



Agenda Item 4: SAM/IG conclusions and next actions – Plenary

- a) Summary of sessions
- b) Review and approval of conclusions
- c) Approval of the 2022 Work Plan

Analysis and summary of the GESEA group and formulation of conclusions for consideration by the SAM/IG/26 plenary

(Presented by the Secretariat)

SUMMARY	
This working paper presents a summary of the discussions held by GESEA on the first and second day of session, and an extract of the report on the work of the technical subgroups reflected in the working papers submitted to the Meeting. In this regard, conclusions are formulated for consideration by the SAMIG/26 plenary.	
References:	
<ul style="list-style-type: none">• SAM/IG/22 final report (Lima, Peru, 19-23 November 2018);• SAM/IG/23 final report (Lima, Peru, 20-24 May 2019);• SAM/IG/24 final report (Lima, Peru, 4-8 November 2019).• SAM/IG/25 final report (Virtual, 2-4 November 2020).	
ICAO strategic objectives:	<i>A – Safety</i> <i>B – Air navigation capacity and efficiency</i>

1. Introduction

1.1 In accordance with the agenda agreed by the SAMIG/26 meeting, two days of meetings of the GESEA technical team were held, together with States, the industry and organisations.

1.2 The coordinators and members of the SG1-Airspace Planning, SG2-PANS OPS and SG3-ATFM, sub-groups presented the progress made in their work, new deliverables and formulated draft conclusions to support their next actions for airspace optimisation and the implementation of improvement elements linked to the GANP operational threads. States also presented proposals for improvements to GESEA processes and reported on their progress.

1.3 Working and information papers were submitted by the GESEA and the subgroups, as well as by the States. This material can be found on the Meeting website at:

https://www.icao.int/SAM/Pages/ES/MeetingsDocumentation_ES.aspx?m=2021-RLA06901-SAMIG26&t=1

1.4 The following tables present a summary of the aforementioned papers:

WP/2.1	SG1 activities - Airspace Plan	SG1
WP/2.2	Concept of operations for efficiency and capacity in SAM airspace (CONOPS)	Secretariat
WP/2.3	2022–2026 Roadmap - Performance-based optimisation of SAM airspace	Secretariat
WP/2.4	SG2 PANS OPS activities	SG2
WP/2.5	SG3 ATFM activities	SG3
WP/2.6	ATFM service implementation guide for the SAM Region 2020-2025	Secretariat
WP/2.7	SAM ATFM Operations Plan (OPSAM)	Secretariat
WP/2.8	Implementation of the concept of vertical sectorisation in Brazil	Brazil
WP/2.10	Current situation of ATFM in Peru	Peru
WP/2.11	Actions taken by the Peruvian State to optimise air traffic flow management through the use of key performance indicators	Peru
WP/2.12	Regulations related to the ATS Contingency Plan	Uruguay
WP/2.13	Opportunity for improvement of the Framework Plan for ATS Contingencies of the SAM Region (MCATS/SAM)	Argentina
WP/2.14	Airspace optimisation in Brazil	Brazil

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IP/2.1	Progress made in the implementation of ATFM service in Argentina	Argentina
IP/2.2	ATM performance indicators: Performance-based management activities of SISCEAB	Brazil
IP/2.3	Action plan to replace duplicate points	Brazil
IP/2.4	Implementation of direct routes in Brazil	Brazil
IP/2.5	Report on the progress made in GESEA and GT-Interop activities in Chile	Chile
IP/2.6	Use of RNAV in conventional routes and procedures	Secretariat
IP/2.7	Implementation of CPDLC	Uruguay
IP/2.8	Report on the progress made in GESEA and GT-Interop activities in Ecuador	Ecuador
IP/2.9	Update on the status of the Baires TMA redesign project	Argentina

2. Discussion

Activities of SG1 - Airspace planning

Implementation of strategic direct routing (EDE)

2.1 The status of implementation of EDE in the SAM Region is shown in **Appendix A** to this working paper.

2.2 In this regard, the experts discussed some flight plan management aspects identified during testing or tactical application of EDE, including DCT and the AIDC function in the ACCs concerned.

