

**60th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Sendai, Japan
28 July - 1 August 2025*

AGENDA ITEM 4: AIR NAVIGATION

**ENHANCED CIVIL MILITARY COOPERATION IN ATM FOR
THE SAFE AND OPTIMAL USE OF AIRSPACE**

(Presented by International Civil Aviation Organization)

INFORMATION PAPER

SUMMARY

This paper underscores the civil-military cooperation in ATM (CMAC) and Flexible Use of Airspace (FUA) as one of the key elements of GANP for the enhancement of airspace capacity, operational efficiency and environmental sustainability. It discusses the major challenges confronted by the States/Administrations based on the current implementation progress in the Region and highlights the up-to-date experiences gained at the latest ICAO CMAC Webinar last year. It concludes with the announcement of an upcoming ICAO workshop on CMAC/FUA and encourages States/Administrations' active participation.

ENHANCED CIVIL MILITARY COOPERATION IN ATM FOR THE SAFE AND OPTIMAL USE OF AIRSPACE

1. INTRODUCTION

1.1 Aviation contributes significantly to State’ economy and requires stable and secure environment. Effective civil-military cooperation in Air Traffic Management (ATM) will allow civil aviation to flourish and military aviation to perform their required missions.

1.2 Civil and military operations differ in nature and in purpose. However, both types of operations take place in a single continuum of airspace and, therefore, civil aviation and military stakeholders need to cooperate to ensure their mutual safety and efficiency. Additionally, the modernization of ATM towards greater information flows, operational flexibility and environmental sustainability creates a need to enhance civil-military cooperation and coordination.

1.3 Pursuant to Article 3 d) of the Chicago Convention, ICAO urges States to consider the safety of navigation of civil aircraft when issuing regulations for their state aircraft. As per the **Recommendation 1.1/2** of AN-Conf/14, States’ implementation of airspace optimization initiatives covered by ICAO provisions, such as air traffic flow management, flexible use of air space and civil-military cooperation etc. have been emphasized as key measures to ensure the resilience of the air navigation system. Additionally, the Universal Safety Oversight Auditor Programme (USOAP) Continuous Monitoring Approach (CMA) contains PQs/PPQs directly or potentially related to civil-military cooperation which constitute key areas of the States/Administrations’ regulators.

1.4 Given that the Asia/Pacific region is expecting rapid growth in the coming years, while at the same time the Region hasn’t achieved a mature level of civil-military cooperation in ATM, the subject remains one of the highest priorities in the Asia/Pacific region, as evidenced in the APAC Seamless ANS Plan. Continuous efforts devoted by both the States and ICAO to this area are considered essential.

1.5 At the First ICAO APAC Ministerial Conference on Civil Aviation, held in Beijing, China in January 2018, the Ministers in charge of civil aviation representing 36 Asia/Pacific governments endorsed the Beijing Declaration, formalizing their shared commitments to high-priority aviation safety and efficiency objectives, including “an enhanced level of civil/military cooperation”. In September 2024 at the Second ICAO APAC Ministerial Conference on Civil Aviation held in New Delhi, India, the Beijing Declaration commitments to ANS implementation have been updated by the Delhi Declaration with “enhanced civil/military cooperation” remaining as one of the high priority objectives.

2. DISCUSSION

Current Status and Major Challenges of the Key Elements Implementation related to CMAC

2.1 The APAC Seamless ANS Plan Version 4.0 (approved by ANPANPIRG/35, 2024) has identified the following key operational elements related to CMAC for the Region:

Functional Category	Element	Description	Priority
Operational	ASBU - FRT0 B0/1 to B0/4	Direct routing, airspace planning and FUA, flexible routings, and basic conflict detection and conformance monitoring (PASL 7.32, 7.34, 7.39)	1
	ASBU - FRT0 B1/1 to B1/7	Free Route Airspace, RNP routes, Advanced FUA and Airspace Management (ASM), Dynamic Sectorisation, Enhanced Conflict Detection Tools and Conformance Monitoring, and MultiSector Planner Function (PASL 7.32,	2

		7.54)	
	Regional	Civil-Military Special Use Airspace (SUA) management (PARS 7.16)	1
	Regional	Civil-Military strategic and tactical coordination (PASL 7.47)	1
	Regional	Civil-Military common procedures and training (PASL 7.47)	2
	Regional	Civil-Military integrated systems and facilities (PASL 7.47)	2

2.2 Based on the implementation progress reported by the States/Administrations through the new Seamless ANS Reporting Portal launched in 2024 and the historical reporting records of CMAC progress before, the overall implementation status of the Region on the key CMAC elements of the APAC Seamless ANS Plan are as follows:

Reporting Item	Fully Implemented States/Administrations	States/Administrations In Progress
ASBU - FRTO B0/1 to B0/4 (Priority 1)	10	4
ASBU - FRTO B1/1 to B1/7 (Priority 2)	0	5
Regional – C/M SUA management (Priority 1)	15	3
Regional – C/M strategic coordination (Priority 1)	15	2
Regional – C/M tactical coordination (Priority 1)	17	2
Regional – C/M common procedures and training (Priority 2)	11	3
Regional – C/M integrated systems (Priority 2)	8	2
Regional – C/M integrated facilities (Priority 2)	9	2

2.3 The overall implementation progress in the Region is rather slow and partial to reaching the goals of ASBU and regional priorities in line with the target time. Meanwhile, it is also worth noting that the implementation progress in the Region is of huge diversity among States in regard of maturity. Major challenges confronted by the States/Administrations in the Region include but are not limited to:

- i. Diversified implementation environment and different operational needs. A strong national will to implement CMAC is of vital importance for further progress.
- ii. Lack of mature civil-military cooperation legislation framework and/or mechanism at national level.
- iii. The implementation of Flexible Use of Airspace (FUA) lingers in the preliminary stage and difficult to advance to the 3-phase Airspace Management (ASM) due to lack of joint civil-military entities and/or sufficient ASM supporting systems/tools.
- iv. ASM under the concept of FUA has not been integrated into ATFM and ATS at system and/or national level which impedes the leverage of full benefits in regard of airspace capacity, operational efficiency and environmental sustainability.
- v. Safety concerns from a joint civil-military perspective related to the implementation of FUA haven't been sufficiently addressed.

