



ICAO

International Civil Aviation Organization

Fourteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/14) of APANPIRG

Bangkok, Thailand, 3 – 7 August 2026

Agenda Item 6: ATM Coordination and Implementation

6.5: Civil-Military ATM Cooperation

**SURVEY OUTCOME ON CIVIL-MILITARY COOPERATION IN ATM AND FLEXIBLE
USE OF AIRSPACE IMPLEMENTATION IN APAC REGION**

(Presented by the Secretariat)

SUMMARY

This paper presents analyzed outcome of the Survey on Civil-Military Cooperation in ATM (CMAC) and Flexible Use of Airspace (FUA) in the Region, including implementation progress, major challenges, good experience, needs for support etc., and proposed recommendations for further enhancement based on key observations of the Survey results.

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 The Asia and Pacific (APAC) region is expecting rapid air traffic growth in the coming years. Moreover, the modernization of ATM towards greater information flows, operational flexibility and environmental sustainability creates a need to enhance civil-military cooperation as a fundamental enabler as indicated in the Global Air Navigation Plan (GANP) and APAC Seamless Air Navigation Service (ANS) Plan (Version 4.0).

1.3 Ten civil-military elements have been identified by APANPIRG, as provided in the APAC Seamless ANS Plan, to harmonize the regional progress and priority for implementation. To have a better understanding of the status and the needs of the States/Administrations for enhancement, ICAO APAC Regional Sub-Office have developed a survey on CMAC and FUA implementation which was circulated via a State Letter (RSO - AP104/25 (RSO)) in September 2025.

2. DISCUSSION

Response to the Survey

2.1 The Survey contains 27 questions which are divided into five Sections including:

- (1) Respondent Profile;
- (2) Implementation Status;

(3) Performance Assessment and Benefits;

(4) Challenges, Experiences; and

(5) Next Step Forward, and Support Needs.

2.2 The following 22 States/Administrations have completed the Survey and provided a single response respectively to ICAO before 31 March 2026. Participating organizations of each States/Administrations include Civil Aviation Authorities (CAAs) and/or Air Navigation Service Providers (ANSPs).

Afghanistan, Australia, Bangladesh, Cambodia, China, Hong Kong China, Macao China, Fiji, Indonesia, Japan, Lao PDR, Malaysia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Thailand, United States, and Viet Nam.

2.3 The responses have been de-identified, aggregated into quantitative data and analyzed comprehensively with the intention of better understanding and prioritizing improvement areas. The full content of the survey results with questionnaires are provided in Appendix A. Only aggregated data with statistical summaries that do not identify individual State/Administration has been shared.

Key Observations

2.4 Key observations of the Survey are as follows:

- a) There is huge diversity in CMAC/FUA implementation. In principle, regarding the ten APANPIRG-identified CMAC/FUA elements, the overall status could be categorized into following four groups:

Groups	Implementation Status	No. & % of the Respondents
1. Maturely implemented	≥ 8 elements implemented with established high-level civil-military (C/M) body	7 (31.8%)
2. In further development	3 - 8 elements implemented with established or establishing high-level C/M body	7 (31.8%)
3. Challenges to further	< 3 elements or 3 - 8 elements implemented but no plan for high-level C/M body	5 (22.7%)
4. Other cases	No designated military airspace in FIR or not applicable	3 (13.6%)

- b) Among the 22 respondents, **three** States have fully implemented all the ten elements (with few elements not applicable), **16** States/Administrations have partially implemented, while the other **three** States/Administrations have special situations as there is no designated military airspace in their FIRs.
- c) It is worth noting that **half** of the respondents indicated that their States/Administrations have established high-level permanent body managing strategic civil-military matters, while **four** more States/Administrations are in the process of establishment. Meanwhile, several States/Administrations have no plan for establishment as indicated by the other **five** respondents.
- d) Most States/Administrations have implemented rules/procedures on Special Use Airspace (SUA) management and regular review as indicated by **17** respondents, with four of them conducted in part of their national airspace. Meanwhile, **two** more States/Administrations are in the process of developing. It turns out to be the most

well implemented element of CMAC/FUA in the Region.

- e) It is encouraging to see that **12** States/Administrations have implemented FUA at different phases, while **six** more States/Administrations are in the process of developing as indicated by their respondents. However, in regard of the FUA maturity, the overall status of the region is still at basic level as **less than one third (seven)** of the States/Administrations have implemented all-phased FUA and established the joint civil-military airspace management unit.
- f) There is common recognition on the importance of civil and military ATM systems integration and data sharing interoperability for safe and efficient operations as indicated by almost all respondents. It is glad to note that **14** States/Administrations have fulfilled the data sharing interoperability between civil and military systems, among which **nine** have accomplished the civil and military ATM system integration.
- g) Most States/Administrations have gained experience of the common use of civil and military aerodromes and navigation aids where possible, as indicated by **13** respondents. However, the common civil-military training and procedures remained weak as it is implemented by only **nine** responded States/Administrations.
- h) **Half** of the respondents indicated that their States/Administrations have implemented policies and procedures to manage non-compliant State aircraft and operations while the planning and coordination requirements for space object launch and re-entry activities from the perspective of CMAC are implemented by only a few States/Administrations as indicated by **nine** respondents.
- i) In regard of the ten CMAC elements, the Survey outcomes has demonstrated that some elements might be implemented tactically and operationally at basic level with the absence of national high-level civil-military body and policy. However, the operational efficiency and effectiveness are difficult to guarantee, and it would be impossible to evolve to an enhanced level without the high-level mechanism and regulatory framework.
- j) While looking into relevant ANS initiatives of GANP, their implementation with due consideration of CMAC/FUA turned out to be challenging areas. A few States/Administrations have accomplished as indicated by **nine** respondents in regard of the three-level ASM and ATFM integration, **four** respondents in regard of Free Route Airspace (FRA) design and operations, and **nine** respondents in regard of UAS/RPAS operations.
- k) With a fairly good number of civil-military data sharing and system integration, it is noted that the performance monitoring and post-operation reviews for FUA operations are largely absent in the region, with **less than one third** of the States/Administration' implementation as indicated by their respondents. The main reasons include, but not limited to, *lack of effective systems/tools, insufficient technical guidance concerning the development of KPIs, lack of training and awareness, etc.*
- l) The main difficulties and challenges nowadays in CMAC/FUA implementation as indicated by the respondents are (ranked in the top five): *limited resources (financial, technical, human), technological difference between civil and military, national security concerns, lack of national policy/regulatory framework, insufficient technical guidance, etc.* It is encouraging to note that “*high-level commitment and strong will*” are no longer the major difficulty and/or challenge, as indicated by the least number (**five**) of the respondents.
- m) Despite all the difficulties, it is encouraging to note that CMAC/FUA are considered by most respondents as an essential component for ATM and are under continuous development. Respondents of the Survey underscored that FUA implementation even

partially could deliver tangible benefits especially in (ranked in the top five) *safety, capacity, efficiency, contingency response and fuel/emission reduction*.