2.3 The importance of sharing these experiences and continuing close coordination of tests, especially between EDE focal points in each State and IATA, was emphasised. Likewise, consideration should be given to ATM system manufacturers.

2.4 It was considered of utmost importance, in order to support the early implementation of the GANP FRTO-DCT that States implement or expand the application of strategic direct routing, based on the guidance provided in LN3/24.1-SA5266 Lima, dated 11 September 2020. In this regard, the Meeting has requested the participation of all States in the tests, the dates of which will be defined in coordination with the Secretariat and IATA.

ATS contingency plans

2.5 The GESEA/SG1/2 meeting discussed the status of SAM contingency plans and agreed that the project should be conducted in 4 phases:

- a) Phase 1 - Drafting of the Framework contingency plan for the SAM Region (completed)
- b) Phase 2 - Drafting of a new version of national contingency plans based on the Framework contingency plan for the SAM Region, without the mandatory need for coordination with neighbouring States
- c) Phase 3 - Standardisation and updating of contingency plans in the SAM Region, with mandatory coordination among neighbouring States and updated letters of operational agreement.
- d) Phase 4 - Drafting of the Regional ATS Contingency Plan.

2.6 Regarding phase 2, it is expected that the ATC Contingency working group will assess the most appropriate part for the publication of ATS contingency plans, and that States will develop their contingency plans based on the Framework Plan by September 2021, to be published on 4 November 2021.

2.7 Given that an important part of the new contingency plans involves the standardisation of procedures to be applied by pilots, it is expected that IATA will develop a card containing the standard procedures and disseminate the information among airlines **by 4 November 2021**.

2.8 The SG1 discussed improvements to contingency plan management in terms of the need to keep them up to date with respect to periodic changes in ATS routes, and to harmonise them at the level of ATS letters of agreement. The need for amendments to State regulations in certain cases to facilitate the management of the plans was also discussed. It was agreed that the designated working group will address these issues in its forthcoming activities.

2.9 The proposed activities to support the harmonisation of State ATS contingency plans were discussed. These activities are set forth in working paper WP/4.2.

SAM airspace concept of operations (EC/SAM CONOPS)

2.10 The GESEA/SG1/2 meeting (27-29 April 2021) received the draft prepared by the CONOPS TF for its comments. Based on the comments received, the rapporteur of the CONOPS TF and the Secretariat consolidated the document and a meeting of the TF was held where the draft was approved.

2.11 The EC/SAM CONOPS is aligned with the new GANP four-layer concept, specifically, with the second "global technical" layer, recognising the groups of threads of the ASBU methodology, that is, the operational threads that, in turn, are supported by the information and technology/CNS services threads.

2.12 **Accordingly, the EC/SAM CONOPS does not replace Volume III of the CAR/SAM Regional Plan. However, it facilitates the understanding of the methodology of Doc 9883 reflected in the GANP by ATM experts and planners, who in turn contribute to Volume III drafting activities.**

2.13 The Meeting agreed to establish a new period of application of CONOPS for 2022-2026. The document will continue to receive input and updates, taking into account that the regional and global aviation and industry scenarios are not yet fully defined vis-à-vis COVID19.

