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Agenda Item 6: ATM Coordination (Meetings, Route Development, Contingency Planning)

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

(Presented by the Secretariat)

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 Asia/Pacific Region and highlights the up-to-date experiences gained at the latest ICAO Asia/Pacific CMAC Webinar last year. It concludes with the announcement of an upcoming ICAO workshop on CMAC/FUA and encourages States/Administrations' active participation.

1. INTRODUCTION

1.1 Aviation contributes significantly to State's 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's 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 The Asia/Pacific Region is expecting rapid growth in the coming years, and the implementation of enhanced CMAC and FUA could bring better benefits in terms of airspace capacity, operational efficiency and environmental sustainability. The subject is one of the key enablers of the Global Air Navigation Plan (GANP, Doc 9750) and also remains one of the highest priorities in the Asia/Pacific region, as evidenced in the *Asia/Pacific Seamless ANS Plan Version 4.0* (approved by APANPIRG/35, 2024). 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 were 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 related to CMAC

2.1 The Asia/Pacific Seamless ANS Plan has identified the key operational elements related to CMAC for the Region (see **Table 1**):

Table 1: Key CMAC-related Elements in Asia/Pacific Seamless ANS Plan

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, 7.54)	2
	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, as well as historical reporting records of CMAC progress, the overall implementation status of the Region on the key CMAC-related elements of the *Asia/Pacific Seamless ANS Plan* is summarized in **Table 2** below:

Table 2: Key CMAC-related Elements Overall Implementation Status

Reporting Item	States/Administrations Fully Implemented	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 Aviation System Block Upgrades (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:

- a) diversified implementation environment and different operational needs. A strong national will to implement CMAC is of vital importance for further progress;
- b) lack of mature civil-military cooperation legislation framework and/or mechanism at national level;
- c) difficult to advance to the three phased FUA due to lack of joint civil-military entities, procedures and/or sufficient ASM supporting systems/tools;
- d) the availability and predictability of Conditional Routes (CDRs) need to be further enhanced for the operational convenience of airspace users;
- e) lack of civil-military data integration and system interoperability;
- f) ASM under the concept of FUA has not been fully integrated into Air Traffic Flow Management (ATFM) and Air Traffic Services (ATS) at system and/or national level; and
- g) 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

2.4 ICAO has supported States/Administrations in enhancing CMAC and implementing FUA through delivering various workshops and seminars and working together with States/Administrations on specific CMAC/FUA projects. From 2013 to 2019, more than 15 events were conducted in eight States for both civil and military participants to provide on-site assistance and support for implementation. Relevant training modules of the workshop could be tailored to meet specific requirements and practical needs of the host State/Administration. Please contact ICAO APAC Regional Sub-Office (RSO) at apac-rso@icao.int for more information, if needed.

2.5 The ICAO Webinar on CMAC was held by ICAO APAC RSO, with support from ICAO EUR/NAT Office, EASA, EUROCONTROL, PANSAs and IATA, from 20 to 21 November 2024. It attracted over 200 online participants from 22 States and six International Organizations. Among them, over 30 participants are from the military of relevant States. During the Webinar, participants had in-depth discussions on the subjects including but not limited to: the guidance on CMAC and FUA implementation within ICAO framework; latest progress, experiences, challenges and solutions by the States in the Asia/Pacific 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 controllers and aircraft operators. All materials can be accessed at the website www2023.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:

- a) 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;
- b) the construction of the regulatory framework and joint civil-military bodies at different levels lay solid foundation for effective implementation;
- c) 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;
- d) 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 three phases;
- e) collaborative decision-making (CDM) is the key enabler of FUA implementation to benefit all participating parties;
- f) 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;
- g) civil-military system integration may vary at different phases of ASM. It is better to have one integrated system for both; and
- h) 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

2.6 To have a better understanding of the progress on CMAC and FUA implementation in the Asia/Pacific 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 circulated via a State Letter in due course. The outcomes of this survey would constitute a solid foundation for the States/Administrations to conduct further gap analysis and for ICAO to better understand the needs of the States/Administrations and provide effective support to strengthen the implementation of CMAC and FUA in the Region.

2.7 Meanwhile, given the crucial role of CMAC, particularly FUA as one of the key elements of GANP-ASBU and Asia/Pacific Seamless ANS Plan, an inter-regional workshop on enhanced CMAC and FUA implementation will be co-hosted by ICAO APAC RSO and EUR/NAT Office from 19 to 23 January 2026 in Bangkok, Thailand. The objectives of the workshop are:

- a) present the key concepts of CMAC and FUA within ICAO framework, including Doc 10088;

- b) assist the States to advance “one-step forward” regarding the application of FUA concept at strategic, pre-tactical and tactical phases through actively participating tabletop exercises and case studies; and
- c) share good practices, discuss challenges and explore further development of CMAC/FUA with the integration of relevant key ASBU elements, such as Advanced FUA, ATFM, Free Route Airspace (FRA).

2.8 This interactive event is planned to provide the States/Administrations with practical guidance by covering major concerns of both Regions including but not limited to the establishment of high-level framework, joint civil-military Airspace Management Center and coordination procedures, FUA airspace structure design and publication, safety risk assessment, operational performance evaluation, civil-military data integration and system interoperability, etc.

2.9 The inter-regional workshop is organized as an in-person event for better interactive discussions and active participation in the exercises. The target audience for this event are personnel from both civil and military working in the area of civil-military cooperation in ATM, including but not limited to civil aviation regulators, ANSPs, airspace designers and managers, air traffic controllers, airline operators, officers of military authority, military air traffic controllers and relevant international organizations, etc. Asia/Pacific States/Administrations are invited to share their experiences from both civil and military perspectives. For further information, please contact Ms. Ying Zhang, Regional Officer ATM, at yingzhang@icao.int.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) encourage States/Administrations to complete the upcoming ICAO survey on CMAC/FUA implementation based on the review of current progress and gap analysis;
- c) encourage States/Administrations to support planning the on-site inter-regional Enhanced CMAC and FUA Implementation Workshop 2026, and facilitate military counterparts' participation;
- d) invite States/Administrations to consider seeking assistance from ICAO by requesting a tailored workshop on a cost-recovery basis to further the implementation of CMAC and FUA, if needed; and
- e) discuss any other matters as appropriate.

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