Agenda Item 3: Implementation of the Air Traffic Flow Management (ATFM)

Follow-up to the status of implementation of ATFM

(Presented by the Secretariat)

SUMMARY

The purpose of this working paper is to update the status of implementation of ATFM in the Region and assess the progress made by States that have not yet implemented ATFM in ACC units under their jurisdiction, and identify the reasons for non-implementation of ATFM in some States.

REFERENCES:

- SAM/IG meetings.
- RAAC/13 meeting.
- Bogota Declaration

ICAO strategic objectives:	*A - Safety* *B - Air navigation capacity and efficiency* *E - Environmental protection*

1. Background

1.1 At the RAAC/13 meeting (Colombia, December 2013), the Civil Aviation Authorities of the Region, through the Bogota Declaration, undertook to meet the goal of having at least one FMU or FMP at the ACCs by 2016. Accordingly, utmost efforts need to be made for timely compliance with this goal.

1.2 The SAM/IG/14 meeting (November 2014) noted that Guyana, Panama, Suriname and Uruguay had not made runway and ATC sector capacity calculations. The progress made to date is 14% with respect to 2013. Peru updated its runway capacity calculations, taking into account changes in many related factors. The level of implementation reached is shown in the following table:

Percentage of States that have performed runway and ATC sector capacity calculations

2013 57%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**FGY**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	YES	YES	YES	YES	YES	NO	N/D	NO	NO	YES	YES	NO	NO	YES
2014 71%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**FGY**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	NO	NO	YES

1.3 Regarding the implementation of flow management units or positions, there has been no progress in the implementation of flow management units since 2013. The level of implementation reached is shown in the following table:

Percentage of States that have implemented ATFM at flow management units (FMU) or flow management positions (FMP)

2012 14%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**FGY**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	NO	NO	**YES**	NO	**YES**	NO	N/D	NO	NO	NO	NO	NO	NO	NO
2013 36%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**FGY**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	NO	NO	**YES**	**YES**	**YES**	NO	N/D	NO	NO	**YES**	NO	NO	NO	**YES**

1.4 Out of the 100 international airports that exist in the SAM Region, ATFM services are provided at 45 airports (27 in Brazil, 8 in Colombia, 1 in Chile, 2 in Paraguay and 7 in Venezuela), accounting for 45% of all regional airports. This percentage does not include airports in States that are in the process of implementation. See the following chart:

Total airports	Airports with ATFM service	% of airports with ATFM service
100	45	**45 %**

2. Discussion

Replication of ATFM courses at national level and runway and ATC sector capacity calculations

2.1 Through Conclusion SAM/IG/14-10 on ATFM preparatory activities, States were requested to do their utmost to increase the amount of trained ATFM personnel as necessary for the fulfilment of ATFM functions, and to train personnel in ATFM by conducting national courses with instructors trained in courses provided under Project RLA/06/901, in order to multiply training.

2.2 The replication of courses should generate positive results in terms of runway and ATC sector capacity calculation. The management of human resources, the allocation of ATC functions, the distribution of shifts, and even workload distribution, are all closely related to these calculations for better management of human resources.

2.3 On many occasions, Project RLA/06/901 has invested in the training of experts of participating States, and courses have not been replicated as expected or required.

2.4 At the SAM/IG/14 meeting, Uruguay informed that in November 2014, it had finished replicating the Course on Runway and ATC Sector Capacity Calculation at local level, for 20 controllers. Chile also informed that it had trained 7 experts for conducting runway calculations. It is expected that Uruguay and Chile will provide information on the results obtained in such courses.

2.5 Conclusion SAM/IG/14-11 on the conduction and updating of runway and ATC sector capacity calculations, requested that runway capacity calculations be conducted at the main international airports and published in the AIP no later than the SAM/IG/16 meeting. It also noted that runway capacity calculations at the main international airports should be updated and published in the AIP when:

a) the difference between the calculated values and actual acceptance values is 20% or more;

b) separation is reduced or sequencing is improved; and/or

c) new procedures or airspace designs are introduced that have a direct or indirect impact on the declared acceptance rate as a result of runway capacity calculations.

2.6 It also requested that ATC sector capacity calculations be conducted or updated, and that the need for adjusting the number of recruited controllers be determined at least every two years, since the more limited the human resources, the greater the need to make these calculations for proper ATS personnel management. States are expected to provide information regarding this Conclusion.

