INTERNATIONAL CIVIL AVIATION ORGANIZATION

SOUTH AMERICAN REGIONAL OFFICE

SAM REGION SAFETY PLAN (SAMSP)

Original version
(Updated to May 2019)

TABLE OF CONTENTS

FOREWORD

The SAM Safety Plan (SAMSP) is published by the ICAO South American Regional Office on behalf of the accredited States and International Organisations involved. It addresses the implementation of safety management with respect to three main priorities: improvement of effective implementation (EI) and of the safety oversight index (SOI) within the context of the ICAO Universal safety oversight audit programme (USOAP) continuous monitoring approach (CMA); the implementation of the State safety programme (SSP); and the reduction of the accident rate in the high-risk categories identified in the South American (SAM) Region. The SAMSP objectives have been developed in accordance with the objectives of the Global Aviation Safety Plan (GASP), Edition 2020-2022.

The instance for the approval of the SAMSP and its future revisions is the Meeting of Civil Aviation Authorities (RAAC) of the SAM Region. The ICAO SAM Regional Office will publish, on behalf of the States and International Organisations involved, revised versions of the plan as may be required to reflect current implementation activities.

Copies of the plan may be obtained from:

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The present edition (original) contains guidance and recommendations of Doc 10004 – Global Aviation Safety Plan (GASP) – 2020-2022. Subsequent amendments and/or corrigenda will be shown in the amendment and corrigendum record table, as per the procedure established in Page 5.

The publication of amendments and corrigenda is announced regularly via letters to the States and International Organisations, as well as on the ICAO website, which should be consulted by those using this publication. Blank boxes facilitate annotations.

RECORD OF AMENDMENTS AND CORRIGENDA

AMENDMENTS			
No.	**Date applicable**	**Date entered**	**Entered by**

CORRIGENDA			
No.	**Date applicable**	**Date entered**	**Entered by**

1. CHAPTER 1: FOREWORD

1.1 Objective

1.1.1 The South American Region Safety Plan (SAMSP) has been developed taking into account the latest revision of the Global Aviation Safety Plan (GASP), and falls within a preventive strategy for improving safety performance in the South American Region (SAM). This preventive safety-related strategy is based on the implementation of the State safety programme (SSP), which systematically addresses risks and the effective implementation and continuous improvement of the eight (8) critical elements (CE) of the safety oversight system.

1.1.2 The plan is aimed at establishing a safety management implementation strategy in the SAM Region, mainly based on GASP guidelines, the provisions of Annex 19 and other safety-related Annexes, as well as the guidelines contained in Doc 9859 – Safety Management Manual (SMM).

1.1.3 The document contains the vision of the SAM Region regarding safety management, therefore States will have the opportunity to manage a decrease in the accidents and incidents rates in all the segments of their national aviation system.

1.1.4 **The ultimate objective of this plan is to save as many human lives as possible, reducing accidents in all aviation sectors at a minimum acceptable level. In accordance with the GASP and as an "aspirational" objective, this plan intends to reach and maintain zero fatalities in commercial operations for 2030 and beyond.**

1.2 Scope

1.2.1 This plan covers the flight information regions (FIR) of the SAM Region and addresses safety management implementation in accordance with the objectives established in the GASP up to the year 2030.

1.3 Background

1.3.1 The International Civil Aviation Organization (ICAO) published the first version of the GASP in 1997, formalising a series of conclusions and recommendations formulated during an informal meeting held between the ICAO Air Navigation Commission (ANC) and the industry. The GASP was used to guide and set priorities for the technical work programme of the Organization.

1.3.2 The GASP constitutes a high level strategic document on flight safety policies related to planning and execution. The GASP pursues an approach and a philosophy similar to the Air Navigation Global Plan (Doc 9750), also called GANP. Both documents encourage coordination and collaboration between international, regional and national initiatives intended to attain a harmonized, secure and efficient international civil aviation system.

1.3.3 The GASP presents a continuous improvement strategy that includes objectives to be reached by the States through the implementation of effective systems for the supervision of flight safety and State Safety Plans (SSP), elaborating advanced safety management systems that include risk predictive management. GASP also include deadlines for the global collective achievement of said objectives that adjust to the established procedure for the GASP and GANP update, which are object of revision every three years.

1.3.4 The GASP has undergone significant changes since its introduction in 1997, and has evolved through continuous consultation and review. The 2014-2016 edition was published in 2013 and included GASP objectives to be achieved by States through the implementation of an effective safety oversight system, a State safety programme (SSP) and the safety capabilities required to support future aviation systems. The 2017-2019 edition updates the GASP and includes a global aviation safety roadmap developed to support an integrated approach to implementation. The 2020-2022 edition is currently being drafted, and will include new safety management objectives, whose proposals have been taken into account for the formulation of this plan.

