Agenda
Item 2: **Report of activities and deliverables of the GESEA and Subgroups**

b) ATM implementation. Progress of the Subgroups.

FLEXIBLE USE OF AIRSPACE (FUA) AND CIVIL-MILITARY COOPERATION IN THE ATM

(Submitted by Secretariat)

SUMMARY

This paper aims to analyze improvements for the Flexible Use of Airspace and Civil-Military Cooperation, in the context of the new ICAO Doc. 10088. The availability of a model for a National FUA Manual is highlighted, as well as the importance of a Committee for the organization and management of airspace - CAOM.

References:

- SAM/IG Meetings
- GESEA/7 Plenary Meeting
- Workshop/Meeting for the SAM Region on Flexible Use of Airspace (FUA) and Civil-Military Cooperation in the ATM (Lima, Peru, June 19-23, 2023)

1. Background

1.1 The Workshop/Meeting on FUA and Civil-Military Cooperation in the ATM, was held at the ICAO South American Regional Office, Lima, from 19 to 23 June 2023. The event was developed with the following objectives:

- Consolidate the progress of the implementation of the FUA in the SAM Region.
- Strengthen the management of the security, economic and environmental aspects of civil and military operations in the airspace of the SAM Region in the States.

1.2 The event was attended by 25 civilian and military delegates from Argentina, Bolivia, Brazil, Chile, Ecuador, Paraguay, Peru, Uruguay and Venezuela. The Summary and Material of the event can be found at the following link:

icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2023-RLA06901-FUA&t=1

2. **Analysis**

2.1 The program was divided into 10 sessions, allowing participants to analyze the provisions of Doc. 10088 "Manual of Civil-Military Cooperation for Air Traffic Management" and other applicable ICAO texts, according to the following theme:

Session 1. Background to the implementation of the FUA in the SAM Region
Session 2. ICAO Framework - FUA Elements in the FRTO Module of the GANP
Session 3. Civil-Military Collaboration, Cooperation and Coordination – Communication – Principles of Airspace Management.
Session 4. State Aircraft Operations and National Security and Defense Issues - Identification of State Requirements – Structures, Processes and Functions.
Session 5. Airspace Organization and Management (ASM) – General Principles
Session 6. Basic FUA and Enhanced FUA – CDM – Airspace Structures
Session 7. Phases of the FUA – post-operations analysis – Airspace over the high seas.
Session 8. Civil-Military Interoperability – Armed Conflicts – Natural Disasters – Special Activities
Session 9. ATS Contingency Plans – MCATS Framework Plan. Humanitarian Assistance and Disaster Response -HADRA
Session 10. Summary - Next Steps for the SAM Region.

Analysis of the FUA and Civil-Military Cooperation in the SAM Region

2.2 In general, the Workshop/Meeting agreed on the adequacy of the concepts of ICAO Doc. 10088 issued in 2021. The description and organization of the FUA system in strategic, pre-tactical, and tactical phases was highlighted. The inclusion of the FUA within the FRTO B0-2 operational element and its operational relationship with the FRTO B0-1 on **Direct Routing was included** 1 , as well as the NOPS B0-1 element referring to initial ATFM-ASM integration. More details were presented through the links on the ICAO GANP portal:

https://www4.icao.int/ganpportal/ASBU

https://www4.icao.int/ganpportal/ASBU/Element/Pdf?IDs=84&ShowPart1=true

2.3 The scenarios presented during the five days of the Workshop/Meeting are common - with some nuances - to most SAM States. The structure of airspace and designated areas needs to be revised under modern concepts of FUA, recognizing the present needs of civilian and military users. There are several actors at high levels of decision-making, which complicates the processing of civil-military coordination documents and their periodic maintenance.

2.4 Coordination processes are implemented with a view to ensuring that operations are secure and flexible, but without the appropriate formality or the signing of applicable documents (MOUs, LOAs, etc.). There are no process performance indicators (KPIs), so opportunities for improvement cannot be clearly identified. Doc. 10088 presents KPI models in very simple concepts (see Appendix C of the document) that can be quickly adopted in the Region.

2.5 States identified the importance of publications in the IPA to describe, with levels of security, the characteristics of their special-use airspaces, the processes of temporary reservations, use of segregated space, etc. In this context, the publication of the air defense identification zone – ADIZ, when applicable, was highlighted. The requirements of Annex 15 and the PANS AIM were outlined.