- n) Meanwhile, abundant experiences and good practices have been accumulated by States/Administrations in the region through years of operations, as shared by **18** respondents. It mainly focused on the three aspects including:
- effective high-level commitment, policy, organization and mechanism;
 - regular, timely and continuous civil-military cooperation and coordination (meeting/conference) at operational level; and
 - joint civil-military training programs and experience sharing to enhance mutual understanding and build trust.
- o) The top three priorities for near-future development considered by the most respondents are:
- strategic coordination including permanent body, national policy and regulatory framework, etc.;
 - FUA implementation, such as tactical coordination, airspace review, joint civil-military airspace management units, etc.; and
 - civil-military data sharing interoperability and system integration.
- p) The main requirements for support as indicated by most respondents are (ranked in the top five):
- the integration of ASM and ATFM at system level;
 - technical guidance on FUA airspace design;
 - development of national policy and regulations;
 - safety risk management from joint civil and military perspectives; and
 - common training programme, etc.
- q) Preferable forms of support as indicated by the respondents are (ranked in the top three): *regional guidance materials and best practices, workshops and seminars (with on-line and on-site combined), assistance in developing national strategies, etc.*

2.5 In general, the Survey reveals a region in transition: strategic intent is mainly present, but regulatory framework, tactical implementation, data sharing/system integration, and performance monitoring, etc. are the critical gaps.

2.6 Technical support on various levels with focused safety concerns is the most urgent requirements for further enhancement and the provision of regional guidance materials and best practices is considered as the most preferable method.

2.7 Meanwhile, in the process of ANS modernization, the integration of CMAC/FUA elements with relevant initiatives such as ATFM, FRA, UAS/RPAS, etc. are becoming the new common interests of most of the responded States/Administrations for future development.

Recommendations and Next-Step Forward

2.8 Based on the key observations, the following recommendations and next step forward are proposed:

2.9 Recommendations for States/Administrations:

- a) Continue the efforts on the establishment of high-level civil-military body and national policy on CMAC/FUA if have not yet accomplished, and consider establishing joint civil-military airspace management units at national level as a priority;
- b) Adopt the three-level ASM and FUA operations (strategic, pre-tactical, tactical) in a phased and adaptable manner, and apply FUA concept where applicable to the extent possible for operational benefits;
- c) Consider establishing mandatory post-operation assessment policies for FUA and promoting the distribution of assessment reports to all relevant stakeholders;
- d) Conduct regular reviews on the usage of SUAs and Conditional Routes (CDRs), civil-military working procedures, etc. and continue enhancing airspace use efficiency and effectiveness;
- e) Start with joint training or workshop as a low-cost, high-trust building measure between civil and military; further the data sharing interoperability and ATM system integration between civil and military; and
- f) Share best practices and contribute to the development of technical guidance on FUA implementation at regional level.

2.10 ICAO proposes to take next step forward as follows:

- a) Develop guidance material to facilitate FUA implementation for the region. A proposal to establish the APAC FUA Task Force to develop regional guidance material within ICAO regulatory framework for the harmonization and promotion of FUA-related aeronautical information publication and operational performance review is proposed in a separate working paper to the meeting;
- b) Consider organizing on-site workshops in 2027-2028 to facilitate communication and sharing on subjects of common interests, including but not limited to the establishment of regulatory framework, safety risk assessments from joint civil-military perspectives, data interoperability and civil-military ATM system integration, KPIs for post-operation assessment, CMAC considerations in ATFM, FRA etc.;
- c) Consider organizing on-line CMAC/FUA workshop/seminar at regular intervals to exchange experience and maximize participation across the region;
- d) Facilitate States/Administrations' participation in relevant technical training programme for both civil and military, where applicable; and

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 utilize the survey results in **Appendix A** and consider the proposed recommendations to plan further implementation of CMAC/FUA with a phased and adaptable measure to be in line with national ANS development;
- c) discuss the proposals in paragraph 2.10 on CMAC/FUA promotional activities to facilitate technical guidance, experience sharing and collaboration across the region;
- d) encourage States/Administrations to actively participate in and contribute to various regional initiatives on enhanced CMAC/FUA implementation through provision of

best practice, lessons learned, technical cooperation, etc. to facilitate the regional progress and harmonization; and

- e) discuss any relevant matters as appropriate.

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APPENDIX A

SURVEY RESULTS ON CIVIL-MILITARY COOPERATION IN ATM AND FLEXIBLE USE OF AIRSPACE IMPLEMENTATION IN APAC REGION

1. INTRODUCTION

The implementation of Civil-Military Cooperation in Air Traffic Management (CMAC) and Flexible Use of Airspace (FUA) constitutes key elements of the Global Air Navigation Plan and Asia/Pacific Seamless ANS Plan (Version 4.0) for the enhancement of airspace capacity, operational efficiency, Air Navigation Services (ANS) resilience, and environmental sustainability.

In September 2025, a State Letter (RSO - AP104/25 (RSO)) was issued by the Asia and Pacific (APAC) Regional Sub-Office requesting APAC States to complete and submit response to the Survey on CMAC and FUA Implementation. 22 States/Administrations responded to the Survey before 31 March 2026. This report outlines the process and presents the results of the survey.

2. SURVEY QUESTIONNAIRE

2.1 Purpose

The purpose of the Survey is:

- a) To have a better understanding of the current implementation progress on CMAC and FUA in the APAC region, including good practices, lessons learned, difficulties, challenges, etc.
- b) To identify prioritized aspects to further CMAC and FUA implementation.
- c) To understand the needs of the States/Administrations for effective and efficient support from ICAO.

2.2 Components of the Survey questionnaire

The Survey contains five Sections:

Section 1: Respondent Profile

Section 2: Implementation Status

Section 3: Performance Assessment and Benefits

Section 4: Challenges, Experiences and Next Step Forward

Section 5: Support Needs

3. KEY OBSERVATIONS

- a) There is huge diversity in CMAC/FUA implementation. In principle, regarding the ten APANPIRG-identified CMAC/FUA elements, the overall status could be categorized into following four groups:

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- b) Among the 22 respondents, **three** States have fully implemented all the ten elements (with few elements not applicable), **16** States/Administrations have partially implemented, while the other **three** States/Administrations have special situations as there is no designated military airspace in their FIRs.
- c) It is worth noting that **half** of the respondents indicated that their States/Administrations have established high-level permanent body managing strategic civil-military matters, while **four** more States/Administrations are in the process of establishment. Meanwhile, several States/Administrations have no plan for establishment as indicated by the other **five** respondents.
- d) Most States/Administrations have implemented rules/procedures on Special Use Airspace (SUA) management and regular review as indicated by **17** respondents, with four of them conducted in part of their national airspace. Meanwhile, **two** more States/Administrations are in the process of developing. It turns out to be the most well implemented element of CMAC/FUA in the Region.
- e) It is encouraging to see that **12** States/Administrations have implemented FUA at different phases, while **six** more States/Administrations are in the process of developing as indicated by their respondents. However, in regard of the FUA maturity, the overall status of the region is still at basic level as **less than one third (seven)** of the States/Administrations have implemented all-phased FUA and established the joint civil-military airspace management unit.
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- l) The main difficulties and challenges nowadays in CMAC/FUA implementation as indicated by the respondents are (ranked in the top five): *limited resources (financial, technical, human), technological difference between civil and military, national security concerns, lack of national policy/regulatory framework, insufficient technical guidance*, etc. It is encouraging to note that “*high-level commitment and strong will*” are no longer the major difficulty and/or challenge, as indicated by the least number (**five**) of the respondents.
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- q) Preferable forms of support as indicated by the respondents are (ranked in the top three): *regional guidance materials and best practices, workshops and seminars (with on-line and on-site combined), assistance in developing national strategies, etc.*

4. SURVEY RESULTS

This part provides detailed results of each Section in the Survey.

