International Civil Aviation Organization
Fifth Meeting of the ATFM Task Force (ATFM/TF/5)
(Armenia, Colombia, 8 to 12 June 2009)

Agenda Item 1: **ATFM and the ICAO Global ATM Concept**
1.1   ICAO guidelines and GREPECAS Strategy for ATFM implementation

REVIEW OF THE ATFM IMPLEMENTATION STRATEGY APPROVED BY GREPECAS

(Presented by the Secretariat)

SUMMARY
This working paper presents the ATFM implementation strategy approved by GREPECAS for the ATFM/TF to update the corresponding activities.
REFERENCES
Doc. 9854 - *Global Air Traffic Management Operational Concept* Doc. 9750 - *Global Air Navigation Plan* Reports of GREPECAS 14 and 15 meetings.

1.   Background

1.1   GREPECAS/14 developed performance Objectives to address ATFM implementation strategy in CAR Sam Regions. The strategy was endorsed by the air navigation commission and requested to GREPECAS to continue monitoring these implementation activities.

1.2   The strategy contains the regional guidelines for States/Territories/International Organizations to develop their action plans for ATFM implementation I the short and mid-term, according to their own needs and in line with traffic growth projection.

1.3   It is necessary that the Meeting analyse the implementation scenarios and update the activities contained in the strategy included in the **Appendix** to this working paper in order to continue with ATFM implementation in the CAR/SAM Regions.

2   **Suggested action**

2.1   The Meeting is invited to review the ATFM performance objective and update the information, if applicable, to be presented to GREPECAS mechanism.

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APPENDIX

SEAMLESS ATM SYSTEM

REGIONAL PLANNING PROCESS

The regional planning process should be conducted in accordance with the global plan initiatives (GPIs) of the Global Plan (Doc 9750) and the ICAO vision for an integrated ATM system, harmonized and interoperable, as established in the Global ATM Operational Concept (Doc 9854).

The objective is to achieve the maximum level of inter-operability and harmonization among sub-systems for a seamless and interoperable regional ATM system for all users during all phases of flight, complying with agreed levels of safety, providing optimum economic operations, to be environmentally sustainable and to fulfil national aviation security requirements.

The planning should be developed based on clearly defined performance objectives. The planning horizon should be focused on the strategies of development, activities or main tasks for two periods – that of less than 5 years (short-term) and 6 to 10 years (medium-term). Some already identified tasks to be analyzed beyond this period may be included if they conform to ICAO ATM requirements.

ATM PERFORMANCE OBJECTIVES

The performance objectives for regional ATM work programmes should be developed using a performance approach so as to reflect the necessary activities needed to support regional ATM system implementation.

During its life cycle, the performance objectives may change in a dynamic manner depending on the ATM system's evolution; therefore, these should be coordinated with and available to all interested parties within the ATM Community in order to achieve timely communication throughout the implementation process. The establishment of collaborative decision making processes (CDM) ensures that all stakeholders are involved in and concur with the requirements, tasks and timelines.

The following sections describe aspects pertaining to the performance objectives and required changes, and how these changes foster harmonized improvements throughout the regional ATM system.

Benefits

The ATM implementation strategies should provide a group of common benefits for all stakeholders and be achieved through the operational and technical activities planned in each performance objective. These benefits should be in accordance with the ICAO strategic objectives.

Identification of work

Each task should be identified firstly by the activity associated with components of the ATM system when describing the tasks. According to the Doc 9854, the designators for ATM components are as follows:

- **AOM** — Airspace organization and management
- **DCB** — Demand and capacity balancing
- **AO** — Aerodrome operations

- **TS**   — Traffic synchronization
- **CM**   — Conflict management
- **AUO**   — Airspace user operations
- **ATM SDM**   — ATM service delivery management

Each designator looks to link ATM system component pertains to tasks and activities related to phases of air operations, ATC en-route, terminal and airport, capacity management, airspace management including its flexible use and aeronautical information management.