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1 Initiative promoted since 2020 by SAMIG under the acronym EDE in South America, to reduce CO2 emissions

2.6 With few exceptions, it was noted that there are no active bodies that fulfill the purposes of a Policy Board for High-Level Civil-Military Cooperation in Aviation (CMAB) and/or the Committee for the Organization and Management of Airspace (CAOM), as described in Doc. 10088.

2.7 In the case of the CMAB, it was recognized that the adoption of the concept indicated in Doc. 10088 would encounter difficulties related to the high level of officials required to form the Board. The administrative processes of the military corps, which can be complex, were also analyzed.

2.8 In the case of the CAOM, it was agreed that the model proposed in the ICAO document can be adopted, even adapting to the current coordination structures, leading to an optimization for the FUA and the ASM managed in the States. The FUA Manual described in the following paragraphs would be an enabler for the implementation of the CAOMs.

Manual on FUA

2.9 Based on Doc. 10088, the Workshop/Meeting considered an example of a Manual on Flexible Use of Airspace. To this end, the practices of the ICAO APAC Region were observed. Formal improvements were included in the structure of the Manual, and some terms of the document were refined.

2.10 As a result, a draft of the "**Manual (Model) on Flexible Use of Airspace" was prepared,** which should be adapted to the reality of each State/administration and enriched with the concepts of the corresponding ICAO documentation.

2.11 The Handbook describes the three phases of airspace management (ASM). It emphasizes the organization and functioning of a CAOM that has the power to implement the FUA and to formulate national policy, strategic planning, as well as guidelines for the ASM. The text is presented in **Appendix A** to this paper.

Conclusions of the Workshop/Meeting

2.12 It was recognized that the SAM Region should initiate activities to adopt the provisions of document 10088 as a matter of priority. In all states, there is a marked interest in the contribution of the FUA to operational safety, as well as in the capacity and efficiency of the airspace, which is linked to the possibility of fuel savings and CO2 emissions in the atmosphere. On the other hand, the emergence of "new entrants" such as drones, UAS, urban mobility, space tourism, etc. will add pressures to the demand for airspace in the short and medium term.

2.13 The Workshop/Meeting agreed that the implementation of a Committee for the Organization and Management of Airspace (CAOM) in each administration is feasible in the short term, relying on the model of the FUA Manual that allows the development of a **national FUA Manual** that recognizes and incorporates the legal system and internal practices in the field of FUA and ASM.

2.14 The national CAOM should be an important element of the performance measurement framework. In the specific context of dynamic airspace management, such a committee could establish joint civil-military processes to carry out a periodic (at least annual) assessment, at all three levels, of the efficiency of airspace and the effectiveness of procedures, among other initiatives.

2.15 The implementation of the FUA at the national level must take into account the requirements of economic, administrative and personnel resources for its viability. At the same time, the need to establish a roadmap and instruments to verify each stage of progress was recognized, which must be promoted by SAMIG and its contributing bodies, as part of the implementation work of the FRTO

module that is already in progress. The assistance and accompaniment of the SAM Regional Office is envisaged for these activities.

2.16 In despite of the formal processes and validation mentioned above, it was recognized that the civil-military administrations should advance the tasks of socialization and dissemination of the concepts of Doc. 10088 at the ATM community levels and in the military field, in addition to advancing the efforts for the formation of a CAOM, reviewing the LOAs/MOUs that are obsolete or subscribing new instruments for the ASM. The Secretariat remained at the disposal of the FUA and ASM bodies of each State to offer the assistance required, maintaining contact with the delegates of the Workshop/Meeting.

3. Suggested Actions

3.1 The Meeting is invited to:

a) Analyze the information provided in this paper;

b) discuss actions to validate the National FUA Manual (model); and

c) analyze the viability of the administrations to evolve towards the implementation of a CAOM Committee in each State.

APPENDIX A

Draft prepared by the Workshop/Meeting on Flexible Use of Airspace (FUA) and Civil-Military Cooperation in ATM for the SAM Region - (Lima, Peru, 19-23 June 2023)

(MODEL) MANUAL ON FLEXIBLE USE OF AIRSPACE

Note.- The Model must be adapted to the reality of each State and enriched with the concepts contained in ICAO Documents, inter alia, Doc 10088, Doc 10084, Doc 4444, Doc 9750, etc.