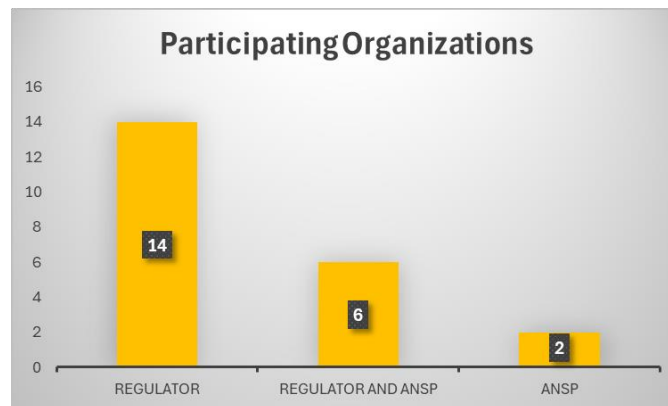
4.1 Section 1: Respondent Profile

The first Section of the Survey contains three questions from Q1 to Q3 about the Respondents’ brief information. The following 22 States/Administrations have completed the Survey and provided single response.

Afghanistan, Australia, Bangladesh, Cambodia, China, Hong Kong China, Macao China, Fiji, Indonesia, Japan, Lao PDR, Malaysia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines,

Republic of Korea, Singapore, Thailand, United States, Vietnam

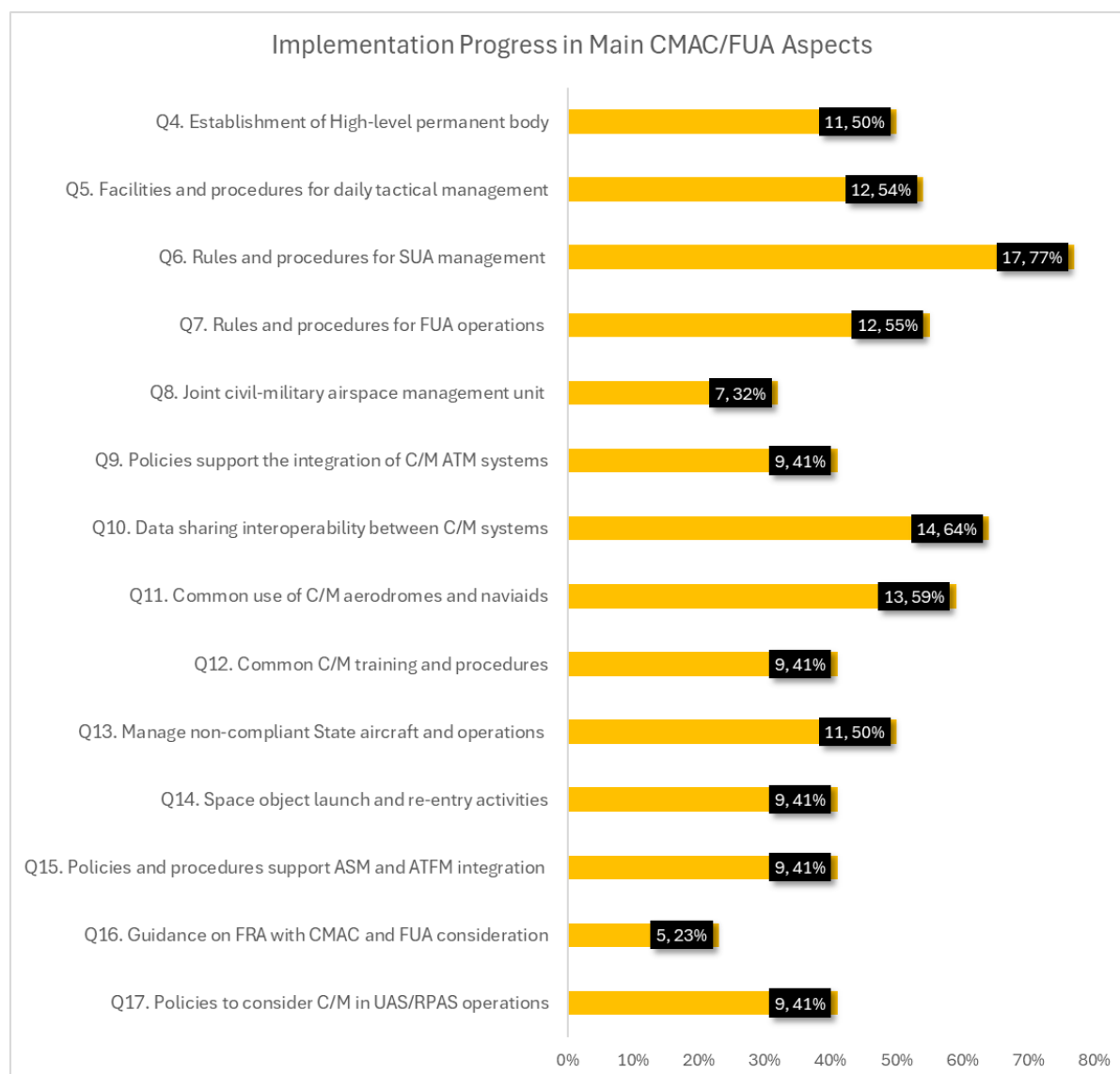
Participating organizations include Civil Aviation Authorities (CAAs) and/or Air Navigation Service Providers (ANSPs).



4.2 Section 2: Implementation Status

This Section of the Survey contains 14 questions from Q4 to Q17 and focuses on the implementation status of CMAC/FUA and that of its integration with relevant ANS initiatives.

4.2.1 Overview



a) The overall implementation progress of CMAC/FUA is rather slow compared to the target timeline of APAC Seamless ANS Plan. Regarding the ten key elements identified by APANPIRG, only seven elements have been implemented by more than half of the responded States/Administrations in the region while the other elements are implemented with even lower percentage.

