ICAO **TENTH MEETING OF THE REGIONAL AVIATION SAFETY GROUP - ASIA PACIFIC REGIONAL (RASG-APAC/10)**

(Bangkok, Thailand, 17-18 December 2020 on Virtual Platform)

Agenda Item 5: ICAO / Member State / Industry Presentations

TRANSTION TO THE SAFETY RISK-BASED OVERSIGHT APPROACH

(Presented by the Republic of Korea)

SUMMARY

ICAO presents the concept of a Safety Risk Based Surveillance (SRBS) approach in Annex 19 and ICAO Doc 9859 and requires Contracting States to implement risk-based safety oversight through safety data analysis. The Republic of Korea (ROK) is currently moving towards the risk-based oversight approach that intensively analyses and manages potential risks to comply with the SRBS recommended by ICAO. The ROK encourages Member States to note the significance of the SRBS approach and promote its implementation, while highlighting the necessity of risk profile establishment, risk identification, analysis and prioritization process for its successful implementation.

1. INTRODUCTION

1.1 International Civil Aviation Organization (ICAO) presents the concept of a Safety Risk Based Surveillance (SRBS) approach in Annex 19 (Safety Management) and ICAO Doc 9859 (Safety Management Manual) and requires States to implement risk-based safety oversight through safety data analysis and utilization, focusing on priority air navigation areas and service providers.

1.2 The use of reliable and meaningful safety data as a source of safety indicators, risk management indicators, and scoring by service providers will contribute to the identification and analysis of vulnerabilities and determination of priority group, and to the management of vulnerable areas. The move is also expected to significantly improve the quality of communication between regulatory bodies and service providers.

1.3 The European Union Aviation Safety Agency (EASA) performs safety oversight through an appropriate combination of Risk Profiles and Safety Performance. Based on the risk profile and safety assessment, the oversight plan and cycle for each service provider are determined, and the oversight cycle is continuously adjusted to enhance the efficiency. Then, the primary oversight efforts are assigned in order of priority requiring intensive monitoring based on the results of the risk assessment.

2. DISCUSSION

2.1 The ROK is in transition towards the implementation of a risk-based oversight approach that intensively analyses and manages potential risks in its effort to comply with the safety risk-based surveillance (SRBS) recommended by ICAO.

2.2 Since 2020, the government has been drafting guidelines for a safety oversight assessment that outline the procedures of identifying, analysing, and prioritizing major safety risks using risk profiles, shifting away from the conventional uniform approach applied for all service providers.

2.3 The implementation details and procedures are provided below.

2.3.1 [Classification and collection of safety data]

The types and characteristics of safety data are identified and collected. The methods of collecting safety data are reactive, proactive, and predictive. Safety data can be obtained mainly through operational performance monitoring through implementation of the safety management system (SMS), inspection/audit/surveys, and safety studies and reviews.

2.3.2 [Safety Indicators selection]

Safety Indicators are crucial components of data-driven decision-making to assess the achievement of objectives in various areas. Therefore, it is essential to develop, harmonize, formalize and manage those indicators. The ROK selected a total of 44 indicators (32 lagging and 13 leading indicators) through the analysis of risk profiles of service providers subject to oversight (see Appendix).

a) Lagging Indicator – The indicators are selected based on safety data (accident, serious incident, etc.) and are differentiated into four levels (high/medium/low/warning levels) depending on their severity.

b) Leading Indicator – It is used as a prevention (promotion) index and is selected based on hazard identification, remedial measures and internal voluntary reporting.

2.3.3 [Safety Scoring, risk rating and prioritization]

The risk score of each service provider is calculated as follows, and the risk rating is determined according to the risk score, through which the priority of safety oversight and intensive inspection items are determined.

Service Provider Risk Score = Number of Occurrence X Risk Weight

<Example>

Risk rating	Risk score	Oversight Frequency
High	30~45	Twice a year (Once in the first half, Once in the second half)
Medium	15~30	Once a year
Low	0~15	Once every two years (One year grace period)

2.3.4 [Determination of special oversight service providers]

Any service provider who falls under any of the following shall be subject to special inspection in addition to regular inspection:

a) Service provider with a risk rating of "high".

b) Service providers whose safety targets are exceeded as follows:

- Monthly standard value of safety indicator is exceeded once (Average of past year + 3SD)
- Monthly standard value of safety indicator is exceeded twice or more consecutively (Average of past year + 2SD)

- Monthly standard value of safety indicator is exceeded three or more consecutively (Average of past year + 1SD)

c) A service provider whose high-risk rating occurs in a particular field;

d) Two consecutive medium-risk rating occur in a particular filed.