RECORD OF AMENDMENTS AND CORRIGENDA

AMENDMENTS			
No.	Effective date	Date entered	Entered by

CORRIGENDA			
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INTRODUCTION

Objective

i The Flexible Use of Airspace (FUA) Manual (hereinafter referred to as "FUA Manual") of (*State XYZ*) has been prepared by (*insert one of the following:* CAA, ANSP, DGCA, AIR FORCE, NAVY, ARMED FORCES, etc.). This manual contains comprehensive guidance on matters pertaining to the harmonised implementation of airspace management (ASM) and flexible use of airspace (FUA) in (State XYZ).

ii The FUA Manual takes into account the guidance provided by the International Civil Aviation Organization in this regard (*insert reference to one of the following ICAO documents: Doc 10088, Doc 9750, etc.*). FUA will be facilitated through strategic cooperation, pre-tactical cooperation and tactical coordination that will enable dynamic interaction, thus allowing for the implementation of optimum flight paths and the reduction of operating costs for airspace users while protecting the environment. All this will be attained with due regard to safety aspects and military operational requirements.

Scope

iii The FUA Manual — (*State XYZ*) has been developed for use in the (*insert the name of the FIR(s)*), taking into account operational improvements and airspace optimisation initiatives in the short and medium term, and, particularly, on the basis of ATS route network optimisation in the Region. This manual will apply to all civil and military utilisation of flexible airspace structures.

National background

(Note.— The text is only indicative and may be expanded following an analysis by the State of civil-military cooperation and FUA.)

iv Military aviation places a strong emphasis on national airspace security, and civil-military cooperation reinforces effective real-time coordination.

v To achieve its goal, civil-military cooperation and coordination should be based on a dialogue between civil and military authorities, as well as on a clear understanding that supporting civil air navigation infrastructure is consistent with the military mission of defending the interests of the nation. The objective is to make better use of airspace, using mechanisms such as the exchange of flight plan and surveillance data.

vi One of the deficiencies identified in the current system is the lack of FUA policies and procedures that hampers airspace design and management by not allowing the implementation of an optimum airspace structure and the use of optimum flight paths. Limitations identified include the existence of permanently reserved airspace, mainly for military purposes, which, while justified from a national security point of view, creates obstacles to airspace planning, preventing direct flights between the airports of origin and destination and/or between city pairs. Civil-military cooperation, based on FUA principles, should allow civil flights through these areas when the military is not using them.

vii Improved civil-military cooperation and coordination strengthens airspace safety, allows for a more efficient ATS route structure and increases airspace capacity. It reduces kilometres flown and fuel consumption and, consequently, CO2 emissions into the atmosphere. It also increases the availability of additional airspace for military use on a day-to-day basis when it is not possible to meet the requirements in the existing reserved airspace.

Basic airspace management principles and strategies

viii States should include the following principles in accordance with ICAO provisions:

a) all available airspace should be managed in a flexible manner, whenever feasible;

b) airspace management processes should incorporate dynamic flight paths and provide optimal operational solutions;

c) where conditions require segregation of airspace based on different types of operations and/or aircraft, the size, shape and time zones of said airspace should be determined in such a way as to minimise the impact on operations;

d) the use of airspace should be coordinated and monitored in order to accommodate the conflicting requirements of all users and minimise operational constraints;

e) airspace reservation should be planned in advance, with changes made dynamically where possible. The system also needs to accommodate short-notice unplanned requirements; and

f) the complexity of operations may limit the degree of flexibility.

ix Cooperation and coordination between civil and military authorities will be organised at the strategic, pre-tactical and tactical level in order to enhance safety and increase airspace capacity, as well as to improve the efficiency and flexibility of air operations.

x Consistency among airspace management, air traffic management, air traffic flow management (ATFM) and ATS should be established and maintained at the three airspace management levels (strategic, pre-tactical and tactical).

xi Airspace reservation for exclusive or specific use of certain user categories will be applied only temporarily for limited periods of time, depending on actual use, and will cease as soon as the activity for which it was applied ceases. For such reservation, the procedures set forth in ICAO Annexes and documents will be followed.

xii Air traffic service units and users will make the best possible use of available airspace.

xiii Coordinated and collaborative decision-making by ATS and ATFM units and the effective implementation of the FUA concept should be consistent and permanent during the strategic, pre-tactical and tactical phases of airspace management.

xiv Adequate resources should be allocated for the effective implementation of the FUA concept,

taking into account civil and military needs.

xv National airspace security will be paramount and should not be compromised at any stage.

