International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

Eighth North American, Central American and Caribbean Working Group Meeting (NACC/WG/8)
Mexico City, 29 August - 1 September 2023

Agenda Item 4:   **2024 NACC/WG Work Programme**
                   4.2   Development of the e-ANP Electronic Air Navigation Plan Vol. III

DEVELOPMENT OF THE CAR/SAM REGION ELECTRONIC AIR NAVIGATION PLAN (eANP) VOLUME III

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This working paper presents information on the process of developing and updating the CAR/SAM Electronic Air Navigation Plan (eANP), Volume III.	
Action:	The suggested action is presented under Section 4.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency
References:	• Global Air Navigation Plan (GASP) (Doc 9750) • Manual on Global Performance of the Air Navigation System (Doc 9883) • Final Report of the Twentieth Meeting of the Regional Group for Planning and Implementation of the Caribbean and South America (GREPECAS/20), Salvador, Brazil, 16 to 18 November 2022

1.   Introduction

1.1   The provision of Air Navigation Services (ANS) is a pillar for the sustainability of air transport, allowing economic activities that are necessary to ensure the sustainable development of countries.

1.2   For the decisions that ensure the proper functioning of the air navigation system, at national and regional levels, adequate planning is the best tool that allows States and Territories to develop investment strategies in the short, medium, and long term.

1.3   The CAR/SAM Regions Electronic Air Navigation Plan (eANP) is the mechanism that serves as a regional reference for the harmonization of global planning and implementation strategies for the improvement of air navigation systems.

2.   Background

2.1   Since 2014, the ICAO Council decided to establish a new format for Regional Air Navigation Plans (RANPs). It was agreed that the new RANP would be composed by three volumes: Volume I, would contain the steady elements of the plan, which amendment requires the approval of the ICAO Council; Volume II, would contain the dynamic elements of the plan, which amendment does not require Council approval {approval is through regional agreement involving relevant Planning and Implementation Regional Groups (PIRGs)}, and Volume III, would contain the dynamic/flexible elements of the plan, with a guidance to plan the implementation of air navigation systems and their modernization, taking into account emerging programmes, such as Aviation System Block Upgrade (ASBUs) and related technology roadmaps outlined in the GANP.

2.2   In consequence of the ICAO Council decision, the CAR/SAM Planning, and Implementation Regional Group (GREPECAS) has been working since 2015 to adapt the CAR/SAM ANP format and structure. Regarding Vol III of the CAR/SAM eANP, the GREPECAS/20 meeting, in 2022, approved the following CONCLUSION GREPECAS/20/07 — "*Approval of the Initial Version (Version 0) of Volume III of the CAR/SAM ANP, and following actions for the management and development of performance-based planning*", and that "*the States implement work teams to develop data collection activities and management of GANP KPIs as a basis for populating the data of the Planning Tables of Vol. III, with the assistance of the Secretariat to report in GREPECAS/21.*"

2.3   The Second Meeting of Rapporteurs of the North American, Central American and Caribbean Working Group, through the Final Report[1], presented strategies and tools to support States to develop their National and Regional Air Navigation Plans.

2.4   As a result of this meeting, Cuba and COCESNA sent their action plan to develop their national and regional Air Navigation Plan to the NACC ICAO Regional Office.

3.   Challenges of the CAR Region regarding Volume III of the CAR/SAM eANP

3.1   The ICAO NACC and SAM Regional Offices carried out a series of guidance activities related to develop regional and national Air Navigation Plans (ANP), with the aim of creating awareness of the importance of the CAR/SAM ANP and providing initial concepts that support the work for the establishment and start-up of a regional performance measurement system for ANS in the CAR/SAM Regions.

3.2   The implementation of Volume III of the CAR/SAM eANP is a complex process that will bring significant benefits towards the transformation of the planning and implementation of the global air navigation system.

3.3   The initial version (version 0) of Volume III of the CAR/SAM eANP is presented in the **Appendix** of this working paper, in order States/Territories may review the proposals for including some information and data on international aerodromes in the CAR region.

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[1] NACCWGRAP02-FinalReport.pdf (icao.int)

3.4   It is important to note that the information needed to complete the e-ANP Vol III tables is related to the Aviation System Block Upgrade (ASBU) Elements/Operational Improvements and GANP Key Performance Indicators (KPI) listed below:

- KPI01: Departure punctuality.
- KPI02: Taxi-out additional time.
- KPI04: Filed flight plan en-route extension.
- KPI05: Actual en-route extension.
- KPI06: En-route airspace capacity.

- KPI08: Additional time in terminal airspace.
- KPI09: Airport peak capacity.
- KPI10: Airport peak throughput.
- KPI13: Taxi-in additional time.
- KPI14: Arrival punctuality.
- KPI15: Flight time variability.

3.5   During this process, it is necessary to establish a baseline implementation status through the verification of Basic Building Blocks (BBBs) and ASBUs (ready to be implemented).

3.6   In order to support and train States/Territories, airports operators and air navigation services providers in the process of managing and develop the CAR/SAM eANP Vol III, the following events will be held:

- e ANP Volume III Management and Development Workshop, in March 2024.
- GANP KPI Workshop, in April 2024.
- Planning process based on performance management (six-step method) Workshop, in June 2024.

4.   Conclusion

4.1   Therefore, the following draft conclusion is presented for consideration:

DRAFT CONCLUSION	
NACC/WG/08/XX **CAR/SAM Electronic Air Navigation Plan (eANP), Vol. III**	
What:	**Expected impact:**
That, a) States implement work teams to develop data collection activities and management of the GANP KPIs as a basis for filling in the data in the Tables of the CAR/SAM eANP, Vol III and inform the ICAO NACC Regional Office the names of these work teams. b) States send the data and information, which consider important and available, to complete and send CAR/SAM eANP, Vol III tables (presented in NACC/WG/08-WP/28 Appendix) by the end of September 2023 to: nacc-aga@icao.int	☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical

Why:		
To attend GREPECAS/20/07 CONCLUSION and to report GREPECAS/21 meeting.		
When: 29 September 2023	**Status:**	☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☐ Other:		

5.   **Suggested Action:**

5.1   The Meeting is invited to:

        a)   Take note of the information presented in this WP;

        b)   Review and, if appropriate, approve the draft Conclusion presented in 4,1; and

        c)   Other actions that the meeting considers necessary.

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CAR/SAM AIR NAVIGATION PLAN

VOLUME III

INITIAL VERSION (VERSION 0)

CAR/SAM AIR NAVIGATION PLAN

TABLE OF CONTENTS

CAR/SAM ANP, VOLUME III
PART 0 – INTRODUCTION

1.   **INTRODUCTION**

1.1   The background to the publication of ANPs in three volumes is explained in the Introduction in Volume I. The procedure for amendment of Volume III is also described in Volume I. Volume III contains dynamic/flexible plan elements related to the application of a performance-based approach for a cost-effective and benefit-driven modernization of the air navigation system in line with the Global Air Navigation Plan (GANP).

1.2   Collaborative decision-making is key for a cost-effective modernization of the air navigation system and ensures that all concerned aviation stakeholders are involved and given the opportunity to influence decisions in order to reach defined performance objectives. Volume III guides the aviation community in the application of performance management process and identification of relevant and timely operational improvements to a given region's air navigation system including some within the Aviation System Block Upgrade (ASBU) framework.

1.3   The information contained in Volume III is, therefore, related to:

- Planning: objectives, priorities, targets and needs planned at regional or sub-regional levels;

- Monitoring and reporting: performance and implementation monitoring of the agreed targets. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or

- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

1.4   GREPECAS is responsible for managing and updating Volume III on a regular basis.

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CAR/SAM ANP, VOLUME III

PART I - GENERAL PLANNING ASPECTS (GEN)

1. PLANNING METHOD

1.1   A performance-based approach is results-oriented, helping decision makers set priorities and determine appropriate trade-offs that support optimum resource allocation while maintaining an acceptable level of safety performance and promoting transparency and accountability among stakeholders.

