



**Agenda Item 2: Air navigation issues**  
**2.3 Other Air Navigation issues**

**ATM PERFORMANCE OBJECTIVES FOR THE NAM AND CAR REGIONS  
RELATED WITH ICAO GLOBAL PLAN INITIATIVES (GPI)**

(Presented by the Secretariat)

**SUMMARY**

This Working Paper presents a restructuring of the C/CAR ATM tasks based on performance objectives with regard to the new ICAO global plan initiatives (GPI).

**References:**

- Second Amendment to the Global Air Navigation Plan for the CNS/ATM systems (Doc 9750)
- Report of the Fifth All Planning and Implementation Regional Group (ALLPIRG/5) Meeting (Montreal, Canada, 23-24 March, 2006)
- Summary of Discussions of the Regional North American/Caribbean (NAM/CAR) Air Traffic Management (ATM) Meeting (Santo Domingo, Dominican Republic, 19-21 April 2006).

**1. Introduction**

1.1 During the Regional North American/Caribbean (NAM/CAR) Air Traffic Management (ATM) Meeting, the Chief of the Air Traffic Management Section at ICAO Headquarters gave a comprehensive presentation on the Second Amendment to the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750), which will be renamed as the Global Air Navigation Plan (Global Plan). It was noted that the Global Plan Initiatives (GPIs) contained in the revised Global Plan were developed by the Air Navigation Commission on the basis of a roadmap which was aimed at bringing near and medium term benefits to the ATM community, taking advantage of currently available aircraft capabilities and ATC infrastructure and technology.

## 2 Analysis

2.1 The Fifth All Planning and Implementation Regional Group (ALLPIRG/5) meeting, in light of budget realities and the new ICAO business planning process, agreed that all future work of the Planning and Implementation Regional Groups (PIRGs) should have to be justified and based on clearly established performance objectives in support of the ICAO Strategic Objectives. Furthermore, all terms of reference of PIRGs are being revised in order to ensure that resources were more appropriately directed and that all work, including that of the Secretariat, should support of the business plan. The methods of reporting PIRG work to the Commission and Council are also being revised to ensure that progress could be measured against timelines and to ensure that performance objectives be met.

2.2 In this context, that meeting agreed the following Conclusion 5/2:

*That, recognizing that the evolution continues from a systems-based to a performance-based approach to planning and implementation of the air navigation infrastructure, the regional planning groups:*

- a) note that the Global Plan is a significant component in the development of regional and national plans and that, together with the global ATM operational concept, it provides an effective architecture for achieving a harmonized and seamless Global ATM system;*
- b) identify GPIs that most closely align with the well established implementation plans of their respective regions;*
- c) select GPIs that would be most effective in achieving the objectives of the region while ensuring continuation of the work already accomplished;*
- d) implement GPIs that take into account the Initiatives across regions, to align work programmes and to develop national and regional plans that facilitate achieving a Global ATM system;*
- e) utilize the planning tools as the common planning and implementation mechanism, thereby ensuring proper coordination and global integration; and*
- f) review, at each PIRG meetings as a part of its regular agenda, the progress achieved and challenges identified in the implementation of GPIs using a common template.*

2.3 In follow-up to the above discussions, the Regional North American/Caribbean (NAM/CAR) Air Traffic Management (ATM) Meeting agreed to adopt a performance-based approach for ATM regional tasks and to take early steps to ensure that its work was fully supportive of the revised business planning processes of ICAO, the directives of the ICAO Council, and the ALLPIRG Conclusions. The meeting therefore agreed to the following Recommendation:

***Recommendation ATM/1                      IMPLEMENTATION OF WORK PROGRAMMES IN SUPPORT OF STRATEGIC PERFORMANCE OBJECTIVES***

*That, in support of the evolution from a systems-based to a performance-based approach to planning and implementation of the air navigation infrastructure, States/Territories/International Organizations of NAM/CAR Regions develop and implement work programmes in support of the following performance objectives:*

- i) *Optimization of the ATS route structure*
- ii) *Improve demand and capacity balancing*
- iii) *Enhance civil/military coordination and co-operation*
- iv) *Align upper airspace classification*
- v) *Implement RNP approaches*

2.4 The Secretariat will timely coordinate with the ATM experts of the NAM and CAR Regions in order to receive feedback and charts would then be created to be placed on an interactive web site. Upon endorsement and further refinement, the major areas would serve as the core work programmes for the NAM and CAR Regions.

2.5 In view that the Strategic Objectives of ICAO are applicable to the regional and global ATM community, integrating work programmes and terms of reference of different intra-regional Working Groups should be reviewed, taking into consideration the new Global Plan Initiatives (GPIs) and related ICAO on-line planning tools associated with planning and implementation work.

2.6 These planning and implementation works should be reorganized keeping in mind the priority interests of the CAR Region aimed to optimizing human resources, financial savings, as well as use of communication means between States such as the Internet, video conference, teleconferencing, e-mail, telephone and facsimile, which should be encouraged during the intervening period.