FUA Manual — Structure and contents

xvi The FUA Manual takes into account the national security situation, the national civil-military cooperation history and current and future requirements, as well as the best practices and principles of flexible use of airspace (FUA) set forth in ICAO Annexes and documents.

xvii This manual is organised as follows:

Chapter 1. Definitions, acronyms and abbreviations

Chapter 2. Detailed information on the implementation of FUA in (State XYZ). FUA is based on three levels of ASM, as well as on a flexible airspace structure, the application of the FUA concept, priority-setting rules, and the transition to the FUA concept.

Chapter 3. ASM Level 1 procedures. Airspace change proposals; joint design of airspace at the strategic level; and airspace allocation at the strategic level (ATS-ASM-ATFM relationship, subject to the implementation of ATFM).

Chapter 4. ASM Level 2 (pre-tactical management) procedures. Detailed information on airspace management cells (AMCs) and processes for allocation and notification based on airspace requests.

Chapter 5. Procedures for publication, promulgation and dissemination of FUA information: AIP, airspace use plan, updated airspace use plan, etc.

Chapter 6. Detailed information on air defence requirements. Cooperation between civil and military units providing ATS services in case of national defence breaches, interception of civil aircraft, ADIZ, etc.

Chapter 7. ASM Level 3 (tactical management) processes and procedures.

Chapter 8. Detailed information on civil-military cooperation activities and interoperability of their systems.

TABLE OF CONTENTS

CHAPTER 1. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

Note.- to be completed in each State (references: Doc 10088, Doc 4444, etc.)

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace, including air traffic services, airspace management and air traffic flow management —safely, economically and efficiently — through the provision of seamless facilities and services in collaboration with all stakeholders and on-board and ground-based functions.

Appropriate military unit. A military unit that plans or executes any type of air activity, provides aircraft with any type of control service and has any form of responsibility in a given airspace. For example, an appropriate military unit may be a military unit providing ATS services, a combat control unit, a fighter aircraft control unit, a ground defence control unit, a shooting range control unit, a wing (or group), an air base, a special operations unit operating unmanned aerial vehicles (UAVs) or remotely piloted aircraft systems (RPAS).

Effectiveness of military missions. Ability of the military to conduct its operations and training (including the necessary exercises) in order to maintain the operational skills required to safeguard the essential interests of security or defence policies and to achieve the political goals of its State.

Special use airspace (SUA). In the context of this manual, SUA is a general term applied to volumes of airspace designated for specific operations, such as training, exercises and military operations, the nature of which may require airspace access limitations to be imposed on other aircraft not engaged in such activities. These volumes of airspace may include, *inter alia*, restricted, danger and prohibited areas or temporarily restricted areas (TRAs).

Segregated airspace. Airspace of specified dimensions allocated for the exclusive use of a specific user(s), with operations that cannot be safely integrated with those of other airspace users.

Air traffic management (ATM) performance. Measure to determine how well the ATM system meets the expectations of the ATM community. For each KPA, performance against individual performance goals is measured using performance indicators.

Conditional route (CDR). A non-permanent ATS route or portion thereof that can be planned and used under specified conditions.

Air traffic management (ATM) security. Safeguarding of the ATM system against security-related threats and vulnerabilities and contribution of the ATM system to civil aviation security, national security and defence and law enforcement.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Temporary reserved area (TRA). An airspace temporarily reserved and allocated for the specific use of a particular user during a determined period of time and through which other traffic may be allowed to transit subject to air traffic control clearance.

Restricted area. An airspace of defined dimensions, above the land or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

Cross-border area (CBA). Reserved or segregated airspace established over international boundaries to meet specific operational requirements.

