



Agenda Item 2: Review of Air Navigation Matters
2.1 Global Air Navigation and CAR/SAM developments
2.1.3 NAM/CAR Regional Air Navigation Implementation Plan

**NAM/CAR REGIONAL PERFORMANCE BASED
AIR NAVIGATION IMPLEMENTATION PLAN**

(Presented by the Secretariat)

SUMMARY This working paper presents the NAM/CAR Regional Performance Based Air Navigation Implementation Plan, endorsed by the NACC/DCA/3 Meeting. The plan considers ATM performance objectives approved by GREPECAS to ensure harmonized implementation of air navigation services in line with the needs and requirements of the NAM and CAR Regions.	
References • Report of the ALLPIRG/5 Meeting (Montreal, Canada, 23 to 24 March 2006) • Doc 9750 - <i>Global Air Navigation Plan</i> • Doc 9854 - <i>Global Air Traffic Management Operational Concept</i> • Reports of GREPECAS/14 (San Jose, Costa Rica, 16 – 20 April 2007) and 15 (Río de Janeiro, Brasil, 13 – 17 October 2008) Meetings. • Report of the Third Meeting of North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/3) Meeting (Punta Cana, Dominican Republic, 8-12 September 2008).	
Strategic Objectives	This working paper is related to Strategic Objective D – Efficiency.

1. Introduction

1.1 The Fifth Meeting of the All Planning and Implementation Regional Groups/Advisory Group (ALLPIRG/5) agreed to adopt a performance based approach in its work and to undertake steps to ensure harmonization of regional and national work aligned under the ATM Global Operational Concept, in support of ICAO planning and implementation processes and the guidelines of the ICAO Council.

1.2 GREPECAS, through its Conclusion 14/51, agreed to reorganize the ATM work programme; this review is expected to conclude by the end of 2009. As a follow-up to these guidelines, GREPECAS agreed to harmonize work programmes in line with ICAO vision as established in the *Global Air Traffic Management Operational Concept* (Doc 9854).

1.3 GREPECAS/15 urged States, Territories and International Organizations to develop performance-based national plans in accordance with the regional performance objectives.

2. Analysis

2.1 The NACC/DCA/3 Meeting, through Decision 3/3, approved the harmonization of work programmes into a single NAM/CAR Implementation Plan. The initiative comes from the need to ensure close coordination between all Air Navigation Services (ANS) fields, such as ATM, CNS, AGA, AIM and MET, toward a seamless ATM system in line with the *Global Air Navigation Plan* (Doc 9750).

2.2 The Meeting also recognized that the work of all air navigation fields was being merged and that work had to be addressed in a holistic and strategic way. The Meeting therefore agreed to develop terms of reference with no division between CNS and ATM work, and noted that accomplishing the work associated with performance objectives would require both CNS and ATM efforts working in close coordination with other air navigation fields.

2.3 Similarly, it was recalled that the current use of the term “ATM” refers to all elements of the air navigation system, given due consideration to facilitate and harmonize the implementation process. It was agreed that, considering the ATM Operational Concept, ATM implementation had to be confronted as a system requiring the support of all the fields that are traditionally considered in the air navigation system.

2.4 The Meeting recognized that it was critical to align all work programmes within this regional implementation plan, and agreed that the terms of reference should consider the performance objectives already approved, with detailed tasks, deadlines, and periodic monitoring activity that will be conducted by ICAO NACC Regional Office.

2.5 Moreover, the Meeting agreed that restructured and coordinated work between all ANS fields would ensure efficient implementation in the short and medium terms in order to achieve harmonized enhancements within the ATM Operational Concept approach. The Meeting unanimously agreed to the performance based approach, including the review of terms of reference of all the NACC Working Groups.