1.4 Role and responsibilities of stakeholders

1.4.1 The stakeholders, including regional safety groups, air service operators, service providers, regulatory bodies, and manufacturers, will be facing higher levels of interaction when implementing safety management. Interaction between the SSP and the service providers' SMS, as well as the sharing and exchange of safety data and information are highly integrated and, therefore, require a significant level of coordination and cooperation among all stakeholders.

1.4.2 States, air service operators and the industry will benefit from this plan and from the availability of international standards and recommended practices (SARPs) related to safety management, since they will permit the implementation of a more efficient, economical and safe aviation system in our Region.

Regional Aviation Safety Group – Pan America (RASG-PA)

1.4.3 RASG-PA planning will take place at the strategic level, in support of ICAO strategic objectives set forth in the GASP. This regional group will actively participate in the coordination and harmonisation of all activities carried out for the resolution of regional aviation safety problems.

1.4.4 The RASG-PA will facilitate the exchange of best practices, cooperation, and collaboration by applying a top-down approach to supplement the bottom-up planning and implementation approach of the SAM States and Region. RASG-PA activities will be fully aligned with GASP objectives, while ensuring that the safety priorities of the SAM Region are taken into consideration. Likewise, the RASG-PA will monitor compliance with the SAMSP and will facilitate the publication of the safety reports of the Region.

1.4.5 The RASG-PA will also facilitate the sharing and exchange of information with SAM States, for the benefit of their SSPs.

1.4.6 The RASG-PA will annually inform the ICAO Air Navigation Commission (ANC) on the progress made in the GASP. Likewise, the RASG-PA has tasked the SAM Regional Office with the development of the Pan American Safety Report, which is presented every year at the plenary meeting of this Regional Group and is subsequently shared with the ANC.

ICAO South American Regional Office

1.4.7 The South American Regional Office will conduct its safety planning and implementation at a strategic level, and will provide support to the States at a tactical level for the achievement of their objectives and targets.

1.4.8 The SAM Office will provide support to the States in the planning and implementation of their national plans. To provide this support, the Regional Office will coordinate with the corresponding States the necessary virtual and on-site technical assistance by its officers and SRVSOP Technical Committee (TC) and ARCM experts.

Regional Safety Oversight Cooperation System (SRVSOP)

1.4.9 Planning and implementation by the SRVSOP will be accomplished at a strategic and tactical level. The Regional System will support its States in the SSP implementation and in the resolution of the safety issues identified during USOAP CMA activities.

AIG Regional Cooperation Mechanism (ARCM)

1.4.10 Planning and implementation by the ARCM will be at a tactical level. This mechanism will assist member States in improving their EI in the area of aviation accident and incident investigation (AIG), and will participate in the coordination of AIG cooperation between ARCM member States. It will also provide reactive information to ICAO, to the regional groups and to State SSPs for safety management purposes.

2. CHAPTER 2: AIR TRAFFIC FORECASTS FOR THE SAM REGION

2.1 Aircraft and passenger movement forecasts are important for safety management planning, since they provide a future outlook and help define capacity expansions. In order to calculate the rate of accidents, serious incidents, and incidents, it is necessary to know aircraft movements and their projection. These forecasts play an important role in SSP implementation by States and SMS implementation by service providers.

2.2 For purposes of this Plan, use has been made of the 2007-2027 forecasts prepared at the Seventh meeting of the CAR/SAM Traffic Forecasting (Doc 9917) Working Group The following paragraph summarise the expected passenger and aircraft movement growth estimates. Doc 9917 can be reached at ICAO portal under documents.

2.3 According to forecasts, passenger traffic in the South American Region is expected to grow at an annual rate of 8.8%, reaching 73 million passengers in 2027. Aircraft movements for the same period are expected to grow 7.9% per year, reaching 497,000 movements by 2027.

3. CHAPTER 3: SAFETY STATUS OF THE SAM REGION

3.1 Introduction

3.1.1 This chapter presents an analysis of the SAM Region status in terms of its safety performance, in the following areas:

- ✓ USOAP CMA;
- ✓ accidents during scheduled commercial air transport operations with aircraft over 5 700 kg;
- ✓ runway excursion (RE) accidents during scheduled commercial air transport operations with aircraft over 5 700 kg;
- ✓ SSP implementation; and
- ✓ targets achieved with regard to the Declaration of Bogota

3.1.2 The information contained in this chapter will facilitate the identification of objectives and indicators and the planning and implementation of the performance targets that States shall establish in their safety plans.

3.2 Results in the SAM Region within the framework of the Universal Safety Oversight Audit Programme (USOAP) continuous monitoring approach (CMA)

3.2.1 USOAP CMA activities in the SAM Region started in November 2011. By 31 May 2019, 5 CMA audits have been conducted, as well as 16 ICAO coordinated validation missions (ICVMs), 2 integrated validation activities (IVAs) and 5 off-site monitoring activities. At present, the average effective implementation (EI) in the SAM Region is **80.60%**, while the overall improvement average over the seven (7) years of analysis (November 2011-May 2019) is **+14.32**, which indicates that the SAM Region has improved its EI by an average of **2.04%** per year.