ACRONYMS AND ABBREVIATIONS

ACC	Area Control Centre
AD	Aerodrome
ADC	Air Defence Clearance
ADIZ	Air Defence Identification Zone
ADS-B	Automatic dependent Surveillance - broadcast
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
AMC	Airspace Management Cell
ANSP	Air Navigation Service Provider
AO	Aircraft Operator/Airline Operating Agency
ASM	Airspace Management
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Services
ATSU	Air Traffic Services Unit
ATZ	Aerodrome Traffic Zone
AUP	Airspace Use Plan
CAOM	Committee for Airspace Organization and Management
CBA	Cross-Border Area
CDM	Collaborative Decision-Making
CDR	Conditional Route
CNS/ATM	Communication, Navigation and Surveillance/Air Traffic Management
CTA	Control Area
CTR	Control Zone
CWP	Controller Work Position
DGAC	Director General of Civil Aviation
eAIP	Electronic AIP
ENR	En route
EOBT	Estimated Off Block Time
ETD	Estimated Time of Departure
FDPS	Flight Data Processing System
FIC	Flight Information Centre
FIR	Flight Information Region
FMU/FMP	Flight Management Unit/Flow Management Position
FPL	Flight Plan
FTP	File Transfer Protocol
FUA	Flexible Use of Airspace
GNSS	Global Navigation Satellite System
GPI	Global Plan Initiative
HMI	Human-Machine Interface
ICAO	International Civil Aviation Organization

IFR	Instrument Flight Rules
LOA	Letter of Agreement
MOU	Memorandum of Understanding
PANS	Procedures for Air Navigation Services
PBN	Performance-Based Navigation
PSR	Primary Surveillance Radar
RAD	Route Availability Document
RPA	Remotely Piloted Aircraft
RRP	Re-Routing Proposal
RTF	Radio Telephony Frequency
SAR	Search and Rescue
SARPS	Standards and Recommended Practices
SID	Standard Instrument Departure
SMS	Safety Management System
SOP	Standard Operating Procedure
SSR	Secondary Surveillance Radar
STAR	Standard Instrument Arrival
SUA	Special Use Airspace
SUPPS	Regional Supplementary Procedures
TMA	Terminal Control Area
TMU	Traffic Management Unit
TRA	Temporary Reserved Area
UACC	Upper Area Control Centre
UAS	Unmanned Aircraft System
UUP	Updated Airspace Use Plan
VFR	Visual Flight Rules
WGS	World Geodetic System

CHAPTER 2. GENERAL

2.1 Implementation of FUA

2.1.1 High-level recommendations, master plans, national legislation on FUA, adoption of FUA by the State and establishment of a national Committee for airspace organization and management (CAOM).

2.2 (Name of the national CAOM) — Establishment and terms of reference

2.2.1 The composition of the *(name of the national CAOM)* is as follows:

	Designation/Organisation	Status
1		President
2		Vice-President
3		Member
4		Member
5		Member
6		Member/chair of a meeting
7		Member

2.3 Main functions and responsibilities of the CAOM

2.3.1 The *(name of the national CAOM)* has the responsibility of implementing the flexible use of airspace (FUA).

2.3.2 The *(name of the national CAOM)* is responsible for the formulation of the national airspace policy and does the necessary strategic planning, taking into account national and international airspace requirements.

2.3.3 This body will also develop airspace allocation policy guidelines and procedures for ASM 1, ASM 2 and ASM 3.

2.4 *(Name of the national CAOM)* — Terms of reference

Note.- Consider inserting the terms of reference (ToRs) as deemed appropriate. The following list is for reference only.

The terms of reference of the *(name of the national CAOM)* are as follows:

a) assess and re-assess the national airspace use requirement of the various stakeholders and the route structures;

b) establish flexible use of airspace (FUA) structures and introduce procedures for the allocation of these airspace structures;

c) enhance safe and effective regulation and management of airspace, as well as the respective support infrastructure;

d) designate the military special use airspace (SUA), and review the continued use, dimensions and activation timing at regular intervals not exceeding five years;

e) improve coordination for implementation and harmonisation of civil and military ATC systems to ensure common features and applications;

f) standardise CNS/ATM infrastructure to support a civil-military interface;

g) establish, as necessary, appropriate committees, sub-committees or advisory bodies at the appropriate implementation levels or for making the appropriate FUA implementation decisions; and

h) any other issues of vital importance for FUA.