The infrastructure includes the ground technical systems and capacity required to support operations such as communications, navigation and surveillance, data processing, inter-operability of systems, information management system and spectrum management, including both civil and military systems. The following diagram shows the ATM components in relation to the phases of flight:
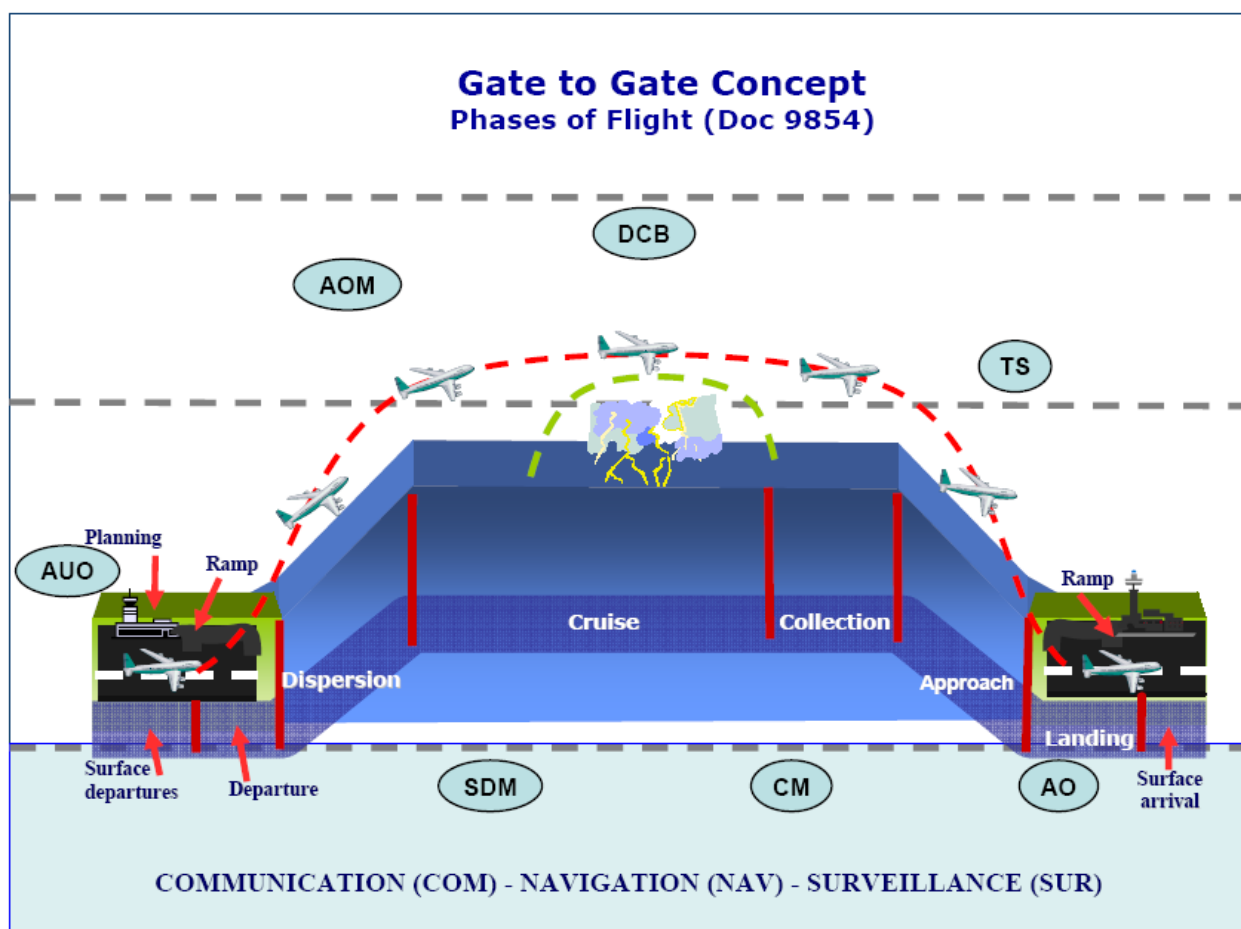
ATM evolution requires a clearly defined progressive strategy including tasks and activities which best represent the national and regional planning processes in accordance with the global planning framework. The goal is to achieve harmonized regional implementation evolving toward a seamless global ATM system.

