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WORKING PAPER

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

HOW THE AIG CAN CONTRIBUTE TO THE IMPLEMENTATION OF THE SSP

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

This working paper presents a proposal to enhance the linkages between the accident and incident investigation (AIG) and the State Safety Programme (SSP) functions through revising the air accident investigation and safety management system provisions in Annex 13 — *Aircraft Accident and Incident Investigation* and Annex 19 – *Safety Management*, and the associated guidance material. It also urges States to share information, knowledge, and experience in the SSP-related functions by utilising the ICAO web-based integrated Safety Trend Analysis and Reporting System (iSTARS), or any other dataset that can facilitate data and information exchange and storage.

Action: The assembly is invited to:

a) note the contents of this working paper;
b) request that ICAO require the existing AIG and safety management system (SMS)/SSP panels and expert groups to take into account the development of provisions, policies, and guidance material to enable States to enhance the linkages between the AIG and the SSP functions. This may require to address revising Annexes 13 and 19, and their associated documents, and AIG-related Protocol Questions (PQs) of ICAO SSP implementation assessment under the USOAP; and
c) encourage States to regularly share information, knowledge, and experience in their SSP safety risk management, with all its elements including the AIG functions, and utilize for this purpose the ICAO web-based integrated Safety Trend Analysis and Reporting System (iSTARS), or any other dataset that can facilitate data and information exchange and storage.

Strategic Objectives:	This working paper relates to the Safety Strategic Objective.
Financial implications:	Not applicable
References:	Doc 9756 − *Manual of Aircraft Accident and Incident Investigation*, Part I — *Organization and Planning*, Part II — *Procedures and Checklists*, Part III — *Investigation* and Part IV — *Reporting* Doc 9859 – *Safety Management System*

1. INTRODUCTION

1.1 From the beginning of the 21st century, *a total system* approach has begun to evolve across the aviation industry and at State level, so that the Safety Management System (SMS) and State Safety Programme (SSP) have been implemented with efficiently integrated data collection and analysis capabilities with clear pre-set safety performance indicators and targets.

1.2 "*However, safety systems to date have focused largely on individual safety performance and local control, with minimal consideration for the wider context of the total aviation system. This has led to a growing recognition of the complexity of the aviation system and the different organizations that play a part in aviation safety. There are many examples of accidents and incidents showing that the interfaces between organizations have contributed to negative outcomes*." (Paragraph 2.1.4 d) of ICAO Doc 9859).

1.3 It becomes essential now to enhance linkages between Annexes 13 and 19 in more than one dimension. The objective being to integrate efforts at the State-level in order to achieve the high-level investigation objectives aimed at improving safety. The current linkages are not explicit, and there are no specific provisions in either Annex to explain and promote such linkages.

1.4 State accident investigation is one of the main elements of State-level safety risk management, and this risk component requires basic coordination between the State accident investigation authority (AIA) and the body responsible for the State Safety Programme (SSP). In particular, risk-based analysis needs to be considered very carefully by the State.

1.5 One example of linkage between Annexes 13 and 19 relates to safety recommendations. Annex 13 (Standards 6.11 and 6.12) requires that the State shall have a system to monitor the safety recommendations it issues during an investigation, or in the Final Report. For a safety recommendation to be effective, it should identify the risk, the risk controls, how it failed, and recommend remedial action.

2. DISCUSSION

2.1 Annex 13 requires States to investigate accidents, serious incidents, and selected incidents according to the State's national requirements. In this aspect, the State has the responsibility of determining the need for an investigation of an occurrence and the scope of that investigation. Rather than the obligation of investigating accidents and serious incidents (for certain criteria), the decision to investigate an incident is based on the assessment of the risk exposure associated with the occurrence.

2.2 In the hazard identification, the *reactive* methodology is a particularly important part of safety risk management. Through indications found during the course of accident and incident investigation, hazards will be more clearly defined. Investigations that provide in-depth analysis, which establish root causes, will contribute significantly to the enhancement of safety, whereas investigations that do not proceed beyond a basic level of causation will limit the value of the investigation.

2.3 The management of the SSP is a State multi-aviation agency responsibility and, in most States, the national civil aviation authority is responsible for the implementation of the largest part of the SSP. The AIA responsibility to the SSP is achieved by linking accident causation to SSP-related factors. The investigation outcomes should be integrated with the other SSP elements through a provision for AIA representation on the SSP coordination group.

