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CAR/SAM Regional Planning and Implementation Group (GREPECAS)

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GREPECAS/16 – IP/03

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Agenda Item 3: Performance framework for Regional Air Navigation Planning and Implementation

3.1 Global, inter-regional and intra-regional activities concerning air navigation systems in the CAR/SAM Regions

AIR NAVIGATION PLAN OF COLOMBIA

(Information paper presented by Colombia)

SUMMARY

Colombia, through its Civil Aviation Authority, the Special Civil Aviation Administrative Unit (*Unidad Administrativa Especial de Aeronáutica Civil – UAEAC*) officially presents the AIR NAVIGATION PLAN OF COLOMBIA – PNA COL. This is an effort by the Colombian Authority to formulate the strategy and guidelines for the aeronautical sector, in accordance with the Global Air Navigation Plan and the CAR/SAM Air Navigation Plan, reflecting the coordinated interests of the aeronautical user community in Colombia. Since December 2008, when the first version of the PNA COL Volume I: Operational Requirements, was published, we have been revising its contents to arrive to the current version 05 of the PNA COL, which includes Volume II: Facilities. We invite the CAR and SAM Regions to review it at [www.aerocivil.gov.co /notificaciones](http://www.aerocivil.gov.co/notificaciones), and submit any comments they deem advisable.

<i>Strategic Objectives:</i>	A: Safety – Enhance global civil aviation safety D: Efficiency–Enhance the efficiency of aviation operations
<i>References:</i>	Global Air Navigation Plan Regional Air Navigation Plan –CAR/SAM ANP National Satellite Navigation Plan – PNNS Air Navigation Plan of Colombia – PNA Colombia

1. **INTRODUCTION**

The UAEAC, aware of the need for national connectivity and its contribution to the competitiveness of the country¹, and the mobility provided by air transport, has formulated the Air Navigation Plan of Colombia - PNA COL and has invited the national and international community to participate in its

¹ The Colombian State has defined a competitiveness policy through the National Competitiveness Council.

adjustment and fine-tuning. This will help the Ministry of Transport, the Ministry of Finance, and the National Planning Department in their efforts to obtain the human and financial resources required to achieve the goals proposed for the short, medium and long term. The PNA COL responds to the need for the air transport sector to meet the growth expectations and requirements of the aeronautical community in terms of optimisation of air navigation and airport services.

2. DEVELOPMENT

2.1 The Air Navigation Plan of Colombia – PNA COL is a strategy that sets forth the path to be followed in terms of aeronautical and airport infrastructure to meet operational requirements and address the growth in national and international air transport. With this strategy, geographical connectivity throughout the country can be improved through the use of new technologies to modernise aeronautical and airport infrastructure². The new satellite navigation technologies contribute to environmental sustainability, by reducing the emissions of carbonic gas by aircraft through reduced flight times, lower costs for the operator, and improved safety and cost-efficiency in the provision of services.

2.2 The PNA COL is divided into three volumes: *Volume I: Operational Requirements, Volume II: Facilities, and Volume III: Regulation.*

2.3 Volume I: Operational Requirements in the Colombian airspace, contains the requirements for improving safety, regularity, efficacy and efficiency in the use of airspace and in airport operations, and for increasing the availability of flight schedules and profiles.

2.4 Volume II: Facilities formulates technological strategies to support the operational requirements listed in Volume I. Each CNS technological strategy is supported by technologies applicable in Colombia, in keeping with the CAR/SAM Regional Air Navigation Plan, with a view to achieving the required integration. This volume also contains airport development strategies related to aerodrome operations planning (AOP) and airport facilitation.

2.5 Volume III: Regulation contains strategies for adjusting national regulations to the provisions contained in Volumes I and II of the PNA Colombia, as a guide to the gradual migration by Colombian airspace users to an integrated air traffic management.

2.6 The PNA COL is consistent with GREPECAS/15 decisions as follows:

C15/1	Development of performance-based regional and national plans
C15/4	D-VOLMET aeronautical data link requirements in the CAR/SAM Regions
C 15/8	Updating of WAFC workstations so as to make changes to OPMET data
C15/27	Strategy for the transition to AIM
C15/35	Implementation of the new ICAO flight plan model
C15/38	National PBN implementation plans
C15/44	Use of GNSS in the short term
C15/45	NDB station phase-out plan

² CNS/ATM: Communication, Navigation and Surveillance supported mainly by satellite.

3. CONCLUSION

3.1 The vision of the PNA COL is based on the International Civil Aviation Organization (ICAO) Global Air Navigation Plan to ensure, in coordination with neighbouring States, an integrated system suited to the aviation of the future, understanding the responsibility of Colombia as **CENTRAL AXIS OF THE AMERICAS** and a obligated point in north-south flow between America and Europe. The methodology used is that suggested by ICAO in its CAR/SAM Regional Navigation Plan, with some specific features of the national planning system, including national civil aviation requirements.

