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First Meeting of the APAC Project 30/10 Task Force

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Agenda Item 2: States Challenges and Implementation Plan

APAC PROJECT 30/10: STATUS OF SEPARATION MINIMA BETWEEN INCHEON FIR AND ADJACENT FIRS AND DIRECTIONS FOR IMPROVEMENT

(Presented by the Republic of Korea)

SUMMARY

This paper presents the current status of separation minima applied between Incheon FIR and adjacent FIRs, and shares the Republic of Korea's implementation considerations for APAC Project 30/10. It also encourages active participation by States and Administrations in regional efforts to review technical, operational, safety and training requirements for phased implementation.

1. INTRODUCTION

1.1 Global air traffic has continued to fully recover from the COVID-19 pandemic and is showing strong and sustained growth. According to the ICAO Annual Report 2024, global scheduled passenger traffic, measured in revenue passenger-kilometers (RPKs), increased by 10.6 per cent from the previous year, reaching 9,098 billion RPKs in 2024. In line with this global trend, the Asia and Pacific Region recorded growth of 16.7 per cent in total RPKs and 28.9 per cent in international RPKs, representing the highest growth rate among the six ICAO regions. These figures are significantly above the global averages of 10.6 per cent and 13.8 per cent, respectively. The APAC Region accounted for 33.7 per cent of global passenger traffic, making it the largest region by traffic share. This trend is expected to continue. IATA forecasts that, in 2026, global passenger traffic will increase by 4.9 per cent year-on-year, while the Asia-Pacific Region is expected to lead global growth with a 7.3 per cent increase. ICAO also forecasts that global RPKs will grow at an average annual rate of 4.1 per cent over the next 20 years, with the Asia and Pacific Region expected to remain a key driver of global air traffic growth.

1.2 In response to the continued increase in global air traffic and in support of the implementation of the ICAO Long-Term Aspirational Goal (LTAG) for international aviation net-zero carbon emissions by 2050, the Fourteenth Air Navigation Conference (AN-Conf/14, 2024) adopted Recommendation 3.1/1, "Project 30/10 — implementation of optimized longitudinal separation minima", recommending the advancement of initiatives to reduce ATC separation minima. Accordingly, the Thirteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/13) agreed to establish the APAC Project 30/10 Task Force for implementation in the Asia and Pacific Region, which was subsequently endorsed by APANPIRG/36. As a result, the First Meeting of the Task Force has been convened.

1.3 To safely accommodate the continued growth in regional air traffic demand, and in line with the APAC Seamless ANS Plan, air traffic control facilities should apply ICAO PANS-ATM separation minima, or minima as close as practicable to those standards, taking into account the level of ATM automation, communication performance, ATS surveillance system performance and controller competency.

1.4 This paper reviews the current application of horizontal separation minima between FIRs in the APAC Region and in the Republic of Korea, and proposes that such separation minima be reviewed and progressively adjusted through the APAC Project 30/10 Task Force, with the objective of aligning them with ICAO PANS-ATM provisions to the extent practicable.

2. DISCUSSION

International Traffic within Incheon FIR

2.1 The increase in international traffic in 2025 is assessed to have been driven primarily by the growth in demand on China-Japan routes (approximately 41,000 flights), Korea-Japan routes (approximately 15,000 flights), and Korea-Southeast Asia routes (approximately 12,000 flights). Based on 2025 traffic data, the SADLI TOC point, adjacent to Shanghai FIR, recorded approximately 228,000 flights, the highest volume among Incheon FIR transfer-of-control points. International traffic in 2026 is projected to grow by approximately 2 to 4 per cent compared with the previous year.

Table 1. Annual International Air Traffic within Incheon FIR

Item	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual traffic	494,708	514,688	555,988	595,548	200,041	203,029	276,356	545,479	722,300	788,531
Daily average	1,352	1,410	1,523	1,632	547	556	757	1,494	1,979	2,160
Growth rate	9.08%	4.29%	8.01%	7.16%	-66.5%	1.5%	36.1%	49.33%	32.4%	9.2%

Current Separation Minima and Operational Arrangements between Incheon FIR and Adjacent FIRs

2.2 Incheon FIR is adjacent to Fukuoka FIR to the east and south, Shanghai FIR to the west, and Pyongyang FIR to the north. As TOC points along the FIR boundaries connect Category S airspace to Category S FIR TOC points, the operational environment permits the application of 10 NM separation minima.