1.2   The Thirteenth Air Navigation Conference recommended the ICAO encourage the planning and implementation regional groups (PIRGs) to embrace a performance-based approach for implementation and adopt the six-step performance management process, as described in the Manual on Global Performance of the Air Navigation System (Doc 9883), by reflecting the process in Volume III of all regional air navigation plans. Recommendation 4.3/1 — Improving the performance of the air navigation system refers.

1.3   Although there are several ways to apply a performance-based approach, ICAO advocates for a globally harmonized performance management process based on six well-defined steps. The goal of this cyclic six-steps method is to identify optimum solutions based on operational requirements and performance needs so that the expectations of the aviation community can be met by enhancing the performance of the air navigation system and optimizing allocation and use of the available resources.
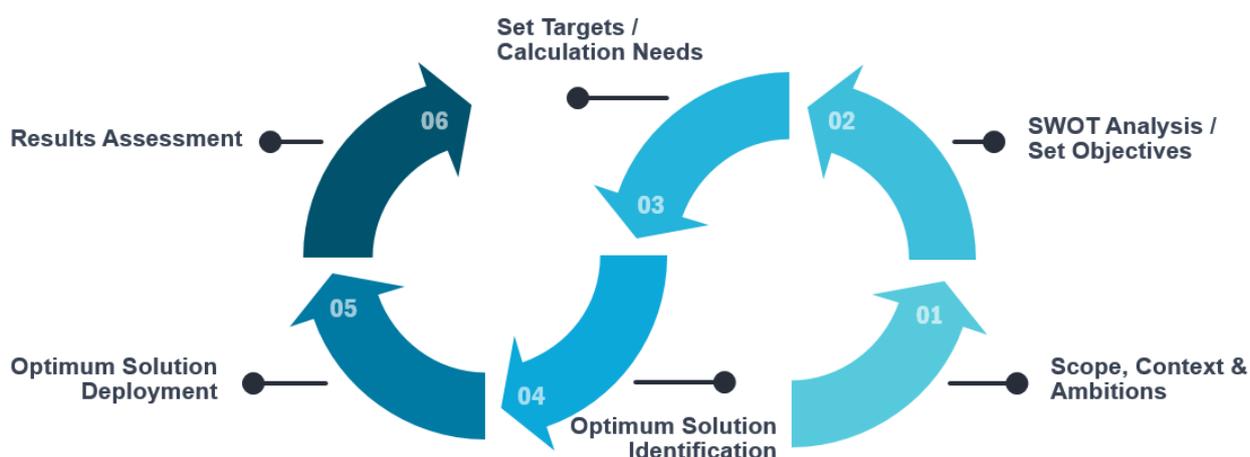
Figure 1 Six-step performance management process

1.4   Steps 1 and 2 serve to know your system, its strengths, weakness, opportunities and threats as well as how it is performing in order to set objectives. The catalogue of performance objectives that is part of the GANP global performance framework facilitates the definition of objectives.

1.5   Based on these objectives, targets can be set in step 3. An analysis of this data leads to the identification of potential solutions, in step 4, to achieve the targets by addressing the weakness and threats of the system. Once a set of potential solutions have been identified, a cost-benefits analysis, environmental impact assessment, safety assessment and human factor assessment should be performed to identify the optimum solution. In the GANP performance framework, a list of KPIs, linked to the relevant objectives in the performance objectives catalogue, is provided to set targets though the quantification of objectives (See list below). A list of potential solutions to be consider as part of step 4 is the ASBU framework with its functional description of the operational improvements and their associated performance benefits.

KPI01	Departure punctuality	KPI11	Airport throughput efficiency
KPI02	Taxi-out additional time	KPI12	Airport/Terminal ATFM delay
KPI03	ATFM Slot adherence	KPI13	Taxi-in additional time
KPI04	Filed flight plan en-route extension	KPI14	Arrival punctuality
KPI05	Actual en-route extension	KPI15	Flight time variability
KPI06	En-route airspace capacity	KPI16	Additional fuel burn
KPI07	En-route ATFM delay	KPI17	Level-off during climb
KPI08	Additional time in terminal airspace	KPI18	Level capping during cruise
KPI09	Airport peak capacity	KPI19	Level-off during descent
KPI10	Airport peak throughput		

1.6   Step 5 manages a coordinated deployment of the agreed solution by all stakeholders based on the previous steps. Regional plans might need to be developed for the deployment of solutions by drawing on supporting technology requirements.

1.7   Finally, step 6 consists of monitoring and reporting the performance of the system after the full deployment of the solution.

1.8   This is an iterative planning process, which may require repeating several steps until a final plan with specific regional targets is in place. This planning method requires full involvement of States, service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

Review and evaluation of air navigation planning

1.9   The progress and effectiveness against the priorities set out in the regional air navigation plans should be annually reported, using a consistent reporting format, to ICAO.

1.10   Performance monitoring requires a measurement strategy. Data collection, processing, storage and reporting activities supporting the identified global/regional performance metrics are fundamental to the success of performance-based approaches.

1.11   The air navigation planning and implementation performance framework prescribes reporting, monitoring, analysis and review activities being conducted on a cyclical, annual basis.

Reporting and monitoring results

1.12   Reporting and monitoring results will be analyzed by the PIRGs, States and ICAO Secretariat to steer the air navigation improvements, take corrective actions and review the allocated objectives, priorities and targets if needed. The results will also be used by ICAO and aviation partner stakeholders to develop the annual Global Air Navigation Report. The report results will provide an opportunity for the international civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure and performance-based procedures.

1.13   The reports will also provide the ICAO Council with detailed annual results on the quality of service provided worldwide as well as the performance areas which require more attention. This will serve as input for the triennial policy adjustments to the GANP and its priorities.

CAR/SAM ANP, VOLUME III

PART II – PERFORMANCE MANAGEMENT PLANNING AND ANS IMPLEMENTATION (PMP)

1. STEP 1: DEFINE SCOPE, CONTEXT AND SET AMBITIONS

General

1.1   The purpose of Step 1 is to reach a common agreement on the scope and (assumed) context of the regional air navigation system on which the performance management process will be applied, as well as a common view on the general nature of the expected performance improvements.

Geographical scope

1.2   The geographical scope is defined in Volume I and in particular in the following tables:

- Table GEN I-1 — List of Flight Information Regions (FIR)/Upper Information Regions (UIR) in the Region

- Table ATM I-1 — Flight Information Regions (FIR)/Upper Flight Information Regions (UIR) of the Region

- Table SAR I-1 — Search and Rescue Regions (SRR) of the Region

- Table AOP I-1 — International aerodromes required in the Region

- Table PMP III CAR/SAM - 1 – List of CTA/TMA in the Region
  (Optional. Please note that, if it is decided that this level of granularity is required in the Region, the rest of the performance management process will be applied at this level of granularity for consistency purposes. If this table is not developed, the PMP will be applied at an FIR level)

Homogeneous areas and/or major traffic flows

1.3   The homogeneous ATM areas and major traffic flows/routing areas identified are given in:

- Table GEN II-1 — Homogeneous areas and major traffic flows identified in the Region

Time Horizon

1.4   Volume III of the CAR/SAM ANP provides short term (**5** *years*) and medium term (**10** *years*) implementation planning.

Traffic forecast

1.5   A uniform strategy has been adopted by ICAO for the purpose of preparing traffic forecasts and other planning parameters in support of the regional planning process.

