN 8/9-18/48, dated 19 April 2018 AN-Conf/13-WP/18 AN-Conf/13-WP/29

1. INTRODUCTION

1.1 The initial establishment of the ICAO Standards requiring States to implement a safety programme adopted in amendments to Annexes 6, 11 and 14 became applicable on 23 November 2006. It is important to note that although these Standards have evolved with the adoption in 2013 of Annex 19 — *Safety Management* and subsequent Amendment 1 which becomes applicable on 7 November 2019¹, the original applicability date of 23 November 2006 for the establishment of a basic SSP continues to apply. Yet, almost 12 years later, very few States have put in place a State safety programme (SSP) or established safety management system (SMS) requirements for service providers which fall under Annex 19 applicability. Although many service providers have implemented SMS, the acceptance and monitoring of the SMS by the regulator remain a challenge.

1.2 The second High-level Safety Conference held in February 2015 (HLSC/2015, Montréal) recommended that States use the ICAO SSP gap analysis tool, found on the ICAO integrated safety trends analysis and reporting system (iSTARS), and the Universal Safety Oversight Audit Programme (USOAP) self-assessment, found on the online framework (OLF), to facilitate the monitoring and implementation of SSP. As of March 2018, 126 States had created an SSP gap analysis project on iSTARS with only three States indicating completion of level 4. In addition, only approximately 30 States have completed at least half of the USOAP SSP-related protocol questions (PQs) on the OLF as a self-assessment. It is important to note that this information is self-reported and is usually found to be optimistic.

1.3 Since 2015, ICAO has also performed voluntary and confidential SSP assessments of six States. These assessments have provided feedback on achievements and challenges related to SSP implementation. Some of the challenges identified include: the coordination amongst relevant State authorities involved in SSP implementation and maintenance; the identification of the top safety risk areas and selection of relevant State safety objectives, safety performance indicators (SPIs) and targets (SPTs); development of safety management competencies; addressing size and complexity aspects in SMS regulations and in the acceptance and monitoring of SMS; the establishment of a safety data collection and processing system (SDCPS); and establishing an effective voluntary safety reporting system. This feedback has assisted ICAO in, among other things, developing a methodology and tools for the assessment of SSP implementation under the USOAP CMA.

1.4 Another recommendation from the HLSC/2015 was that ICAO develop guidance and mechanisms for sharing best practices to support SSP implementation (Recommendation 2/1 refers). Since the completion of the proposal for the amendment of Annex 19, the focus has been on enhancing the guidance material as well as identifying practical examples and tools to support the implementation of effective SSPs and SMSs. State letter AN 8/9-18/48 dated 19 April 2018 announced the availability of the advance unedited version of the fourth edition of the Safety Management Manual (SMM) (Doc 9859) and the complementary Safety Management Implementation (SMI) website (<http://www.icao.int/SMI>) which serves as a repository for the sharing of examples and tools to support safety management implementation, including those related to safety oversight systems in support of the No Country Left Behind Initiative (NCLB). The SMI website will allow multiple examples to support the implementation of SSP and SMS for the diverse aviation community to address size and complexity as well as the range of service providers. The State letter invited States and international organizations to nominate a focal point for the submission of examples and tools for validation and subsequent posting on the website. The finalized SMM is scheduled for publication in the third quarter of 2018. The summary of the changes in the fourth edition of the SMM is posted on the SMI website introduction page.

1.5 Between October 2017 and May 2018, ICAO delivered four Regional Safety Management Symposia and Workshops with the theme “The Journey to Achieving Effective Safety Management” tailored to each region and aimed at sharing the concepts highlighted in the fourth edition of the SMM. Feedback gathered during these events reinforced the need to provide additional implementation support to States.

1.6 During the first Safety and Air Navigation Implementation Symposium (SANIS) held from 13 to 15 December 2017 in Montréal, Canada, several areas were highlighted where further support is needed to achieve effective implementation of SSPs and SMSs and to safely address the rapid technological changes, increasing complexity and innovative approaches taking place in the aviation industry. These areas include the reinforcement of key safety management concepts, the development of essential safety management competencies, the development of mechanisms to monitor the effectiveness of SSPs and SMSs, and the evolution toward an integrative approach to managing risk.

¹ The 2019 applicability date only pertains to the changes introduced with Amendment 1 to Annex 19.

2. KEY SAFETY MANAGEMENT CONCEPTS

2.1 The fourth edition of the *Safety Management Manual (SMM)* (Doc 9859) highlights the following key concepts which are considered important for achieving effective safety management implementation:

- a) implementation of SSP/SMS tailored to each organization and focused on achieving the intended outcomes rather than simply complying with the requirements;
- b) identifying internal and external interfaces which can have an impact on the safety performance of the organization for both States and service providers, as well as the evolving interface between States and service providers in a safety management environment;
- c) formal processes for the management of change to ensure that any risks that may be introduced with the change are properly assessed and mitigated, if needed; and
- d) the development of safety intelligence which is concerned with leveraging safety data and safety information to develop actionable insights which can be used by an organization's leadership to make data-driven decisions including those related to the most effective and most efficient allocation of resources.

2.2 These concepts as well as appropriate activities to create awareness and promote the development of a positive safety culture need to be reinforced through specific initiatives tailored to each region to ensure that the implementation of SSPs and SMSs enables the future global air transport system.