2.7 The Regional North American/Caribbean (NAM/CAR) Air Traffic Management (ATM) Meeting agreed that ICAO NACC Office reorganize NAM and CAR regional work programmes of future meetings, improving the collaborative decision-making (CDM) processes, avoiding any unnecessary and duplication works, and thus adopted the following:

***Recommendation ATM/5 REORGANIZATION OF THE ATM TERMS OF REFERENCE AND WORK PROGRAMMES OF THE WORKING GROUPS OF THE NAM/CAR REGIONS***

*That ICAO:*

- a) *review the integration in the ATM tasks of the different Working Groups of the NAM and CAR Regions of performance objectives, as indicated in the **Appendix** (to this Working Paper), taking into account the new Global Plan Initiatives (GPI); and*
- b) *reorganize in an homogeneous manner the activities of the Working Groups of the NAM/CAR Regions regarding the annual work programme of the ICAO NACC Regional Office.*

***ICAO Global Air Navigation Plan (ANP) on-line database***

2.8 ICAO has developed a Global Air Navigation Plan (GANP) database which will soon be available on-line through the ICAO Geographic Information Service/GIS portal with the performance-based approach to measuring success with implementation; and the planning process to carry out regional integration and transition to global ATM system. There are planning tools developed by ICAO which characteristics are:

- Various formats: software applications, planning documentation, web-based reporting forms, project management tools
- Common programme templates as the basis for establishing performance objectives and implementation time lines
- Comprehensive schedule and programme planning activities
- Links to relevant guidance material and documentation in order to assist the planner throughout the planning process.

2.9                Also GIS provides for an interactive database links in a dynamic chart where the user selects what is to be displayed and functions, such as:

- Zoom in or out
- Input coordinate lat long
- Decide the area to be charted
- Search, query the map for data
- Perform spatial analysis
- Many output options (Extract function, Save as: pdf text tab ai, svg, jpg, special print functions).

2.10              In accordance with Conclusion 5/5 of the Fifth Meeting of All Planning and Implementation Regional Groups (ALLPIRG/5), the Meeting should support the use of online global air navigation plan database tools for an interactive and dynamic planning.

### **3.                Suggested actions**

3.1                The C/CAR DCA/8 Meeting is invited to:

- a)            note the information contained in this Working Paper;
- b)            adopt the recommendation expressed in paragraph 2.3 and support Recommendation ATM/5 item b) in paragraph 2.7; and
- c)            agree other actions as necessary.

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## **APPENDIX**

### **ATM PERFORMANCE OBJECTIVES FOR THE NAM AND CAR REGIONS**

#### **1) Optimize the ATS route structure in both terminal and en-route airspace**

##### ***Benefits***

The benefits of this performance objective are:

- 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***

###### **En-route airspace**

In the near term: (mid 2008)

- analyze the en-route ATS route structure and implement all identifiable improvements;
- implement all remaining regional requirements (e.g. RNP 10 routes); and
- Finalize implementation of WGS-84.

In the medium term (2011)

- develop a strategy and work programme to design and implement a trunk route network, connecting major city pairs in the upper airspace, on the basis of RNAV/5, taking into account interregional harmonization;
- monitor implementation progress.

###### **In terminal airspace**

- develop a regional strategy and work programme for implementation of 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 2; and
- progress and monitor implementation.

##### ***GPIs***

The above performance objective is supported by 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) Improve demand and capacity balancing**

### ***Benefits***

The benefits of this performance objective are:

- reduction in weather and traffic induced holding leading to reduced fuel consumption;
- improved and smoother traffic flows;
- improved predictability;
- improved management of excessive service demand at ATC sectors and at aerodromes;
- improved operational efficiency;
- enhanced airspace capacity; and
- improved safety management.

### ***Strategy (2008)***

- identify key stakeholders (ATC service providers, air operators, military, airport authorities, aircraft operators and relevant International Organizations) for coordination and cooperation;
- identify and analyse current traffic flow problems and develop methods for improving efficiencies gradually as necessary, through e.g.:
  - improved airway structure (unidirectional routes), communications, surveillance, ATS capacity, aerodrome capacity and letters of agreement;
- define required elements of common situational awareness, e.g.;
  - common traffic display, common/weather displays (Internet), communications (teleconferences, web), daily teleconference advisories;
- develop methods to establish demand/capacity estimates;
- develop a regional strategy and work programme for implementation of ATFM; and
- monitor implementation progress

### ***GPIs***

The above is supported by GPI/6: air traffic flow management.

## **3) Enhance civil/military coordination and co-operation**

### ***Benefits***

The benefits of this performance objective are:

- make available military restricted airspace more hours of the day so that aircraft can fly on their preferred trajectories;
- increase airspace capacity;
- allow a more efficient ATS route structure;
- ensure safe and efficient action in the event of unlawful interference; and
- improve search and rescue services.