Apron capacity calculation

2.7 Regarding apron capacity calculation, the SAM/IG/14 meeting concluded that this calculation should be conducted by experts of the airport administration, and identified the need to establish a harmonised calculation methodology, since this calculation is very important as supplementary information to be taken into account for the strategic and tactical phases of ATFM management.

Theoretical/practical course on ATFM procedures

2.8 The theoretical/practical course on ATFM procedures was conducted on 17-28 November 2014, in Rio de Janeiro. The course was addressed to air traffic controllers, supervisors and/or ATFM personnel, who had participated in training courses on ATFM, CDM, airport and ATC sector capacity calculation and/or had been involved in ATFM implementation and development processes in their State, especially those related to the attainment of the goal of the Bogota Declaration established at the RAAC/13 meeting (December 2013): "*100% of area control centres (ACCs) providing air traffic flow management (ATFM) services)*".

2.9 The objective of the course was to support the training of experts of the Region in traffic analysis, implementation of measures, civil/military coordination processes, and exemption procedures. The event contemplated, *inter alia*, the following aspects:

a) airspace monitoring processes;
b) air traffic demand analysis;
c) ATFM standards and procedures of an FMU/FMP:
d) implementation of preliminary ATFM measures;
e) implementation of TMI;
f) ATFM messaging;
g) conduction of international teleconferences;
h) coordination of special events;
i) civil/military coordination processes; and
j) ATFM exemption procedures

2.10 For this course, it was deemed advisable for the participants to have an expected labour horizon in the Administration of at least 5 years after receiving training, to ensure the transmission of their knowledge to other experts, thus ensuring optimum management of ATFM processes. Sixteen experts of the following States attended the course: Argentina, Chile, Ecuador, Paraguay, Peru and Uruguay, as well as an ATM/SAR Officer of the ICAO Regional Office.

2.11 As agreed by the SAM/IG/14 meeting, the States, through their experts, will submit to this Meeting their plans for replicating training, their training plans, and the effective implementation of training courses by the dates established in the ATFM Action Plan.

ATFM focal points

2.12 Regarding ATFM experts designated as ATFM focal points, the Meeting shall review and update the information contained in **Appendix A** to this working paper.

ATFM action plan and work programme

2.13 Based on the discussions concerning the relationship between PBN and ATFM, the SAM/IG/13 meeting considered that the ATFM Action Plan should be updated to include activities to expedite integration between PBN and ATFM, including strategic, pre-tactical and tactical ATFM measures to expedite the implementation of PBN airspace concepts.

2.14 In this regard, the Meeting is requested to analyse and update the ATFM Action Plan shown in **Appendix B** to this working paper and revise as appropriate the terms of reference and work programme of the ATFM Group shown in **Appendix C** to this working paper.

ATFM monthly executive summary

2.15 The SAM/IG/14 meeting analysed the convenience of providing a monthly executive summary on the main factors causing congestion and delays in the airspace and at the main airports. Argentina noted that, as ATFM implementation progressed, it would submit a monthly summary, since it did not have a specialised ATFM unit. The other States supported the delivery of a monthly summary by ATFM focal points to the SAM Regional Office, with a view to recording and assessing the necessary data to identify the problems that affected efficiency and reduced the capacity of the airspaces under consideration.

2.16 To date, the Secretariat has not received the monthly executive summaries agreed upon.

Follow-up to data provided in the ATFM survey

2.17 The SAM/IG/14 meeting analysed the ATFM survey circulated among the States and deemed it advisable to update the information provided therein in order to monitor the level of ATFM implementation in the Region. The corresponding table appears in **Appendix D** to this working paper.

3. Suggested action

3.1 In view of the above, and with the purpose of monitoring and reporting to GREPECAS on the status of implementation of ATFM, the Meeting is invited to:

a) complete the information on runway and ATC sector calculations conducted and/or updated;

b) provide information on courses replicated since the SAM/IG/14 meeting, the results obtained, and their impact on ATFM implementation;

c) update the information on points of contact shown in Appendix A;

d) review and update the ATFM Action Plan shown in Appendix B;

e) review, as appropriate, the ATFM terms of reference and work programme shown in Appendix C; and

f) update the data on the status of implementation of ATFM as shown in Appendix D and make any other comments it may deem appropriate.

