



Agenda Item 1: Review of the ATS routes network Optimisation Programme

Review of the South American Region ATS routes network Optimisation Programme

(Presented by the Secretariat)

Summary	
This working paper presents information on the action plan of the SAM ATS routes network optimisation programme, to be analysed by the meeting, and carry out the changes deemed pertinent, as per deliberations of the meeting.	
References: <ul style="list-style-type: none">• ICAO Annex 11• ICAO Doc 4444 – PANS• ICAO Doc 9426 – Manual on Air Traffic Services Planning• Ninth Workshop/Meeting (SAM/IG/9) Report	
ICAO Strategic objectives	<i>A - Safety</i> <i>C - Environmental Protection</i>

1 Background

1.1 The ATS routes network optimisation programme was approved during the SAM/IG/3 Meeting by all States and users, including IATA, also with the support of Regional Project RLA/06/901, and that the programme had as philosophy to contribute for the achievement of ICAO strategic objectives in the safety and environmental protection areas, and to such end, some criteria, techniques and planning principles should be taken into account, and an airspace concept should be established.

1.2 During the SAM/IG/9 Meeting, the SAM ATS Routes Network Optimisation Programme was not changed, and the last updating made by the SAM ATSSRO/3 Meeting was maintained, but some modifications were made updating the action plan of this programme. The action plan, as modified by the SAM/IG/9 Meeting, is shown in **Appendix A** to this working paper.

2 **Analysis**

2.1 As per the working methodology applied in previous ATS/RO meetings, the action plan of the SAM ATS Optimisation Programme is updated as necessary, in the light of the routes optimisation resolved to be implemented, by adjusting the same in accordance to the new tasks to be carried out by States.

3 **Suggested action**

3.1 The meeting is invited to analyse the action plan modified by the SAM/IG/9 Meeting, as shown in **Appendix A** to this working paper, and to carry out amendments deemed pertinent to perform implementation of Phase 3, Version 02 of the routes network proposed.

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APPENDIX A (REVISED 16/05/12)**PROGRAMME FOR OPTIMISING THE ATS ROUTE NETWORK IN THE SOUTH AMERICAN REGION
(GPIs 1, 5, 7, 8, 10, 11)**

Activity	Start	End	Responsible party	Observations
1. Phase One – RNAV-5 Implementation				
1.1. RNAV-5 implementation in the SAM Region	Apr 2008	Oct 2011	Regional Project RLA/06/901	Completed Implemented on 20 October 2011
2. Phase Two – Implementation of Version 1 of the SAM ATS Route Network				
Activity	Start	End	Responsible party	Observations
2.1. Conduct a Feasibility Study for Optimising the SAM Route Network	March 2009	Apr 2009	Regional Project RLA/06/901	Completed
2.2. Airspace Concept				
2.2.1 Collect traffic data to understand air traffic flows	June 2008	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901) States	Completed Secretariat sent request to States for data collection through letter LT 2/3A.13-LN 3/24.6.1-SA364 dated 8 June 2009. Deadline reply: 9 September 2009. Except for French Guyana and Panama all SAM States sent data collection.
2.2.2 Analyse the fleet navigation capacity	June 2008	SAM/IG/4	SAM/PBN/IG (Projects RLA/06/901 and RLA/99/901)	Completed Task 1.3 of the RNAV-5 Implementation Project

			States IATA	
2.2.3	Determine the gateways of the main TMAs in the SAM Region	SAM/IG/3	SAM/IG/4	States Completed Argentina, Bolivia, Brazil, Chile, Colombia, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.
2.2.4	Determine and obtain the necessary tools to make the study mentioned in item 2.2.5 (aeronautical charts, specific software)	SAM/IG/3	SAM/IG/4	SAM/PBN/IG (Project RLA/06/901) Completed Flight Star.(Verify if the acquisition of another software is necessary)
2.2.5	<p>Make a detailed study of the SAM ATS route network, with a view to preparing version 1 of the route network, including the following:</p> <ul style="list-style-type: none"> • Indicate the domestic and international ATS routes that should be eliminated, in accordance with their use; • Propose the volume of exclusionary airspace for RNAV-5 application • Indicate the “conventional” RNAV routes that should be eliminated or replaced by RNAV routes in the exclusionary RNAV-5 airspace. • Indicate the RNAV routes that should be realigned, in accordance with the gateways of the main SAM TMAs (see 2.2.3). • Describe in detail the proposed new SAM route network, based on the analysis of the aforementioned items. • Describe in detail the interface between the SAM route network and the CAR route network. • Propose the initial draft Proposal of Amendment to the CAR/SAM ANP 	SAM/IG/4	March 2010	SAM/PBN/IG (Project RLA/06/901) Completed Three persons for a period of 3 weeks in order to carry out study. This requirement will be presented to the RLA/06/901 RCC meeting. 3 persons for a 3 week period. IATA and operators would be invited to select one person to assist in the development of this task.