***Strategy (2008)***

- develop guidance material on civil/military coordination and co-operation to be used by States/Territories with national policies, procedures and rules;
- establish civil/military coordination bodies;
- arrange for permanent liaison and close cooperation between civil ATS units and appropriate air defense units;
- conduct a regional review of special use airspace;
- develop a regional strategy and work programme for implementation of flexible use of airspace in a phased approach beginning with more dynamic sharing of restricted airspace while working towards full integration (2012) of civil and military aviation activities; and
- monitor implementation progress

***GPIs***

The above is supported by GPI/1: flexible use of airspace.

**4) Align upper airspace classification*****Benefits***

The benefits of this performance objective are:

- better utilization of datalink 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;
- 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 (2008)***

Develop a regional implementation strategy and work programme for the implementation of ICAO Annex 11 airspace class A above FL 195.

***GPIs***

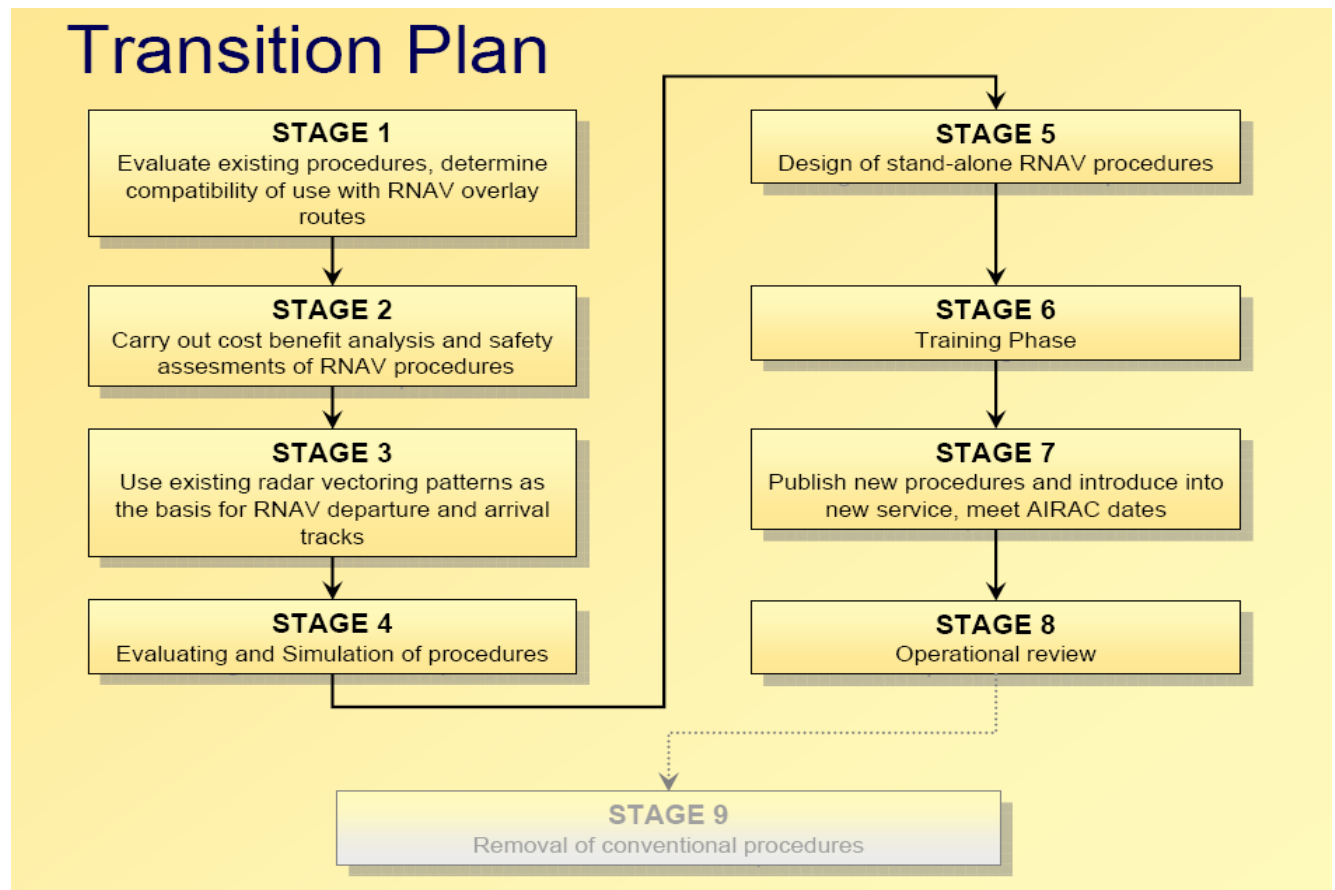
The above is supported by GPI/4: align upper airspace classification.

**5) Implement RNP approaches*****Benefits***

The benefits of this performance objective are improvements in capacity, efficiency and safety at aerodromes.

*Strategy*

- development of a regional strategy and work programme for implementation of RNP approaches at aerodromes where aircraft weighing 5700kg or more are operated, on the basis of the transition plan below; and
- monitor implementation progress.

*GPIs*

The above is supported by GPI/5: performance-based navigation, GPI/7, 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..