2.6 While complying with a reorganization of work programmes and future meetings, the NAM/CAR Implementation Plan, included in the **Appendix** to this working paper, also seeks to improve decision-making processes and to ensure that resources be addressed in a suitable manner to support the ICAO Strategic Plan objectives. Moreover, it seeks to comply with the following principles:

- identify implementation tasks with regard to the Global Plan Initiatives (GPIs) of the GANP (Doc 9750), in order to facilitate the objectives and results targeted by each performance objective;
- associate, in a logical manner, the tasks with the seven components of Doc 9854, (AOM, DCB, AO, TS, CM, AUO ATMSDM) as appropriate;
- avoid unnecessary task duplications;
- quantify cost/benefit analysis in terms of performance metrics, deadlines, responsible body for implementation and results;

- offer specific solutions to ensure that expectations of the ATM community and system requirements are fulfilled;
- facilitate a dynamic and periodical review, based on the States/Territories implementation needs and requirements; and
- foster the use of electronic tools and teleconferences to ensure full information exchange.

3 Conclusion

3.1 The evolution of modern air navigation systems needs more efficiency in regional implementation work. In order to comply with established goals, the Meeting should update the E/CAR/WG work programme with tasks and action plans according to the NAM/CAR Implementation Plan.

3.2 A common harmonized regional planning approach will allow the E/CAR/WG to continue its own implementation tasks in line with the particular needs of the Piarco FIR. The establishment of new performance objectives in line with ICAO guidelines will allow the dynamic identification of needs and periodic follow-up of attained implementation results and the optimum assignment of resources by States/Territories/International Organizations.

4. Suggested Action

4.1 The Meeting is invited to:

- a) review and further develop the NAM/CAR Regional Performance Based Air Navigation Implementation Plan included in the Appendix to this working paper with the review to CNS and ATM aspects;
- b) assign deadlines to each NAM/CAR Implementation Plan task as follow-up to the NAM/CAR performance objectives; and
- c) agree to other actions as deemed appropriate.



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN
REGIONAL OFFICE**

**PERFORMANCE BASED AIR NAVIGATION IMPLEMENTATION PLAN
FOR THE NAM/CAR REGIONS**

1. INTRODUCTION

1.1 The Global Plan describes a strategy aimed at achieving near and medium term ATM benefits on the basis of available and foreseen aircraft capabilities and ATM infrastructure. It contains guidance on ATM improvements necessary to support a uniform transition to the ATM system envisioned in the global ATM operational concept (Doc 9854). The operational concept presents the ICAO vision of an integrated, harmonized and globally interoperable ATM system.

1.2 The Strategic Vision is *“To foster implementation of a seamless, global air traffic management system that will enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minimum constraints and without compromising agreed levels of safety.”*

1.3 This vision is refined in the Mission of Implementation as follows:

To develop a seamless, globally coordinated system of air navigation services that will cope with worldwide growth in air traffic demand while:

- *improving upon the present levels of safety;*
- *improving upon the present levels of regularity;*
- *improving upon the overall efficiency and capacity of airspace and airports;*
- *improving operations allowing for capacity increase while minimizing fuel consumption and aircraft engine emissions;*
- *increasing the availability of user-preferred flight schedules and profiles; and*
- *minimizing differing equipment carriage requirements between regions.*

1.4 Having a strategic geographical location at the confluence of ATS routes connecting the major destinations, the airspace has become a vital link to the smooth flow of traffic between major airspace in NAM and CAR Regions.

1.5 The complexities of Caribbean airspace are unique in nature. Based on the topography, various types of aircraft from Helicopter to bigger type of jet aircraft are being operated in various sectors. Restricted airspace for Military flying and the mixed type of aircraft with unmatching capabilities occupy the airspace and their conflicting demands need to be accommodated.

1.6 Civil commercial, Military, general Aviation, Space research, hobby and adventure flying, flying training, helicopter flying have been constantly increasing and thereby the airspace has been getting congested day by day. Technological innovations provide more simple and flexible solutions not only for transportation needs but also for national security and economic development.

1.7 Entry of Low Cost carriers with attractive flying schemes has boosted traffic in the recent past and the air transport industry is in the upswing with more and more air operations. These carriers have not only become a potential competitors to the currently established airlines but also potential challengers to the ATM system as the airspace/ airports are getting more and more congested and leading to delay and holding resulting in burning of extra fuel.

1.8 Military flying activities with frequent airspace and airport closures implies additional civil flight operations and workload on the capacity and air traffic management point of view.