2.14 Based on the above, the following draft conclusion is presented:

CONCLUSION SAM/IG/26-xx Adoption of the 2022-2026 SAM Airspace Concept of Operations (EC/SAM CONOPS)	
That: The States adopt the 2022-2026 SAM Airspace Concept of Operations (EC/SAM CONOPS), and, on that basis, begin implementation activities within the scope of SAMIG, and the harmonisation of their national airspace and air navigation service optimisation plans, with emphasis on increasing capacity and efficiency.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational
Why: To support the prompt recovery of air operations in the Region, and aiming at the harmonisation of efforts of SAM States in the implementation of GANP modules and elements related with the Capacity and Efficiency KPAs. At the same time, to support the formulation of Volume III of the CAR/SAM Regional ANP.	
When: Immediately	Status: Adopted by SAM/IG/26
Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: Users/industry	

Roadmap 2022–2026: Performance-based optimisation of SAM airspace

2.15 The GESEA/SG1/2 meeting (27-29 April 2021) received the draft developed by the designated working group for its comments to the EC/SAM CONOPS. Based on the comments received,

the development of a Roadmap 2022-2026: Performance-based optimisation of SAM airspace, derived from the studies for the aforementioned CONOPS, was discussed.

2.16 The Roadmap replaces and supersedes the PBN CONOPS, originally developed in 2016. The Meeting agreed on the implementation dates for the PBN components presented in the document, as well as the supporting metrics to monitor such implementation.

2.17 In view of the above, the following draft conclusion is formulated:

CONCLUSION SAM/IG/26-xx Adoption of the Roadmap 2022–2026: Performance-based optimisation of SAM airspace	
That: The States adopt the Roadmap 2022–2026: Performance-based optimisation of SAM airspace, and taking into account the metrics and deadlines stipulated in the document, review their national plan and further PBN implementation activities.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational
Why: To continue and harmonise the efforts made by the SAM Region to optimise SAM airspace, constituting a complementary document to the EC/SAM CONOPS.	
When: Immediately	Status: Adopted by SAM/IG/26
Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: Users/industry	

2021-2022 regional route optimisation. Implementation of RNAV-5

2.18 The Secretariat informed the Meeting that there were currently only 23 conventional regional ATS routes, considering the publication of the AIP AMDT of 9 September 2021 on the elimination of 6 regional conventional routes, through agreements reached by Argentina, Chile, Paraguay and Uruguay. The publication has been accompanied by Brazil, regarding the tripartite TMA space in Foz do Iguçu.

2.19 The action taken by Brazil to correct two inadvertently duplicated RNAV-5 designators in the CAR Region was also reported. Routes UN401 and UN548 will be implemented as of 4 November 2021 in the Atlantico FIR.

2.20 It was noted that there were activities to be carried out concerning RNAV 5 for lower airspace, as well as domestic conventional ATS routes, in several States.

TMA airspace optimisation

2.21 The Meeting agreed that TMA optimisation should be a joint work of SGs 1, 2 and 3, taking into account that it involved airspace planning/management as well as regional standardisation of PANS OPS criteria applied in the SAM Region. The Subgroup coordinators and the Secretariat would coordinate the integration of these activities.

Reduction of conventional longitudinal separation from 40 to 20 NM and reduction of longitudinal separation with ATS surveillance to 10 NM

2.22 Taking into account the reduction of conventional longitudinal separation and of longitudinal separation with ATS surveillance, the Meeting agreed that this activity should be incorporated into the SG1 work programme, to allow for implementation monitoring.

Activities of SG2- PANS OPS*Follow-up to PBN implementation in the SAM Region (Resolution A-37/11)*

2.23 An analysis was made of the information provided by the ICAO iSTARS database, which monitors the status of implementation of ICAO Assembly Resolution A-37/11. At the moment, compliance stands at 88.5%, based on 192 thresholds implemented out of 217 international runway thresholds.

Implementation of PBN procedures for visual flight runways

2.24 Work on this matter was started in accordance with the publication and use of the Regional Guide on the implementation of PBN procedures for visual runways, approved by SAMIG/25. In terms of progress at regional level, mention was made of the publication by Brazil of AIC N21/21 of 7 June of this year, allowing the publication of IFP RNP APCH for visual runways at SBSV, SBIL and SBAG aerodromes.

