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AGENDA ITEM 4: AIR NAVIGATION

**DEVELOPMENT OF AIR TRAFFIC FLOW MANAGEMENT
SYSTEM IN CHINA**

(Presented by the People's Republic of China)

INFORMATION PAPER

SUMMARY

In 2020, the Air Traffic Management Bureau (ATMB) of Civil Aviation Administration of China (CAAC) established the centralized Air Traffic Flow Management (ATFM) system, covering all operational entities in China civil aviation industry. After three years of operation, China ATM has adopted upgraded operation procedures and made the transition to the new-generation national ATFM system under the ICAO ATFM Framework based on the characteristics of civil aviation operations in China.

DEVELOPMENT OF AIR TRAFFIC FLOW MANAGEMENT SYSTEM IN CHINA

1. INTRODUCTION

1.1 Due to the limited airspace resources and the sustained growth in air transportation demand, and with long-term planning and research, ATMB, CAAC established the National air Traffic Flow Management (NTFM) system in December 2020. The NTFM is a centralized system for ATM, covering all operational entities in China civil aviation industry. On May 20th, 2021, the unified collaborative decision-making of flight CTOT on a national level came into effect.

1.2 During the nearly three-year window period of low-flight-volume operation, China ATM has adopted upgraded operational procedures and made transition to the new-generation national ATFM system under the ICAO ATFM Framework and based on the characteristics of civil aviation operations in China.

1.3 After the COVID-19 pandemic, the number of domestic flights in China has rapidly increased, with the NTFM system playing a key role in the operation and management of civil aviation. The NTFM has become a core component of China's civil aviation operation.

2. DISCUSSION

Strategic Planning

Restructuring Airspace

2.1 During the window period of low-flight-volume operation, China ATM continued to reorganize its airspace and implemented the southern section of the Beijing-Guangzhou large-capacity Air Corridor airspace restructuring plan, which connects the Beijing-Tianjin-Hebei region with the Guangdong-Hong Kong-Macao Greater Bay Area. This plan aims to transform the southern part of the previous A461 into a parallel one-way route and open up the Beijing-Guangzhou unidirectional route W45 to the Guangdong-Hong Kong-Macao Greater Bay Area connecting route. The construction of this air corridor is one of the "10+3" major air corridors planned by CAAC, which effectively connects important regional hub airports such as the Beijing Capital, Daxing, Tianjin, Zhengzhou, Wuhan, Changsha, Guangzhou, Shenzhen, Hong Kong and Macao.

Upgrading Operation Procedures

2.2 In the initial phase of building the ATFM system, based on the operations of civil aviation in China, the Operation Management Center of ATMB (OMC of ATMB/CAAC) has successively issued the "Flow Management Operation Rules" and "Flow Management Operation Procedures", clarifying the rules for development of the system tools and standardizing the operational procedures of ATM personnel. At present, the OMC of ATMB/CAAC continues to promote the participation of airport and airline personnel in ATFM in order to achieve a higher level of operational collaboration.

Pre-tactical Collaboration

Pre-tactical Management Platform

2.3 The NTFM system includes a specialized pre-tactical ATFM platform. In the pre-tactical phase (1 day to 1 week before operation), ATFM units at all levels cooperate with ATM operation units, meteorological units, technical units and airspace users to analyze and rehearse in advance the situations of that day of operation to evaluate the restrictions of airspace, and to develop initial flow management strategies. By means of flight rescheduling and rerouting, flight delays can be reduced and operation efficiency improved.

Meteorological Services

2.4 In order to improve the meteorological service capabilities of NTFM, a meteorological position has been set up in the operation command hall of the OMC of ATMB. This position is held by a senior forecaster of the Meteorological Center of ATMB, who provides efficient meteorological information and visualized current weather reports and weather trends for collaborative decision-making with ATFM personnel.

Collaborative Rerouting

2.5 The NTFM system has a rerouting module, which can relieve the pressure on ATM operation and improve the efficiency of flight operation by changing the air routes when complex weather conditions or serious airspace restrictions affect increased number of flights or cause long hours of delay.

Extensive Cooperation

2.6 In recent years, the OMC of ATMB/CAAC has actively participated in international cooperation for various programs. In addition to cross-border ATFM cooperation programs, including the Northeast Asia Regional ATFM Harmonization Group (NARAHG), Asia-Pacific Distributed Multi-Nodal ATFM Network Project (MULTI-NODAL), Lancang-Mekong River ATFM Working Group (LMR-ATFMWG) and China-Mongolia-Russia ATFM Cooperation (CMR), the OMC also had in-depth exchanges with EUROCONTROL, ICAO RSO, IATA and other organizations.

Sino-European Cooperation

2.7 On 28 and 29 June 2022, the EU-China Aviation Partnership Project held the ATFM Workshop, discussing topics such as traffic volume forecast, management collaboration modes, centralized ATFM systems and decision-making procedures. The EASA, EUROCONTROL, the Dutch ATMB and airlines contributed to the workshop, with more than 200 Chinese experts in attendance.

Multi-Nodal Cooperation

2.8 Sanya Flight Information Region (FIR) is a major transportation hub connecting East Asia and South Asia, where the traffic converges and the air traffic congestion is prominent.

2.9 By July 2023, supported by the NTFM cross-border platform and the CMCP strategy pioneered by CAAC, China has successfully allocated CTOT to countries and regions including Thailand, South Korea, Cambodia, Singapore, Vietnam, Laos, Malaysia, Hong Kong SAR and Macao SAR. The implementation of CTOT by the ATM units in these countries and regions not only suits the traffic capabilities of the ATM units concerned but also greatly reduces the delay of flights, effectively improves the operation efficiency of aircraft, and makes the air traffic flow in ZJSA more rational and orderly.

Guangdong-Hong Kong-Macao Greater Bay Area Cooperation

2.10 The ATFM Technical Working Group of China's Mainland, Hong Kong and Macao was set up in 2017. The working group has maintained an annual meeting mechanism, continued to carry out ATFM in Guangdong-Hong Kong-Macao Greater Bay Area, and coordinated the solution to a number of difficulties in ATM operation.

2.11 According to the plan of the working group, this year, the OMC of ATMB/CAAC will focus on promoting the connection of Macao to the NTFM system and continuing to improve the ATFM Collaborative Decision-Making in the Guangdong-Hong Kong-Macao Greater Bay Area.

3. ACTION BY THE CONFERENCE

- 3.1 The Conference is invited to note the information contained in this Paper.

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