The CAR and SAM community is invited to consult the Air Navigation Plan of Colombia (PNA COL) at:
www.aerocivil.gov.co/Notificaciones

ANNEX

**AIR NAVIGATION PLAN OF COLOMBIA
EXECUTIVE SUMMARY
Air Navigation Service Bureau
Feb 2011**

PREAMBLE

Air transport contributes significantly to the achievement of the vision of the National Competitiveness Council: “In 2032, Colombia will be one of the three most competitive countries in Latin America, with a high level of *per capita* income equivalent to that of a medium-high income country³, an economy based on the export of value-added and innovative goods and services, a business environment that promotes local and foreign investment, regional convergence, geographical integration and accessibility, increases formal employment opportunities, raises the standard of living, and substantially reduces poverty levels”⁴. The participation of air transport in this big country endeavour has several strategic axes:

Strategy: Institutional-Building

The institutional building required by air transport to address the new technical and administrative developments will be based on management structures in which functions are decentralised and focused on enhanced administrative efficiency, fostering training and technical and professional development of officials, based on the principles of modernisation, efficiency, efficacy and effectiveness, functional management, specialisation, safety and competitiveness.

- a) Provide the necessary conditions to give legal stability to aeronautical regulations concerning both air commercial and airworthiness aspects, in order to develop a sound environment for the implementation of the strategies herein stated.
- b) Institutional building entails a Quality Management System (QMS), a tool for standardising processes and procedures that define the minimum quality requirements for the provision of air navigation services with a predefined level of safety and in compliance with existing regulations. The QMS must provide mechanisms to expedite the updating of regulations, allowing for the assessment of the impact of such regulatory adjustments, jointly with the affected community.
- c) Clearly establish the institutional boundaries of the entities responsible for regulating and overseeing companies that provide air navigation services (air traffic, search and rescue, aeronautical meteorology, and aeronautical information) as well airport service providers (land side and air side⁵).

Strategy: Air Navigation Plan

The Air Navigation Plan – PNA Colombia – is a strategy that establishes the roadmap for aeronautical and airport infrastructure in order to meet operational requirements resulting from the growth of national and international air transport. This strategy permits a better geographical connectivity of all the regions of the country, through the modernisation of aeronautical and airport infrastructure and the application of new technologies⁶. The new satellite navigation technologies contribute to environmental sustainability,

³18.000 dollars of *per capita* income in a period of 25 years.

⁴ National Competitiveness Council, Session 3 - July 2007.

⁵ Air side services: All those required by an aircraft while on the ground. Land side services: all those required by passengers while on the ground.

⁶ CNS/ATM: Communication, navigation and surveillance, mainly satellite-based.

through reduced carbonic gas emissions by aircraft, shorter flight times, lower operating costs, improved safety, and cost-efficient service.

There are very concrete goals to achieve during the presidential period 2010-2014, as stated in PNA COL (www.aerocivil.gov.co), like, for instance:

- a) Define a technically and economically feasible solution to resolve the problem of congestion at the main airport of the country, El Dorado, in Bogota.
- b) Provide high levels of modular automation to address growing traffic density and maintaining the established levels of safety.
- c) Improve the capacity to issue meteorological forecasts for air navigation.
- d) Significantly improve air navigation aids for operations to and from domestic airports⁷.

All of the above is intended to increase the punctuality indicator in Colombia by 2 percentage points⁸, currently at 67%.

Strategy: Science, Technology and Innovation

Agreements between the Ministry of Transport, *Aerocivil* and the universities to work together, in a coordinated manner, with science, technology and innovation on satellite applications for the aeronautical sector, with a research and development plan that has funding mechanisms⁹. These links will permit the generation of sophisticated applications for national production, to be used in different modes of transport. Projects such as the GPS-enhanced aircraft guiding project are an example of transfer and application of technology and incorporation of knowledge into the productive sector¹⁰ and the other formulated in Vision 2019: VISION Colombia - II Centennial – Making use of the airspace potential to contribute to sustainable development and the competitiveness of the country.

Strategy: Entrepreneurial formalisation and generation of qualified employment

It involves productive transformation and value added through the establishment of a new productive sector in engineering and aeronautical maintenance, promoting the incorporation of national engineering and aeronautical and airport research into the Colombian productive system.

This requires the commitment of academia to improve the relevance of higher and post-graduate studies (mainly in aeronautical, electronic, mechanical, and systems engineering), to generate qualified employment in the formal sector, thus partially addressing the current deficit of more than 200.000 pilots and 400.000 specialised maintenance workers worldwide¹¹.