- ***(include traffic forecast for the Region from ATB)***

1.6   In the CAR/SAM Region, in addition to the ICAO forecast, the others forecast will be used for planning purposes. ***(if applicable)***

Political (high level) ambitions

1.7   The expectations of the global aviation community are defined in 11 Key Performance Areas (KPAs). The GANP considers all these areas through the performance ambitions. Although all these areas are equally important, as they are interrelated and cannot be considered in isolation, some areas are more visible to society than others.
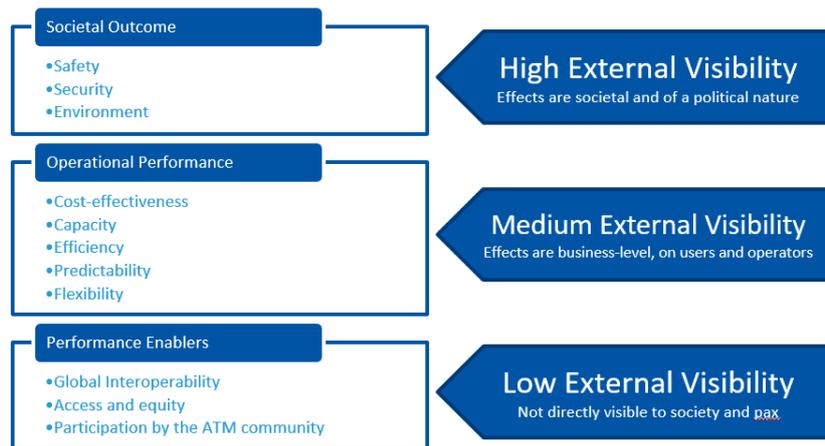
Figure 2 The 11 KPAs of the GANP

1.8   The regional air navigation plan public's perception of safe air travel is key to the prosperity of the aviation sector, which is why, safety is critical when planning the implementation of air navigation operational improvements. To determine if these improvements can be implemented in a safe manner, a safety risk assessment provides information to identify hazards that may arise from, for example:

a) any planned modifications in airspace usage;
b) the introduction of new technologies or procedures; or
c) the decommissioning of older navigational aids.

1.9   A safety risk assessment also enables the assessment of potential consequences. Based on the results of a safety risk assessment, mitigation strategies may be implemented to ensure that an acceptable level of safety performance is maintained. Any operational improvement should be implemented only on the basis of a documented safety risk assessment.

1.10   Fatalities resulting from acts of unlawful interference also affect the public's perception of aviation safety. The cumulative improvements to aviation security globally enhance the safety, facilitation and operational aspects of the international civil aviation system.

1.11   Some safety and environment considerations can be found in Volume I.

1.12   After political consultation the following set of performance ambitions have been prioritized within the (*NAME*) Region, (*DECLARATION*) refers.

- *(include the set of ambitions in a set of KPAs)*

2. STEP 2: KNOW YOUR SYSTEM – SWOT ANALYSIS AND REGIONAL OBJECTIVES

General

2.1   The purpose of Step 2 is to develop a detailed understanding of the performance behaviour of the system (this includes producing a list of opportunities and issues), and to decide which specific performance aspects are essential for meeting the general expectations. The essential performance aspects are those which need to be actively managed (and perhaps improved) by setting performance objectives.

SWOT analysis

2.2   A SWOT analysis allows the development of an inventory of present and future opportunities and issues (weaknesses, threats) that may require performance management attention.

2.3   A SWOT analysis, requires the identification of:

- Strengths: internal attributes of a system or an organization that can help in the realization of ambitions or in meeting expectations.

- Weaknesses: internal attributes of a system or an organization that are a detriment to realizing ambitions or meeting expectations.

- Opportunities: are external conditions that help in the realization of ambitions or in meeting expectations.

- Threats: external conditions that are a detriment or harmful to realizing ambitions or meeting expectations.

2.4   Once the strengths, weakness, opportunities and threats are identified, action can be taken to target and exploit or remove these factors. The SWOTs in the CAR/SAM Regions can be found in **Table PMP III-1**.

Regional objectives

2.5   The performance framework of the GANP includes a catalogue of performance objectives to facilitate the definition of objectives. Considering the objectives defined in the catalogue and based on the SWOT analysis, the CAR/SAM Regions defines, within in the key performance areas prioritize in step 1, the objectives within **Table PMP III-2** to be pursued by the States within the Region.

3. STEP 3: QUANTIFY OBJECTIVES, SET TARGETS AND CALCULATE NEEDS

General[

3.1   The purpose of Step 3 is to ensure that objectives are specific, measurable, achievable, relevant and time-bound (SMART) so that targets can be set and needs calculated.

List of regional indicators

3.2   The way to ensure that objectives are specific and measurable is by defining indicators. Indicators are the means to quantitatively express performance as well as actual progress in achieving performance objectives. Indicators need to be defined carefully:

- Since indicators support objectives, they should not be defined without having a specific performance objective in mind.

- Indicators are not often directly measures. They are calculated from supporting metrics according to clearly defined formulas. This leads to a requirement for cost data collection and flight data collection. If there is a problem with data availability to calculate these supporting metrics:

  o   Set up the appropriate data reporting flows and/ or modelling activities, to ensure all supporting metrics are populated with data as required to calculate the indicator(s) associated with the objective; or

  o   If this is not possible, aim for a different kind of performance improvement, by choosing a different performance objective, as constrained by data availability.

3.3   In order to facilitate this task, ICAO has defined a series of KPIs link to the catalogue of performance objectives within the 11KPAs. The ICAO KPIs associated to the performance objectives in the CAR/SAM Regions are in **Table PMP III- 3**.

Performance baseline in the CAR/SAM Regions

3.4   The only way of knowing an operational environment and identifying the existence of a problem is by collecting, processing and analysing data. The value of these indicators would be your performance baseline. The performance baseline for the CAR/SAM Regions can be found in **Table PMP III-4**.

Regional targets and calculation of needs

3.5   Performance targets are closely associated with performance indicators, they represent the values of performance indicators that need to be reached or exceeded to consider a performance objective as being fully achieved.

3.6   To understand how challenging it is to reach your target, you should know your performance baseline. The difference between the baseline and the target is called the needs/performance gap.

3.7   The time available to achieve performance objectives is always limited. Therefore, targets should always be time-bounded.

3.8   The target and the time available to reach the target determine the required speed of progress for the performance objective. Care should be taken to set target so that the required speed of progress is realistic.

3.9   Based on the information submitted and after consideration by all stakeholders, the targets and needs in **Table PMP III-5** have been agreed for the CAR/SAM Regions.
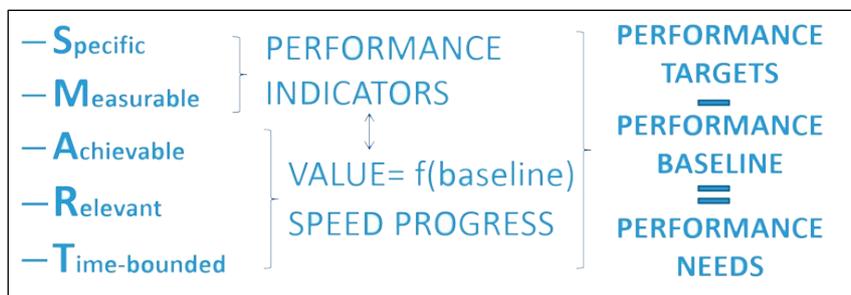
4. STEP 4: SELECT SOLUTIONS

General

4.1   The purpose of this step is to combine the knowledge of baseline performance, opportunities and issues with the performance objectives and targets, in order to make decisions in terms of priorities, trade-offs, selection of solutions and resource allocation. The aim is to optimize the decisions to maximize the achievement of the desired/required (performance) results.

Select solutions

4.2   Based on the agreed targets, States should perform a SWOT analysis at each operational environment to develop an inventory of present and future opportunities and issues that may require attention. The list then needs to be analyzed in a performance oriented way, to assess/ quantify the impact of drivers, constraints, impediments, etc. on the objectives under consideration. To what extent, when and under which conditions do these contribute to or prevent the required performance improvements.

4.3   States should consider the operational improvements (ASBU elements) within the ASBU framework as potential solutions to improve the selected objectives/KPIs in the operational environment under analysis. In order to help States with this task, ICAO has develop the Air Navigation System Performance Analysis (AN-SPA) tool, available for free at: https://www4.icao.int/ganpportal/ANSPA/Reports

4.4   Please note that the ASBUs are a list of potential solutions and therefore it might happen that the optimum solution for the operational environment under analysis is not within this list.