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APPENDIX A/ APÉNDICE A

LIST OF CONTACTS FOR OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS

LISTA DE CONTACTOS PARA PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS

State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
ARGENTINA*	Víctor Marcelo de Virgilio Jefe del Departamento Gestión del Espacio Aéreo Tel.: +54 11 4317-6000, Ext 15130/14105 E-mail: dsna@faa.mil.ar Carlos Omar Torres Administración Nacional de Aeronáutica Civil (ANAC) Jefe Departamento Programación Técnica Tel: +54 11 5941-3000, Ext. 69193 E-mail: ctorres@anac.gov.ar	
BOLIVIA (Plurinational State of) / **BOLIVIA (Estado Plurinacional de)***	ATCO Daniel Bustamante Leyton Dirección General de Aeronáutica Civil (DGAC) Inspector ATM/SAR Cel.: +59 1 7220-1865 E-mail: dbustamante@dgac.gob.bo	ATCO. Marco Sergio Barrios Barzola Supervisor ACC La Paz Jefe Navegación Aérea Reg. La Paz Tel/Fax: +591 2 281-0203 (ACC/La Paz) Tel/Fax: +591 2 282-1717 (Nav. Aérea) Tel: +591 2 223-8339 (Home/domicilio) Cel.: +591 7 052-3884 E-mail: mbarrios@aasana.bo masebarbar@hotmail.com

State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
BRAZIL / BRASIL*	TCel Luiz Roberto Barbosa Medeiros Centro de Gerenciamento e Navegação Aérea – CGNA Chefe da Divisão de Operações Tel.: +55 21 2101-6531 Cel.: +55 21 99499-1658 E-mail: medeiros@cgna.gov.br Cap José Airton Patricio Centro de Gerenciamento e Navegação Aérea – CGNA Oficial ATM Tel.: +55 21 2101-6448 Cel.: +55 21 98554-4425 E-mail: patriciojap@cgna.gov.br	Gerente Nacional – GNAC Tel.: +55 21 2101-6409 E-mail: gnac@cgna.gov.br Gerente Nacional de Fluxo – GNAF Tel.: +55 21 2101-6546 E-mail: grt@cgna.gov.br Gerencias Regionais – GER Tel.: +55 21 9949-6492 / +55 21 2101 98554 3598 E-mail: gr1@cgna.gov.br / gr2@cgna.gov.br
CHILE*	Jorge Caro Galvez Direccion General de Aeronáutica Civil Direccion de Aeródromos y Servicios Aeronáuticos (DASA) Subdepartamento de Servicios de Tránsito Oficina ATFM Tel.: +56 2 2836-4022 E-mail: jcarog@dgac.gob.cl Patricio Zelada Ulloa FMP ACC Santiago Tel.: +56 2 22836-4017 Cel.: +56 9158-1865 E-mail: pzelada@dgac.gob.cl	Supervisor ATC de turno ACC Santiago Cel.: +56 9 158-1865

State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
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State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
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FR.GUIANA / GUYANA FRANCESA		
GUYANA		

State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
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State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
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State/ Estado	STATE ATFM FOCAL POINTS PUNTOS FOCALES ATFM DEL ESTADO	OPERATIONAL ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS PUNTOS FOCALES ATFM OPERACIONALES Y UNIDADES ATFM ESTABLECIDAS
VENEZUELA (Bolivarian Republic of) / **VENEZUELA (República Bolivariana de)***	Maribel Mayora Vallenilla Responsable ATFM Tel: +58 212 303-4532 (13:00 – 21:00 UTC) Cel: +58 416 611-0607 (H24) E-mail: atfm@inac.gob.ve m.mayora@inac.gob.ve Wilfredo Gil Sánchez Jefe ACC-Maiquetía Tel: +58 212 355-2912 (13:00 – 21:00 UTC) Cel: +58 416 632-6204 (H24) E-mail: w.gil.@inac.gob.ve	ACC-Maiquetía Tel: +58 212 355-2216 (H24) Cel: +58 416 623-6427 (H24) E-mail: Maruska Borges Rodríguez Unidad FMU/ATFM/Venezuela ATC/Aeropuerto Int´l. Maiquetía Tel.: +582 12 303-4532 (13:00 – 21:00 UTC) Cel: +584 14 299-3995 (H24) E-mail: ma.borges@inac.gob.ve