1.9 Recently the rate of traffic growth is at an average of 3.3% with the advent of new routes and airlines commencing operations as Caribbean destinations have become more popular for international tourist and commercial interest. The total operations at the main airports of the CAR Region in the period 2002 to 2005 reflected a positive trend of 1.92%, the global trend is 6%. The main rates of traffic growing were:

Cuba	6.41%
Dominican Republic	5.74%
Belize	4.77%
El Salvador	3.06%
México	2.57%
U. S. (P. R) (V. I)	2.51%
Guatemala	2.51%
Costa Rica	2.42%

1.10 What is reflected in the following tables is continuing growth for the next several years:

**Total (international and domestic) services of airlines of ICAO contracting States
(NACC States - Percentage of world traffic 2008)**

Aircraft Kilometers (millions)	Aircraft Departures (thousands)	Passengers Carried (thousands)	Passenger- Kilometers Performed (millions)	Passenger load factor (%)	Tonne-kilometres Performed		Tonne Kilometers available (millions)	Weight Load Factor (%)
					Freight (millions)	Total (millions)		
13,523	10,652	782,200	1,434,423	80	41,279	17,3977	28,3610	61

International services of airlines of ICAO contracting States - NACC States - Percentage of world traffic 2008

Aircraft Kilometers (millions)	Aircraft Departures (thousands)	Passengers Carried (thousands)	Passenger- Kilometers Performed (millions)	Passenger load factor (%)	Tonne-kilometres performed		Tonne Kilometers available (millions)	Weight Load Factor (%)
					Freight (millions)	Total (millions)		
3,489	1,244	118,805	488,219	79	24,028	69,577	115,130	60

1.11 The regional distribution of scheduled traffic 2008 by aircraft departures and by passengers carried is depicted in the following Tables 1 and 2.