4.5   Once a list of potential solutions has been developed, it is important to do a safety assessment and an environmental impact assessment to analyze the feasibility of implementing that specific solution in the operational environment under analysis. ICAO has developed the following guidance to assist States to perform a safety assessment and an environmental impact assessment:

4.5.1   Safety assessment:

4.5.1.1 The 4th edition of the Safety Management Manual (SMM), was updated and published in October 2018 to provide supporting guidance for Amendment 1 to Annex 19 – Safety Management, including:

- Upgraded provisions for the protection of safety data, safety information and related sources;

- Integration of the 8 critical elements into the State Safety Programme (SSP) components; and

- Enhanced provisions for Safety Management System (SMS).

4.5.1.2 It also provides expanded guidance on the scope of Annex 19 its applicability, including discretionary SMS applicability, as well as the development of safety intelligence. In addition, to address the needs of the diverse aviation community implementing safety management and following a recommendation stemming from the 2nd High-level Safety Conference (HLSC/2015), the Safety Management Implementation (SMI) public website (www.icao.int/SMI) has been launched to complement the SMM. The SMI website serves as a repository for the sharing of practical examples, tools and educational material, which are being collected, validated and posted on an ongoing basis to support the effective implementation of SSP and SMS. An e-book version of the SMM in all ICAO languages is also available on the website.

4.5.2   Environmental impact assessment guidance:

4.5.2.1 This guidance identifies high-level principles that facilitate the robust definition and application of specific assessment approaches, methodologies and their respective metrics. The focus of these principles is on changes that relate to aircraft and ATM operational initiatives and may involve all phases of flight (e.g. Gate-to-Gate). The general principles of this guidance can be applicable to air navigation aspects arising from infrastructure proposals and major changes to airspace capacity or throughput, as well as operational changes. While the boundaries of an air navigation services environmental analysis are based on the needs of the study, for the purposes of this guidance material "air navigation services environmental assessment" is to be interpreted in the broadest possible sense and refers to impacts arising from changes to where, when, and how aircraft are operated.

https://store.icao.int/catalogsearch/result/?category_id=2&q=10031

4.5.2.2 Once the feasibility study has been done, we will still need to do a cost-benefit analysis to identify the optimum solution/s. ICAO has developed some guidance and a tool to assist you on this task:

4.5.3   Cost-benefit analysis:

https://data.icao.int/cba

4.5.3.1 Once the optimum solution(s) has(ve) been identified, States should report them to ICAO and they are reflected in **Table PMP III-6**.

5. STEP 5: IMPLEMENT SOLUTIONS

General

5.1   Step 5 is the execution phase of the performance management process. This is where the changes and improvements that were decided upon during the previous step are organized into detailed plans, implemented, and begin delivering benefits.

Select solutions

5.2   Once the optimum solution/s has/have been identified, it is the moment to start the execution phase of the performance management process. This is where the changes and improvements that you decided were the optimum solution for your problem during the previous steps are organized into plans, implemented and begin delivering services to achieve the expected performance. During this execution phase, it is important to keep track of the project deployments (time, budget, …).

5.3   Depending on the mature and magnitude of the change, this could mean:

- In the case of small-scale changes or day-to day management:

    o   Assigning management responsibility for the implementation to an individual;

    o   Assigning responsibility and accountability for reaching a performance target to an individual or organization.

- In the case of major or multi-year changes:

    o   Refining the roadmap of selected solutions into a detailed implementation plan, followed by the launching of implementation projects.

    o   Ensure that each individual implementation project is operated in accordance with the performance-based approach. This means launching and executing the performance management process at the level of individual projects. Each project derives its scope, context and expectations (see Step 1 of the process) from the overall implementation plan.

5.4   This can imply to overcome high-level political challenges, find funding and resources or look for external technical support.

5.5   In this step, States are expected to report on the status on the implementation by updating **Table PMP III-7**.

6. STEP 6: ASSESS ACHIEVEMENTS

General

6.1   The purpose of Step 6 is to continuously keep track of performance and monitor whether performance gaps are being closed as planned and expected.

Assess achievements

6.2   Once the project is implemented, it is time to assess the benefits from the implementation. This means measuring the performance of the operational environment under analysis once the solution/s has/have been deployed.

6.3   The purpose of this step is to continuously keep track of performance and monitor whether performance gaps are being closed as planned and expected.

6.4   First and foremost, this implies data collection to populate the supporting metrics with the data needed to calculate the performance indicators. The indicators are then compared with the targets defined during Step 3 to draw conclusions on the speed of progress in achieving the objectives.

6.5   This step also includes monitoring progress of the implementation projects, particularly in those cases where the implementation of solutions takes several years, as well as checking periodically whether all assumptions are still valid and the planned performance of the solutions is still meeting the (perhaps changed) requirements.

6.6   With regard to the review of actually achieved performance, the output of this step is simply an updated list of performance gaps and their causes. In practice, the scope of the activity is often interpreted as being much wider and includes recommendations to mitigate the gaps.

6.7   This is then called performance monitoring and review, which in addition to this step, includes step 1, 2 and 3.

6.8   For the purpose of organizing performance monitoring and review, the task can be broken down into five separate activities:

- Data collection
- Data publication
- Data analysis
- Formulation of conclusions; and
- Formulation of recommendations.

6.9   States should report on the benefits accrued from the implementation of the solutions in **Table PMP III-8.** This would constitute the baseline for the next iteration of the performance management process.

Table PMP III-CAR/SAM-1 – List of CTA/TMA in the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1   States in **Table GEN I-1**

2   List of FIRs by State within **Table ATM I-1**.

3   CTAs/TMAs

4   Remarks

Column		
1	STATE	Name of State
2	FIR/UIR	Name of FIR/UIR
3	CTA/TMA	Name of CTA/TMA
4	Remarks	Remarks, notes

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	**2**	**3**	**4**
France – French Antilles (St Barthelemy)	San Juan FIR		
France – French Antilles (St Martin)			
Netherlands (Saba)			
Netherlands (Sint Eustatius)			
Sint Maarten (Kingdom of the Netherlands)			
United Kingdom (Anguilla)			
United Kingdom (British Virgin Islands)			
United States (Puerto Rico)			
United States (Virgin Islands)			
Antigua and Barbuda	Piarco FIR		
Barbados			
Dominica			
France – French Antilles (Guadeloupe)			
France – French Antilles (Martinique)			
Grenada			
Saint Kitts and Nevis			
Saint Lucia			
1. Saint Vincent and the Grenadines			
Trinidad and Tobago			
United Kingdom (British Virgin Islands)			
United Kingdom (Montserrat)			

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
Argentina	**Comodoro Rivadavia FIR**	Comodoro Rivadavia North CTA	
		Comodoro Rivadavia South CTA	
		Comodoro Rivadavia TMA	
		Rio Gallegos TMA	
		Ushuaia TMA	
	Córdoba FIR	Córdoba North CTA	
		Córdoba South CTA	
		Cordoba TMA	
		Salta TMA	
	Ezeiza FIR	Ezeiza CTA I	
		Ezeiza CTA II	
		Ezeiza CTA III	
		Ezeiza CTA IV	
		Baires TMA	
		Mar del Plata TMA	
		Neuquen TMA	
		Rosario TMA	
		San Carlos de Bariloche TMA	
	Mendoza FIR	Mendoza CTA	
		Mendoza TMA	
	Resistencia FIR	Resistencia CTA	
		Resistencia TMA	
		Foz TMA	Tripartite Argentina-Brazil - Paraguay
Aruba (Kingdom of the Netherlands)	Curaçao FIR		
Curaçao (Kingdom of the Netherlands)			
Netherlands (Bonaire)			
Bahamas	Nassau FIR		
Belize	Central American FIR		
Costa Rica			
El Salvador			
Guatemala			
Honduras			
Nicaragua			
United Kingdom (Bermuda)	New York Oceanic West FIR		
Bolivia	**La Paz FIR**	La Paz CTA	