* Updated SAM/IG/14 / Actualizados en la SAM/IG/14

APPENDIX B

ACTION PLAN FOR THE IMPLEMENTATION OF ATFM AT SAM AIRPORTS

A: AIRPORT				
Task description	**Start**	**End**	**Responsible party (designate individual or organisation in charge)**	**Remarks**
1. Airport demand/capacity (runway capacity) analysis				The ATFM survey provides information on this subject
1.1 Carry out Calculation of Airport and Airspace Capacity of main airports by States. 1. Identify personnel available in each State to carry out calculation of runway capacity. 2. Identify which airports already have calculation of runway capacity. 3. Identify, prioritize and report what airports require calculation of runway capacity. 4. Carry out calculation of runway capacity. 5. Update calculation of runway capacity as necessary. 6. Identify airports exceeding runway capacity.	Sep 2009	SAM/IG/14	States	**VALID** States that have not yet done so are encouraged to submit the required information. Item 4 has to be presented to SAM/IG/14. Peru updated runway capacity calculations regarding Jorge Chavez International Airport (see Appendix A to the Report on Agenda Item 5, SAM/IG/14).
1.2 Notify the airports where periods exist where the demand is greater than existing capacity including simulations, if necessary, by States.	Sep/Oct 2009	Permanent	States	**PERMANENT** Brazil, Paraguay and Peru presented the data. Assure States that the aim of these tasks is to share information.
1.3 Determine operational factors affecting airport demand and capacity to optimise utilisation of existing capacity, including simulations, is necessary.	Sep/Oct 2009	Permanent	States	**VALID** Brazil, Paraguay and Peru presented the data.
1.4 Notify airport capacity in terms of aircraft operation in main airports.	SAM/IG/12		States	**PERMANENT** Updated in each SAM/IG.

A: AIRPORT				
Task description	**Start**	**End**	**Responsible party (designate individual or organisation in charge)**	**Remarks**
2. Coordination with the ATM community				
2.1 Promote seminars to the ATFM community considering the CDM concept for the implementation of ATFM and initiate corresponding coordination. 1. Consider the implementation of a CDM process in main airports. 2. States will notify airports with this process.	SAM/IG/11	Permanent	States	**VALID** ATFM operational concept, ATFM manual and ATFM roadmap will be taken into account.
3. Infrastructure and database				
3.2 Establish a data base format to be used for automation.	SAM/IG/11		States	**VALID**
4. Policy, standards, and procedures				
4.7 Provide AIP/AIC published information on ATFM to SAM/IG meetings.	SAM/IG/11		States	**PERMANENT** Information will be presented in each SAM/IG The format of the publication is in Doc 8196
5. Training				
5.1 Establish courses on: a) FMP/FMU training b) Airport CMD training	SAM/IG/13	SAM/IG/15	States Project RLA/06/901	The participation of an AGA and an ATFM expert is expected for the A-CMD course
5.2 Draft ATFM training plans.	SAM/IG/11	SAM/IG/15	States	
5. 3 Train FMP/FMU/ATC personnel for the application of ATFM measures in airports.	SAM/IG/11	SAM/IG/15	States	**PERMANENT**
5.4 Monitor the training of the ATM community.	SAM/IG/11	SAM/IG/15	States	**PERMANENT**