2.2.6	Prepare safety assessment required, applying a qualitative methodology through the use of SMS	April 2010	May 2010	Project RLA/06/901	<p>Completed</p> <p>This task requires the hiring of 1 expert in order to carry out required assessment applying SMS.</p> <p>This requirement will be presented to the RLA/06/901 RCC meeting.</p> <p>One person two weeks</p>
2.2.7	Hold the Workshop of Experts from the SAM States to review and validate the study made under item 2.2.5.	SAM/IG/5	June 2010	SAM/PBN/IG (Project RLA/06/901) States	<p>Completed</p> <p>This task requires the approval of the RCC meeting, in order to be able to count with RLA/06/901 support.</p> <p>Further to SAM/IG/5</p>
2.3 Implementation of Version 1 of the SAM ATS Route Network					
2.3.1	Process the proposal of amendment to the CAR/SAM Air Navigation Plan	TBD		SAM Regional Office	<p>Completed</p> <p>Shall depend on the decisions to be adopted by the routes workshop of 2.2.6</p>
2.3.2	Publish version 1 of the SAM ATS Route Network	TBD		States	<p>Completed</p> <p>Shall depend on the decisions adopted in the routes workshop of 2.2.6.</p>
2.3.3	Entry into effect of version 1 of the SAM ATS Route Network	TBD			<p>Completed</p>

3. Phase Three – Implementation of Version 2 of the SAM ATS Route Network				
Activity	Start	End	Responsible party	Observations
3.1. Flexible Use of Airspace				
3.1.1. Develop guidance material for the application of the Flexible Use of Airspace concept, including: <ul style="list-style-type: none"> • Model for FUA LOA • Model for using non-permanent routes similar to that applied in EUROCONTROL (Conditional Routes – CDR). • Criterion for defining scenarios in which non-permanent routes are applied • Criterion for categorising non-permanent routes • Harmonised publication of non-permanent routes • Representation of non-permanent routes in aeronautical charts 	SAM/ATSRO/3	SAM/IG/9	SAM/PBN/IG (Project RLA/06/901)	Completed
3.1.2. Establish the Civil-Military Coordination Committee to evaluate application of the Flexible Use of Airspace concept mentioned in 3.1.1.	SAM/IG/7	SAM/IG/9	States	The Civil/Military Committees should be implemented in those States which have not done so. Civil/Military Meeting/Workshop carried out in Lima from 16 to 19 August 2011.
3.1.3. Develop proposals for route implementation and/or realignment, in keeping with the utilisation of FUA	SAM/IG/7	SAM/IG/9	States	See 3.1.2
3.2. Airspace Concept				
3.2.1. Collect traffic data to understand air traffic flows	SAM/IG/7	Sept. 2011	SAM/PBN/IG (Project RLA/06/901) States	Secretariat will send a new request to States. Reply date September 2012.