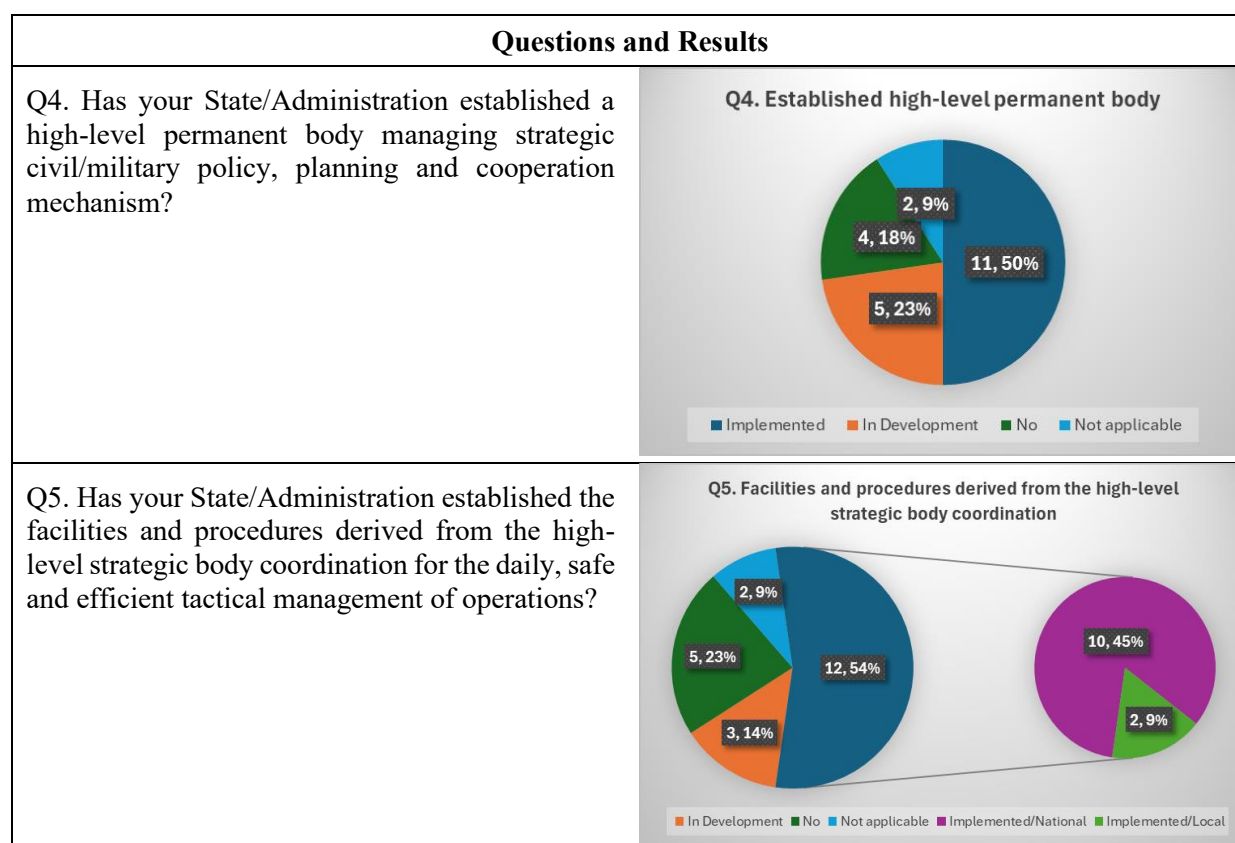
- Elements implemented by more than 70% of the responded States/Administrations:
Airspace Review;
- Elements implemented by more than 50% - 70% of the responded States/Administrations:
Strategic Coordination, Tactical Coordination, FUA, Joint Civil-Military Aerodromes and Navigation Aids, Shared Civil-Military Data;
- Elements implemented by less than 50% of the responded States/Administrations:
Integrated Civil-Military ATM Systems, Common Civil-Military Training and Procedures, Space Object Launch and Re-entry.

Note: The element of *International Airspace* is not covered in this Survey.

b) The aspects that are under active development by States/Administration contain:

- three-phase FUA operations, as indicated by around **36%** of the respondents;
 - the integration of ASM and ATFM, as indicated by around **36%** of the respondents;
 - the establishment of joint civil-military airspace management unit, as indicated by around **27%** of the respondents;
 - integration of civil-military ATM systems, as indicated by around **27%** of the respondents; and
 - the establishment of high-level permanent body, as indicated by around **23%** of the respondents.
- c) The aspects that might be confronted with difficulties and/or challenges to enhance by States/Administrations are:
- implementation of Free Route Airspace (FRA), with due consideration of CMAC and FUA, as indicated by **50%** of the respondents;
 - policies to ensure CAAs, and ANSPs consider the civil-military coordination in the aspect of Unmanned Aircraft System (UAS)/Remotely Piloted Aircraft System (RPAS) operations, as indicated by around **36%** of the respondents;
 - policies and procedures that support the common civil-military training and procedures, as indicated by around **32%** of the respondents;
 - policies and procedures to manage non-compliant State aircraft and operations, as indicated by around **32%** of the respondents; and
 - planning and coordination requirements for space object launch and re-entry activities, as indicated by around **32%** of the respondents.

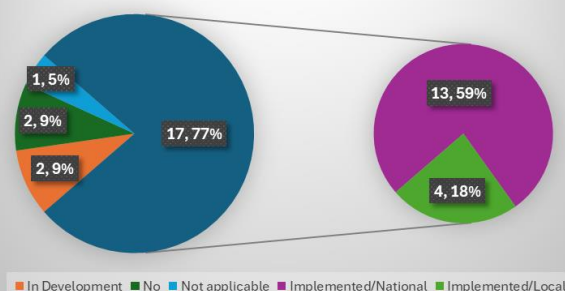
4.2.2 Response Details of Q4 – Q17



Questions and Results

Q6. Has your State/Administration established rules and procedures for the management of Special Use Airspace (SUA) and conducted regular review of SUAs?

Q6. Rules and procedures for the management of Special Use Airspace (SUA)



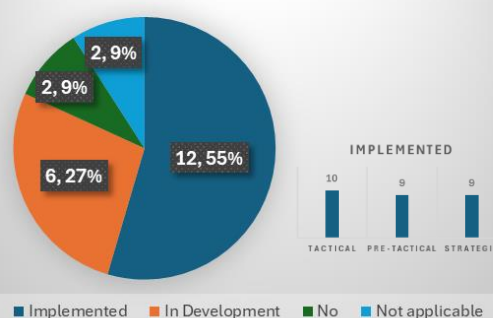
Q7. Has your State/Administration implemented rules and procedures for FUA operations as indicated in ICAO Doc 10088? (Select all that apply)

Note:

*12 States/Administration have implemented FUA at different phases, among which 7 States/ Administrations have implemented all three phases.

**2 States implemented partial FUA is still in development for all phases.

Q7. Rules and procedures for FUA operations

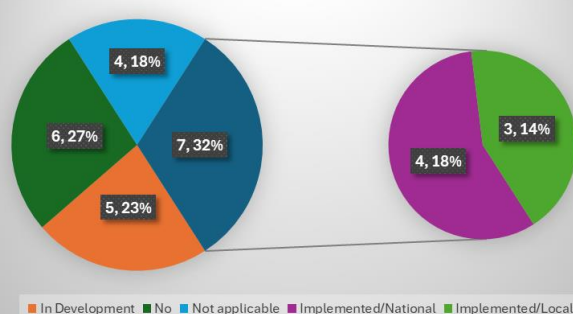


Q8. Has your State/Administration established joint civil-military airspace management unit responsible for the coordination of optimal use of airspace by both civil and military?

Note:

*1 State has established joint civil-military ASM unit at local level and is working on that of the national level.

Q8. Established joint C/M airspace management unit

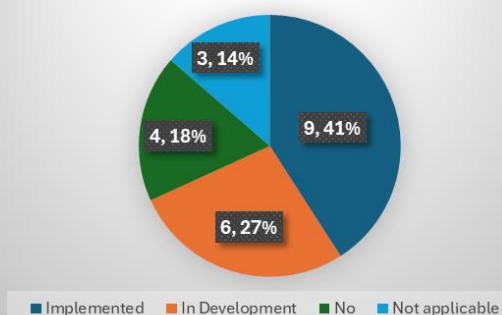


Q9. Has your State/Administration implemented policies that support the integration of civil and military ATM systems, where practical?

Note:

*1 State has implemented the integration of civil ATM systems into military's but not vice versa.