A: AIRPORT				
Task description	**Start**	**End**	**Responsible party (designate individual or organisation in charge)**	**Remarks**
6. Final implementation decision				
6.1 Review factors that may affect the implementation decision.			States	**VALID**
6.2 Declare the pre-operational implementation in the defined area.			States	**VALID**
6.3 Declare the final operational implementation in the defined area.			States	**VALID**
7. Monitor system performance				
7.1 Develop performance indicators according to CDM manual.	SAM/IG/11	SAM/IG/14	States	**VALID** States will present an information paper concerning the performance indicators.
7.2 Develop a performance indicators follow-up programme	SAM/IG/11	SAM/IG/15	States	**VALID**
7.3 Develop and implement an ATFM post-implementation follow-up programme at airports.	SAM/IG/13	SAM/IG/15	States	**VALID**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
1. Airspace demand and capacity analysis				
1.1 Carry out ATC sectors calculation. 1. Identify and train personnel available in each State to carry out calculation of air space capacity. 2. Identify which sectors already count with calculation of capacity. 3. Identify, prioritize and report what sectors require calculation of capacity. 4. Identify sectors exceeding capacity.	SAM/IG/11	SAM/IG/15	States	**PERMANENT** States that have not yet done so are encouraged to submit the required information. Uruguay trained 30 controllers in runway and ATC sectors calculation. Argentina will present it at SAM/IG/16.
1.2 Carry out the States estimate airspace ATC sector capacity calculation and their terminal areas at the major airports.	Sep 2009	SAM/IG/16	States	**VALID**
1.3 Update, as necessary, the estimate airspace ATC sector capacity calculation and their terminal areas at States' major airports	SAM/IG/14	SAM/IG/15	States	**VALID**
1.4. Identify airspace sectors where demand sometimes exceeds capacity, including simulations by the States, if necessary.	Dec 2014	SAM/IG/16	States	**VALID** Brazil has presented their studies.
1.5 Identify factors affecting airspace demand and capacity in order to optimise the use of existing capacity, including simulations if necessary.	Dec 2014	SAM/IG/15	States	**VALID** Brazil has presented their studies.
1.6 Present conclusions on the existing airspace capacity.	Dec 2014	SAM/IG/16	States	**VALID** Brazil has presented their studies.
2**.** Evaluate improvement of traffic flow by sequencing (B0-RSEQ) in order to allow an optimal application of new airspace concepts based on PBN, mainly using CDO and CCO	SAM/IG/14	SAM/IG/16	SAM/ATFM/IG States	**VALID**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
2.1. Pre-tactic and mainly tactic ATFM measures that guarantee an optimal sequencing of arrivals and departures, avoiding application of radar vectors and holdings.	SAM/IG/14	SAM/IG/16	SAM/ATFM/IG States	**VALID**
3. Coordination with the ATM community				
3.1.Promote seminars to the ATFM community considering the airspace capacity concept for the implementation of ATFM and initiate corresponding coordination.	SAM/IG/11	Permanent	States	**VALID**
4. Infrastructure and database				
4.1 The ATFM/IG Group will present the basic requirements for a regional automated system.	SAM/IG/12	SAM/IG/13	ATFM/IG	**VALID** Brazil has already implemented. Colombia presented their preliminary requirements.
4.2 Coordinate implementation activities with the Automation Group.	SAM/IG/13		ATFM/IG	**VALID** Depends on information of 4.1.
5. Policy, standards, and procedures	TBD	Jun 2013	States	
5.1 Develop a regional strategy and framework for the implementation of centralized ATFM units.	2008	2016	Project RLA/06/901	**VALID**
5.2 Develop template/contents for operational agreements between centralized ATFM units for interregional demand/capacity balancing.	2008	2016	Project RLA/06/901	**VALID**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
5.3 Define common elements of situational awareness between FMUs; • common traffic displays; • common weather displays (Internet); • communications (teleconferences, web): • IATA ITOP tool	2008		States	**PERMANENT**
5.4 Review the regional ATFM implementation roadmap to be used by States as FMU/FMP implementation guide.	SAM/IG/11	Permanent	States	**VALID**
5.5 Apply a national strategy to implement the use of a flexible upper airspace (FUA), on the basis or the Guideline for the Implementation of the Flexible Use of Airspace (FUA) Concept in the South American Region: • evaluate the management processes in the use of the airspace; • improve the current domestic airspace management to adjust dynamic changes to the traffic flows in tactical stages; • introduce improvements to the ground ATS systems and associated procedures for the extension of the FUA with dynamic management processes in the use of the airspace; • dynamically implement ATC sectorization with the aim of providing a better balance between demand and capacity that responds in real time to changing situations in the traffic flows and to accommodate in the short-term the users preferred trajectories.	2008	2015	States	**VALID**
6. Training				
6.1 Train personnel in the sector capacity calculation and subjects related to ATFM for the airspace.	Dec 2014	SAM/IG/16	States	**PERMANENT**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
6.2 Prepare plans and ATFM training material	Dec 2014	SAM/IG/15	States	**VALID**
6.3 Conduct training of personnel involved.	Dec 2014	SAM/IG/16	States	**VALID**
7. Final implementation decision				
7.1 Analyse factors affecting the implementation decision.	N/A		States	**VALID**
7.2 Declare pre-operational implementation in the area defined.	N/A		States	**VALID**
7.3 Declare definitive operational implementation in the area defined.	N/A		States	**VALID**
8. Monitor system performance				
8.1 Draft performance indicators	2010		Project RLA/06/901	**VALID**
8.2 Develop an indicators follow-up programme.	TBD		States	**VALID**

