

**54<sup>th</sup> CONFERENCE OF  
DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGION**

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**AGENDA ITEM 3: AVIATION SAFETY AND  
AIR NAVIGATION**

**SAFETY MANAGEMENT MEASURES**

(Presented by the People's Republic of China)

**SUMMARY**

According to International Civil Aviation Organization (ICAO) Annex 19 — Safety Management, the contracting states are required to promote the implementation by service providers of Safety Management System (SMS). The Civil Aviation Administration of China (CAAC) firmly follows ICAO requirements, and has been carrying out in recent years SMS audits, pilot activities in and promotion of safety performance management, as well as research and application of safety oversight toolkits.

SMS audit is used to evaluate the maturity in terms of the implementation of SMS by service providers, safety performance management, as an initiative aimed at strengthened in-depth implementation of SMS. It has already become a practice in the industry, and produced excellent results. Safety oversight toolkits are designed to collect law-enforcement information which will be used for overall evaluation of the service providers, leading to the implementation of more efficient measures.

## **SAFETY MANAGEMENT MEASURES BY CAAC**

### **1. INTRODUCTION**

1.1 This paper presents a series of measures taken by CAAC in recent years in the area of the continuous implementation and effective oversight of Safety Management System (SMS) and the subsequent outcomes, and puts forth recommendations with respect to the implementation and continuous oversight of SMS.

1.2 In addition to evaluating the compliance of SMS with regulations concerned, SMS auditing or SMS maturity evaluation conducted by CAAC mainly focus on evaluating the effectiveness of SMS implementation and the capability of organizations in achieving safety performance. In recent years, CAAC conducted SMS maturity evaluations of approximately 30 service providers, which produced significant results in boosting continuous improvement of SMS.

1.3 In recent years, CAAC conducted pilot safety performance management and achieved valuable outcomes, as well as fully promoted the implementation plan of safety performance management. Through these activities, CAAC strived to realize a transition from regulations-compliance based management to regulations-based safety performance management.

1.4 CAAC developed safety oversight toolkits, a safety oversight evaluation and decision-making tool, which, on the basis of consolidating all available safety oversight toolkits and methods applicable to various operation systems, conducted research into supporting decision-making tools used in comprehensive assessment based on the investigation of unsafe events, to step up industry regulation.

### **2. DISCUSSION**

#### **2.1 SMS Auditing/Maturity Evaluation**

2.1.1 In 2011, CAAC launched pilot SMS maturity evaluation, and has so far carried out audits in over 30 airlines and airports, which included, among others, documents audit, on-the-spot audit and questionnaire, and could be used to evaluate the effectiveness of SMS implementation by taking into account both safety management and the actual operation of service providers.

2.1.2 Document audit refers to the evaluation of document system prior to on-the-spot audit; on-the-spot audit refers to the evaluation of the implementation and effectiveness of various safety management activities mainly by means of record checking, interviewing, relevant references research, etc.; in particular, the audit will focus on flight quality monitoring conducted by airlines, Service Difficulty Report, airport movement area management, bird strike management and sub-contractors management, to evaluate the implementation of SMS. Questionnaire survey can provide a direct information on the implementation of safety policies and procedures, as well as corporate safety culture.

2.1.3 Subsequent to on-the-spot audit, the auditors will develop audit report based on the audit conducted, which will indicate the specific issues identified, make a causal analysis, and offer specific recommendations on improvement. Through auditing, the level of SMS implementation by service providers is evaluated along with existing issues and deficiencies, thus significantly facilitating the development and implementation of SMS.

2.1.4 To make it more convenient to conduct SMS auditing and make more efforts in audit data statistics, CAAC launched research and development efforts in SMS audit tool system, which comprises server and on-the-spot audit tool. The main functions include maintenance of audit checklist, management of audit tasks, auditor management, statistical analysis of audit data; on-the-spot auditing uses PAD electronic checklist whose main functions include on-the-spot audit results documentation, audit schedule management, etc. The server and client terminal are connected via wireless network connection, transmitting audit task, audit checklist, and audit data.

## 2.2 Safety Performance Management

2.2.1 Since 2013 when Annex 19 — Safety Management and Doc 9859 — Safety Management Manual (3<sup>rd</sup> edition) were issued, CAAC has conducted more thorough research on and summed up the concept, technical methodology and practical experience of safety performance management. Safety performance management is intended to monitor the risk level of service providers, validate the effectiveness of SMS implementation and achieve the level of safety performance set by service providers.

2.2.2 During 2014-2016, CAAC conducted pilot safety performance management activities successively in 13 selected airlines and airports as part of its exploration and practice in safety performance management, which resulted in a set of moderately mature safety performance management procedures and methods.

2.2.3 In April 2017, CAAC issued the Plan on Promotion of Civil Aviation Safety Performance Management and the Guidance Manual on the Safety Performance Management at Civil Aviation Production and Business Operation Entities (MD-AS-2017-01), conducted industry-wide training and moved forward with safety performance management, with a view to improving the capability of service providers to collect and analyze safety information and monitor safety performance.

## 2.3 Development of Safety Oversight Toolkits

2.3.1 CAAC's safety oversight toolkits mainly comprises of evaluation tools and decision-making tools: evaluation tools are supervision tools used by various CAAC departments to evaluate the status of operation in civil aviation production and business operation entities, which are independently managed and used by various CAAC departments, and which include Flight Standard Oversight Program (FSOP) by the Department of Flight Standard, CAAC, and SMS audit system by the Office of Aviation Safety; decision-making tools, as a tool used to support making decisions on penalizing the acts of rules violation or attributable severe unsafe event, can assist CAAC in making safety related decisions. These two kinds of tools enable CAAC to have access to a variety of management methods, including compulsory administrative measures, administrative penalty, administrative licensing, economic means, administrative summons, disciplinary means, credit management, as well as joint disciplinary actions.

2.3.2 Decision-making tool is designed to activate under certain conditions, such as in case of occurrence in civil aviation industry of severe incidents or safety-critical events. Such tool is used to assist civil aviation authority in making decisions on penalizing unsafe events, by obtaining key information (such as event type, property loss, casualties) from the results of event investigation to calculate the value of event severity, and analyzing the causes of relevant events (such as rules violation, mistakes and force majeure) and the behavior of honesty and credibility in the course of events to make an overall determination on the methods and extent of punishment available.

2.3.3 Safety oversight toolkits are exploratory efforts made by China civil aviation to step up industrial regulation, and will be improved on an on-going basis in the near future.

## 3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this paper:

- a) ICAO should conduct follow-up research on an on-going basis, organize training sessions and experience exchanges, and learn from the practical experiences and best practices adopted by other administrations; and
- b) ICAO shall sum up the methods, experience and lessons of the contracting states in safety performance management, harmonize the concept and specific practices

regarding safety performance management, develop guidance on safety performance management, and guide contracting states in their safety performance management in a scientific and standardized fashion. In addition, the requirements in 2.2 of Attachment A to Annex 19 on the agreement between the state and individual service providers on the safety performance of their SMS is recommended to be further clarified and improved as relevant guidance included in the requirement is not clear enough.

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