2.25 Appendix B to this paper contains a table showing regional planning for these procedures.

Studies on RNAV visual procedures – RVFP

2.26 On this issue, SG2 agreed to form a Task Force (TF) - "Study for a regional RVFP guide" to address the issue and analyse the feasibility of implementing RVFP in specific cases where RNP APCH or RNP AR, or even PBN to visual runway procedures were not efficient or did not meet operational requirements.

2.27 The Meeting agreed that this task force could start its activities in the third quarter of this year. The Secretariat was tasked to co-ordinate a first working meeting, at the earliest possible date.

Optimisation of flight procedures applying RF segments

2.28 As reported by the SRVSOP through CA91-013, which clarified the conditions for application of radius-to-fix (RF) segments in RNP APCH and RNP AR procedures for certified operators, the States agreed on the need to foster the revision or redesign of IFP procedures that included RF segments, allowing for shorter and more efficient approach trajectories, and fuel and emission savings.

2.29 Examples of NM reduction in instrument approaches were discussed. Likewise, various uses were described, including SIDs, which allowed for significant improvement in efficiency of operations.

2.30 To further their implementation, the Task Force on "Application of RF segments" was created to generate joint and collaborative work. The publication of IAC RNP APCH with RF LEG procedures for SBGO and SBJH aerodromes in Brazil was reported.

TMA airspace optimisation

2.31 A presentation was made on the progress made in the BAIREZ TMA project, which was expected to start operations by the end of 2022.

IFP in overlay mode

2.32 The GESEA/SG2/2 meeting (virtual, 17-19 May 2021), at the request of the Peruvian delegation, analysed the feasibility of implementing IFP procedures with PBN, known as "overlay" procedures.

2.33 ICAO has circulated a draft amendment to Doc 8168, Volumes I and III, on the use of RNAV on conventional routes and procedures. The proposal includes the use of FMS/RNAV systems in situations where the aircraft is not equipped with the necessary receiver for conventional radio navigation aids (for example, ADF /NDB).

2.34 It was noted that, in order to ensure safety, the use of FMS/RNAV systems for this purpose must be monitored by the State, and the operator must obtain the corresponding authorisation. SG2 will monitor this information, and schedule, if necessary, specific studies and activities.

Activities of SG3- ATFM

2.35 Having identified a number of requirements for a more integrated and robust ATFM in the near future, GESEA agreed on the creation of a third subgroup, through the adoption of the revised ToR at the GESEA plenary meeting held on 22 June 2021.

2.36 Subsequently, three GESEA/SG3 meetings were held in 2021 for the purpose of developing the deliverables set forth in the following paragraphs.

ATFM Operations Plan (OPSAM)

2.37 Work was carried out on the drafting of an ATFM Operations Plan (OPSAM) with the aim of defining actions that will allow, during the recovery phase of operations in the SAM Region, to adjust ATC and airport capacity to the gradual increase in demand and contribute to the recovery and sustainability of the air transport system at regional and global level in the new projected scenario, prioritising projects currently underway in GESEA and in the States, aimed at improving ATC and airport performance, according to timetables and delivery dates.

2.38 This mechanism included the creation of a DASHBOARD (link shown below) with a single database format to enable the exchange of demand information and also support the conduction of two SAM ATFM operational teleconferences (BRISA), one pre-tactical and one strategic/post-operations.

<https://app.powerbi.com/view?r=eyJrIjoiNDczYzMxY2EtM2RhZi00ZDY4LWFmZjMtNmI5MTFmNmJm5MjY2IiwidCI6IjI2MjI4ZGNhLTcwZDMtNDkxNy04MjMzLTA4M2FjMzY1NWU5MSJ9>

2.39 Currently, the DASHBOARD already has the scheduling of cargo and passenger air transport flights for Argentina, Brazil, Chile, Colombia and Peru and is ready to start being used by States for organising the BRISA. However, the SG3 concluded that work should continue with a focus on adding more functionalities.