2.5 Three levels of ASM

2.5.1 The FUA concept is based on three levels of ASM that have been identified as follows:

i) Strategic ASM — ASM Level 1;

j) Pre-tactical ASM — ASM Level 2; and

k) Tactical ASM — ASM Level 3.

2.5.2 The three levels correspond to civil-military ATM cooperation and coordination activities. Each level is directly related to, or affects, the other levels.

ASM Level 1 — Strategic management

2.1.2 Strategic ASM, corresponding to Level 1, consists of a joint civil and military process within the *(name of the national CAOM)* for the formulation of the national airspace policy and the necessary strategic planning, taking into account national and international airspace user requirements, within the context of national security requirements.

2.1.3 In order to maintain a flexible airspace organisation, a continuous assessment of national airspace and national route structures is required. At the strategic level, work structures should be defined for Levels 2 and 3 and given the authority required to carry out their tasks. The *(name of the national CAOM)* should define the procedures to be followed at these pre-tactical and tactical levels, as well as the priority-setting rules and negotiation procedures that apply for airspace allocation at Levels 2 and 3.

ASM Level 2 — Pre-tactical management

2.1.4 Pre-tactical ASM, corresponding to Level 2, consists of day-to-day management and temporary allocation of airspace through airspace management cells (AMCs).

2.1.5 The AMC has the authority to conduct ASM within the framework of the State's airspace structures, priority-setting rules and negotiation procedures as laid down by the national CAOM. The AMC receives and analyses airspace requests. Following a coordination process, the ATS authority promulgates the airspace allocation.

2.1.6 Airspace allocation information, consolidated in an airspace use plan (AUP) or in an updated airspace use plan (UUP), is published on a daily basis in the ANSP website and provided to aircraft operators (AOs) for flight planning purposes.

ASM Level 3 — Real-time use of airspace

2.1.7 The tactical ASM, corresponding to Level 3, consists of real-time activation, deactivation and reallocation of the airspace allocated at the pre-tactical level, as well as the resolution of specific airspace difficulties arising between civil and military units.

2.1.8 Real-time access to all the necessary flight data, including controllers' intentions, with or without system support, permits optimised use of airspace and reduces the need for airspace segregation.

2.6 Flexible airspace structures and procedures

[TBD]

2.7 Conditional routes

A conditional route (CDR) is a non-permanent ATS route or portion thereof that can be planned and used exclusively under certain specified conditions. CDRs permit the definition of more direct routes and alternate

routes by complementing or linking to the existing ATS route network.

2.8 Transition to the FUA concept

A State adopting the FUA concept undertakes to reassess the existing national airspace and route structures every (N months, N years) with the view to implementing a flexible airspace organisation process.

CHAPTER 3: ASM LEVEL 1

3.1 Airspace change process

[TBD]

3.2 Joint design of airspace

Note.— The typical cycle of activities can be mainly classified as planning, design, validation and implementation. Best practices include the joint design of airspace as a way of minimising delays in the sometimes-lengthy process of airspace change proposals.

3.2.1 On completion of the planning stage of an airspace change proposal, it would be convenient to include a joint assessment of airspace design carried out by airspace experts from ANSP headquarters and area control centres (ACCs), as well as by military subject matter experts from their respective commands, headquarters and affected military units. A joint design effort will minimise delays during validation and implementation, as the issues raised by civil and military stakeholders will have been collected and recorded, and the design will have been properly reviewed.

3.3 Long-term airspace planning at the strategic level

Note.— Major activities planned well in advance, such as large-scale military exercises, rocket launches, etc., which require additional segregated airspace are subject to coordination at the strategic level. These activities will be subsequently notified by AIS publication.

3.3.1 Following an appropriate review by the CAOM, the military authorities or units participating in the special use airspace that has been subject to good planning will submit their requirements to the ANSPs, in accordance with the established implementation timelines, as per the norms set forth from time to time by ANSPs and as coordinated by the parties concerned.

3.4 General

Note.— As an integral part of ATM, ASM staff should work in close cooperation with ATS and ATFM staff.

3.4.1 An airspace structure reorganised to improve accessibility is essential to increase ATS system capacity and reduce delays.