This means the need to develop short and medium term work programmes, focusing on the necessary changes to the system in which a clear work commitment will be carried out by the parties involved.

The regional work programmes should define additional tasks and activities, maintaining a direct relation with ATM system components such as airspace organization, civil-military coordination, human factors, aeronautical regulations, operational safety management systems and environmental protection, among others.

The framework for regional activities should also include the coordination of activities with military authorities who play an important role in helping to ensure that the best use is made of the available airspace resources by all airspace users while still safeguarding national security.

The following principles should be considered when developing work programmes:

- The work should be organized using project management techniques and performance-based objectives in alignment with the Global Plan and the strategic objectives of ICAO. The work programmes should be in accordance with the progress, characteristics and regional implementation needs.

- All activities involved in accomplishing the performance objectives should be designed following strategies, concepts, action plans and roadmaps which can be shared among States to align the regional work with the fundamental objective of achieving interoperability and seamlessness to the highest level.

- The planning of all activities should include optimizing human resources, as well as encouraging dynamic use of electronic communication between States such as the Internet, videoconferences, teleconferences, e-mail, telephone and facsimile. It should be ensured that all resources will be efficiently used, avoiding any duplication or unnecessary work.

- The new work process and methods should ensure that performance objectives can be measured against timelines and the regional progress achieved can be easily reported to the Air Navigation Commission and to the ICAO Council.

Status

The status is mainly focused on monitoring the progress of the implementation activity as it progresses toward a specific completion date. The status of the activity is defined as follows:

■**Valid**	the feasibility and benefits of an activity has been confirmed, work has been initiated but the activity itself has not been finalized.
■**Completed**	implementation of the activity has been finalized by the involved parties.
■**Tentative**	the feasibility and benefits of an activity investigated or to be developed.

A tentative status indicates a potential activity; normally this activity will not be included in the regional planning documents unless it is an ICAO defined requirement.

Relationship between Performance Objectives and Global Plan Initiatives

The 23 GPIs provide a global strategic framework and are designed to contribute to achieving the regional performance objectives and to support the logical progression of regional implementation work programmes.

Each performance objective should be referenced to the pertinent GPIs. The goal is to ensure that the work process will be integrated into the global planning framework

NATIONAL ACTION PLANS

States should develop their own national action plans reflecting the specific activities or tasks along with the expected benefits to be obtained and the date by which each should be completed according to the national needs and based on the regionally-agreed performance objectives.

The activities should include the necessary detailed actions to successfully achieve the national performance objectives, relating these activities with the short and medium term regionally-agreed performance objectives.

National plans should identify the individuals or teamwork responsible for achieving the objectives as well as a means for monitoring and eventually reporting progress on the actions to ICAO. The responsibilities and time-tables should be clearly defined so that the involved parties are aware of their commitments throughout the planning process.

Additionally, national action plans should include adequate means to provide information on implementation progress achieved such as through a periodic reporting process. This facilitates senior management levels' efforts to prioritize the actions and resources required. The same information provided to ICAO will allow feedback and assistance to be provided specific for each Region as they work to achieve a Global ATM system.