2.40 Regarding pre-tactical BRISA, which was inspired by the bilateral initiative of Argentina and Brazil, already underway between the two countries since 6 July 2021, Panama, Colombia, Peru, Venezuela and Chile have joined the initiative. Other States will join after completing the internal adjustments to start the activities foreseen in the demand and capacity monitoring process contemplated in Chapter 5 of OPSAM.

2.41 With respect to Strategic and Post-operations BRISA, considering that OPSAM will enter into force 30 days after its approval date, the first teleconference is scheduled for the last Thursday of October (28/10/2021). The Secretariat is in charge of coordinating the convening of ATFM units as well as airlines and users.

2.42 It was reported that the daily dissemination of the ATFM Daily Plans (ADP) via email is being done on a timely basis. Ecuador and Peru have made improvements to their deliverables.

2.43 In view of the above, the following draft conclusion was formulated:

CONCLUSION SAM/IG/26-xx Adoption of the ATFM Operations Plan (OPSAM)	
That: States adopt the ATFM Operations Plan (OPSAM) and provide for the ongoing participation of their ATFM services in the sharing of data for the Regional Dashboard of indicators and BRISA operational teleconferences. At the same time, each State should encourage the participation of airlines, airports and users in OPSAM.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational
Why: To adjust ATC and airport capacity to the gradual increase in demand, and contribute to the recovery and sustainability of the air transport system at regional and global level in the new projected scenario. Also, to reinforce the use of KPIs in ATFM and ATM in general.	
When: Immediately	Status: Adopted by SAM/IG/26
Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: Users/industry	

Guide on the implementation of ATFM in the SAM Region

2.44 Draft 1.0 of the Guide on the implementation of ATFM in the SAM Region was presented at the SAM/IG/24 (Lima, 4-8 November 2019), explaining that the text required further input from the States. In addition, the document was only available in Spanish.

2.45 The aforementioned draft was fully updated and revised by GESEA/SG3, through the ATFM DOCS TF. The rapporteur was Mr. Jorge Cornelio (Argentina) supported by Ms. Brenda Cespedes (Peru).

2.46 This document is a guide for SAM States to implement, in the first instance, national ATFM or crossborder ATFM services that are suited to the air traffic flow handled by their ATS services, and that duly contribute to the solution of demand/capacity imbalances.

2.47 In this sense, the document adopts the guidelines of the ATFM Concept of Operations for the CAR/SAM regions, aiming at a harmonised and fully interoperable implementation between both Regions and, in the future, between the SAM and APAC and WACAF Regions.

2.48 The Meeting considered that the Guide should henceforth be considered as a first version for amendment control, with a period of application 2022 - 2026.

2.49 In view of the above, the following draft conclusion is formulated:

CONCLUSION SAM/IG/26-xx Adoption of the Guide on the implementation of ATFM in the SAM Region 2022- 2026	
That: The States adopt the Guide for the implementation of ATFM in the SAM Region 2022-2026, harmonised with the objectives of regional integration of this service and taking into account the implementation phases and deadlines foreseen.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational
Why: For SAM States to implement national or crossborder ATFM services that are suited to the air traffic flow managed by their ATS services and that duly contribute to the solution of demand/capacity imbalances in the Region.	
When: Immediately	Status: Adopted by SAM/IG/26
Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: Users/industry	

Runway and ATC Sector Capacity Calculation Manual

2.50 The Runway and ATC Sector Capacity Calculation Manual is a document for SAM States to implement a common methodology for the calculation of ATC runway and sector capacity. Taking into account the completion of the Guide on the implementation of ATFM in the SAM Region, SG3 will review the aforementioned Calculation Manual.

3. Suggested action

3.1 The Meeting is invited to:

- a) Take note of the activities and deliverables provided by the GESEA subgroups; and
- b) in case a consensus is reached, approve the conclusions formulated in this paper.