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
		Cochabamba TMA	
		La Paz TMA	
		Santa Cruz TMA	
Brazil	Amazonica FIR	Amazonica CTA	
		Amazonica UTA	
		Rio Branco TMA	
		Porto Velho TMA	
		Boa Vista TMA	
		Manaus TMA	
		Belem TMA	
		Macapa TMA	
		Santarem TMA	
		Cuiabá TMA	
		Sao Luis TMA	
		Amazonica TMA	Bipartite Brazil - Colombia
	Atlantico FIR	Atlantico UTA	
	Brasilia FIR	Brasilia CTA	
		Brasilia UTA	
		Brasilia TMA	
		Belo Horizonte TMA	
	Curitiba FIR	Curitiba CTA	
		Curitiba UTA	
		Porto Alegre TMA	
		Foz TMA	Tripartite Argentina- Brazil - Paraguay
		Curitiba TMA	
		Florianópolis TMA	
		Campo Grande TMA	
		Rio de Janeiro TMA	
		Sao Paulo TMA	
	Recife FIR	Recife CTA	
		Recife UTA	
		Fortaleza TMA	
		Natal TMA	
		Recife TMA	
		Maceio TMA	
		Aracaju TMA	
		Salvador TMA	
		Porto Seguro TMA	
		Vitoria TMA	
Jamaica	Kingston FIR		
United Kingdom (Cayman Islands)			

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
Chile	Antofagasta FIR	Santiago Oceanic OCA*	*Oceanic ACC delivers ATC in Oceanic Control Area (OCA). see AIP-Chile Vol I
		Iquique UTA	
		Antofagasta TMA	
		Arica TMA	
		Iquique TMA	
		Calama TMA	
		Atacama TMA	
	Isla de Pascua FIR	Santiago Oceanic OCA*	
		Isla de Pascua TMA	
	Puerto Montt FIR	Santiago Oceanic OCA*	
		Puerto Montt UTA	
		Puerto Montt TMA	
		Temuco TMA	
		Balmaceda TMA	
	Punta Arenas FIR	Santiago Oceanic OCA*	
		Punta Arenas UTA	
		Punta Arenas TMA	
		Puerto Williams TMA	
		Isla Rey Jorge TMA	
	Santiago FIR	Santiago Oceanic OCA*	
		Santiago UTA	
		Santiago TMA	
		Concepcion TMA	
		La Serena TMA	
Colombia	Barranquilla FIR	Barranquilla UTA	
		Barranquilla CTA	
		Barranquilla TMA sector NORTE	
		Barranquilla TMA sector SUR	
		San Andrés TMA	To be analyzed
	Bogota FIR	Bogota UTA	
		Bogota TMA sector OESTE	
		Bogota TMA sector NORTE	
		Bogota TMA sector SUR	
		Cali CTA	
		Medellin CTA	
		Amazonica TMA	Bipartite Brazil - Colombia
		Bucaramanga TMA	
		Cali TMA	

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
		Cucuta TMA sector Sur	
		Cucuta TMA sector Norte	
		Medellin TMA	
		Pereira TMA	
		Villavicencio TMA	
		Andes TMA	
		El Yopal TMA	
Cuba	Habana FIR		
Dominican Republic	Santo Domingo FIR		
Ecuador	**Guayaquil FIR**	Guayaquil UTA	
		Guayaquil CTA	
		Guayaquil TMA	
		Manta TMA	
		Quito TMA	
French Guiana	**Cayenne FIR**	Cayenne CTA	
		Cayenne TMA	
Guyana	**Georgetown FIR/UIR**	Georgetown UTA	
		Georgetown CTA	
		Timehri TMA	
Haiti	Port Au Prince FIR		
Mexico	Mazatlán Oceanic FIR		
	Mexico FIR		
Panama	**Panama FIR**	Panama CTA	
		Panama TMA	
		San Andres TMA*	*Under Colombia responsibility. TMA is within FIR/CTA Panama. To be analyzed
Paraguay	**Asunción FIR/UIR**	Asuncion TMA	
		Foz TMA	Tripartite Argentina-Brazil - Paraguay
Peru	**Lima FIR**	Lima UTA	
		Lima CTA	
		Arequipa TMA	
		Chiclayo TMA	

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
		Cusco TMA	
		Iquitos TMA	
		Juliaca TMA	
		Lima TMA	
		Pisco TMA	
		Pucallpa TMA	
		Tacna TMA	
		Trujillo TMA	
Suriname	**Paramaribo FIR**	Paramaribo CTA	
		Pengel TMA	
United Kingdom (Turks and Caicos Islands)	Miami Oceanic FIR		
United States			
Uruguay	**Montevideo FIR**	Montevideo CTA	
		Carrasco TMA	
United States	Houston FIR		
	Houston Oceanic FIR		
	Miami FIR		
Venezuela	**Maiquetia FIR**	Maiquetia CTA	
		Barcelona TMA	
		Maiquetia TMA	
		Maracaibo TMA	
		Margarita TMA	

Table PMP III-1 – Strengths, weakness, opportunities and threads in the CAR/SAM Region

EXPLANATION OF THE TABLE

Item

1 Strengths: internal attributes of a system or an organization that can help in the realization of ambitions or in meeting expectations.

2 Weaknesses: internal attributes of a system or an organization that are a detriment to realizing ambitions or meeting expectations.

3 Opportunities: are external conditions that help in the realization of ambitions or in meeting expectations.

4 Threats: external conditions that are a detriment or harmful to realizing ambitions or meeting expectations.

5 Relationship of the SWOT attributes and conditions with the eleven Key performance area - KPAs.

(1) STRENGHTS	Remarks
- National Plans aligned with global plans and supporting regional implementation. - Industry maturity and operating models (airlines, airports). - Potential human resources available. - Robust regional infrastructure, implementation experience and harmonized services. - Regional Integration and Harmonization with Horizontal Cooperation Mechanisms.	
(2) WEAKNESS	Remarks
- Gaps in plan implementation (ANS, CNS, Technology, Training, budgets). - Limited human talent management policies (hiring, training and retention of sufficient and competent human resources). - Difficulty in institutional communication, collaboration and alignment between CAR and SAM. - Different levels of maturity in the implementation of ANS and airport management models. - Weak alignment and little communication between global plans (GANP, GASP, GASEP). - Language and cultural barriers between regions. Lack of timely publication of ICAO Documents in all official languages.	•
(3) OPPORTUNITIES	Remarks
- Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. - Trend towards the automation of processes and services with a focus on innovation, sustainability and harmonization. - The low transitory demand allows improving activities, focusing on innovation and better preparation to generate resilience (administration, procedures, ATM, etc.). - Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. - Put civil aviation as a development engine on the State and Regional agenda.	•
(4) THREADS	Remarks

• Slow industry/airline recovery (> 2024). Reorganization of the aeronautical market, competition for markets. • Changes in passenger behavior. • Negative impact on aviation due to political, environmental or economic changes (fuel, etc.). • New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn).	•

(5) Relationship of the SWOT attributes and conditions with the eleven Key performance areas

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
Capacity	o Robust regional infrastructure, implementation experience and harmonized services.	o Gaps in plan implementation (ANS, CNS, Technology, Training, budgets). o Limited human talent management policies (hiring, training and retention of sufficient and competent human resources).	o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Trend towards the automation of processes and services with a focus on innovation, sustainability and harmonization. o The low transitory demand allows improving activities, focusing on innovation and better preparation to generate resilience	o Negative impact on aviation due to political, environmental or economic changes (fuel, etc.). o New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn).