3.2.2. Analyse the fleet navigation capacity	SAM/IG/7	SAM/IG/9	SAM/PBN/IG (Projects RLA/06/901 and RLA/99/901) States IATA	Completed The information on RNAV5 approval was sent to CARSAMMA. The navigation capacity data base will be completed as provided in SAM/IG/2 and SAM/IG/4 (Conclusion SAM/IG/4-3).
3.2.3. Determine the gateways of the main TMAs in the SAM Region	SAM/IG/7	SAM/IG/9	States	
3.2.4. Prepare letters of agreement and contingency with adjacent States		SAM/IG/10	States	
3.2.5. Make a detailed study of the SAM ATS route network with a view to developing version 2 of the route network, including: <ul style="list-style-type: none"> • Determine necessary tools for the holding of the study mentioned in item 3.2.5 (Aeronautical Charts, specific software). • Definition of scenarios for the SAM airspace structure, including ATS routes, control sectors, TMA interface, for assessment using airspace modelling and fast-time ATC simulation tools. • Indicate the ATS routes that should be eliminated in accordance with their utilisation; • Propose, if necessary, the extent of exclusionary airspace volume for RNAV-5 application • Indicate, as necessary, the “conventional” ATS routes that should be eliminated or replaced by RNAV routes in accordance with the possible extension of the exclusive RNAV-5 airspace volume. • Indicate the RNAV routes that should be 	SAM/IG/7	SAM/IG/11	SAM/PBN/IG (Project RLA/06/901)	Hiring of two experts is programmed for a three-week period during second half of February 2012. The First draft for the analysis of States and operators was developed, support was requested to the Project, to continue with the study of Optimisation, through hiring of a 3-week period and 2 experts before March 2013, with the new air traffic data, to be collected on August 2012, and feasibility studies together with TMA modified to be presented in the Region.

<p>realigned in keeping with possible modifications to the gateways of the main TMAs in the SAM Region.</p> <ul style="list-style-type: none"> • Detail possible scenarios for version 2 of the SAM route network and of control sectors, based on the analysis of the previous items • Detail the interface between the SAM route network and the CAR route network • Propose the initial draft Proposal of Amendment to the CAR/SAM ANP. • Define the required safety assessment (qualitative or quantitative). • With the air traffic data, consider the possibility to implement RNAV5 parallel routes with adequate separation. • Prepare optimisation plan for restricted, prohibited, dangerous and reserved use in the SAM Region. • Application of CDO techniques. 				
<p>3.2.6. Carry out a Seminar/Workshop/Meeting on Airspace Planning</p>	<p>ATSRO/3</p>	<p>September 2012</p>	<p>Regional Project RLA/06/901</p>	<p>Request support of Regional Project RLA/06/901 and DECEA (Brazil). The ICAO Secretariat should send a letter to DECEA to request two instructors. The objective is to prepare airspace planning from States of the Region for the second half of September in Lima.</p>
<p>3.2.7. Carry out the Fourth ATS Routes Network Optimisation Workshop/Meeting for the SAM Region (SAM ATSRO/04)</p>		<p>July 2012</p>	<p>Regional Project RLA/06/901</p>	

3.2.8.	Make Airspace Modelling and Fast-Time Simulation studies to assess the scenarios developed in 3.2.5	August 2012	SAM/IG/10	Regional Project RLA/06/901	Ask on the use of the tool available in Brazil. If its use is feasible, procure, through Regional Project RLA/06/901, the participation of two Experts from States of the Region.
3.2.9.	Prepare safety assessment required, applying a quantitative methodology through the use of SMS	SAM/ATSRO/4	SAM/IG/10	Regional Project RLA/06/901	The hiring of an expert for a two-week period is required to carry out this work. States should carry out a safety analysis for the changes in terminal areas.
3.2.10.	Hold the Fifth Workshop/Meeting for the ATS routes network optimisation of the SAM Region (SAM ATSRO/05), s to review and validate the studies made in items 3.2.5, and 3.2.8.	SAM/IG/10	July 2013	Project RLA/06/901 States	
3.2.11.	Carry out the Third Workshop/Seminar/Meeting on risk analysis of Version 02 of the ATS routes network for the SAM Region. Validation of the study of 3.2.9.	March 2013	SAM/IG/11	Regional Project RLA/06/901	
3.3.	Implementation of Version 2 of the SAM ATS Route Network				
3.3.1.	Process the proposal of amendment to the CAR/SAM Air Navigation Plan	August 2013		SAM Regional Office	
3.3.2.	Publish version 1 of the SAM ATS Route Network	22 August 2013		States	
3.3.3.	Entry into effect of version 2 of the SAM ATS Route Network	17 October 2013			