



Agenda Item 1: Follow-up to conclusions and decisions adopted by SAM/IG meetings, results of the 38th session of the ICAO Assembly (A38) and thirteenth meeting of Civil Aviation Authorities of the SAM Region (RAAC/13) and progress made in the development of the new electronic Air Navigation Plan (e-ANP)

Results of the Thirteenth Meeting of Civil Aviation Authorities of the South American Region (RAAC/13)

(Presented by the Secretariat)

SUMMARY	
This working paper presents the results of the Thirteenth Meeting of Civil Aviation Authorities of the South American Region (RAAC/13) so that the Meeting may analyse their impact on the work programme of SAM Implementation Group meetings.	
REFERENCES	
<ul style="list-style-type: none">• Report of the Thirteenth Meeting of Civil Aviation Authorities of the South American Region (RAAC/13) (Bogota, Colombia, 4-6 December 2014); and• Report of the Meeting of Air Navigation and Safety Directors (Lima, Peru, 21-22 October 2013).	
<i>ICAO strategic objectives:</i>	<i>A – Safety; and B – Air navigation capacity and efficiency</i>

1. Background

1.1 The RAAC/13 meeting was attended by 11 SAM States and 2 NAM/CAR States, as well as by 8 international organisations, totalling 70 participants.

1.2 The main topics addressed by the RAAC/13 meeting were: air navigation and safety implementation priorities for the 2014-2016 period, the SAM performance-based air navigation implementation plan (PBIP) as aligned with the ASBU, the ICAO regional technical cooperation tools for the implementation of air navigation and safety improvements, the regional performance scoreboard, and the Declaration of Bogota.

2. Discussion

Air navigation and safety implementation priorities

2.1 The RAAC/13 meeting took note that the Meeting of Air Navigation and Safety Directors (Lima, October 2013) analysed and approved the priorities, goals, and associated metrics for improving navigation and safety efficiency and capacity.

2.2 The following implementation priorities were approved: Performance-based navigation (PBN) applied to routes, terminal areas, and approaches; air traffic flow management (ATFM); aeronautical information management (AIM); AMHS interconnection; the interconnection of automated systems (radar data and AIDC); and domestic IPS networks. Air navigation implementation priorities and goals are described in **Appendix A** to this working paper.

2.3 The priorities for the implementation of safety improvements were as follows: safety oversight; reduction of accidents; reduction of runway excursions and incursions; aerodrome certification; and implementation of the State safety programme (SSP) and of the safety management system (SMS).

PBIP aligned with the ASBU

2.4 The RAAC/13 meeting analysed the SAM PBIP (Version 1.4) as aligned with the ASBU, and went on to approve and adopt it at regional level, in the understanding that it was a living document that required periodic evaluation by the aeronautical authorities involved. It also invited the States that had not done so yet to amend their national performance-based air navigation plans, based on the guidelines contained in the SAM PBIP, and formulated Conclusion RAAC/13-5 – *SAM performance-based navigation implementation plan (SAM PBIP) as aligned with the ASBU*.

ICAO regional technical cooperation tools for the implementation of air navigation and safety improvements

2.5 The RAAC/13 meeting took note of the activities carried out by Project RLA/06/901 and those foreseen to take place in 2014. In this regard, the civil aviation authorities of the Region unanimously endorsed the activities carried out by Project RLA/06/901 and took note of the activities proposed for 2014, as submitted to the consideration of the seventh meeting of the Project Coordination Committee (RCC/7) (Lima, 13-14 March 2014). The meeting also took note of the advantages offered by the ICAO technical cooperation mechanism and urged the States to continue using the mechanism designed to support ICAO States.

2.6 Likewise, the RAAC/13 meeting underlined the activities carried out by Project RLA/99/901 [Regional Safety Oversight System (SRVSOP)] and its contribution to effective PEL, OPS, and AIR implementation in the ANS and AGA areas under the ICAO Universal Safety Oversight Programme (USOAP) in the SAM Region. The meeting also felt that the project should start conducting air navigation services (ANS) oversight activities, including the development of a set of regulations for air navigation services, with guidance manuals for safety inspectors, inspection protocols, training programmes, and development of competencies for inspectors of SRVSOP member States who might be part of multinational teams responsible for continued oversight of air navigation service providers.

Declaration of Bogota

2.7 The civil aviation authorities of the SAM Region reviewed the Declaration of Bogota, which contains regional air navigation and safety implementation priorities and the associated metrics, which they endorsed and approved. IATA, ACI-LAC, CANSO, and ALTA also endorsed the Declaration. In this regard, the meeting formulated Conclusion RAAC/13-8 – *Implementation of air navigation and safety oversight priorities*, urging SAM States to implement air navigation and safety priorities pursuant to the regional goals agreed in the Declaration of Bogota for the 2014-2016 period, and international organisations to support the priorities of the States. **Appendix B** to this working paper contains the Declaration of Bogota.