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
			(administration, procedures, ATM, etc.). o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	
Efficiency	o National Plans aligned with global plans and supporting regional implementation. o Industry maturity and operating models (airlines, airports). o Potential human resources available. o Robust regional infrastructure, implementation experience and harmonized services. o Regional Integration and Harmonization with Horizontal Cooperation Mechanisms.	o Gaps in plan implementation (ANS, CNS, Technology, Training, budgets). o Limited human talent management policies (hiring, training and retention of sufficient and competent human resources). o Difficulty in institutional communication, collaboration and alignment between CAR and SAM. o Different levels of maturity in the implementation of	o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Trend towards the automation of processes and services with a focus on innovation, sustainability and harmonization. o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	o Slow industry/airline recovery (> 2024). Reorganization of the aeronautical market, competition for markets. o Negative impact on aviation due to political, environmental or economic changes (fuel, etc.). o New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn).

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
		ANS and airport management models.		
Predictability	o Industry maturity and operating models (airlines, airports).	o Gaps in plan implementation (ANS, CNS, Technology, Training, budgets).	o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	o Negative impact on aviation due to political, environmental or economic changes (fuel, etc.). o New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn).
Safety	o National Plans aligned with global plans and supporting regional implementation. o Regional Integration and Harmonization with Horizontal Cooperation Mechanisms.	o Gaps in plan implementation (ANS, CNS, Technology, Training, budgets). o Weak alignment and little communication between global plans (GANP, GASP, GASEP).	o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators.	o New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn).

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
			o Put civil aviation as a development engine on the State and Regional agenda.	
Security	o National Plans aligned with global plans and supporting regional implementation. o Regional Integration and Harmonization with Horizontal Cooperation Mechanisms.	o Gaps in plan implementation (ANS, CNS, Technology, Training, budgets). o Weak alignment and little communication between global plans (GANP, GASP, GASEP).	o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	o New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn).
Enviroment			o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators.	o Negative impact on aviation due to political, environmental or economic changes (fuel, etc.).

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
			o Put civil aviation as a development engine on the State and Regional agenda.	
Cost effectiveness	o Industry maturity and operating models (airlines, airports).		o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	o Negative impact on aviation due to political, environmental or economic changes (fuel, etc.).
Interoperability	o National Plans aligned with global plans and supporting regional implementation. o Robust regional infrastructure, implementation experience and harmonized services. o Regional Integration and Harmonization with Horizontal Cooperation Mechanisms.	o Gaps in plan implementation (ANS, CNS, Technology, Training, budgets). o Difficulty in institutional communication, collaboration and alignment between CAR and SAM. o Different levels of maturity in the	o Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. o Trend towards the automation of processes and services with a focus on innovation, sustainability and harmonization.	o Negative impact on aviation due to political, environmental or economic changes (fuel, etc.).

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
		implementation of ANS and airport management models. o Weak alignment and little communication between global plans (GANP, GASP, GASEP).	o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda	
Access and equity			o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	
Participation by the ATM community			o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. o Put civil aviation as a development engine on the State and Regional agenda.	
Flexibility			o Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators.	

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
			o Put civil aviation as a development engine on the State and Regional agenda.	

Table PMP III-2 – List of performance objectives by KPA for the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

(1)   ICAO defined 11 Key Performance Areas. *Include the list of KPAs and its definition.*

(2)   Focus Areas. These focus areas have been selected from the catalogue of performance objectives.

(3)   Performance Objectives. These objectives have been selected from the catalogue of performance objectives.

(4)   Remarks

(1) KPA s	(2) Focus Areas	(3) Performance Objectives	(4) Remarks
Efficiency	Flight time & distance	Apply en-route speed reduction if traffic is already airborne	
Efficiency	Flight time & distance	Avoid taxi-out additional time resulting from adverse conditions	
Efficiency	Flight time & distance	Avoid taxi-in additional time resulting from adverse conditions	
Efficiency	Flight time & distance	Overcome route selection inefficiencies associated with route network design	
Efficiency	Flight time & distance	Facilitate direct routing of portions of the flight (if this does not cause network problems)	
Capacity	Capacity, throughput & utilization	Improve what's needed to reduce longitudinal separation minima	*PBN implementation in progress. PBCS when required*
Capacity	Capacity, throughput & utilization	Overcome capacity limitations attributable to route network design	*PBN implementation in progress*

(1) KPA s	(2) Focus Areas	(3) Performance Objectives	(4) Remarks
Capacity	Capacity, throughput & utilization	Take advantage of increased navigation precision (airspace with PBN operations) to implement route networks and airspace structures with smaller lateral and vertical safety buffers	*PBN implementation in progress*
Capacity	Capacity, throughput & utilization	Increase airport peak arrival capacity	*ACDM implementation project (to be analyzed)*
Capacity	Capacity, throughput & utilization	Equip additional RWY ends with instrument approaches	*PBN implementation in progress*
Capacity	Capacity, throughput & utilization	Reduce approach minima (ceiling & visibility)	*PBN implementation in progress*
Capacity	Capacity, throughput & utilization	Increase airport arrival rate	*PBN implementation in progress*
Capacity	Capacity, throughput & utilization	Apply merging & synchronisation of arrival flows	*Point merge implemented (Brazil, Colombia)*
Predictability	Punctuality	Increase the number (%) of flights adhering to the planned take-off time	
Predictability	Punctuality	Increase the number (%) of scheduled flights adhering to the scheduled ON-block time	
Predictability	Variability	Reduce gate-to-gate flight time variability of frequent scheduled flights	
Safety	*To be incorporated*		

(1) KPA s	(2) Focus Areas	(3) Performance Objectives	(4) Remarks
Security	*To be incorporated*		
Enviroment	*To be incorporated*		
Cost effectiveness	*To be incorporated*		
Interoperability	*To be incorporated*		
Access and equity	*To be incorporated*		
Participation by the ATM community	*To be incorporated*		
Flexibility	*To be incorporated*		

Table PMP III-3 – List of KPIs by performance objective and KPA for the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1   KPAs and Focus Areas from **Table PMP III-2**.

2   Performance Objectives from **Table PMP III-2**.

3   KPIs based on the ICAO list of KPIs. ***If there is a KPI you would like to introduce, please submit it for coordination with the global performance expert group***

4   Remarks

(1) KPA & Focus area	(2) Performance objectives	(3) KPI s	(4) Remarks
Efficiency Flight time & distance	Apply en-route speed reduction if traffic is already airborne	KPI08	
Efficiency Flight time & distance	Avoid taxi-out additional time resulting from adverse conditions	KPI02	
Efficiency Flight time & distance	Avoid taxi-in additional time resulting from adverse conditions	KPI13	
Efficiency Flight time & distance	Overcome route selection inefficiencies associated with route network design	KPI04	
Efficiency Flight time & distance	Facilitate direct routing of portions of the flight (if this does not cause network problems)	KPI05	
Capacity Capacity, throughput & utilization	Improve what's needed to reduce longitudinal separation minima	KPI06	
Capacity Capacity, throughput & utilization	Overcome capacity limitations attributable to route network design	KPI06	

(1) KPA & Focus area	(2) Performance objectives	(3) KPI s	(4) Remarks
Capacity Capacity, throughput & utilization	Take advantage of increased navigation precision (airspace with PBN operations) to implement route networks and airspace structures with smaller lateral and vertical safety buffers	KPI06	
Capacity Capacity, throughput & utilization	Increase airport peak arrival capacity	KPI09	ASBU element impact non defined in GANP6
Capacity Capacity, throughput & utilization	Equip additional RWY ends with instrument approaches	KPI10	
Capacity Capacity, throughput & utilization	Reduce approach minima (ceiling & visibility)	KPI10	
Capacity Capacity, throughput & utilization	Increase airport arrival rate	KPI10	
Capacity Capacity, throughput & utilization	Apply merging & synchronisation of arrival flows	KPI10	
Predictability (Punctuality)	Increase the number (%) of flights adhering to the planned take-off time	KPI01	ASBU element impact non defined in GANP6
Predictability (Punctuality)	Increase the number (%) of scheduled flights adhering to the scheduled ON-block time	KPI14	ASBU element impact non defined in GANP6
Predictability (Variability)	Reduce gate-to-gate flight time variability of frequent scheduled flights	KPI15	ASBU element impact non defined in GANP6