Regional Distribution of Scheduled Traffic – 2008

NAM/CAR Aircraft Departures 10.7 Million

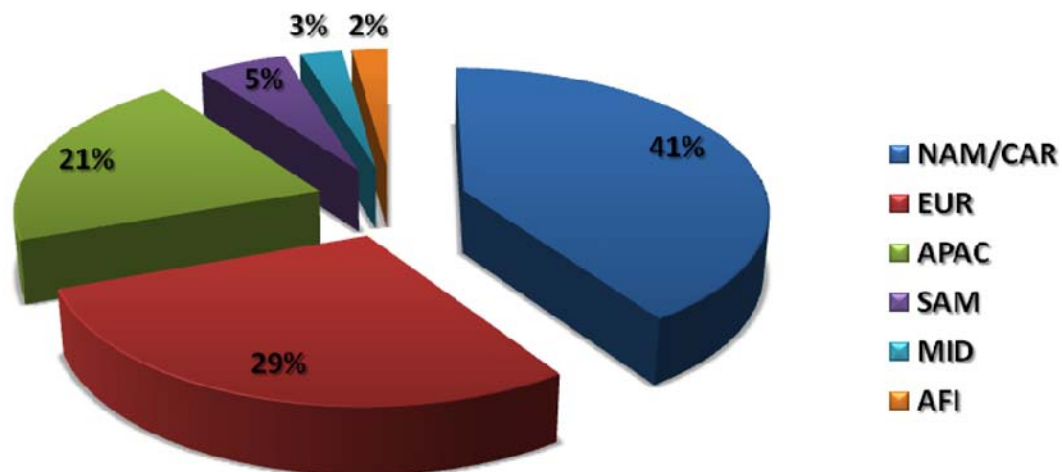


Table 1

Regional Distribution of Scheduled Traffic – 2008

NAM/CAR Passengers carried 782.2 Million

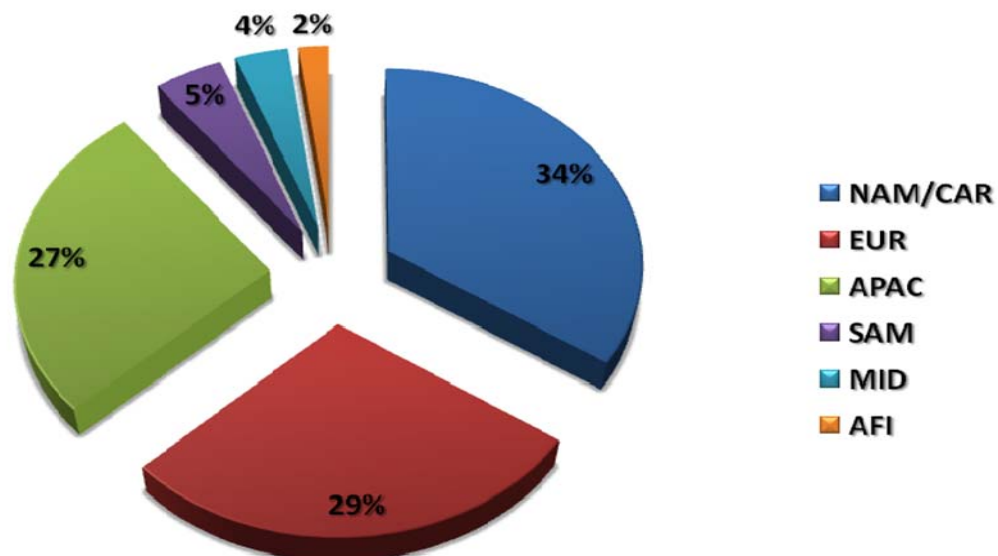


Table 2

1.12 More challenges are in the horizon for ATM seamless system in CAR and NAM Regions. The expectation is more and more air operations among CAR and NAM Regions which will require gradual operational developments of ATM system to ensure an optimum air traffic flow towards among certain areas or through them, during periods in which the demand exceeds or is foreseen to exceed the available capacity.

1.13 New aircraft are capable of extremely accurate navigation during all phases of flight and many are equipped with satellite-based communication. Aircraft operations growth also has resulted in a relatively young airline fleet, most equipped with some or all of enhanced capabilities.

1.14 Implementation programmes are required to be addressed with a performance-based approach, in order to achieve improvements to the air navigation system and environmental benefits, thus preventing costly implementation processes.

2. REGIONAL PLANNING PROCESS

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

2.2 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.

2.3 Planning should be developed through performance objectives with clearly defined implementation requirements. 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.

3. PERFORMANCE OBJECTIVES

3.1 The performance objectives should be developed using a performance approach to reflect the necessary activities needed to support regional ATM system implementation.

3.2 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.

3.3 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

3.4 Each performance objective should establish a group of common benefits for all stakeholders and be achieved through the strategies, the operational and technical activities planned. These benefits should be in accordance with the ICAO strategic objectives, and the ATM community expectations.

Strategy

3.5 The air navigation system evolution requires a progressive strategy with tasks and actions that best represent the national and regional implementation in accordance with the global planning framework. The final goal is to achieve harmonized regional implementation on a continuous evolution towards a global seamless ATM system.

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

3.7 The implementation 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.

3.8 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.

3.9 The following principles should be considered when developing implementation 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 implementation 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 to align the regional work with the fundamental objective of achieving interoperability and seamlessness to the highest level.
- The implementation tasks should encourage human resources optimization, as well as promote the use of electronic communications means such as internet, videoconference, teleconference, phone and fax. It should be ensured that all the resources will be used efficiently, avoiding any duplication or unnecessary work.
- It should be ensured 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.