2.3 The Republic of Korea is preparing to enhance the Incheon ACC system by introducing and improving functions such as STCA and MTCN safety alerts, trajectory-based conflict-risk prediction, early recognition of same-level converging situations, what-if altitude-assignment validation, and cruising-level assignment support. These functions can serve as key technical and operational enablers for reducing separation minima at TOC points by supporting controllers in predicting traffic situations before aircraft approach FIR boundaries and in managing altitude, speed and route adjustments in a systematic manner.

2.4 Nevertheless, the separation minima currently applied at major TOC points between Incheon FIR and adjacent FIRs are generally greater than the target level of Project 30/10. At most TOC points, a 20 NM separation minimum is applied. In addition, there are limited cases where 10 NM is applied between specific departure and destination aerodromes, or where 15 NM is applied at specific TOC points during certain time periods.

2.5 A separation minimum of 60 NM (10 minutes) is applied at SADLI, the entry/exit point for aircraft operating from major aerodromes in the Republic of Korea towards China, highlighting the need for further optimization of the applicable separation minima. Further details are provided in Figure 2 and **Appendix A**.

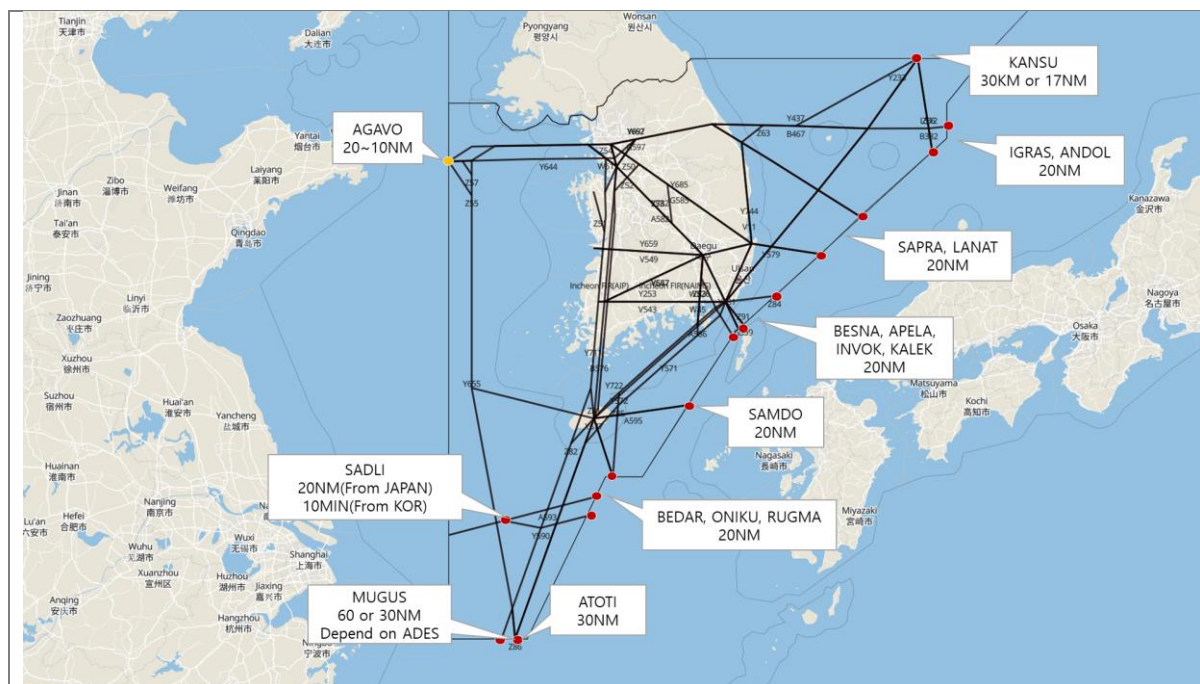


Figure 1. Major TOC Points Related to Incheon FIR and Current Separation Minima

2.6 In addition, at SADLI TOC point, different separation minima are applied depending on the ATS route, and flight information is exchanged manually during the transfer of control. This increases controller workload and operational complexity. Therefore, to support safe and orderly traffic flows, improvements are required, including the application of harmonized separation minima irrespective of route and the introduction of AIDC-enabled automatic hand-off arrangements.

2.7 At MUGUS TOC point, the exit point from Incheon FIR towards Southeast Asia, either 60 NM or 30 NM separation minima are applied depending on the destination aerodrome, while 30 NM is applied at ATOTI, the corresponding entry point to Incheon FIR. The application of departure separation minima that are significantly greater than those applied to inbound traffic has resulted in constraints on slot capacity due to departure delays, increased controller workload to ensure compliance with the required minima, and user dissatisfaction. To accommodate growing traffic demand from the Republic of Korea to Southeast Asia, it is necessary to consider applying harmonized separation minima of 30 NM or less at both entry and exit points.