Table PMP III-4 – Performance baseline within the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1	States in **Table GEN I-1**
2	List of FIRs/ CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-CAR/SAM-1** and **Table AOP I-1**.
3	Value for the list of KPIs in **Table PMP III-3.**
4	Remarks

Legend: -- *KPI calculation is in progress*

++ *KPI is not yet developed*

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01 (Var 2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15 (Var 1)	
BRAZIL	SBGR	83,8%	3,7					34	26	1,8	54,6%	5,9	**BASELINE 2021 (average all flights > DEP+ARR in SBGR)**
	SBBR	90,5%	3,1					48	26	1,6	65,0%	5,5	**BASELINE 2021 (average all flights > DEP+ARR in SBBR)**
	SBGL	80,0%	3,0					30	6	1,5	64,1%	5,9	**BASELINE 2021**
	TMA SAO PAULO			++	++	--	3,9						**BASELINE 2021 (SBGR, SBKP, SBSP)**
	TMA BRASILIA			++	++	--	3,6						**BASELINE 2021 (SBBR)**

	TMA Rio de JANEIRO			++	++	--	2,9						**BASELINE 2021 (SBRJ, SBGL)**

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
PERU	SPJC	87%	3.57					35	23	1.68	61%	++	
	SPZO	72.09%	3.78					6	5	0.85	69.65%	++	
	TMA LIMA			++	++	--	++						
	TMA CUSCO			++	++	11 (CHS)	++						CHS= hourly sector capacity
	FIR LIMA			++	++	++							

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
CHILE	SCEL	31.7%	++					++	++	++	++	++	
	SCIE	32.9%	++					+	++	++	++	++	
	SCFA	31.5%	++					++	++	++	++	++	
	TMA SANTIAGO			++	++	++	++						
	TMA CONCEPCION			++	++	++	++						

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STATE	FIR/CTA/TMA/AIRPORT	KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	Remarks
	TMA ANTOFAGASTA	■	■	++	++	++	++	■	■	■	■	■	
	FIR ++	■	■	++	++	++	■	■	■	■	■		

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
ARGENTINA	SABE	73.7%	2.4					39	14	2.0	92.2%	5.7	2019 BASELINE
	SAEZ	57.9%	3.5					29	10	3.1	81.1%	5.7	2019 BASELINE
	TMA BAIRES			++	++	--	--						
	FIR TODAS			0.6%	0.84%	++						5.4	2019 BASELINE

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
DOMNINICAN REPUBLIC	MDPC	++	++					40	++	++	++	++	TBD
	MDSD	++	++					35	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
COSTA RICA	MROC	++	++					30	++	++	++	++	TBD

	MRLB	++	++					--	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
EL SALVADOR	MSLP	++	++					8	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
GUATEMALA	MGGT	++	++					12	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
BELIZE	MZBZ	++	++					15	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
HAITI	MTPP	++	++					14	++	++	++	++	TBD
	MTCH	++	++					8	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
HONDURAS	MHLM	++	++					5	++	++	++	++	TBD

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
NICARAGUA	MNMG	++	++					++	++	++	++	++	TBD

Table PMP III-5 – Performance targets and needs within CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1   States in **Table GEN I-1**

2   List of FIRs/CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-CAR/SAM- 1** and **Table AOP I-1**.

3   Targets for the list of KPIs in **Table PMP III-3.** *(include the value of the regional targets/needs for the different operational environments identified in step 1)*

4   Remarks

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01 (Var 2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15 (Var 1)	
BRAZIL	SBGR	≥ 80%	≤3 min					--	--	≤3 min	--	≤ 10 min	
	SBBR	≥ 80%	≤3 min					--	--	≤3 min	--	≤ 10 min	
	SBGL	≥ 80%	≤3 min					--	--	≤3 min	--	≤ 10 min	
	TMA SAO PAULO			++	++	--	≤ 4 min						
	TMA BRASILIA			++	++	--	≤ 4 min						
	TMA Rio de JANEIRO			++	++	--	≤ 4 min						

>>>>

(1)	(2)	(3)	(4) Remarks

STATE	FIR/CTA/TMA /AIRPORT	KPIs TARGETS											
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
PERÚ	SPJC	≥ 80%	≤4 min					--	--	≤3 min	≥ 80%	++	
	SPZO	≥ 80%	≤4 min					--	--	≤3 min	≥ 80%	++	
	TMA LIMA			++	++	--	++						
	TMA CUSCO			++	++	--	++						
	FIR LIMA			++	++	++							

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
CHILE	SCEL	≥ 32%	++					++	++	++	++	++	
	SCIE	≥ 33%	++					+	++	++	++	++	
	SCFA	≥ 32%	++					++	++	++	++	++	
	TMA SANTIAGO			++	++	++	++						
	TMA CONCEPCION			++	++	++	++						
	TMA ANTOFAGASTA			++	++	++	++						
	FIR ++			++	++	++							

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
ARGENTINA	SABE			▓	▓	▓	▓						
	SAEZ			▓	▓	▓	▓						
	TMA BAIRES	▓	▓					▓	▓	▓	▓	▓	
	FIR TODAS	▓	▓				▓	▓	▓	▓	▓		

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
DOMNINICAN REPUBLIC	MDPC	++	++	▓	▓	▓	▓	--	++	++	++	++	TBD
	MDSD	++	++	▓	▓	▓	▓	--	++	++	++	++	TBD

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
COSTA RICA	MROC	++	++	▓	▓	▓	▓	--	++	++	++	++	TBD
	MRLB	++	++	▓	▓	▓	▓	--	++	++	++	++	TBD

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(1)	(2)	(3) KPIs	(4) Remarks

STATE	FIR/CTA/TMA /AIRPORT	KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
EL SALVADOR	MSLP	++	++					--	++	++	++	++	TBD

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
GUATEMALA	MGGT	++	++					--	++	++	++	++	TBD

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
BELIZE	MZBZ	++	++					--	++	++	++	++	TBD

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
HAITI	MTPP	++	++					--	++	++	++	++	TBD
	MTCH	++	++					--	++	++	++	++	TBD

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	

HONDURAS	MHLM	++	++					--	++	++	++	++	TBD

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(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
NICARAGUA	MNMG	++	++					++	++	++	++	++	TBD

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Table PMP III-6 – Deployment planning: selected ASBU Elements / Operational Improvements for the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

  1   States in **Table GEN I-1**

  2   List of FIRs/ CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-CAR/SAM - 1** and **Table AOP I-1**.

  3   Selected ASBU elements /operational improvements for each operational environment.

Please note that the ASBU elements are a set of operational improvements, however, there could be other improvements outside of the ASBU framework that might address identified issues and opportunities and therefore contribute to achieve the pursued level of performance.