Q9. Policies support the integration of C/M ATM systems



Questions and Results																			
Q10. Has your State/Administration implemented data sharing interoperability between civil and military systems? Note: <i>*1 State has implemented civil ATM data sharing interoperability with military but not vice versa.</i>	Q10. Data sharing interoperability between C/M systems <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Implemented</td><td>14</td><td>64%</td></tr><tr><td>In Development</td><td>4</td><td>18%</td></tr><tr><td>No</td><td>3</td><td>14%</td></tr><tr><td>Not applicable</td><td>1</td><td>4%</td></tr></tbody></table>	Response	Count	Percentage	Implemented	14	64%	In Development	4	18%	No	3	14%	Not applicable	1	4%			
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Questions and Results																
Q14. Has your State/Administration implemented, where applicable, planning and coordination requirements for space object launch and re-entry activities?	Q14. Planning and coordination requirements for space object launch and re-entry activities <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Implemented</td><td>9</td><td>41%</td></tr><tr><td>In Development</td><td>4</td><td>18%</td></tr><tr><td>No</td><td>7</td><td>32%</td></tr><tr><td>Not applicable</td><td>2</td><td>9%</td></tr></tbody></table>	Response	Count	Percentage	Implemented	9	41%	In Development	4	18%	No	7	32%	Not applicable	2	9%
Response	Count	Percentage														
Implemented	9	41%														
In Development	4	18%														
No	7	32%														
Not applicable	2	9%														
Q15. Has your State/Administration implemented policies and procedures that support the integration of three-level Airspace Management (ASM), i.e. Strategic ASM (Level 1), Pre-tactical ASM (Level 2) and Tactical ASM (Level 3), and Air Traffic Flow Management (ATFM) system?	Q15. Policies and procedures support the integration of ASM and ATFM system <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Implemented</td><td>9</td><td>41%</td></tr><tr><td>In Development</td><td>8</td><td>36%</td></tr><tr><td>No</td><td>4</td><td>18%</td></tr><tr><td>Not applicable</td><td>1</td><td>5%</td></tr></tbody></table>	Response	Count	Percentage	Implemented	9	41%	In Development	8	36%	No	4	18%	Not applicable	1	5%
Response	Count	Percentage														
Implemented	9	41%														
In Development	8	36%														
No	4	18%														
Not applicable	1	5%														
Q16. Has your State/Administration established guidance on the implementation of Free Route Airspace (FRA), with due consideration of CMAC and FUA?	Q16. Established guidance on FRA implementation with due consideration of CMAC and FUA <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Implemented</td><td>5</td><td>23%</td></tr><tr><td>In Development</td><td>4</td><td>18%</td></tr><tr><td>No</td><td>11</td><td>50%</td></tr><tr><td>Not applicable</td><td>2</td><td>9%</td></tr></tbody></table>	Response	Count	Percentage	Implemented	5	23%	In Development	4	18%	No	11	50%	Not applicable	2	9%
Response	Count	Percentage														
Implemented	5	23%														
In Development	4	18%														
No	11	50%														
Not applicable	2	9%														
Q17. Has your State/Administration implemented policies that ensure CAAs, and Air Navigation Service Providers (ANSPs) consider the civil-military coordination in the aspect of Unmanned Aircraft System (UAS)/Remotely Piloted Aircraft System (RPAS) operations?	Q17. Policies ensure CAA and ANSP consider C/M coordination in UAS/RPAS operations <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Implemented</td><td>9</td><td>41%</td></tr><tr><td>In Development</td><td>4</td><td>18%</td></tr><tr><td>No</td><td>8</td><td>36%</td></tr><tr><td>Not applicable</td><td>1</td><td>5%</td></tr></tbody></table>	Response	Count	Percentage	Implemented	9	41%	In Development	4	18%	No	8	36%	Not applicable	1	5%
Response	Count	Percentage														
Implemented	9	41%														
In Development	4	18%														
No	8	36%														
Not applicable	1	5%														

4.3 Section 3: Performance Assessment and Benefits

This Section of the Survey contains three questions from Q18 to Q20 and focuses on the post-operational assessments of FUA, distribution of the assessments to relevant stakeholders and the real

benefits gained from the implementation of CMAC and FUA.

4.3.1 Overview

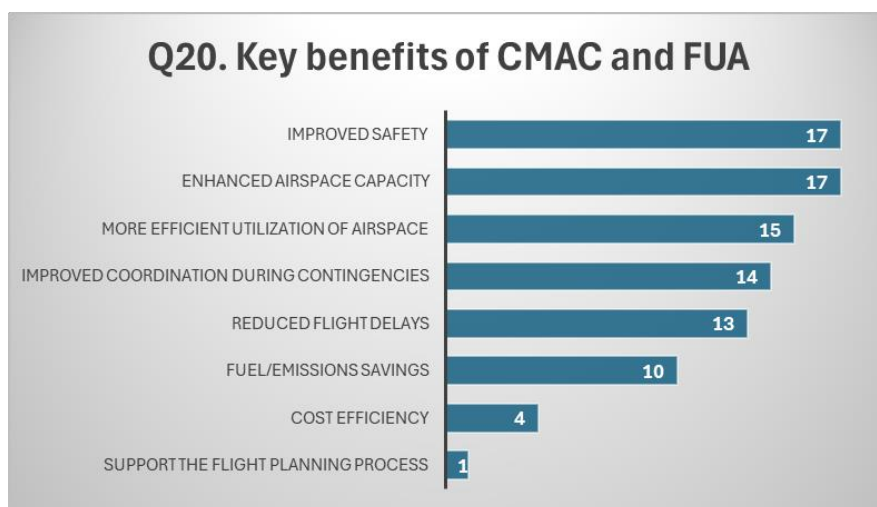
- a) Around 32% of the respondents indicated that their States/Administrations have established policies and procedures to conduct post-operational assessments of FUA on a regular basis and to distribute regular assessments on FUA implementation to relevant stakeholders.
- b) Among them, around 27% of the respondents indicated that their States/Administrations distribute the assessment results to all stakeholders including the military, while 5% distribute only to the civil.
- c) The top five key benefits of CMAC/FUA implementation are as follows:
 - Improve safety, as indicated by 17 respondents;
 - Enhanced airspace capacity, as indicated by 17 respondents;
 - More efficient utilization of airspace, as indicated by 15 respondents;
 - Improved coordination during contingencies, as indicated by 14 respondents; and
 - Reduced flight delays, as indicated by 13 respondents.
- d) Other benefits of CMAC/FUA implementation include Fuel/emission savings, Cost efficiency and Support the flight planning process.

4.3.2 Response Details of Q18 – Q 20

Questions and Results																									
Q18. Has your State/Administration established policies and procedures to conduct post-operational assessments of FUA on a regular basis?	Q18. Policies and procedures to conduct post-operational assessments of FUA on a regular basis <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Implemented</td><td>7</td><td>32%</td></tr><tr><td>In Development</td><td>6</td><td>27%</td></tr><tr><td>No</td><td>8</td><td>36%</td></tr><tr><td>Not applicable</td><td>1</td><td>5%</td></tr></tbody></table>	Response	Count	Percentage	Implemented	7	32%	In Development	6	27%	No	8	36%	Not applicable	1	5%									
Response	Count	Percentage																							
Implemented	7	32%																							
In Development	6	27%																							
No	8	36%																							
Not applicable	1	5%																							
Q19. Has your State/Administration established policies and procedures to distribute regular assessments on FUA implementation to all relevant stakeholders?	Q19. Policies and procedures to distribute assessments on FUA implementation to all relevant stakeholders <table><thead><tr><th>Response</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>In Development</td><td>4</td><td>18%</td></tr><tr><td>No</td><td>10</td><td>45%</td></tr><tr><td>Not applicable</td><td>1</td><td>5%</td></tr><tr><td>Distributed to all</td><td>7</td><td>32%</td></tr></tbody></table> <table><thead><tr><th>Response (from 'Distributed to all')</th><th>Count</th><th>Percentage</th></tr></thead><tbody><tr><td>Distributed to all</td><td>6</td><td>27%</td></tr><tr><td>Distributed to civil only</td><td>1</td><td>5%</td></tr></tbody></table>	Response	Count	Percentage	In Development	4	18%	No	10	45%	Not applicable	1	5%	Distributed to all	7	32%	Response (from 'Distributed to all')	Count	Percentage	Distributed to all	6	27%	Distributed to civil only	1	5%
Response	Count	Percentage																							
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Response (from 'Distributed to all')	Count	Percentage																							
Distributed to all	6	27%																							
Distributed to civil only	1	5%																							

