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ICAO

Thirteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/13) of APANPIRG

Singapore, 25 – 29 August 2025

Agenda Item 5: ATM Systems (Modernization, Seamless ATM, CNS, ATFM)

**UPDATE OF NATIONAL AIR NAVIGATION PLAN AND GOVERNANCE PLAN
FOR THE ORGANIZATION**

(Presented by Japan)

SUMMARY

Japan's National Air Navigation Plan (NANP) serves as a long-term vision for the future air traffic system, called CARATS (Collaborative Actions for Renovation of Air Traffic Systems) 2040, and was issued in late June of this year, with 2040 set as the target year. This paper provides an overview of the new NANP. In addition, based on the technological innovations driven by CARATS activities, Japan has been advancing revisions to its governance plan for the organization of its ANSP, called DIAMOND 2040 (Domain Identity of ANSP Management Over the Next Decades 2040) with a view toward 2040. This paper also presents the revised governance plan.

1. INTRODUCTION

1.1 Japan established CARATS (Collaborative Actions for Renovation of Air Traffic Systems), its national air traffic plan, in 2010 with a target year of 2025. Since then, it has been undertaking a wide range of initiatives, including the reorganization of domestic air traffic control airspace, the introduction of data communications, the upgrading of communication, navigation, and surveillance technologies as well as information systems, and operational improvements leveraging these technologies.

1.2 Since the establishment of CARATS, the environment surrounding Japan's air traffic system has undergone significant changes. These include growth in aviation demand, shifts in air user preferences due to COVID-19, diversification of airspace usage needs, increasing demand for decarbonization, evolution of digital technologies, progression of demographic challenges such as declining birthrate and aging population, growing instability of the international situation, and the intensification and increased frequency of natural disasters.

1.3 The 8th edition of the ICAO GANP, which targets the year 2050, is currently under revision. In alignment with this and with careful consideration of trends in Europe, the United States of America, and Asian States, Japan has undertaken a comprehensive review of CARATS, setting 2040 as the new target year to appropriately respond to evolving circumstances.

1.4 In 2016, we developed an organizational governance plan as a long-term strategy for the organizational structure, systems, and human resource development to carry out aviation security operations with a view toward the next 10 to 15 years. Based on this plan, we have promoted the implementation of the safety management system (SMS), strengthened inter-professional collaboration, and upgraded education and training programs.

1.5 In addition, under CARATS, we have promoted initiatives such as the separation of airspace into upper and lower airspace and the integration of terminal airspace. Furthermore, under DIAMOND2040 (Domain Identity of ANSP Management Over the Next Decades 2040), efforts have been made to review and strengthen organizational structures and systems including the consolidation of the Air Traffic Control Department and terminal radar control operations. The JCAB is now being called upon to respond to the demands of a new era, including trajectory-based operations (TBO), emerging air mobility technologies (such as drones, flying vehicles, High Altitude Platform Station (HAPS), spaceplanes), as well as Green Transformation (GX) and Digital Transformation (DX) initiatives. Accordingly, it is an urgent priority to develop the organizational structure, systems, and human resources needed to support the advancement of Air Navigation Services (ANS).

1.6 In light of these changing circumstances and the feedback obtained from interviews with local stakeholders, we have begun revising the new plan to strengthen organizational resilience, enhance human resource development, and create a more attractive workplace.

1.7 Going forward, JCAB will continue to promote the initiatives of both the CARATS and the DIAMOND toward 2040.

2. DISCUSSION

2.1 In the updated version of CARATS 2040, goals have been set in six areas, as shown below, along with the establishment of various indicators to analyze and monitor the progress toward achieving each goal.

a) Safety and Security

Reduce the occurrence of aviation accidents caused by air navigation services:

- i) achieve zero accidents caused by air navigation services; and
- ii) reduce the number of serious incidents by 50%.

b) Airspace Utilization

Enhance airspace efficiency and expand capacity with the capability to handle approximately three million flights per year.

c) Convenience

Improved convenience for airline operators and passengers.

d) Operational Efficiency and Environment

Promote greater operational efficiency while contributing to climate change mitigation:

- i) Achieve a 6% reduction in fuel consumption and CO₂ emissions through operational improvements.

e) Stability and Reliability

Provide stable ANS even during disasters and other emergencies, with minimum impact on flight operations.

f) International

Contribute to the development and enhancement of international air traffic management.

2.2 To achieve the goals set out in 2.1, various measures will be implemented in accordance with the six strategic directions outlined below.

a) Enhancement of Safety and Security Measures

- i) Monitoring and detecting hazardous situations using technologies such as image and voice recognition;
- ii) Mutual surveillance between aircraft using ADS-B; and
- iii) Safety measures that take into account emerging air mobility.

b) Implementation of Trajectory-Based Operations (TBO) to Optimize Aircraft Operations

- i) Transition to time-based operations; and
- ii) Pre-flight and real-time trajectory adjustments.

c) Realizing Sustainable Air Transport

- i) Implementing fuel-efficient flight procedures; and
- ii) Improving flight operations in line with decarbonization initiatives.

d) Effective Use of Airspace to Accommodate Diverse Forms of Air Mobility

- i) Expand airspace capacity by optimizing ANS resource allocation and related measures;
- ii) Implement flexible routing to meet diverse operator needs; and
- iii) Establish operational rules that account for the characteristics of emerging air mobility.

e) Enhancement of Resilience

- i) Strengthen CNS resilience; and
- ii) Ensure early recovery through information sharing after incidents.

f) Strengthening International Cooperation and Promoting Overseas Deployment

- i) International traffic flow management; and
- ii) Implementation of TBO and overseas deployment of ANS and CNS systems.

2.3 In DIAMOND 2040, the following five strategic directions have been set out to promote initiatives toward strengthening the organization, enhancing human resource development, and creating a more attractive workplace, while taking into account the progress of CARATS initiatives and related developments.

a) Ensuring Greater Aviation Safety and Security

- i) Enhancing operational safety; and
- ii) Implementing crisis and risk management.

b) Advancing Air Navigation Services

- i) Establishing operational implementation framework; and
- ii) Enhancing operational efficiency and promoting centralization.

- c) Securing and Developing Human Resources*
 - i) Attracting talented personnel and enhancing the organizational capacity;
 - ii) Promoting education and professional development; and
 - iii) Establishing diverse career pathways.
- d) Promoting an Attractive and Supportive Workplace Environment
 - i) Reforming work styles;
 - ii) Modernizing office environments; and
 - iii) Addressing the deterioration and aging of government facilities.
- e) Ensure Compliance

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to note the information contained in this paper.

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