  4   **Dependencies and relations: see type description for each element in GANP Layer 2**

  5   Year when implementation of the selected solution is planned to start.

  6   Year when implementation of the selected solution is foreseen to be completed.

  7   Remarks

(1) STATE	(2) FIR/CTA /TMA/AIRPORT	(3) ASBU Elements / Operational Improvements	(4) Dependencies and relations	(5) Start Year	(6) End Year	(7) Remarks
BRAZIL	SBGR SBBR SBGL	SURF-B0/1	----			KPI02, KPI13
	SBGR SBBR SBGL	APTA-B0/1	AMET-B0/1 AMET-B0/2 NAVS-B0/3			KPI10
	SBGR SBBR SBGL	APTA-B0/2	AMET-B0/1 AMET-B0/2			KPI10
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI09
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI01
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI14
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI15
	TMAs SAO PAULO, BRASILIA, RIO DE JANEIRO	RSEQ-B0/1	AMET-B0/1 AMET-B0/2 ACDM-B0/1 ACDM-B0/2			KPI08
	TMAs SAO PAULO, BRASILIA, RIO DE JANEIRO	FRTO-B1/2	APTA-B0/1 APTA-B1/1 SNET-B0/1			KPI06
	TMA SAO PAULO	RSEQ-B0/3	AMET-B0/1			KPI10
	FIR ATLANTICO	CSEP-B1/3	COMI-B0/3 COMI-B0/4			KPI06

		COMS-B0/1 COMS-B0/2 NAVS-B0/3				

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(1) STATE	(2) FIR/CTA /TMA/AIRPORT	(3) ASBU Elements / Operational Improvements	(4) Dependencies and relations	(5) Start Year	(6) End Year	(7) Remarks
PERÚ	SPJC SPZO	SURF-B0/1	-----			KPI02, KPI13
	SPJC SPZO	TBD	TBD			KPI09
	SPJC SPZO	TBD	TBD			KPI01 KPI14
	TMA LIMA, CUSCO	FRTO-B1/2	APTA-B0/1 APTA-B1/1 SNET-B0/1			KPI06
	FIR LIMA	FRTO-B1/2	APTA-B0/1 APTA-B1/1 SNET-B0/1			KPI06

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STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
CHILE	SCEL	RSEQ-B0/2 = Departure Management	AMET-B0/1 AMET-B0/2 ACDM-B0/1 ACDM-B0/2 SURF-B1/4 WAKE-B2/1 WAKE-B2/4 WAKE-B2/8	2022	2025	KPI02 - Taxi-out additional time

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
			SURF-B0/2 APTA-B0/2 NOPS-B0/5			
	SCEL	RSEQ-B0/1 = Arrival Management	AMET-B0/1 AMET-B0/2 WAKE-B2/1 WAKE-B2/4 WAKE-B2/7 SURF-B0/2 SURF-B1/4 ACDM-B0/1 ACDM-B0/2	2022	2025	KPI10: Airport peak throughput
		APTA-B1/1 = PBN Approaches (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI10 - Airport peak throughput.
	SCEL	APTA-B1/2 = PBN SID and STAR procedures (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI11: Airport throughput efficiency
	SCEL	ACDM-B0/1 = Airport CDM Information Sharing (ACIS)	AMET-B0/1 AMET-B0/2 SURF-B0/2	2025	2027	No specific KPI available in GANP 6° Ed for intended performance
	SANTIAGO	FRTO-B0/1= Direct routing (DCT)	NOPS-B0/1 FRTO-B0/2 FRTO-B0/4 FICE-B0/1	2023	2027	KPI04: Filed flight plan en-route extension
	SANTIAGO	FRTO-B0/2 = Airspace planning and Flexible Use of Airspace (FUA)	FRTO-B0/1 NOPS-B0/1	2024	2027	KPI04: Filed flight plan en-route extension
	SCEL	NOPS-B0/1 = Initial integration of collaborative airspace management with air traffic flow management	AMET-B0/1 FRTO-B0/2	2024	2027	KPI05 - Actual en-route extension
	SCEZ/OCA	CSEP-B1/3 = Performance Based Longitudinal Separation Minima	COMI-B0/3 COMI-B0/4 COMS-B0/1 COMS-B1/1 COMS-B0/2 COMS-B1/2 NAVS-B0/3	2023	2026	KPI06: En-route airspace capacity

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
	SCEZ/OCA	CSEP-B1/4 = Performance Based Lateral Separation Minima	COMI-B0/3 COMI-B0/4 COMS-B0/1 COMS-B1/1 COMS-B0/2 COMS-B1/2 NAVS-B0/3	2023	2026	KPI06: En-route airspace capacity
	SCEZ/SANTIAGO/SCEL	TBD	TBD	2023	2025	KPI01: Departure punctuality
CHILE	SCIE	APTA-B1/1 = PBN Approaches (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI10 - Airport peak throughput.
	SCIE	APTA-B1/2 = PBN SID and STAR procedures (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI11: Airport throughput efficiency
	SCEZ/CONCEPCIÓN	FRTO-B0/1= Direct routing (DCT)	NOPS-B0/1 FRTO-B0/2 FRTO-B0/4 FICE-B0/1	2023	2027	KPI04: Filed flight plan en-route extension
	SCEZ/CONCEPCIÓN	FRTO-B0/2 = Airspace planning and Flexible Use of Airspace (FUA)	FRTO-B0/1 NOPS-B0/1	2024	2027	KPI04: Filed flight plan en-route extension
	SCIE	NOPS-B0/1 = Initial integration of collaborative airspace management with air traffic flow management	AMET-B0/1 FRTO-B0/2	2024	2027	KPI05 - Actual en-route extension
	SCIE	TBD	TBD	2023	2025	KPI01: Departure punctuality
CHILE	SCFA	APTA-B1/1 = PBN Approaches (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI10 - Airport peak throughput.
	SCFA	APTA-B1/2 = PBN SID and STAR procedures (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI11: Airport throughput efficiency

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
	SCFZ/ANTOFAGASTA	FRTO-B0/1= Direct routing (DCT)	NOPS-B0/1 FRTO-B0/2 FRTO-B0/4 FICE-B0/1	2023	2027	KPI04: Filed flight plan en-route extension
	SCFZ/ANTOFAGASTA	FRTO-B0/2 = Airspace planning and Flexible Use of Airspace (FUA)	FRTO-B0/1 NOPS-B0/1	2024	2027	KPI04: Filed flight plan en-route extension
	SCFA	NOPS-B0/1 = Initial integration of collaborative airspace management with air traffic flow management	AMET-B0/1 FRTO-B0/2	2024	2027	KPI05 - Actual en-route extension
	SCFA	TBD	TBD	2023	2025	KPI01: Departure punctuality

Table PMP III-7 – Implementation progress on the selected operational improvements of the ASBU elements / Operational Improvements for the (NAME) Region

EXPLANATION OF THE TABLE

Column

1   States in **Table GEN I-1**

2   List of FIRs/CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-**(NAME Region) **- 1** and **Table AOP I-1**.

3   Selected ASBU elements/operational improvement for each operational environment.

Please note that the ASBU elements are a set of operational improvements, however, there could be other improvements outside of the ASBU framework that might address identified issues and opportunities and therefore contribute to achieve the pursued level of performance.

4   Year when implementation of the selected solution is planned to start **PMP III-6**.

5   Year when implementation of the selected solution is foreseen to be completed **PMP III-6**.

6   Implementation progress:

- Completed (100%): the development or improvement is reportedly fulfilled (it is either in operational use or there is reported on-going compliance)
- Ongoing (1-99%): implementation is reported on-going, however not yet fully completed
- Planned (0%): a planned schedule and proper (approved and committed budgeted) actions are specified within the agreed data for completion but implementation has not yet kicked off
- Late (0-99%): part or all of the actions leading to completion are "planned" to be achieved after the end year date; or the implementation is ongoing but will be achieved later than that data or the end year date is already exceeded.

7   Remarks

STATE	FIR/CTA /TMA /AIRPORT	ASBU Elements / Operational Improvements	Start Year	End Year	Implementation progress	Remarks

Table PMP III-8 – Performance benefits accrued form the implementation of the selected ASBU elements / Operational Improvements for the (NAME) Region

EXPLANATION OF THE TABLE

Column

    1   States in **Table GEN I-1**

    2   List of FIRs/ CTAs/ TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-**(NAME Region) - **1** and **Table AOP I-1**.

    3   Selected ASBU elements/operational improvements for each operational environment.

Please note that the ASBU elements are a set of operational improvements, however, there could be other improvements outside of the ASBU framework that might address identified issues and opportunities and therefore contribute to achieve the pursued level of performance.

    4   Value after implementation for the list of KPIs in **Table PMP III-3.**

    5   Remarks

STATE	FIR/CTA /TMA/AIRPORT	ASBU Elements/operational improvements	KPI s							Remarks

— — — — — — — — — — —