Questions and Results

Q20. What key benefits have CMAC and FUA delivered? (Rank top five, with No. one as the best)



4.4 Section 4: Challenges, Experiences and Next Step Forward

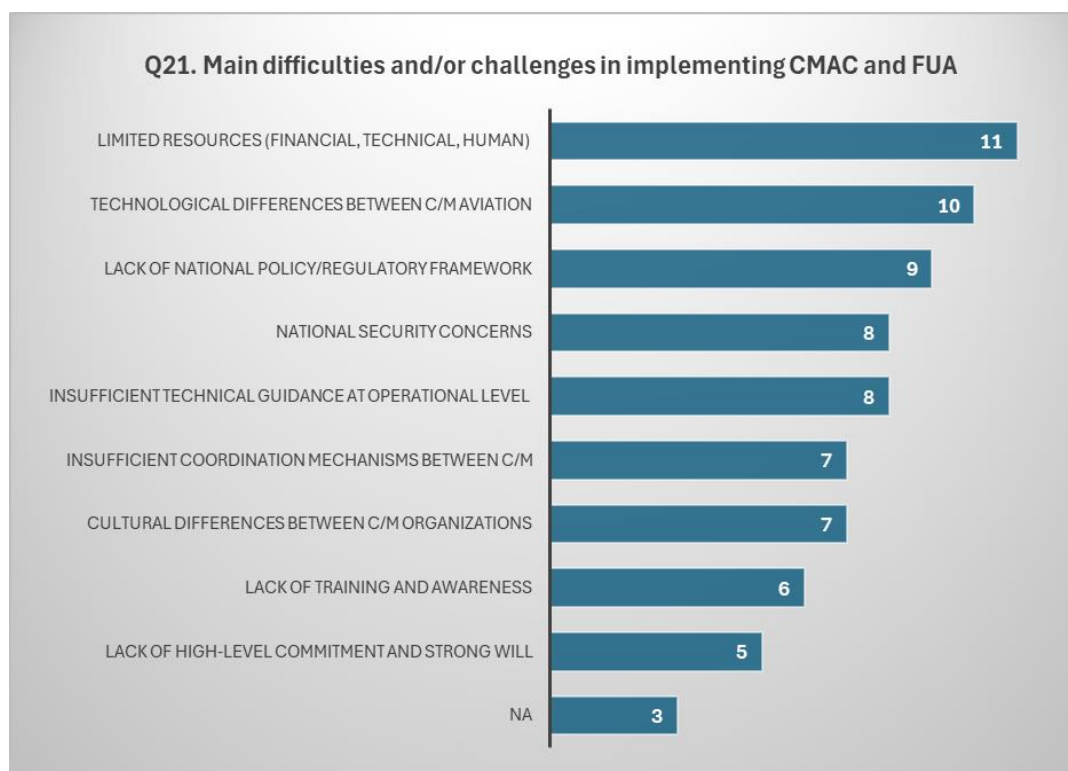
This Section of the Survey contains four questions from Q21 to Q24 and focuses on challenges confronted, experience gained by the States/Administrations during the process of CMAC/FUA implementation and their priorities for further development in near future.

4.4.1 Main challenges in CMAC/FUA implementation

- a) The main difficulties and/or challenges in implementing CMAC and FUA as indicated by respondents are listed below. It is worth noting that “*high-level commitment and strong will*” are no longer the major difficulties and/or challenges for States/Administrations to implement CMAC/FUA, as indicated by the least number (only five) of the respondents.

Questions and Results

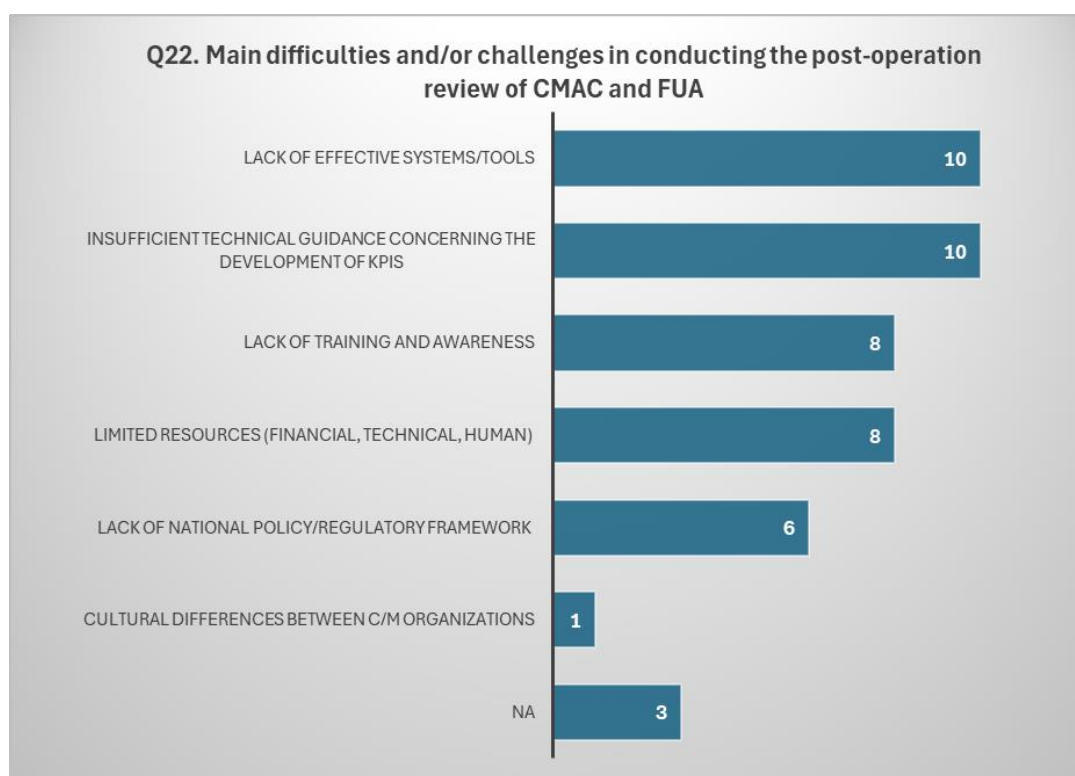
Q21. What are the main difficulties and/or challenges in implementing CMAC and FUA in your State/Administration? (Select top five)



4.4.2 Main challenges in the post-operation review

- b) The main difficulties and/or challenges in conducting the post-operation review of CMAC and FUA as indicated by the Survey respondents are listed below.

