FIFTEENTH MEETING OF THE ASIA PACIFIC REGIONAL AVIATION SAFETY TEAM (APRAST/15)

Bangkok, Thailand, 24 to 25 June 2020 via Video Conference

Agenda Item 4: **Presentations – State / Industry / ICAO (Issues arising from the COVID-19 Pandemic could be a focus for the WP/IP)**

ESTABLISHMENT AND MONITORING OF STATE SAFETY PERFORMANCE INDICATORS IN CHINA

(Presented by People's Republic of China)

SUMMARY

Civil Aviation Administration of China (CAAC) is currently carrying out research on state safety performance monitoring indicators, monitoring methods and tool development to establish acceptable level of safety performance across the industry and provide methods and tools for all-round and multi-dimensional monitoring of industry safety performance. CAAC is willing to share experiences and practices with other countries to promote the development of safety performance management.

1. INTRODUCTION

1.1 ICAO Annex 19 requires all countries to establish State Safety Programme to manage aviation safety, in order to achieve acceptable level of civil aviation safety performance. State Safety Programme should be consistent with the scale and complexity of aviation activities in the country. On February 15, 2015, CAAC promulgated State Safety Programme of China relating to Civil Aviation.

1.2 Safety performance management is central to the functioning of SSPs and SMSs. The safety performance management process can be used to establish and monitor the safety performance level of the industry and service providers.

1.3 CAAC started to promote safety performance management of service providers in 2009. Up to now, most types of service providers in China have started to implement SMS and continuously improved safety performance management to monitor the safety performance of the organization and verify the effectiveness of risk control measures.

1.4 CAAC has started the construction of state safety performance monitoring system since 2018. At present, the safety performance monitoring indicator system has been established, as well as an effective safety performance data analysis and early warning method. In the future, an early warning system for civil aviation safety performance analysis will be developed, and the performance-based safety oversight mechanism will be established.

1.5 State safety performance monitoring of China fully considers the key safety issues and implementation of safety measures identified in the *Global Aviation Safety Plan (2020-2022)* and the *Asia-pacific Regional Aviation Safety Plan (2020-2022).* At present, CAAC is carrying out three-year special rectification actions for civil aviation safety, and has formulated implementation plans from the

general administration to the regional administration. The state safety performance monitoring will carry out the monitoring and early warning research on the industry safety performance from the aspects of key operation risks, the state's oversight capability, implementation and effect of important safety measures and the support provided to service providers.

2. DISCUSSION

2.1 CAAC has carried out a lot of work in promoting safety performance management of service providers since 2009. From 2014 to 2016, CAAC selected 12 service providers to carry out safety performance management, guide them to establish safety performance indicator system and conduct safety performance monitoring. In April 2017, CAAC issued the *Promotion Plan for Safety Performance Management of Civil Aviation* and the *Guidance Manual for Safety Performance Management of Civil Aviation Service Providers*, which standardized the work of safety performance management, required to continuously strengthen the implementation efficiency of SMS, improve the safety performance management mechanism, establish a long-term safety management mechanism driven by data and focused on risk management, and improve safety management and safety oversight efficiency.

2.2 Compared with service providers, the scope of state safety performance management is broader and more complex, including the safety performance of service providers, the state's oversight capability, implementation and effect of important safety measures and the support provided to service providers.

2.3 In addition, in order to achieve industry safety performance management and comprehensive monitoring and early warning of industry safety status, it is necessary to obtain many kinds of industry safety data and carry out comprehensive analysis and utilization, including service provides' safety performance data, industry safety information and industry oversight data. However, at present, industry operation data is distributed in different operation systems, so it is difficult to obtain and integrate information.

2.4 The construction idea of CAAC's state safety performance monitoring and early warning system is as follows: firstly, key operation risks, the state's oversight capability, implementation and effect of important safety measures and the support provided to service providers are comprehensively considered, and the existing safety information management systems of CAAC are fully utilized to establish a complete state safety performance monitoring indicator system. Secondly, to carry out the research of safety performance data analysis and monitoring and early warning methods, so as to provide method support for the monitoring and early warning of all levels of the civil aviation industry; finally, to build the civil aviation safety performance analysis and early warning system, develop the interactive information management system based on internet technology, and form a data-driven safety performance-based oversight mechanism, so as to provide decision support for precise industry oversight.

2.5 Construction of safety performance monitoring indicator system.

a） Develop safety objectives. The safety objectives include controlling operation risk and strengthening operation process control. The operation risk mainly reflects the overall operation safety level of the industry, mainly including core risks such as CFIT and LOC-I, and can be adjusted according to the change of international and domestic safety concerns. The operation process control mainly reflects the risks in the industry management, which is used to reflect the management ability of the industry.

b） Establish indicator system. Based on the safety principles such as accident cause theory and actual deviation theory as the design theoretical basis of indicators, referring to the ICAO guidance document (DOC9859) and the concept of safety performance management of operators, a rich and multi-dimensional industry safety performance indicator system is established, and the operation risk category is set (which can be divided into safety result category, operation process category), as well as process control category(which can be divided into safety management category and safety foundation category) to realize comprehensive monitoring of industry safety status from process and result, supervision and operation, resources and guarantee.

c） Operational risk indicators. Combined with global safety priorities and CAAC safety information statistics, CFIT, LOC-I, runway safety (including runway excursion, runway invasion, runway confusion), mid-air collision, ground support and other event types are taken as industry operation risk indicators

d） Process control indicators. Process management and control indicators include the audit results of USOPA, the state's oversight capability, implementation and effect of important safety measures, SMS maturity and operation basis.

e） Access to safety performance monitoring data. Make full use of existing safety information data systems of CAAC, such as Aviation Safety Information System of CAAC (ASIS), China Civil Aviation Flight Quality Monitoring Service Platform (FQMSP), and Flight Standards Oversight Program of CAAC (FSOP), to ensure that safety performance indicators can be quantified, measured and continuously obtained.

2.6 Research on data analysis, monitoring and early warning methods. CAAC has established a set of effective safety performance data analysis and early warning methods, including statistical analysis method of safety performance monitoring data, single performance indicator early warning method, multi indicator comprehensive early warning method, etc., to meet the performance monitoring and early warning needs of CAAC and service providers at different levels.

2.7 Civil aviation safety performance analysis and early warning system construction. Based on the above work, CAAC will carry out the design and development of safety performance analysis and early warning system for civil aviation industry. After the completion of the system, through the visual display of the industry safety performance data, it can display the comprehensive safety performance of the industry, typical risks, operation risks of various specialties and other different dimensions and levels of safety performance level, and provide support for the monitoring and early warning of the safety performance level in China.

3. ACTION BY THE MEETING

3.1 CAAC is willing to discuss and share ideas and methods of state safety performance management with other countries, and establish methods and standards of state safety performance management with ICAO.

3.2 In terms of the establishment and monitoring of state safety performance indicators, there is a lack of practical guidance documents. It is suggested that ICAO should further strengthen the discussion and cooperation in this regard, promote the safety management based on safety performance, and improve the accuracy and effect of state oversight.

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