Considering that the transport infrastructure sector is cross-cutting to all other economic sectors, the consolidation of these strategies will open a path for national production of navigation satellite

⁷GPS-enhanced aircraft guidance project, based on a geodetic network of *Ingeominas*, *Universidad Nacional de Colombia* and *Aerocivil*. A satellite application that is also useful for maritime navigation.

⁸Punctuality Indicator Colombia is the average punctuality of companies based in Colombia, published by the Air Transport Office of UAEAC.

⁹With strengthening of the Intellectual Property System.

¹⁰Market identification with aeronautical and maritime electronic production line. An application for transport infrastructure and logistics.

¹¹ICAO Magazine, Vol. 64, No. 6 2009.

technology applications, generating new forms of formal employment¹², with new products and services with high value added in domestic and international markets, thus reducing transportation costs and contributing to improve productiveness¹³.

Strategy: Consolidation of foreign trade (air transport)brokers

Colombia, as the central axis of the Americas and obliged point in north-south and South America-Europe flow, and with great potential for Asia-Pacific, must foster international agreements to increase the transportation of passengers and cargo, from and to the country, in order to give dynamism to the national economy to benefit the sector.

PNA COL

The Air Navigation Plan of Colombia – **PNA Colombia** sets forth the strategic guidelines for air navigation development in Colombia, providing guidance to the aeronautical community for the short (2010-2014), medium (2015-2019) and long run (2020-2032) in the formulation of action plans and projects falling under the responsibility of each of the actors involved in the achievement of the common objectives of **connectivity, competitiveness, and mobility**.

The PNA, in Volume I, sets forth the detailed operational requirements in Colombian airspace, with a view to improving safety levels, and the regularity, efficacy and efficiency in the use of airspace and in airport operations, increasing the availability of flight schedules and profiles in benefit of the national and international aeronautical community. Accordingly, Volume II lists the facilities required in the airspace under the responsibility of Colombia, including satellite-based communication, navigation and surveillance systems, to meet air traffic management requirements. And Volume III contains plans for adjusting existing regulations to guarantee the legal framework and orient the gradual migration of Colombian airspace users to an integrated air traffic management.

This vision is based on the Global Air Navigation Plan of the International Civil Aviation Organization (ICAO), and seeks to ensure, in coordination with neighbouring States, an integrated system that suits the aviation of the future, understanding the responsibility of Colombia as the **CENTRAL AXIS OF THE AMERICAS**, and obliged point in north-south and South America-Europe flow. The methodology used is that suggested by ICAO in its CAR/SAM Regional Navigation Plan, with some specific features proper to the national planning system. The Air Navigation Plan of Colombia responds to the National Development Plan, entitled “Prosperity for all”, and is the aeronautical component of the National Satellite Navigation Plan (*Plan Nacional de Navegación Satelital*) of the Colombian Airspace Commission (*Comisión Colombiana del Espacio*).

The geographical location of Colombia is exceptionally good within the context of traffic between North, Central, and South America, and traffic between South America and Europe, serving approximately 75% of traffic in these flows. This position gives Colombia some comparative advantage with respect to its neighbouring countries, which entails an additional commitment to the provision of air navigation services. This condition has resulted in the collection of 60.000 million Colombian pesos (US\$ 28 million) in *over flight charges* in 2008¹⁴.

¹² Technology and logistics management companies

¹³ The agricultural and livestock sector benefits from safe transport of traditional products, such as coffee or flowers, as well as emerging products. Connectivity of all the regions of the country, especially those that lack other means of transportation other than air transport.

¹⁴ In Colombia, 114,000 over flights took place in 2008. Total income of the UAEAC was in the order of 394,000 million pesos; 407,336 million pesos are estimated for 2009.

This Air Navigation Plan of Colombia must be approved by the *Governing Council*¹⁵, and presented as an official document to ICAO, the Ministry of Transport, the National Planning Department, the Ministry of Economy, the Ministry of Foreign Trade, and the aeronautical community (user associations, commercial civil aviation, private civil aviation, military aviation, and service providers), for attaining consensus and ongoing updating.

This Air Navigation Plan of Colombia is consistent with the *National Development Plan* concerning CNS/ATM systems, and also responds to the requirements of item 6.2.1, Master Plan for the Airspace System of the RACs (part 6, chapter 2, 6.2 Air Traffic Management).

Each initiative of the aeronautical community must be assessed with respect to the PNA COL, in order to adjust it and record it as the only valid document for the planning of air transport services in Colombia.

The Air Navigation Plan of Colombia can be found in www.aerocivil.gov.co : Notificaciones together with the form: [Formatoparasugerencias o aportes al PNA COL](#).

- END -

¹⁵ The highest governing body of the UAEAC, made up by the Minister of Transport, the Director of National Planning and a representative of the President.