Accumulating Experiences through Regional Workshops/Seminars on CMAC/FUA Implementation

2.4 In a joint effort between the ICAO Regional Sub-Office (RSO) and the Regional Office, ICAO has supported States/Administrations on enhancing Civil-Military ATM Cooperation and implementing FUA through delivering various Workshops and Seminars and working together with States/Administrations on specific CMAC/FUA projects. From 2013 to 2019, over 15 events have been conducted in 8 States for both civil and military participants to provide on-site assistance and support for implementation.

2.5 The detailed contents of a 2-day CMAC/FUA Workshop upon the request of a State/Administration on a cost recovery basis could be found at the webpage [Civil and Military ATM Cooperation \(CMAC\) and Flexible Use of Airspace\(FUA\)](#). Relevant training modules of the Workshop could be tailored to meet specific requirements and real needs of the host State/Administration. Please contact ICAO APAC Regional Sub-Office at apac-rso@icao.int for more information if needed.

2.6 After COVID-19, the ICAO Webinar on CMAC was held by ICAO APAC RSO with support from ICAO EUR/NAT Office, EASA, EUROCONTROL, PANSA and IATA from 20-21 November 2024. It has attracted over 200 on-line participants from 22 States and 6 International Organizations. Among them, over 30 participants are from the military of relevant States.

2.7 During the Webinar, participants had in-depth discussions on the subjects including but not limited to: the guidance on CMAC and FUA implementation by ICAO Doc 10088; latest progress, experiences, challenges and solutions by the States in the APAC region; experiences of FUA implementation at European level from key stakeholders' on the constructing and improving the 3-level ASM framework; operational perspectives and expectations from ATC controllers and aircraft operators. All materials can be accessed at the website [icao.int/APAC/Meetings/Pages/2024-CMAC-FUA-Webinar.aspx](https://www.icao.int/APAC/Meetings/Pages/2024-CMAC-FUA-Webinar.aspx). Main takeaways of the Webinar for further implementation of CMAC/FUA in the Region are as follows:

- i. High-level commitment to CMAC is important. The establishment of a high-level civil-military aviation cooperation policy board (CMAB) could be the first crucial step.
- ii. The construction of the regulatory framework and joint civil-military bodies at different levels lay solid foundation for effective implementation.
- iii. The key elements for successful civil-military cooperation are mutual trust, respect and understanding - "to put things on the table". Talking to each other is the first step and communication between civil and military at all levels is essential.
- iv. FUA implementation is scalable. Its complexity is linked to the operational environment and can be implemented at different degrees of efficiency or complexity. However, the most benefits could only be achieved through implementing FUA at 3 phases.
- v. Collaborative decision-making (CDM) is the key enabler of FUA implementation to benefit all participating parties.
- vi. The implementation of FUA is a continuous improvement cycle and could be conducted step by step. Post operation analysis is an essential part of the cycle. The key is to let the data speak and show it to all stakeholders.
- vii. Civil-military system integration may vary at different phases of ASM. It is better to have one integrated system for both.
- viii. There is no "one-size-fits-all" CMAC/FUA framework for every State. Learn from others but do it in your own way.

Next Step Forward

2.8 To have a better understanding of the progress on CMAC and FUA implementation in the APAC Region with reference to relevant ICAO framework and provide effective and efficient support for the States/Administrations, a survey on CMAC/FUA implementation will be issued shortly. The outcomes of this survey would constitute a solid foundation for the States/Administrations to conduct further gap analysis and for ICAO to provide effective support to strengthen the implementation of CMAC and FUA in the Region.

2.9 Meanwhile, given the crucial role of CMAC, particularly FUA as one of the key elements of GANP-ASBU and APAC Seamless ANS Plan, an inter-regional workshop on enhanced CMAC and FUA implementation is under preparation by ICAO APAC RSO and EUR/NAT Office. The objectives of the workshop are: 1) help the States understand the key concepts of CMAC and FUA within ICAO framework; 2) assist the States to advance “one-step forward” regarding the application of FUA concept at strategic, pre-tactical and tactical phases; 3) share good practices, discuss challenges and explore further development of CMAC/FUA with the integration of relevant key ASUB elements such as Advanced FUA, ATFM, FRA etc.

2.10 This interactive event is planned to provide the States/Administrations with practical guidance, tabletop exercises and case studies covering major concerns of the Regions including but not limited to the establishment of high-level framework, joint civil-military AMC and coordination procedures, FUA airspace structure design and publication, safety risk assessment, operational performance evaluation, interoperability between civil military systems, etc. Participants from both civil and military sides are welcome at the Workshop. APAC States/Administrations are invited to share their experiences. For further information, contact the ATM Regional Officer, Ms. Zhang Ying, at yingzhang@icao.int.

3. ACTION BY THE CONFERENCE

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

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