2.4 This interlink is supported by Recommendation 5.2.2 of Annex 19 which considers the Final Reports as an additional source to be used to monitor the implementation of preventive actions for actual or potential safety deficiencies. A significant point of intersection is the input that comes from investigations to the safety data collection and processing systems (SDCPS) required by Annex 19. These systems facilitate the analysis of information related to actual or potential safety deficiencies.

2.5 The Final Report forms the foundation for the AIA to document the conclusions on safety risks and issue safety recommendations. Therefore, transmitting the Final Reports, which contain the safety recommendations, to the concerned States and to ICAO, allows the AIA to support the SSP database. The same applies to the ICAO repository of Safety Recommendations of Global Concern (SRGC).

2.6 Communicating safety recommendations is not limited to the Final Report, and the form and timing of a safety recommendation communications is influenced by the degree of risk associated with the underlying safety issue. However, releasing the Final Reports provides an alternative opportunity for States that have small databases to utilize the internationally available sources for their hazard identification and safety risk management.

2.7 For the *total system* investigation philosophy, the AIA needs to consider many capabilities to achieve the objectives of the investigation. Among these capabilities are:

- *Effective legislation* that gives authority to the AIA to collect data relevant to human and organisational factors that are considered the cornerstone of any SSP-driven investigation. The AIA investigators should be empowered to review the records of the organisation including those of the most senior level of management for the sake of identifying hazards related to organisational culture, management dilemma, and management commitment to safety. To identify these organisational aspects, the investigators should be empowered to examine human factors data sources, which may require reviewing personal files that may be classified as confidential in some States.
- *Training* the investigators to become competent in the necessary safety risk analysis functions. The traditional training for investigators will not improve their competence in human and organisational factors investigation. This does not mean that investigators need to be trained to a human factors specialist level, but the training provided should enable the investigators to determine when they need the assistance of a human factors specialist.
- Effective *guidance material* is essential to identify and analyse all hazards related to the safety management interfaces among the organisations that had an operational role in the occurrence. The identification and analysis of hazards should consider the organisational factors of each organisation involved in the occurrence and how the safety management system identified and mitigated deficiencies in organisational safety management. The investigation should not stop at the human interactions, but should cover how the culture, the management commitment to safety, and contextual factors interact with each other to potentially generate new hazards.
- States are required to ensure the *effectiveness of the preventative actions* based on their safety recommendations. Setting key performance indicators may be a good tool for the measurement of safety recommendations effectiveness.

2.8 To globalise the need to strongly link the aircraft accident and incident investigation with the SMS/SSP, it is essential that ICAO improves the investigation guidance material towards risk management. Special consideration should be given to improve the safety recommendations monitoring and implementation records (required by Annex 13, 6.11 and 6.12) to include information of hazard identification, risk controls deficiencies, and recommended remedial actions. This shall be in the records of the State issuing the safety recommendation as well as the State to which a safety recommendation is addressed.

2.9 Having the States' safety recommendations monitoring system improved, and by releasing the Final Reports with its contents of safety risk analysis and conclusions, and with the ICAO repository of SRGC; the capabilities of States in hazard identification and risk management activities will be improved by widening the database and making data more valid for a State-level risk analysis.

2.10 For the AIG and SSP interlink to be more effective, the guidance material in Doc 9756 and Doc 9859, need to be improved by showing areas and models of AIG-SSP interface, highlight responsibilities of States involved in an investigation and their roles in regards to safety recommendations implementation, and establishing a platform of dialogue among the States of involvement. The ICAO web-based integrated Safety Trend Analysis and Reporting System (iSTARS), when modified as needed, is a good platform for States to have this kind of dialogue and to enhance their safety risk management database and analysis capability.

2.11 It is essential to improve the AIG-relevant SSP Protocol Questions (PQs) in the ICAO SSP implantation assessment under the framework of the Universal Safety Oversight Audit Programme (USOAP). This may need to expand the scope of the PQs to cover the capabilities mentioned in paragraph 2.7 of this working paper in addition to the current three PQs relevant to: Developing investigator competencies; guidance material; and the extent of addressing safety management-related aspects of investigations.

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