APPENDIX C

TERMS OF REFERENCE AND WORK PROGRAMME FOR THE SAM REGION AIR TRAFFIC FLOW MANAGEMENT IMPLEMENTATION GROUP (SAM/ATFM/IG)

1. TERMS OF REFERENCE

Coordinate the SAM ATFM Implementation according to the ICAO Strategic Objectives, the Aviation System Block Upgrades methodology (B0-RSEQ, B0-NOPS) and the goals established by the Bogota Declaration.

2. WORK PROGRAMME

a) Evaluate and perform the changes as deemed necessary in the SAM ATFM Implementation Project;
b) Evaluate, insert and harmonize the activities of SAM ATFM Project related to ATFM implementation action plans of SAM States;
c) Review existing national plans on ATFM; as well as other ATFM plans in other regions or international organizations;
d) Review ATFM technical and operational aspects;
e) Prepare the necessary ATFM documentation;
f) Evaluate the improvement of traffic flow by sequencing (B0-RSEQ), in order to allow an optimal application of new airspace concepts based on PBN, mainly using CDO and CCO.
g) Follow-up of ATFM implementation in order to ensure its intra and inter-regional harmonisation, as well as among States involved.
h) Establish training requirements with regard to ATFM.
i) In coordination with the ICAO NACC Regional Office in Mexico, consider the necessary activities to ensure harmonization of ATFM implementation in the CAR and SAM Regions, in accordance with GREPECAS ATFM Programme;

3. COMPOSITION

Argentina, Bolivia, Brazil, Chile, Colombia, French Guiana, Guyana, Ecuador, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela and IATA.

4. RAPPORTEUR

Víctor Marcelo de Virgilio (Argentina)
Mauricio Corredor Monroy (Colombia)

ATFM SURVEY	ARG (ANAC)	ARG (DGCTA)	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
1 . Regarding the SAM ATFM implementation plan, confirm if FMUs/FMPs have been established. If YES, indicate which is the responsible unit. If the answer is NO, indicate what are your plans for ATFM implementation based on regional requirements.	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**	**NO**			**NO**	**YES**	**NO**		**NO**	**YES**	**Argentina (ANAC)**: Discussions will be held with the air traffic service provider (DGCTA) on the possibility of implementing an FMU. **Argentina (DGCTA)**: They have not been established. The hiring of an ICAO expert has been foreseen for ATFM implementation (initially one FMU). **Brazil**: Brazil has already implemented ATFM (CGNA). **Chile**: On 1 November 2012, the FMP was established at the Santiago ACC, which is the unit responsible for that position. **Colombia:** Yes. Air traffic flow and capacity management units – FCMU COLOMBIA. **Ecuador**: To date, for various reasons, it has not been possible to implement FMU/FMPM units; however, according to the new policy of the Air Navigation Directorate concerning integration and harmonisation with ICAO regional requirements, the project for the creation of a national ATFM unit (FMU) under the administration of DNA will start in the coming months. It will be responsible for conducting a study and analysis to determine runway and ATC sector capacity at the main airports of the country, and for providing training to ATC personnel of the other aerodromes where local flow management units (FMP) need to be implemented. **Paraguay**: Paraguay has a central air traffic flow unit (C.F.M.U.), which will be responsible for implementing the ATFM system in Paraguay. **Peru**: The State is in the process of implementing ATFM through an FMU. **Uruguay**: Request support for personnel training. **Venezuela**: Yes, one FMU in Maiquetía