3. ESSENTIAL SAFETY MANAGEMENT COMPETENCIES

3.1 The effective implementation of safety management requires new competencies across all sectors of the aviation system, from top-level management to operational personnel. Until recently, the main focus had been on the development of civil aviation safety inspector competencies which should reflect the changing relationship between civil aviation authorities (CAAs) and industry. With the need for a tailored approach to safety management, in addition to inspector competencies, there are new competencies required of CAAs, as well as managerial and leadership competencies that must also be addressed. There is also a need to provide aviation decision-makers with the awareness and vision of how aviation safety management can support their organization in achieving its wider goals.

3.2 Different mechanisms are needed to develop the competencies required for each role within the CAA.. At the organizational level, this will likely require additional information technology capabilities for the collection and processing of safety data and safety information, as well as competencies for safety data analysis. In addition, legal expertise is needed to ensure that the provisions for the protection of safety data, safety information and related sources are correctly applied. The aviation community should also take advantage of more modernized means of competency development, including computer-based training, webinars, simulation, etc. In addition, safety promotion activities are often neglected and can be an effective means of communicating key messages to specific audiences. Another option for States lacking resources with the necessary competencies is to delegate specific functions or tasks under the SSP to another State, regional safety oversight organization (RSOO) or other competent organization.

4. ASSESSING AND MONITORING SSP/SMS EFFECTIVENESS

4.1 Various checklists and questionnaires have been developed to assess SSP and SMS. Most take a prescriptive approach to determining if an organization has implemented a specific aspect of SSP or SMS which is familiar to auditors and inspectors. However, if we are to reap the benefits of a safety management approach, it is critical that we move away from insisting that SSP or SMS be implemented in a specific way and focus more on assessing whether the objectives for each activity or process are being achieved. In addition, it is important to determine if the various processes and activities are appropriately linked (e.g. link between the safety risk management process and the monitoring of safety performance indicators) to enable the achievement of the overall safety objectives of the organization.

4.2 It is important to put in place mechanisms for monitoring the effectiveness of SSP and SMS. This would most readily be accomplished through a close to real-time monitoring of appropriate safety performance indicators at the State and service provider levels. This information could also be used by ICAO to identify the appropriate timing of a Universal Safety Oversight Audit Programme (USOAP) activity. At the State level, it would support the evolution of surveillance activities to include safety performance monitoring and the use of a risk-based approach for the planning of inspections.

5. INTEGRATIVE APPROACH TO MANAGING RISK

5.1 Successful risk management in aviation seeks to reduce the overall risk of the system, including risks related to different functional areas such as safety, security, environment and finance. Although ICAO has developed frameworks for the management of aviation safety risks at the State and service provider levels and for the management of aviation security risks at the State level, to date, there is no guidance for States on how to integrate the management of these risks or those related to environment and finance. Challenges to successfully addressing risk using an integrative approach include dealing with different regulatory frameworks, change resistance and different cultures across different technical domains and different government entities.

5.2 One recent effort in this area has been the second edition of the *Risk Assessment Manual for Civil Aircraft Operations Over or Near Conflict Zones* (Doc 10084) which includes guidance to States, service providers and other entities regarding risk assessments for civil aircraft operations over or near conflict zones. The manual provides guidance on how to perform a security risk assessment as well as a safety risk assessment and addresses the unintended consequences of any threat mitigation action that may create additional hazards to civil aircraft operations. However, further work is needed to provide broader guidance that can be applied to a wider range of situations that require an integrative approach to managing risk.

6. CONCLUSION

6.1 The aviation community has always strived for the highest levels of safety which the public has come to expect. While an impressive safety record has been achieved, ensuring the safe and orderly development of the global aviation system is a continuous, ongoing effort. Acknowledging the challenges States and industry are facing in achieving the implementation of effective SSPs and SMSs, the Conference is invited to agree on the following recommendation:

Recommendation 6.2/x – Supporting Effective Safety Management Implementation

That the Conference

- a) urge States and international organizations, to identify focal points for the submission of practical examples and tools to be reviewed, validated and posted on ICAO's Safety Management Implementation Website as a means of sharing successful experiences with the aviation community;
- b) request ICAO to develop initiatives tailored to each region with inputs from the RASGs in support of the Global Plans, goals and targets with a focus on the effective implementation of SSPs and SMSs at the State and service provider levels, respectively, including the development and/or the delegation of the required safety management competencies to recognized safety oversight organizations;
- c) request ICAO to further support the development of appropriate harmonized safety performance indicators (SPIs) at the State and service provider levels and explore the development of means to monitor the effectiveness of SSP and SMS on a more real-time basis;
- d) request ICAO to develop guidance material to support an integrative approach for the management of risk; and
- e) request ICAO to update, for adoption by the 40th Session of the Assembly, Assembly Resolutions related to safety management to reflect Amendment 1 to Annex 19, as well as Amendment 15 to Annex 13 — *Aircraft Accident and Incident Investigation*, with consideration given to an overarching safety management Assembly Resolution to complement Assembly Resolution A39-12, Appendices A and B, related to the Global Aviation Safety Plan (GASP) and Global Air Navigation Plan (GANP) in order to focus the attention of States on key aspects of achieving effective SSP implementation.

— END —