Considerations and Challenges for the Implementation of Project 30/10

2.8 For the successful implementation of Project 30/10, the separation minima currently applied between adjacent FIRs should be established on the basis of reasonable and transparent grounds, taking into account the level of ATM automation of the relevant ATC facilities and the current CNS performance of the airspace concerned, in accordance with the APAC Seamless ANS Plan and the ICAO objective of ensuring the safe and orderly development of international civil aviation.

2.9 The implementation of Project 30/10 may increase traffic density within the affected airspace. Therefore, in addition to efforts to share experience and best practices for improving the capacity of affected airspace and aerodromes, it would be beneficial to develop and apply harmonized and systematic methods for determining appropriate ATC capacity, particularly instantaneous capacity, in order to promote a common understanding among adjacent FIRs.

2.10 In addition, there is a need to strengthen tactical ATFM capability through more accurate traffic demand forecasting by States, while further enhancing cross-border ATFM cooperation within the APAC Region.

2.11 All such activities should be implemented through a systematic change management process under the ICAO SMS framework. The reduction of separation minima may constitute a significant change under ICAO PANS-ATM provisions. Accordingly, the development of common guidance for safety risk assessment, including the establishment of an acceptable level of safety for such changes, should also be considered.

2.12 The implementation of Project 30/10 should be based on cooperation among the States and ATS units concerned. While taking into account each State's operational environment and level of readiness, States should cooperate to ensure consistency in transfer-of-control procedures, traffic flows, LOA conditions and contingency procedures with adjacent FIRs.

2.13 The Republic of Korea proposes a phased, safety-oriented approach based on preliminary analysis and technical and operational review for the development of an action plan. The Republic of Korea intends to actively participate in the work of the Project 30/10 Task Force, drawing on its experience in identifying technical and operational requirements, including AIDC, inter-unit information sharing, safety monitoring, controller training, ATFM and airspace capacity management.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) encourage States and Administrations to actively participate in the work of the Project 30/10 Task Force; and
- c) encourage States and Administrations to cooperate in reviewing and sharing information on current separation minima, technical and operational conditions, safety risk assessment requirements and training needs.

APPENDIX A

CURRENT SEPARATION MINIMA AT MAJOR TOC POINTS RELATED TO INCHEON FIR

S/No.	TOC Points	ATS Routes	Category of Airspace to FIR TOC Point (Inbound only)	Minimum horizontal separation standard	Inbound Transferring FIR	Auto hand-off and surveillance data-sharing or overlapping coverage at the TOC point: Yes or No	Remarks/Route Restrictions
1	KANSU	467,Y437,Z5	Category S airspace to Category S FIR TOC Point	30KM or 17NM	PYONGYANG FIR	No	
2	ANDOL	L512	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
3	IGRAS	Z56,B332	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
4	LANAT	G597,Y697	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
5	SAPRA	G585,Y685	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
6	KALEK	Z84	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
7	INVOK	Z91,G339	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
8	APELA	A582,Y782	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
9	BESNA	Y781	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
10	SAMDO	A595,Y677	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
11	RUGMA	586,Y572,Z8	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1400UTC on Friday and 2000UTC on Sunday)
12	ONIKU	A593	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1150UTC and 2245UTC except both landing ZSPD)
13	BEDAR	Y590	Category S airspace to Category S FIR TOC Point	20NM	FUKUOKA FIR	Yes	15NM (Between 1210UTC and 2315UTC)
14	ATOTI	6,Y722,Y655	Category S airspace to Category S FIR TOC Point	30NM	FUKUOKA FIR	Yes	
15	MUGUS	Y711	Category S airspace to Category S FIR TOC Point	30NM	FUKUOKA FIR	Yes	
16	Geographical line of 125E longitude or SADLI	A593	Category S airspace to Category S FIR TOC Point	10MIN	SHANGHAI FIR	No	Northeast bound
17	Geographical line of 125E longitude or SADLI	A593	Category S airspace to Category S FIR TOC Point	20NM	SHANGHAI FIR	No	Other than northeast bound 15NM(From 1200UTC to 2300UTC except both landing ZSPD)
18	AGAVO	4,Y697,G597	Category S airspace to Category S FIR TOC Point	20NM	SHANGHAI FIR	Yes	10NM (departing from ZSYT, ZSWH, ZYTL and landing at RKSI, RKSS, RKTU)

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