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2. Confirm if you have personnel trained in the ATFM implementation plan and if this staff is currently performing the corresponding functions according to the implementation plan.	**YES**	**YES**	**NO**	**YES**	**YES**	**YES**	**NO**			**NO**	**YES**	**YES**		**NO**	**YES**	**Argentina (ANAC):** ANAC has few personnel trained in ATFM and none has received a capacity calculation course. **Argentina (DGCTA)**: Yes, the staff is performing other functions. **Brazil:** Brazil has personnel trained in ATFM, which have been updated since the implementation. **Chile**: We have an ATFM specialist and 6 runway and ATC sector calculation experts. Only 2 persons are currently performing functions related to ATFM implementation. **Colombia**: Yes, although better personnel management is required in this area. **Ecuador**: Ecuador informs that they are proceeding to train personnel. **Paraguay**: We have personnel trained in ATFM implementation, who are responsible for the regulatory (CFMU) and operational aspects (FMU-SGAS and FMU-SGES) of this activity. **Peru**: We have personnel available, but they do not perform ATFM functions. **Uruguay**: The personnel who received training in the past are no longer available. **Venezuela**: We have personnel trained in the methodology adopted from Brazil, which is now being applied in the Bolivarian Republic of Venezuela.

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3. If NO trained personnel is available, indicate how many persons are available to receive training in the ATFM implementation plan.		**8**	**4**	**-**	**1**	**-**	**4**			**6**	**5**			**4**	**11**	**Argentina (ANAC)**: ANAC should designate personnel for this function. **Argentina (DGCTA)**: 8 persons are available. **Chile**: Although there is an ATC specialist in ATFM, more are needed, since implementation requires a work team. We currently have 3 persons available for training. **Colombia**: At least five (5) persons are needed. **Ecuador**: For the purpose being sought, it would be advisable to train at least 4 persons. **Paraguay**: Initially, 3 persons. Pending training would include: (1) Advanced course for ATS sector capacity calculation instructors; (1) ATFM management course; (3) runway capacity calculation (airport).
4. How many airports in your State/country have runway capacity calculation? List the main ones. If the answer is NONE, indicate which airports you think require such calculations.	**1**	**1**	**3**		**5**	**1**	**2**			**1**	**2**	**2**		**0**	**5**	**Argentina (ANAC)**: Aeroparque has runway capacity calculation. **Argentina (DGCTA)**: Aeroparque. Capacity calculations are being considered for the aerodromes of Ezeiza, Cordoba, and San Fernando. **Brazil**: Brazil submitted its list at the last SAM/IG meeting, but will send an updated runway capacity calculation list. **Chile**: Currently, we have runway capacity calculations for: SCEL, SCFA, SCCF, SCIE, and SCTE. **Colombia**: Only one. Calculations are required for eleven (11) international and five (5) domestic airports. **Ecuador**: Quito, Guayaquil. **Paraguay**: International airports of "Silvio Pettirossi" in Asunción and "Guaraní" in Minga Guazú. **Peru**: Two airports, only one has been updated. **Uruguay**: SUMU, and SULS. **Venezuela:** SVMI, SVMC, SVMG, SVBC, and SVPR

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5. How many airports in your State/country have apron capacity calculations? List the main ones. If the answer is NONE, indicate which airports you think require such calculations.	**0**	**0**	**0**	**1**	**0**	**0**	**0**			**0**	**0**	**0**		**0**	**0**	**Brazil:** Apron capacity calculations have been performed for one airport (Guarulhos international airport in São Paulo-SP). This information was provided by GRU- (Guarulhos Airport Administration). **Chile:** We believe that SCEL, SCIE, and Loa de Calama require this calculation. **Colombia**: None. It is required for several airports since airport capacity is not being managed to address growing demand. **Ecuador**: None of the airports in the country has apron capacity calculations. However, I think the airports of Quito, Guayaquil, Nueva Loja, Coca, Shell Mera, Cuenca, and Manta require these calculations. **Paraguay**: These calculations have not been performed due to lack of experts (specialists) duly trained for this purpose. Calculations are required for the two international airports mentioned above: "Silvio Pettirossi" in Asuncion and "Guaraní" in Minga Guazú. **Peru**: Two airports require these calculations. **Uruguay**: SUMU and SULS. **Venezuela**: None. We still do not have personnel duly trained to conduct these calculations, which would be required for the international airport of Maiquetía.