Q22. What are the main difficulties and/or challenges in conducting the post-operation review of CMAC and FUA in your State/Administration? (Select top three)



4.4.3 Key experiences and good practices

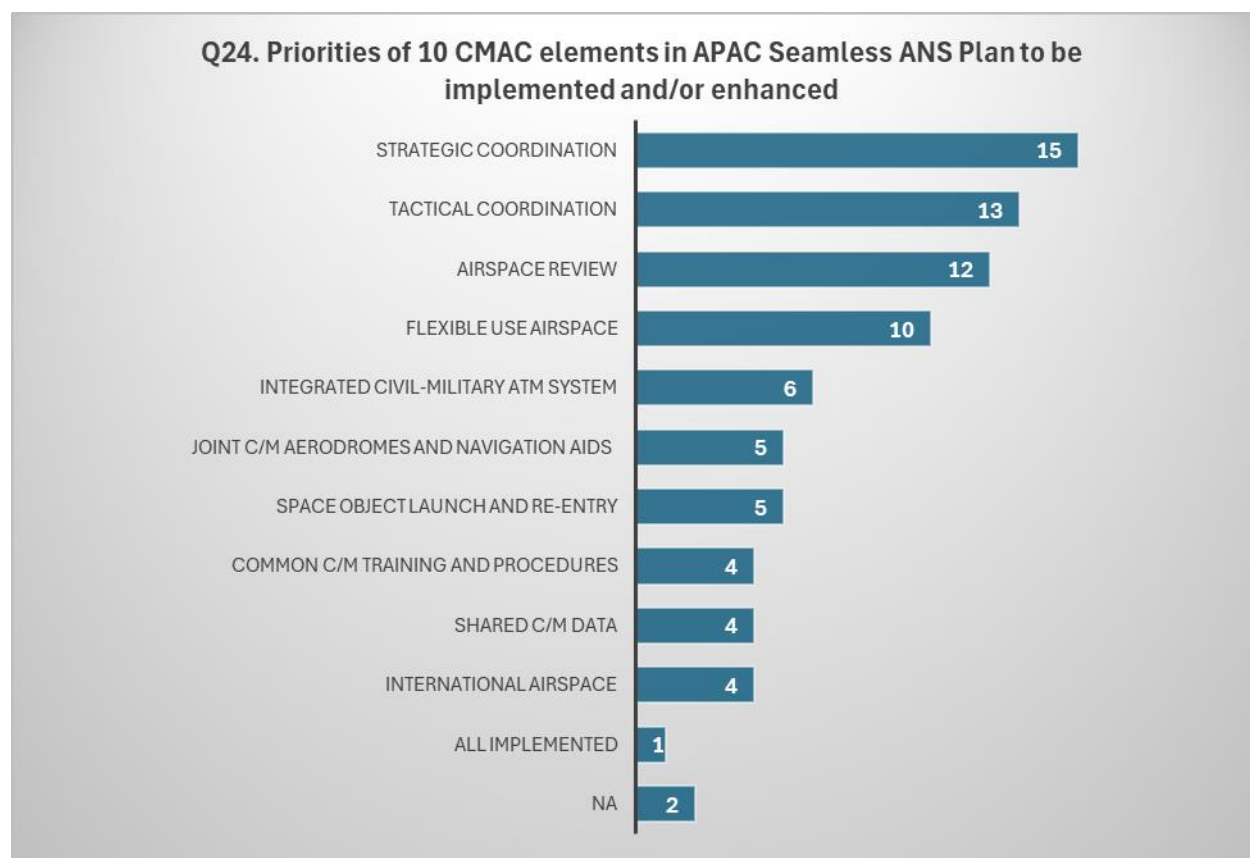
- c) Eighteen respondents have shared the experiences and good practices gained regarding the CMAC and FUA implementation in their States/Administrations, which could be summarized into the following three aspects:
- **High level commitment, policy, organization and mechanism.** Strong commitment from high-level in both civil and military, which has been crucial for driving implementation forward. A high-level, jointly agreed policy between civil and military authorities is essential. A dedicated and independent Airspace Management Unit should be established. Continuously operating a coordination body for civil-military air management cooperation and actively implementing Conditional Routes (CDRs). Existing SUA and ATS routes should be systematically reviewed and modified to align with current civil and military operational requirements. Although the full implementation of CMAC and FUA is still in progress, key experience and good practices gained related to the planning, coordination and institutional readiness for such implementation.
 - **Civil-military cooperation and coordination.** Regular operational-level coordination meetings on airspace usage should be conducted to ensure ongoing effectiveness and cooperation. Regular civil-military conferences and meetings that facilitate knowledge sharing and address operational challenges collaboratively. The importance of early civil-military collaboration and continuous coordination (presence of Liaison in the air traffic control facilities) to address local operational challenges. Timely coordination with the military units within the FIR with regards to military exercises. Established data sharing protocols between civil and military systems that improve situational awareness and enable more efficient airspace management. Through mutual understanding and collaboration between the civil and military authorities, both entities can achieve a common understanding to ensure the safe and efficient conduct of civil aviation operations.

- **Joint civil-military training.** Joint civil-military training programs that enhance mutual understanding of operational procedures and build trust between both sides. Exchange of experiences through training and meeting results in enhancing airspace safety & capacity. Moreover, capacity building and training for both civil and military staff to understand each other's operational constraints and priorities. Good practices such as joint training with military counterparts proved effective in enhancing responsiveness. Training plans and usage conditions for training airspace were shared. Conditional routes were available.
- d) Additionally, more benefits of implementation have been underscored by the respondents: FUA could help airlines save costs and reduce CO₂ emission; Increased operational efficiency; Reduce delay, routing prediction; Allows flexibility in airspace usage; Partially implemented FUA for Domestic Flights has resulted in reduced carbon emissions, improved capacity, fuel efficiency and cost benefits for operators; Better utilization of the airspace and overall, better clarity of the responsibility of service provision of the airspace.

4.4.4 Elements of CMAC with top priorities to be implemented and/or enhanced

- e) Based on the consolidated reply from 19 respondents, the top five prioritized elements for implementation and/or enhancement among the recommended ten elements of CMAC in the Asia and Pacific Seamless ANS Plan are as follows:
 - Strategic Coordination, as indicated by 15 respondents;
 - Tactical Coordination, as indicated by 13 respondents;
 - Airspace Review, as indicated by 12 respondents;
 - Flexible Use Airspace, as indicated by ten respondents; and
 - Integrated Civil-Military ATM System, as indicated by six respondents.

Q24. Among the recommended ten elements of CMAC (refer to Appendix A for details) in the Asia/Pacific Seamless ANS Plan, which aspects would be of the top priorities to be implemented and/or enhanced in your State/Administration? (Select 3 - 5 elements that apply)