APPENDIX A

EDE implementation in the SAM Region

- Argentina. - The Baires TMA is in the process of implementation and is expected to impact the airspace of several FIRs adjacent to Ezeiza. Therefore, the issue of EDE implementation has not yet been defined.
- Bolivia. - The status of implementation of the ATS surveillance service in the La Paz FIR was presented, with the expectation that the pilot-controller VHF communications coverage will also be extended. It is expected that, with the fulfilment of these technical conditions, it will be possible to implement EDE.
- Brazil. - EDE has been implemented in the Recife and Amazonica FIRs, and the implementation in the Brazilia and Curitiba FIRs is under study. The respective AIP (ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT AND AIRSPACE MANAGEMENT) was shared with the Coordinator and the Secretariat and will be posted on the Meeting website and/or on a GESEA cloud repository. The same for the States, as discussed below.
- Chile. – AIC NR 19 - 28 OCT 2020 has been published. Essentially, the EDE will be applied to a portion of oceanic airspace. [No changes]
- Colombia. – Reported that SUP AIP A64/C86, 04 NOV 2020 was published. Details were provided on some restrictions due to the Palanquero military zone located near Bogota. It was noted that SUP data would be reviewed before 20 May 2020 due to some changes in RNAV routes that would come into force on that date, and consideration would be given to the incorporation of the Supplement to the AIP Colombia.
- Ecuador. – Published in AIP as part of ENR 1.10. Recent tests with Peru, COCESNA and IATA were described, and a way was found to implement pseudo-points 50 NM from the FIR boundary for flight plan processing, as well as aspects of EST and CDN messages. A summary of test results was presented to the Meeting (see Appendix C).
- Panama. – It was noted that direct flights have been applied for a long time. Applicable conditions have been published in AIP ENR 1.8-1.
- Peru. - A SUP AIP will be published in June 2021. Implementation has begun in the oceanic segment. In response to a query from LATAM, it was explained that a second phase has been considered for the continental area. Tests have been carried out with Delta Airlines, with satisfactory results (Guayaquil - ATATU and ISREN - Guayaquil segments). The capacity of the INDRA system of the Lima ACC to manage AIDC messaging with LAT/LON data of points at the boundary between the Lima FIR - Guayaquil FIR was tested.
- Uruguay. - It was explained that all SID/STAR procedures and ATS routes in the Montevideo FIR have a straightforward and very efficient configuration. The option of publishing specific information in the AIP was analysed to assist airlines in the filing of flight plans originating in Montevideo, allowing them to apply EDE in the neighbouring FIR airspaces.
- Venezuela. –A SUP AIP C03-A03/21 was published on AIRAC date May 2021. It was considered convenient to carry out EDE tests on AIDC and ATS surveillance between Venezuela and Brazil, given that they use the same Sagitaris technology in ACC. But AIDC is currently in pre-operational testing with the Barranquilla ACC. Waiting for the SAGITARIO software update from ATECH company.

APPENDIX B

Projects for the implementation of PBN flight procedures for visual runways

State	Projects	Notes
Argentina	SAWH- Ushuaia SAZY –San Martin SAVE – Esquel	
Bolivia	SLTJ – Tarija SLCH- Cochabamba SLLP – La Paz *	*PBN to RWY 28, rescheduled for January 2022
Brazil	SBIL –Ilheus SBSV –Salvador SBAG – Angra dos Reis SBCH – Chapecó SBTE - Teresina SWPI - Parintins	Implemented in June 2021 Implemented in June 2021 Implemented in June 2021
Chile	---	Applies its own regulations for implementation for aircraft CAT A and B. Will study the possibility of applying in SCAR – Arica RWY20.
Colombia	SKPV- Providencia SKTL –Tolú SKGP – Guapi*	* Effective since 17 June 2021
Ecuador	---	* Will study application for SEQM – Quito International
Paraguay	---	
Panama	MPMG – Marcos Gelabert	
Peru	SPJJ – Jauja* SPJE – Jaén*	* At present IFP of the airline (not public)
Uruguay	---	
Venezuela	SVRS – Los Roques	