3. **Suggested action**

3.1 The Meeting is invited to:

- a) take note of the information provided in this working paper;
- b) analyse the results of the RAAC/13 meeting, shown in section 2 of this working paper and in Appendices A and B, and particularly, the air navigation implementation priorities and goals contemplated in the SAM/IG 2014-2016 work programme; and
- c) discuss any other matters it may deem appropriate.

APPENDIX A

PRIORITIES FOR THE IMPLEMENTATION OF AIR NAVIGATION IMPROVEMENTS

PBN implementation

1.1 Upon analysing the status of implementation of performance-based navigation (PBN) in the South American Region, note was taken of the status of PBN implementation in the optimisation of routes, terminal areas (TMAs), and instrument approach procedures (IAPs). The meeting also reviewed the goals to be achieved by SAM States during the period 2014-2016.

Optimisation of the regional ATS route network (ATSRO)

1.2 Regarding route optimisation at regional level, it was noted that out of a total of 254 routes that make up the regional ATS route network, 159 (62%) correspond to conventional routes and 95 (38%) to PBN routes.

PBN redesign of terminal areas

1.3 Regarding standard arrivals and departures (STARs and SIDs), the meeting analysed the results of the survey conducted by the Regional Office as well as the information of the State AIPs.

1.4 In this regard, it was noted that, of the 99 international airports of the SAM Region listed in the CAR/SAM Air Navigation Plan (ANP), 1,680 STAR and SID procedures have been designed and published in the SAM Region, of which 878 (52%) are conventional, and 802 (48%) are PBN.

1.5 Likewise, it was noted that regarding continuous descent operations (CDO) and continuous climb operations (CCO) in the PBN STARs and SIDs of the region, no CDOs or CCOs have been published in the respective AIPs, but there are 56 PBN STARs in SBBS (Brasilia) and the 24 PBN STARs in SBRF (Recife) that have been developed using CDO techniques, although they are not indicated as such in the chart.

1.6 The indication of CCOs or CDOs in the SID or STAR chart, due to its importance, is under study by the planning and implementation groups to ensure an improved situational awareness by air traffic controllers and pilots.

PBN instrument approach procedures

1.7 Regarding PBN instrument procedures, the Air Navigation Directors took note of ICAO Assembly Resolution A37-11 on global performance-based navigation goals.

1.8 According to Resolution A37-11, the SAM Region has 114 runways for which instrument procedures have been developed to 175 of the existing 228 thresholds. For these 175 thresholds, 107 APV procedures have been implemented, accounting for 61% of IFR runways.

1.9 It was noted that, of all the procedures existing in the Region for international airports listed in the ANP, there were 783 approach procedures for the 99 airports; 178 were PBN approach procedures (including the GNSS IAPs), out of which 107 were RNP APCH, accounting for 14%, distributed as follows: 83 APV Baro-VNAV (APV) procedures - 11%, and 24 RNP procedures with authorisation required (RNP AR), accounting for 3%.

PBN goals for the period 2014-2016 in the SAM Region

1.10 Regarding standard departures and arrivals (SIDs and STARs) designed in accordance with the PBN concept, CDO and CCO operations, and the objectives of Resolution A37-11 concerning instrument procedures with vertical guidance, the following regional goal was agreed upon for the triennium 2014-2016:

Proposed percentages	60%	60%	40%	40%	60%	According to Resolution A-37/11		
	2016	2016	2016	2016	2016	70% 2014	100% 2016	
CAR/SAM ANP international airports	PBN SID	PBN STAR	CCOs CDOs in SIDs and STARS	PBN routes Lower airspace	PBN routes Upper airspace	IAP APV/L NAV	IAP RNP-AR	IAP LNAV Only

1.11 Additionally, based on the airspace optimisation programme being implemented in the SAM Region, a **reduction of 40.000 tonnes of CO₂ emissions per year** was considered as regional goal, mainly related to route optimisation and TMAs using CCO and CDO techniques derived from fuel savings by the users.

ATFM implementation

1.12 Upon analysing the status of implementation of air traffic flow management (ATFM) in the South American Region, and in view of the global events to be held in 2014 and 2016, the meeting identified the need to have at least one ATFM position at the area control centres.

1.13 To date, 2 centralised flow management units and 3 flow management units or positions (FMU/FMP) have been implemented in the SAM Region, while one State is in the process of implementation and 8 States are carrying out activities or have not yet taken action for ATFM implementation. Based on the analysis made, it was noted that 36% of SAM States had implemented FMUs or FMPs.