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6. How many airports in your State/country have ATS sector capacity calculations? List the main ones. If the answer is NONE, indicate which airports you think require such calculations.	**0**	**0**	**1**	**OBS**	**0**	**1**				**1**	**1**	**1**		**0**	**1**	**Argentina (ANAC)**: They are needed for: EZE FIR, Baires TMA, Ezeiza AD, Aeroparque AD, and San Fernando AD **Argentina (DGCTA)**: The airports of Aeroparque, Ezeiza, San Fernando, and Córdoba are being considered. **Brazil**: For most of them, it can be derived from the Brazilian ATC capacity. **Chile**: We think the airports of SCEL, SCIE, and Loa de Calama require these calculations. **Colombia**: One, at El Dorado; arrival sector; in process, north, south of the Bogota TMA and upper sectors of the SKED FIR. **Ecuador**: ATC sector calculations have not been established for any of the airports of the country. However, given the importance of this matter and knowing the limitations that exist in most airports and aerodromes, I think a study and analysis should be made for all of them in order to identify actions and recommendations for better operational management and safety. **Paraguay:** These calculations only exist for the international airport "Silvio Pettirossi" in Asuncion and should also be conducted for the "Guaraní" airport in Minga Guazú. **Peru**: Lima. **Uruguay**: SUMU (TWR), SUMU (APP Radar) and SUEO (ACC Radar). **Venezuela**: Only the international airport of Maiquetía.
7. Number of operations per hour at the airport considered to be the most important one:																**Chile**: SCEL **Peru:** SPIM.
Runway capacity	**X**	**X**		**SBGR 47**	**SCEL 40**	**70 SKBO**	**29**				**SGAS 23**	**SPIM 32**		**X**	**SVMI 34**	
Apron capacity	**X**	**X**	**X**		**X**		**0**				**X**			**X**	**X**	
ATS sector capacity	**X**	**X**	**10**		**X**	**30 arrivals SKBO**	**0**				**8 (number N)**	**TMA 8**		**X**	**Sector 1 26**	

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			Sector 2 FIR BS												**Sector 2 28**	
8. For the airport considered to be the most important one, number of trained personnel capable of providing, in terms of operations per hour, calculations for:																
Runway capacidty	**X**	**2**	**0**		**09**	**4**	**1**			**2**	**1**	**6**		**20**	**2**	
Apron capacity	**X**	**X**	**X**		**X**		**X**			**X**	**X**	**X**		**X**	**0**	
ATS sector capacity	**X**	**X**	**1**		**SCEL 02**	**4**	**1**			**2**	**1**	**6**		**20**	**2**	
9. List the airports in which demand exceeds runway capacity, and indicate the operational factors affecting them.																**Argentina (ANAC)**: We do not have this information. **Argentina (DGCTA)**: We do not have the necessary information. **Brazil**: There are no airports in Brazil that operate above their capacity, since critical airports have been coordinated by CGNA. However, the airport of SBGR sometimes requires ATFM capacity/demand balancing measures, since its aprons and gates are being expanded; however, when the reduction of ATC separation minima proposed for final approach is completed, its capacity will increase. **Chile:** At peak hours, SCEL exceeds its declared capacity (40 acft/h). The factors that cause this imbalance are: airline schedules; operation of CAT A and B aircraft; adverse weather conditions (low visibility-wind); and maintenance of the manoeuvering area. **Colombia**: El Dorado; factors involved: capacity of arrival/departure sectors; fleet mix; runway distribution; DEP parallel approaches.

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																Ecuador: Quito airport: routes need to be redefined; ATC sectors and airspaces, in general, need to be improved and optimised; the airport administrator must improve planning, coordination and assignment of aircraft stands. Finally and most importantly, an ATFM unit needs to be implemented to recommend policies for infrastructure and/or equipment improvement and optimisation of available resources to meet the demand of operators without neglecting safety. Airports of Cuenca, Shell Mera, Manta, Coca, and Nueva Loja: demand exceeds runway capacity, since their runway, taxiway, apron, and terminal infrastructure is too small. Likewise, a comprehensive analysis of ATC units and sectors is required in terms of equipment and ATS routes, based on ATFM management criteria. International airport of Guayaquil: as in the case of the airport of the capital city, all ATS routes, airspaces and ATC sectors must be redefined and analysed in a comprehensive manner, based on ATFM, PBN, RNAV/RNP navigation, and other criteria. **Paraguay**: At present, in the ASU FIR, there are no operational indicators that affect our capacity to meet demand. **Peru:** Operational factors involved: apron management and design affect personnel capacity and skill. **Uruguay**: SULS in summer. Factors: runway capacity, apron capacity, and airport capacity. **Venezuela**: International airport of Maiquetía: Capacity is affected by 45° angles of runway 10/28, departures and arrivals of aircraft of different wing spans, runway threshold displacement.