2.3.5 [Validation of risk-based oversight activities]

Following the validation of the safety data, the oversight approach is implemented after a trial operation (approximately 3 months) that involves safety data analysis, risk-based priority selection, and intensive oversight. In the meantime, the effectiveness and appropriateness of the safety indicators used are also examined and managed on a periodic basis.

2.4 In the future, the ROK plans to establish an automatic analysis system using the database of risk profile and safety data for effective risk-based safety oversight.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) encourage States to note the importance of risk-based approach and promote its implementation; and

c) subscribe to the necessity of risk profile establishment, risk identification, risk analysis, and prioritization process for the successful implementation of safety risk-based surveillance approach

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APPENDIX

Air Navigation Service Provider safety risk contents and rating

Rating	Safety Risk Contents	ANSP	Score
High Risk	1. Near Miss (less than 500ft)	ACC/APP/TWR	20
	2. CFIT (Controlled Flight Into Terrain)	ACC/APP/TWR	
	3. Runway Incursion Category A/B	TWR	
	4. Invade Take-off/Landing protection area related to wrong ATC clearances or instructions	TWR	
	5. Intend to take-off /aborted take-off or intend to landing/give up landing from/into runway occupied by other aircraft	APP/TWR	15
	6. Unqualified controller(physical examination/currency/EPTA not valid) performs work	ACC/APP/TWR	
	7. Violation of prohibited area	ACC/APP/TWR	
Medium Risk	8. Standard separation minimum violation (include ACAS RA)	ACC/APP/TWR	10
	9. Minimum airspace separation violation	ACC/APP/TWR	
	10. MVA violation	ACC/APP	
	11. Communication failure (Interruption of communication during ATC)	ACC/APP/TWR	
	12. Poor handling of ATC equipment failure	ACC/APP/TWR	
	13. Missed approach due to ATC	TWR	
	14. Aborted take-off due to ATC	TWR	
Low Risk	15. Runway Incursion Category C/D	TWR	5
	16. Error of Runway visual check	TWR	
	17. Poor operation of Air traffic control equipment	ACC/APP/TWR	
	18. Communication error between controller and pilot	ACC/APP/TWR	
	19. Communication error between controller and controller	ACC/APP/TWR	

	20. ATC instruction error	ACC/APP/TWR	
	21. Use of incomplete/inaccurate/inappropriate ATC terms	ACC/APP/TWR	
	22. Provision of the air traffic service without considering dangerous weather condition	ACC/APP/TWR	
	23. Unidentified RVSM clearance	ACC/TWR	
	24. Failure to comply with inter-controller cooperation procedures	ACC/APP/TWR	
Alert	25. Action error for air traffic system safety warning	ACC/APP/TWR	3
	26. Report on dissatisfaction of air traffic service	ACC/APP/TWR	
	27. Error of air traffic situation awareness (surveillance)	ACC/APP/TWR	
	28. Error of Chart and Manual	ACC/APP/TWR	
	29. Threats of airport facility, air traffic facility and environmental factor	ACC/APP/TWR	
	30. Incomplete working shift	ACC/APP/TWR	
	31. Error of automation system input	ACC/APP/TWR	
Leading Indicator	1. Safety Self Review/Assessment - Remedial measures through review and evaluation of organization regulations, operation and technical/qualification certificates and implementation of education and training;	ACC/APP/TWR	5
	2. Safety Assessment - Identify risk factors by sector and prepare mitigation measures prior to major changes, and take remedial measures as appropriate to ensure safety	ACC/APP/TWR	
	3. Safety Risk Assessment - Keep risk factors below an acceptable level of safety through identification, assessment, and management of existing or latent hazards in an organization's operational environment.)	ACC/APP/TWR	
	4. Internal Audit - =Improve deficiencies and take follow-up measures through the assessment of suitability and effectiveness of SMS implementation, alongside the organization’s compliance with safety regulations	ACC/APP/TWR	
	5. Hot Spot designation and management (periodic risk assessment)	ACC/APP/TWR	3
	6. Hot Spot safety management activity	ACC/APP/TWR	
	7. Submit the Internal voluntary report (differentiated as per organization size)	ACC/APP/TWR	

	8. NOSS Implementation	ACC/APP/TWR	1
	9. Risk and error identification based on NOSS results	ACC/APP/TWR	
	10. Survey on the promotion of safety culture	ACC/APP/TWR	
	11. Safety Management activities to reduce the occurrence of aviation incidents - provision of education and training, and establishment of contingency safety plan bracing for adverse weather conditions	ACC/APP/TWR	
	12. Safety Management activities to promote safety culture - publishing of safety circular, and organization of safety conference/seminar/workshop, etc.	ACC/APP/TWR	

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