1.14 Out of the 99 international airports in the SAM Region listed in the ANP, ATFM services are provided to 45 airports (27 in Brazil, 8 in Colombia, 1 in Chile, 2 in Paraguay, and 7 in Venezuela), accounting for 45% of all the airports in the Region. This percentage does not include airports in States that are in the process of implementation.

1.15 Under the auspices of project RLA/06/901, several training courses have been conducted and even a guide has been developed for calculating runway and ATC sector capacity to assist States with the runway and ATC sector calculation methodology. Likewise, courses have been carried out at the centralised ATFM unit in Brazil, and the ATFM and the associated CDM manuals were developed for use in the SAM Region.

ATFM goals for the period 2014-2016 for the SAM Region

1.16 In view of the above, and given the importance of ATFM for capacity/demand balancing, the following ATFM goals were agreed for the period 2014-2016:

- a) 2014-2016: at least one flow management unit (FMU) or flow management position (FMP) in the ACC of each FIR.
- b) 2016: one centralised ATFM unit (ATFMC) in those States that have more than one FIR.

AIM implementation

1.17 Regarding AIM implementation in the SAM Region, 14 States of the Region have completed Phase 1 of the roadmap for the transition from AIS to AIM, with respect to the following elements:

- a) P-03 — AIRAC adherence monitoring;
- b) P-04 — Monitoring of States' differences to Annexes 4 and 15; and
- c) P-05 — WGS implementation.

1.18 Regarding element P-17, which corresponds to quality management (QMS) implementation, it was noted that in the SAM Region, there were 5 QMS-certified States: Brazil, Chile, Ecuador, French Guiana (France), and Paraguay.

1.19 An important landmark in the road to the new systems is the completion by administrations of Phase 1 of the AIS-to-AIM transition process, since the phased and interdependent transition requires that one phase be completed before moving on to the next transition phase.

1.20 A delay in the implementation of Phase 1 will have a significant impact on several areas that depend on the quality of aeronautical information. One of the most affected areas is ATM.

AIM goal for SAM States that need to complete PHASE 1 of the AIS-to-AIM transition roadmap during the period 2014-2016

1.21 According to the information provided by the AIM experts of the States, the following goals were proposed for the period 2014-2016 for those States that had not yet obtained AIM QMS certification:

State	% of implementation January 2012	% of implementation May 2013	Certification
Argentina	30 %	30%	2015
Bolivia	30%	30%	2015
Colombia	70%	90%	2014
Guyana	0%	25%	2016
Panama	70%	70%	2015
Peru	40%	50%	2015
Suriname	30%	35%	2016
Uruguay	90%	95%	2014
Venezuela	50%	50%	2015

Interconnection of AMHS systems

1.22 The interconnection of aeronautical message handling systems (AMHS) started in 2010, at a time when many SAM States had already implemented AMHS systems. To date, four AMHS interconnections have been completed. The connections were implemented on the regional communications network, REDDIG, using the IP communications protocol (Internet protocol).

1.23 In order to establish technical, operational, and administrative agreements when interconnecting automated systems, a model Memorandum of Understanding ((MoU) has been developed for use in the SAM Region. Accordingly, the States planning to start the interconnection will describe in the MoU the activities required for the interconnection, with the respective dates, as well as the parties technically and operationally responsible for coordinating activities.

1.24 A total of 26 AMHS interconnections are required. **The goal is to have 100% of AMHS interconnections completed by the end of 2016**; four have already been completed and the remainder will be implemented as follows: one in 2013, 11 in 2014, 5 in 2015, and 5 in 2016.

Interconnection of automated systems

1.25 The interconnection of automated systems between adjacent ACCs is aimed at reducing the risk of aeronautical incidents resulting from coordination activities, while improving planning phases for an efficient control of flights to/from the corresponding flight information regions (FIR).

1.26 Follow-up to the interconnection of automated systems in the Region is done through the SAM implementation (SAM/IG) meetings, with the support of project RLA/06/901, through which guides have been drafted to support implementation, and through missions to the States, as shown in the website of the ICAO South American Regional Office in the section on electronic documents.

1.27 The interconnection of automated systems consists of the exchange of radar data using the ASTERIX (*All Purpose Structured Eurocontrol Surveillance Information Exchange*) format and IP communication protocols (Internet Protocol), and the implementation of automated transfer of flight plans between automated centres through AIDC (ATS interfacility data communication). The means of communication will be the REDDIG regional network.

1.28 The goal for the interconnection of automated systems is 15 interconnections **implemented by the end of 2015**. The schedule of implementation from 2013 to 2015 is as follows: **1 in 2013, 8 in 2014, and 6 in 2015**.

Implementation of domestic IPS (Internet protocol suites) communication networks

1.29 With the implementation of AMHS, many SAM States have improved their domestic communication networks by implementing domestic IPS networks, but very few States have planned the implementation of AIS and/or MET services, operational voice services (direct or switched ATS communications) and radar surveillance services over the same domestic IP network.