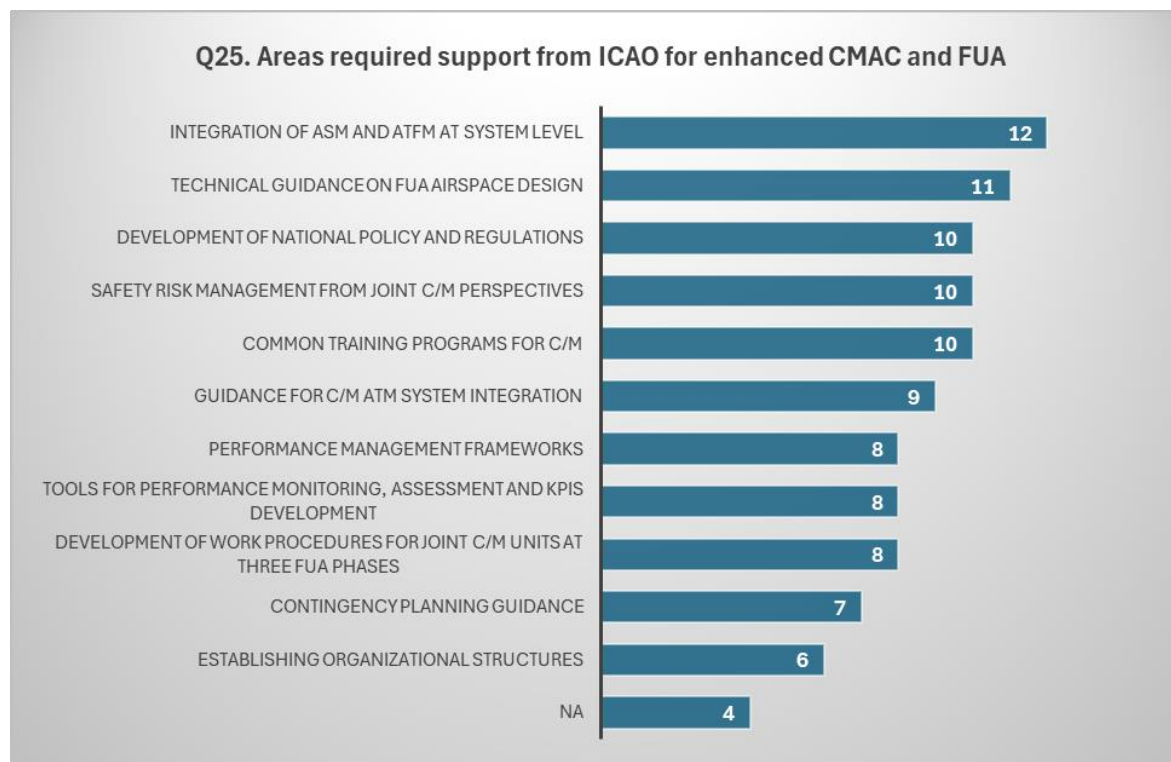
4.5 Section 5: Support Needs

This Section of the Survey contains three questions from Q25 to Q27 with the intention of understanding States/Administrations' requirements for support to further the implementation of CMAC/FUA from ICAO.

- a) The main aspects required by States/Administration from ICAO for CMAC/FUA implementation include:

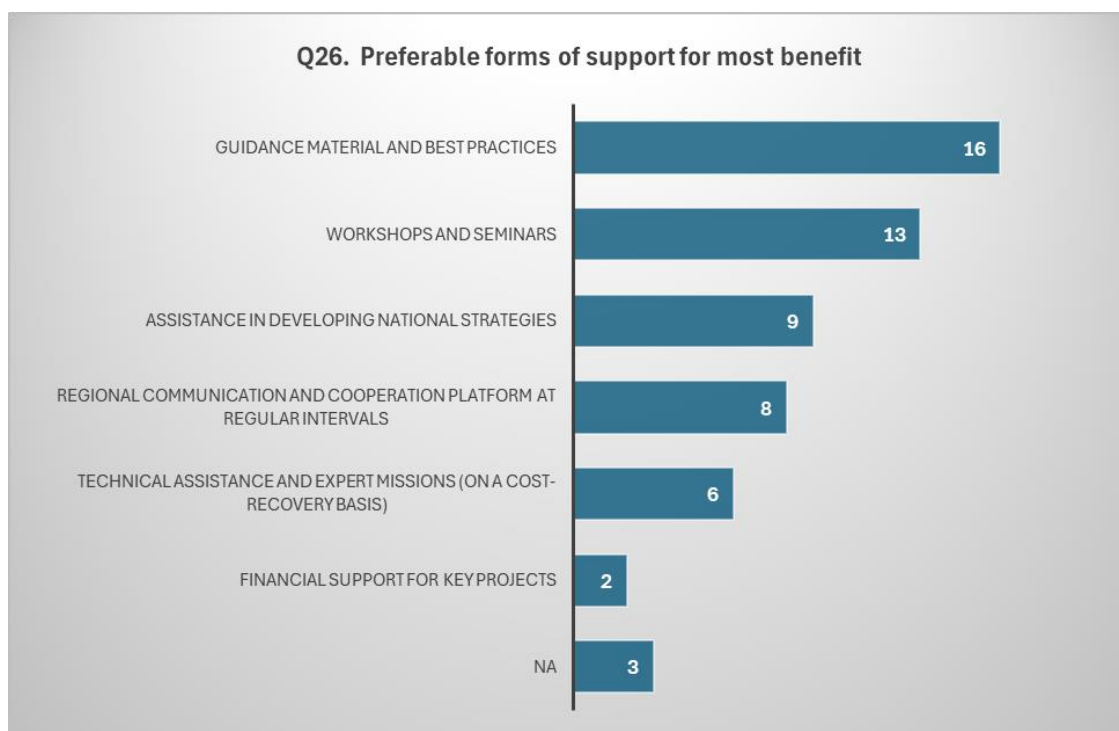
Questions and Results

Q25. In which of the following areas does your State/Administration require support from ICAO for enhanced CMAC and FUA? (Select all that apply)



b) The specific forms of support that considered to be of most benefit are:

Q26. What specific forms of support would be most beneficial? (Select all that apply)



- c) Six respondents have shared their valuable suggestions for the next ICAO workshop on CMAC/FUA implementation, which was summarized as follows:
- Hope more States/Administrations could use the ICAO platform to share specific operational cases.
 - It is recommended to invite a well-established ICAO Member State with a mature implementation of CMAC and FUA to present their best practices. This would serve as a benchmark for other States to learn from and to identify the most effective methods for implementing similar arrangements.
 - ICAO may plan workshops/seminars at regular intervals regarding CMAC/FUA on virtual platforms to ensure maximum participation of States. ICAO APAC Office would be suitable venue (for on-site events).
 - Propose to include an item on sharing the technical guidance on KPIs to assess the effectiveness of the FUA.
 - ICAO to facilitate the State's participation in relevant technical training and coordination with IATA.

5. RECOMMENDATIONS

The following recommendations are presented to ensure the survey results can be used to further the implementation of CMAC/FUA in the region.

5.1 Recommendations for States/Administrations

- a) Continue the efforts on the establishment of high-level civil-military body and national policy on CMAC/FUA if have not yet accomplished, and consider establishing joint civil-military airspace management units at national level as a priority
- b) Implement FUA concept where applicable to the most extent possible for operational benefits;

adopt three-level ASM and FUA operations (strategic, pre-tactical, tactical) in phases to adapt to the national operational environment

- c) Consider creating mandatory post-operation assessment policies for FUA and promoting the distribution of assessment reports to all relevant stakeholders; conduct regular SUA reviews based on the post-operation assessment results for the continuous enhancement of airspace efficiency and effectiveness
- d) Start with joint training as a low-cost, high-trust building measure between civil and military; further the data sharing interoperability and ATM system integration between civil and military
- e) Share best practices and contribute to the development of technical guidance on FUA implementation for the Region

5.2 Recommendations for ICAO

- a) Develop technical guidance on FUA implementation for the Regional, including but not limited to main KPIs for post-operation assessment, establishment of joint civil-military airspace management unit and relevant procedures of information publication etc.
- b) Cover States/Administrations' concerns in the future ICAO workshop/seminar such as safety risk assessments from joint civil-military perspectives, KPIs for post-operation assessment, data interoperability and civil-military ATM system integration, etc.
- c) Organize on-line/off-line mixed CMAC/FUA workshop/seminar at regular intervals to share experience and maximize participation
- d) Facilitate States/Administrations' participation in relevant technical training for both civil and military, and their coordination with relevant Stakeholders
- e) Provide technical guidance on the implementation of relevant ASBU initiatives such as ATFM, FRA, etc. from perspective of integrated application of CMAC/FUA through various forms when appropriate

— END —