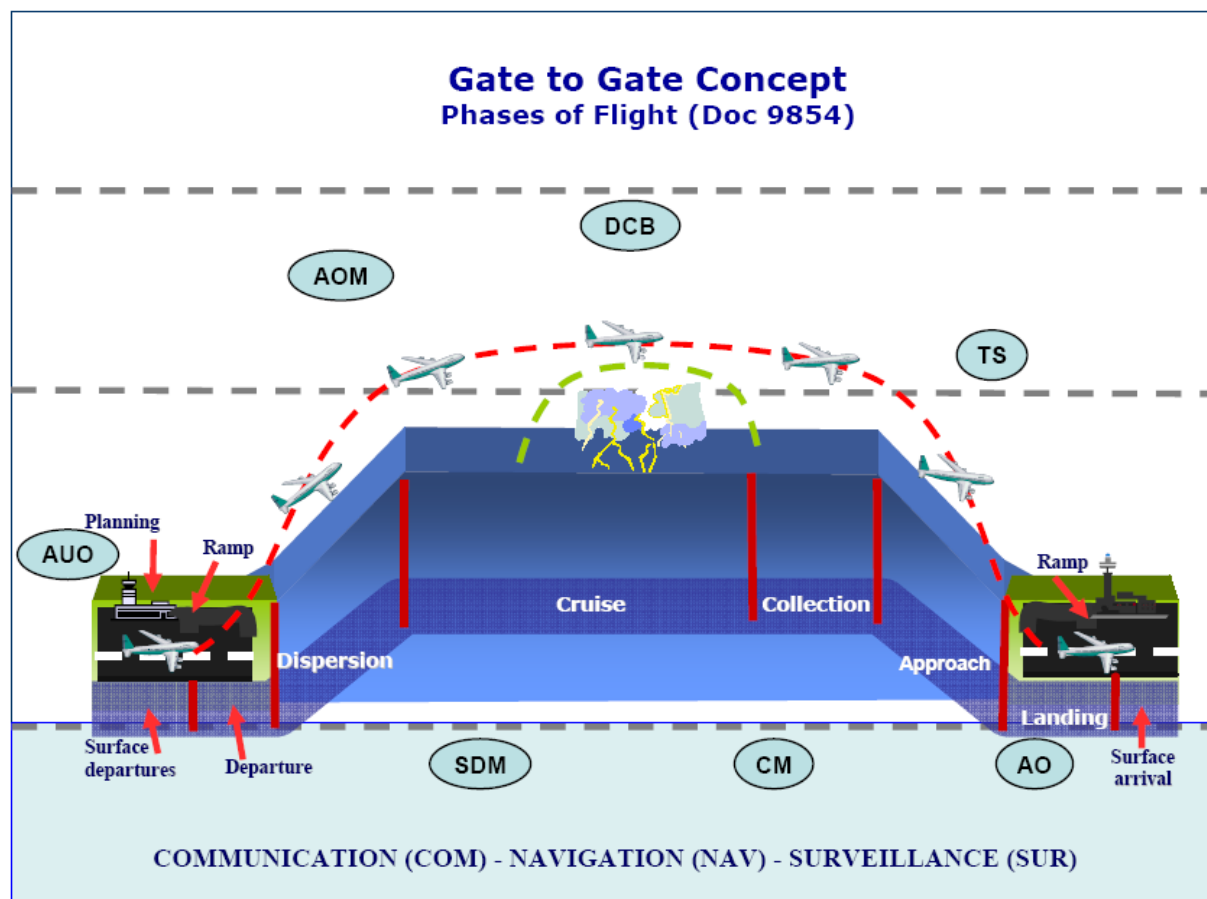
Identification of tasks

3.10 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

3.11 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.

3.12 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:



Status

3.13 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.

3.14 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

3.15 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 programmes.

3.16 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

4 NATIONAL ACTION PLAN

4.1 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.

4.2 The strategic 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.

4.3 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 implementation process.

4.4 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.

4.5 For the development of a national action plan, the following subjects, as a minimum, should be analysed and properly documented:

a) Characteristics of the industry

Enumerate the current and projected growth of Air Traffic in your state and also identify, if any, the efficiency challenges in your State.

b) The air navigation service provider

Describe briefly the organization providing the air navigation services in your State including its institutional format, capital structure, principal shareholders and the management.

c) Major stakeholders/partners

Identify the major stakeholders/partners such as the air navigation service providers, the airspace users (the commercial airlines using the airspace, business aviation, general aviation, military, etc.) and the potential funding sources.

d) Risks and Limitations

Enumerate the limitations of the current conventional air navigation systems that may arise and which solution would depend on the State/Territory/International Organization.

e) Risk Management

What are the identified risks and briefly describe the risk mitigation plans/techniques.

f. National Performance-based Air Navigation Plan

- i) Define the geographical scope of the National Air Navigation Plan and determine the major traffic flows.
- ii) Explain briefly the vision of your State/Territory/International Organization for achieving a seamless Global ATM system in accordance with ICAO Doc 9854.
- iii) Determine the current air navigation infrastructure and services.
- iv) Through gap analysis define near and medium term operational improvements.
- v) Using a standard Performance framework form (PFF), develop different national performance objectives by determining relevant tasks and ensure the linkage to ATM components and Global Plan Initiatives (GPIs).