3.4.2 In order to improve the use of airspace, the relationship between ATS and ATFM must be harmonised at all three levels, which entails consistency of ATS, FUA and ATFM procedures and timetables.

3.5 Relationship between FUA and ATFM at the strategic level — ASM Level 1

Note.— Both ASM and ATFM have a planning phase. At the strategic level, this consists of a periodic review of airspace usage, using air traffic statistics and forecasts.

3.5.1 In this phase, ATFM identifies bottlenecks and sector capacity and demand imbalances. This national periodic review process, involving airspace and route planners, ACCs, flow management units (FMUs), flow management positions (FMP) and the airspace management cell, should always keep pace with improved navigation capabilities, state-of-the-art ATC techniques and changes in user requirements.

3.5.2 A review of national airspace, including CDR airspace, can contribute to airspace planning and, in the longer term, to the creation of solutions to address identified bottlenecks.

3.5.3 ANSPs may find it necessary to prepare and publish a route availability document (RAD) that helps to increase capacity by defining route restrictions through an organised system of major air traffic flows, while giving aircraft operators flexibility in flight planning. Accordingly, the RAD is mainly based on permanent ATS routes and Category 1 CDRs, and includes route restrictions that are published in the national AIPs, letters of agreement (LOAs), NOTAMs and AIP Supplements. The RAD includes a number of permanent route suggestions to assist aircraft operators in flight planning; these suggestions are intended for advisory purposes and are not prescriptive.

3.6 Relationship between FUA and ATFM at the pre-tactical level — ASM Level 2

Note.— In the pre-tactical phase of ATFM, the ATFM centre highlights areas with insufficient ATC capacity. Routing scenarios shall be considered in order to resolve capacity shortfalls in coordination with the AMCs, ACCs, FMUs and FMPs concerned.

User requirements needing segregated airspace form the basis for requests and allocation of the relevant SUAs.

3.7 Relationship among ATC, ASM and ATFM at the tactical level — ASM Level 3

Note.— If a reduction of the activation time of a relevant SUA is agreed between units, the subsequent release of the airspace allows ACCs to open certain CDRs and change routes to redirect air traffic flow at short notice. Likewise, ATS and/or military control units may use the relevant SUAs at short notice, taking into account the general ATFM plan. In order to extend or combine relevant SUAs, ACCs may assign, at short notice, some flight levels of an ATS route segment for temporary use.

CHAPTER 4: ASM LEVEL 2

4.1 Pre-tactical management

4.1.1 ASM 2, corresponding to the pre-tactical level, consists of the day-to-day management and temporary allocation of airspace through the AMCs.

4.1.2 An AMC established with adequate representation of ANSPs, DGCA and military authorities or units will be responsible for the pre-tactical function.

4.1.3 The AMC will have the appropriate authority to manage airspace within the framework of airspace structures, priority-setting rules and negotiation procedures set forth in the FUA Manual approved by the *(name of the national CAOM)*.

4.1.4 The AMC will have the appropriate authority to efficiently resolve conflicting airspace requests and minimise the need for referral to higher authority.

4.1.5 The AMC will strictly adhere to the policies formulated by the *(name of the national CAOM)* and will participate in the collaborative decision-making (CDM) process, within the framework of FUA and the powers vested in it.

4.2 Organisational structure of the AMC

The AMC may be composed of designated ANSPs, representatives of the Air Force, Army and Navy, as well as a representative of the regulatory body.

4.3 Allocation and notification process — General provisions

4.3.1 The entities responsible for airspace activities should submit their requests for the allocation of FUA or FUA structures to the AMC in accordance with the agreed conditions set forth in the standard operating procedures (SOPs) or letters of agreement (LOAs) for SUA activation and deactivation.

4.3.2 After receiving and assessing airspace requests and resolving conflicts related to such requests, the AMC will communicate the allocation plan through a notification in the AUP.

4.4 Airspace requests

Requests for use of airspace may be submitted for a block of airspace required for a specified period of time, with the possibility of modifying the request in terms of time and flight levels.

4.5 CDR requests

4.5.1 Requests for conditional routes (CDRs) are normally based on capacity requirements identified in the pre-tactical phase.

4.5.2 *(Include here State procedures for managing CDR requests.)*

CHAPTER 5: FUA INFORMATION MANAGEMENT

5.1 Publication of ASM information

5.1.1 An important task at the national and strategic level is to publish in the AIP the status of airspace structures and ATS routes under State jurisdiction.