1.30 The implementation of domestic IPS networks will facilitate the implementation of new services to support aeronautical services, thus increasing their availability.

1.31 In this sense, **it is foreseen that, by the end of the period 2014-2016, 80% of the States of the Region** will have implemented domestic IPS networks with the aforementioned characteristics. Implementation during the period 2014-2016 would be distributed as follows: 2 in 2014, 3 in 2015, and 5 in 2016. It is expected that full implementation will be achieved by 2018.



APPENDIX B

INTERNATIONAL CIVIL AVIATION ORGANIZATION South American Regional Office

BOGOTA DECLARATION

The thirteenth meeting of Civil Aviation Authorities of the SAM Region held in Bogota, Colombia, from 4 to 6 December 2013, convened by the ICAO South American Regional Office, and counting with the participation of high level officials representing 13 States and 8 international organizations and industry:

Considering that, in accordance with Article 37 of the International Civil Aviation Convention, each contracting State undertakes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation;

Noting the objectives to be achieved through the Global Air Navigation and Safety Plans, recently approved by the Thirty-eighth Session of the ICAO Assembly;

Taking into account the paramount role civil aviation performs in the socio-economical, exchange and commerce development for regional integration;

Aware that the constant air transport growth in the region and the great worldwide events to be developed in the next years require additional efforts to improve even more the aviation safety, efficiency and security indicators;

Aware that the air transport growth poses additional challenges for the infrastructure of both airports and air navigation;

Aware that the management of regional processes towards the implementation of air navigation, safety and security operational improvements require the establishment of clear indicators and goals;

Recognizing that the South American Region has successfully implemented regional technical cooperation mechanisms adopting a joint approach in the solution of problems of common interest;

Aware that the harmonization of regional standards and procedures will facilitate a collaborative environment among States, guaranteeing an increase in the levels of air operations safety in the region and the achievement of joint goals;

Aware that regional air navigation operational improvements are more productive, and that delays from one State can negatively affect the remainder States;

Recognizing that legislation on the protection of sources of information is necessary for a better regional State Safety Programme (SSP) and Safety Management Implementation (SMS) implementation;

Aware that the safety objectives achieved to date require specific actions for their sustainment;

Recognizing the importance of developing air safety intelligence using reactive, proactive and predictive information to accompany the taking of decisions, mitigation of safety risks and continuous improvement;

Recognizing the collaborative working potential of the runway safety teams (RST) as a risk management tool; and

Considering the action plan agreed upon during the Meeting of Air Navigation and Flight Safety Directors of the South American (SAM) Region.

The thirteenth meeting of Civil Aviation Authorities of the SAM Region (RAAC/13):

DECLARES its commitment in achieving the following goals by 2016:

1. Safety oversight

Have 80% of effective implementation (EI) in the SAM Region.

2. Accidents

Reduce the SAM regional accident rate gap in 50% with regard to the global accident rate.

3. Runway excursions

Reduce runway excursions in 20% with regard to the average rate of the Region (2007 – 2012).

4. Aerodrome certification

Have 20% of the international aerodromes certified.

5. State Safety Programmes (SSP) and Safety Management System (SMS) Implementation

- *Reach 67% of SSP implementation.*
- *Reach 100% of the service providers SMS oversight capacity.*

6. PBN terminal

Full compliance with goals established in ICAO Assembly Resolution A37-11 regarding approach procedure with vertical guidance (APV).

7. PBN enroute

- *60% of the international aerodromes with standard instrument departure (SID) / standard instrument arrival (STAR) PBN.*
- *60% of the routes/airspace with performance based navigation (PBN).*

8. CDO

40% of the international aerodromes / terminal control areas (TMA) with continuous descent operation (CDO).

9. CCO

40% of the international aerodromes / TMAs with continuous climb operations (CCO).

10. Estimated fuel savings/ CO2 emissions reduction based on the ICAO fuel savings estimation tool (IFSET)

Reach 40,000 tons of regional CO2 emissions reduction per year in en-route PBN implementation.

11. ATFM

100% of the area control centre (ACCs) providing air traffic flow management (ATFM).

12. **AIM**

100% of the required elements in PHASE I (aeronautical information services (AIS) to aeronautical information management (AIM) Roadmap).

13. **AMHS interconnection**

100% of the Air Traffic Services Message Handling Services (AMHS) regionally interconnected.

14. **Interconnection of automated systems (ATS interfacility data communications (AIDC) exchange)**

100% of the automated systems interconnected.

15. **Implementation of national Internet protocol (IP) networks**

80% of the States with national IP communications networks implemented.

Issued in Bogota, Colombia, 6 December 2013

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