CAR/NAM REGIONS PERFORMANCE OBJECTIVES

1. OPTIMIZE THE ATS ROUTE STRUCTURE EN-ROUTE AIRSPACE				
Benefits				
Environment Efficiency	• reductions in fuel consumption; • ability of aircraft to conduct flight more closely to preferred trajectories; • increase in airspace capacity; • facilitate the utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.			
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
AOM	a) Develop regional action plan	2007	GREPECAS	Completed
	b) Develop Airspace Concept based in CAR /SAM PBN Roadmap, in order to design and implement a trunk route network, connecting major city pairs in the upper airspace and for transit to/from aerodromes, on the basis of PBN and, in particular, RNAV/5, taking into account interregional harmonization	2010	States	Valid
	c) Develop performance measurement plan	2010	States	Valid
	d) Formulate safety plan	2010	States	Valid
	e) Establish collaborative decision making (CDM) process	2010	States	Valid
	f) Publish national regulations for aircraft and operators approval using PBN manual as guidance material	2010	States	Valid
	g) Identify training needs and develop corresponding guidelines	2010	States	Valid
	h) Implementation of ATS routes enroute	2010	States	Valid
	i) Monitor implementation progress in accordance with CAR/SAM PBN implementation roadmap and State implementation plan	On going	GREPECAS	Valid
GPIs	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures			

2. OPTIMIZE THE ATS ROUTE STRUCTURE IN TERMINAL AREA AIRSPACE				
Benefits				
Environment Efficiency	• reductions in fuel consumption; • ability of aircraft to conduct flight more closely to preferred trajectories; • increase in airspace capacity; • facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.			
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
AOM	a) Develop regional PBN implementation plan	2007	GREPECAS	Completed
	b) Develop State PBN implementation plan	2010	States	Valid
	c) Develop Airspace Concept based in CAR /SAM PBN Roadmap, in order to design and implement optimized standard instrument departures (SIDs), standard instrument arrivals (STARs), instrument flight procedures, holding, approach and associated procedures, on the basis of PBN and, in particular RNAV-1 and Basic-RNP1	2011	States	Valid
	d) Develop performance measurement plan	2010	States	Valid
	e) Formulate safety plan	2010	States	Valid
	f) Establish collaborative decision making (CDM) process	2010	States	Valid
	g) Publish national regulations for aircraft and operators approval using PBN manual as guidance material	2010	States	Valid
	h) Identify training needs and develop corresponding guidelines	2010	States	Valid
	i) Develop system performance monitoring plan	2010	States	Valid
	j) Develop a regional strategy and work programme for implementation of SIDs and STARs	2011	States	Valid
	k) Monitor implementation progress in accordance with CAR/SAM PBN implementation roadmap and State implementation plan	On going	GREPECAS	Valid
GPIs	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.			

3. IMPLEMENT RNP APPROACHES				
Benefits				
Efficiency	• Improvements in capacity and efficiency at aerodromes.			
Safety	• Improvements in safety at aerodromes.			
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
AOM	a) Develop State PBN implementation plan.	2009	States	Valid
	b) Develop Airspace Concept based in CAR /SAM PBN Roadmap, in order to design and implement RNP APCH with Baro-VNAV in accordance with assembly resolution A36-23, and RNP AR APCH where beneficial	2010	States	Valid
	c) Develop performance measurement plan	2010	States	Valid
	d) Formulate safety plan	2010	States	Valid
	e) Establish collaborative decision making (CDM) process	2010	States	Valid
	f) Publish national regulations for aircraft and operators approval using PBN manual as guidance material.	2010	States	Valid
	g) Identify training needs and develop corresponding guidelines	2010	States	Valid
	h) Implementation of APV procedures	2016	States	Valid
	i) Formulate system performance monitoring plan	2011	States	Valid
	j) Monitor implementation progress in accordance with CAR/SAM PBN implementation roadmap and State implementation plan	On going	GREPECAS	Valid
GPIs	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.			