5.1.2 Another task is to coordinate major activities planned well in advance, such as large-scale military exercises and air shows, which may require additional segregated airspace.

5.2 Publication of conditional routes (CDRs), their availability and conditions

(Provide information on how CDRs are described in the AIP, including the timing and means of activation or availability.)

5.3 Airspace use plan (AUP)

Effective implementation of the FUA concept requires that the AMC publish, on a daily basis, in an efficient, timely and accurate manner, the airspace allocation decisions taken at the pre-tactical level, by means of a message in the AUP.

5.4 Updated airspace use plan (UUP)

5.4.1 After the AMC has completed the allocation process, it may be necessary to modify airspace allocation in order to take advantage of the cancellation of any previously reserved airspace structure. This may also be necessary in case the military suddenly and unexpectedly require closure of certain routes or portions thereof, the activation of additional SUAs, and/or increased duration of already activated SUAs. Airspace allocation changes will be made by the AMC through the UUP.

5.4.2 Updated airspace use plans will replace existing airspace use plans and previous UUPs, in accordance with the validity period described in the procedure.

5.5 Pre-tactical timetable

5.5.1 The implementation of the procedures described below will continue to enable tactical management of CDRs and SUAs in accordance with the existing procedures.

5.5.2 Outside the AUP and UUP process, changes will continue to be handled at the tactical level and processed at the ATC unit level, keeping users informed by oral means or through data link. Each of the respective adjacent ATC units will also be notified.

5.5.3 *(Include here a description of how plans, decisions and advisories are handled at the pre-tactical level.)*

CHAPTER 6: AIR DEFENCE REQUIREMENTS

6.1 Air defence identification zone (ADIZ)

(Insert text on ADIZ.)

CHAPTER 7: ASM LEVEL 3

7.1 General

7.1.1 Tactical ASM Level 3 consists of the real-time activation, deactivation or reallocation of airspace allocated at the pre-tactical level, as well as the resolution of specific airspace issues and/or specific air traffic situations arising between civil ATSUs and military units providing ATS services, controllers and/or military control units, as appropriate.

7.1.2 Real-time access to all necessary flight data, including controllers' intentions, ***with or without system support***, permits optimised use of airspace and reduces the need for airspace segregation.

7.1.3 Adequate real-time coordination facilities and procedures are required to take full advantage of the FUA concept at Levels 1 and 2. Flexibility in the use of airspace is enhanced by real-time civil-military coordination capability.

7.2 Coordination procedures for ATS routes and airspace crossing

[TBD]

7.3 Transfer of control responsibility

The letter of agreement (LOA) should describe transfer of control responsibility.

7.4 System-based support function

At the tactical level, the main requirement is to provide system-based support to create an air traffic environment in which the FUA concept can be applied efficiently, that is, an environment in which the need to segregate traffic is reduced to the strict minimum necessary. This can be achieved by:

a) the provision of airspace use data;

b) the exchange of flight data, as appropriate, between civil and military units;

c) the provision of system-based support for airspace crossing.

7.5 Airspace use data function

7.5.1 The airspace use data function should provide real-time information to all parties concerned regarding current use of airspace, in addition to the information contained in the AUP/UUP.

7.5.2 Support systems should ensure common, secure and consolidated exchange of information on

airspace status.

7.5.3 At the tactical airspace management level, controllers should have information available on activation and deactivation, as well as on short-term cancellations or changes in reservations and reallocation of airspace structures.

7.5.4 Support systems should provide real-time airspace status information on a dedicated display and should be able to interface with automated ATC systems.

7.6 Basic flight plan information function

7.6.1 The basic flight plan information function refers to the automatic exchange of necessary flight plan data between civil and military control units.

7.6.2 This function will permit the creation of associated tracks/labels in civil and military units for air traffic display and identification.

7.6.3 As a minimum, and to correlate radar data with flight plan data, the aircraft identification or call sign, SSR mode and the code of each flight subject to coordination will be transmitted from civil to military units and, when necessary, from military to civil units.

CHAPTER 8. CIVIL-MILITARY COOPERATION AND INTEROPERABILITY

TBD

— END —