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ENHANCE CIVIL/MILITARY COORDINATION AND CO-OPERATION				
Benefits				
Efficiency	• increase airspace capacity;			
Continuity	• allow a more efficient ATS route structure • ensure safe and efficient action in the event of unlawful interference; • make available military restricted airspace more hours of the day so that aircraft can fly on their preferred trajectories; and • improve search and rescue services.			
Strategy ***(2008-2012)***				
TASK	**DESCRIPTION**	**START-END**	**RESPON-SIBLE**	**STATUS**
AOM	Develop guidance material on civil/military coordination and co-operation to be used by States/Territories to develop national policies, procedures and rules.		ICAO	
	Establish civil/military coordination bodies.		States	
	Arrange for permanent liaison and close cooperation between civil ATS units and appropriate air defence units.		States	
	Conduct a regional review of special use airspace.		Implementation Groups	
	Develop a regional strategy and work programme for implementation of flexible use of airspace in a phased approach for dynamic sharing of restricted airspace		Implementation Groups	
	full integration of civil and military aviation activities by **2012**.		States - Implementation Groups	
	Monitor implementation progress.		GREPECAS	
References	GPI/1: flexible use of airspace.			

<table>
<tr><td colspan="5" align="center">IMPROVE DEMAND AND CAPACITY BALANCING</td></tr>
<tr><td colspan="5" align="center">Benefits</td></tr>
<tr>
<td>Environment

Efficiency

Safety</td>
<td colspan="4">
• reduction in weather- and traffic-induced holding, leading to reduced fuel consumption and emissions;
• improved and smoother traffic flows;
• improved predictability;
• improved management of excess demand for service in ATC sectors and aerodromes;
• improved operational efficiency;
• enhanced airport capacity;
• enhanced airspace capacity; and
• improved safety management.
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<tr><td colspan="5" align="center"><i>Strategy</i>
<i>Near term (2008)</i></td></tr>
<tr>
<td align="center">TASK</td>
<td align="center">DESCRIPTION</td>
<td align="center">START-END</td>
<td align="center">RESPON-SIBLE</td>
<td align="center">STATUS</td>
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<tr>
<td align="center">DCB</td>
<td>Identify key stakeholders (ATC service providers and users, military authorities, airport authorities, aircraft operators and relevant international organisations) for purposes of coordination and cooperation, using a CDM process.</td>
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<td>Identify and analyse traffic flow problems and develop methods for improving efficiencies on a gradual basis, as needed, through enhancements in current:

o airspace organization and management (AOM) and ATS routes structure (unidirectional routes) and SID and STARS;
o communication, navigation and surveillance systems;
o aerodrome capacity;
o ATS capacity;
o training for pilots and Controllers; and
o ATS letters of agreement.</td>
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<td>Define common elements of situational awareness between FMUs;

o common traffic displays,
o common weather displays (Internet),
o communications (teleconferences, web), and
o daily teleconference/messages methodology advisories.</td>
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<td>Develop methods to establish demand/capacity forecasting;</td>
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<tr>
<td></td>
<td>Develop a regional strategy and work programme for harmonized implementation of ATFM service.</td>
<td align="center">2007</td>
<td align="center">GRP</td>
<td align="center">Completed</td>
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Medium term (2010)				
DCB	Develop a regional strategy for the implementation of flexible use of airspace (FUA); o assess use of airspace management processes; o improve current national airspace management to adjust dynamic changes in tactical stage to traffic flows; o introduce improvements in ground support systems and associated procedures for the extension of FUA with dynamic airspace management processes; and o implement dynamic ATC sectorization in order to provide the best balance between demand and capacity to respond in real-time to changing situations in traffic flows, and to accommodate in short-term the preferred routes of users.		Implementation Groups	
	Define common electronic information and minimum databases required for decision support and alerting systems for interoperable situational awareness between Centralized ATFM units.		GRP States Implementation Groups	
	Develop regional procedures for efficient and optimum use of aerodrome and runway capacity.		Implementation Groups	On-going
	Develop a regional ATFM procedural manual to manage demand/capacity balancing.		Implementation Groups	On-going
	Develop a regional strategy and framework for the implementation of a Centralized ATFM unit.			
	Develop operational agreements between Centralized ATFM units for interregional demand/capacity balancing.			
	Monitor implementation progress.		GREPECAS	
References	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/13: aerodrome design and management; GPI/14: runway operations; and GPI/16: decision support and alerting systems.			

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