4. ENHANCE CIVIL/MILITARY COORDINATION AND CO-OPERATION				
Benefits				
Efficiency	• increase airspace capacity; • allow a more efficient ATS route structure			
Continuity	• 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				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
AOM	a) Develop guidance material on civil/military coordination and co-operation to be used by States/Territories to develop national policies, procedures and rules.	2007	ICAO	Completed
	b) Establish civil/military coordination bodies.	2008 – 2012	States	Valid
	c) Arrange for permanent liaison and close cooperation between civil ATS units and appropriate air defence units.	2008 – 2012	States	Valid
	d) Conduct a regional review of special use airspace.	2008 – 2012	GREPECAS	Valid
	e) Develop a regional strategy and work programme for implementation of flexible use of airspace in a phased approach for dynamic sharing of restricted airspace	2008 – 2010	States	Valid
	f) full integration of civil and military aviation activities by 2012.	2008 – 2012	States	Valid
	g) Monitor implementation progress.	On going	GREPECAS	Valid
GPIs	GPI/1: flexible use of airspace.			

5. ALIGN UPPER AIRSPACE CLASSIFICATION				
Benefits				
Efficiency	• better utilization of data link communication; • optimize use of flight plan data processing systems; • enhance airspace management coordination, message exchange capabilities and utilization of flexible and dynamic airspace management techniques;			
Continuity	• harmonization of interregional coordination processes; • improvement of airspace interoperability and seamlessness; and • ensure the provision of positive air traffic control services to all aircraft operations.			
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
	a) Develop a regional implementation strategy and work programme for the implementation of ICAO Annex 11 airspace Class A above FL 195.	2007	GREPECAS	Completed
	b) Identify key stakeholders, ATCOs, pilots, and relevant international organisations for coordination and cooperation on changes for new airspace organization, using a CDM process.	2008 – 2010	States	Valid
	c) Develop new national airspace organization in accordance with ICAO provisions, as needed.	2008 – 2010	States	Valid
AOM	d) Coordinate changes for regional and national documents; • Doc 8733, CAR/SAM ANP; • AIP; and, • ATS letters of agreement.	2008 – 2012	ICAO - States	Valid
	e) Carry out improvements in ground systems to support new airspace organization configurations, as necessary.	2008 – 2012	States	Valid
	f) Publish national regulatory material for implementation of new rules and procedures to reflect airspace organizational changes.	2008 – 2010	States	Valid
	g) Train ATCOs and pilots in new procedures, including all civil and military airspace users, as required;	2008 – 2012	States	Valid
	h) Monitor implementation progress.	On going	GREPECAS	Valid
GPIs	GPI/4: align upper airspace classification.			

6. IMPROVE DEMAND AND CAPACITY BALANCING				
Benefits				
Environment	- 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.			
Efficiency				
Safety				
Strategy				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
DCB	a) 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.	2008	GREPECAS	Valid
	b) Identify and analyse traffic flow problems and develop methods for improving efficiencies on a gradual basis, as needed, through enhancements in current: i. airspace organization and management (AOM) and ATS routes structure (unidirectional routes) and SID and STARS; ii. communication, navigation and surveillance systems; iii. aerodrome capacity; iv. ATS capacity; v. training for pilots and Controllers; and vi. ATS letters of agreement.	2008 – 2012	GREPECAS	Valid
	c) Define common elements of situational awareness between FMUs; i. common traffic displays, ii. common weather displays (Internet), iii. communications (teleconferences, web), and, iv. daily teleconference/ messages methodology advisories.	2010 – 2012	GREPECAS	Valid
	d) Develop methods to establish demand/capacity forecasting;	2007 – 2012	GREPECAS	Valid
	e) Develop a regional strategy and work programme for harmonized implementation of ATFM service.	2007	GREPECAS	Completed

Medium term				
DCB	f) Develop a regional strategy for the implementation of flexible use of airspace (FUA); i. assess use of airspace management processes; ii. improve current national airspace management to adjust dynamic changes in tactical stage to traffic flows; iii. introduce improvements in ground support systems and associated procedures for the extension of FUA with dynamic airspace management processes; and iv. 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.	2008 – 2012	GREPECAS States	Valid
	g) Define common electronic information and minimum databases required for decision support and alerting systems for interoperable situational awareness between Centralized ATFM units.	2008 – 2014	GREPECAS States	Valid
	h) Develop regional procedures for efficient and optimum use of aerodrome and runway capacity.	2008 – 2012	GREPECAS	Valid
	i) Develop a regional ATFM procedural manual to manage demand/capacity balancing.	2008 – 2010	GREPECAS	Valid
	j) Develop a regional strategy and framework for the implementation of a Centralized ATFM unit.	2008 – 2012	GREPECAS	Valid
	k) Develop operational agreements between Centralized ATFM units for interregional demand/capacity balancing.	2008 – 2015	GREPECAS	Valid
	l) Monitor implementation progress.	On going	GREPECAS	Valid
GPIs	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.			

7. IMPROVE ATM SITUATIONAL AWARENESS				
Benefits				
Efficiency	- enhanced traffic surveillance; - enhanced collaboration between flight crew and the ATM system; - improved collaborative decision-making through sharing electronic aeronautical data information; - reduced of workload for both pilots and controllers; - improved operational efficiency; - enhanced airspace capacity; - improved implementation on a cost-effective basis;			
Safety	- improved available electronic terrain and obstacle data in the cockpit; - reduced of the number of controlled flight into terrain related accidents; and - improved safety management.			
Strategy Near term				
ATM Component	TASK DESCRIPTION	START- END	RESPON- SIBLE	STATUS
SDM	a) Identify parties concerned.	2009	GREPECAS	Completed
	b) Identify the automation level required according to the ATM service provided in airspace and international aerodromes, assessing i. operational architecture design, ii. characteristics and attributes for interoperability, iii. data bases and software, and iv. technical requirements.	2008 – 2010	States	Valid
	c) Improve ATS interfacility communication.	2008 – 2015	States	Valid
	d) Implement flight plan data processing system and electronic transmission tools.	2008 – 2012	States	Valid
	e) Implement radar data sharing programs where benefits can be obtained.	2008 – 2012	States	Valid
	f) Develop situational awareness training programmes for pilots and controllers.	2008 – 2012	States	Valid
	g) Implement ATM surveillance systems for situational traffic information and associated procedures.	2010 – 2015	States	Valid
	h) Implement ATS automated message exchanges, as required; a. FPL, CPL, CNL, DLA, etc.	2008 – 2012	GREPECAS States	Valid

	i) Implement automated radar handovers, where able.	2008 – 2014	States	Valid
	j) Implement ground and air electronic warnings, as needed i. Conflict prediction ii. Terrain proximity iii. MSAW iv. DAIW v. Surveillance system for surface movement.	2008 – 2012	States	Valid
	k) Implement data link surveillance technologies and applications: ADS, CPDLC, AIDC, as required.	2008 – 2012	States	Valid
Medium term				
ATM Component	TASK DESCRIPTION	START-END	RESPON-SIBLE	STATUS
	l) Implement additional/advanced automation support tools to increase sharing of aeronautical information i. ETMS or similar ii. MET information iii. AIS/NOTAM dissemination iv. Surveillance tools to identify airspace sector constraints v. A-SMGC in specific aerodromes, as required.	2010 – 2012	States	Valid
	m) Implement teleconferences with ATM stakeholders.	2008 - 2014	States	Valid
	n) Monitor implementation progress	On going	GREPECAS	Valid
GPIs	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; and 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; GPI/17: implementation of data link applications; GPI/18: aeronautical Information; GPI/19: meteorological systems.			