3.2.2 The performance of the SAM Region during the USOAP CMA showed that CEs 8, 7 and 4, and audit areas AIG, AGA and ANS have the lowest percentage of EI. When developing their safety plans, States must assess their EI results and assign priority to the CEs and audit areas that have the lowest EI percentage.

3.2.3 **Attachment A** to this plan contains a more detailed analysis of the results of the USOAP CMA in the SAM Region.

3.3 Analysis of accidents occurred in the SAM Region during the period 2009-2018 in scheduled commercial air transport operations with aircraft over 5 700 kg

3.3.1 The accident rate in South America for scheduled commercial air transport operations with aircraft over 5 700 Kg has progressively decreased since 2009, achieving in 2017 an accident rate of **1.65** per every 1,000,000 departures, far below the global rate of **2.42**. During years 2015, 2016 and 2017, the rate of the SAM Region remained, consecutively, below the world rate.
In 2018, the accident rate increased from 1.64 (2017) to **3.17**, above the world rate of 1.75.

3.3.2 **Attachment B** to this plan presents a more detailed analysis of the accidents occurred between 2009-2018 in the SAM Region during scheduled air transport operations with aircraft over 5 700 kg.

3.4 Analysis of runway excursion (RE) accidents occurred in the SAM Region during the period 2007-2018 in scheduled air transport operations with aircraft over 5 700 kg

3.4.1 Starting in 2007, the accident rate due to REs has been gradually decreasing, with the exception of 2011 and 2013. In 2014 and 2015, the rate for the SAM Region dropped to 0.5, and in 2016, it increased slightly to 1.05, rate that remained stable in 2017 and 2018.

3.4.2 **Attachment B** to this plan provides a more detailed analysis of RE accidents occurred in the SAM Region in scheduled air transport operations with aircraft over 5 700 Kg during the 2007-2018 period.

3.5 SSP implementation results

3.5.1 Starting in 2013, the SAM Regional Office established the SSP implementation meeting. At its fifth meeting, held in Lima, Peru, on 7-11 November 2016, an analysis was made of the status of SSP implementation in SAM States.

3.5.2 At this meeting, some States showed more progress than others. Accordingly, it was agreed to look for a mechanism that would allow all to make progress at the same pace. In this sense, Bolivia, Chile, Colombia, Ecuador, Panama, Peru and Venezuela expressed their intention to participate in a pilot project for the implementation of SSP by the end of 2018.

3.5.3 The SAM SSP implementation pilot project was launched on 16 March 2017, with the participation of the aforementioned seven (7) States. Subsequently, Guyana, Argentina, Uruguay and Paraguay requested their inclusion. At present, the aforementioned 11 States are active members of the SAM SSP implementation pilot project.

3.6 SAM performance in relation to the Declaration of Bogota

3.6.1 The Thirteenth Meeting of Civil Aviation Authorities of the SAM Region (RAAC/13), held in Bogota, Colombia, on 4-6 December 2013, pledged to achieve by December 2016, among other things, the targets of the following safety areas: safety oversight, accidents, runway excursion accidents, aerodrome certification, and SSP implementation, the performance of which is analysed below:

a) **Safety oversight:** The target was to achieve **80%** EI in the SAM Region by December 2016.

At present, the average EI in the SAM Region is **80.60%**. This target was achieved in March 2019

b) **Accidents:** The target was to reduce the gap between the SAM Region accident rate and the global accident rate by 50%.

As mentioned in Paragraph 3.3, the SAM accident rate for scheduled commercial air transport operations with aircraft over 5 700 kg has been gradually decreasing since 2009, reaching **1.64** accidents per 1,000,000 departures in 2017, far below the global rate of **2.42**, thus giving compliance to the target set forth in the Declaration of Bogota. En 2018, the accident rate increased above the world rate, therefore, the Declaration of Bogota target was not fulfilled in this year.

c) **Runway excursion accidents:** The target was to reduce the RE accident rate by 20% with regard to the SAM average rate (2007-2012).

The average RE accident rate between 2007 and 2012 in the SAM Region was **2.24** accidents per one million departures. The 20% reduction pledged in the Declaration of Bogota was equivalent to **1.8** accidents per one million departures. From 2012 to 2018, the indicator has remained below the regional average, and thus the target set in the Declaration of Bogota was met in this accident category.

d) **Aerodrome certification:** The target was to get **20%** of aerodromes certified

Up to December 2016, 24% of certified international aerodromes was reached, thus exceeding the established target.

e) **SSP implementation and service providers' SMS oversight capacity:** The targets pledged were 76% for SSP implementation, and 100% for service providers' SMS oversight capacity

The Fifth SSP implementation meeting, held in Lima, Peru, from 7 to 11 November 2016, after qualitatively assessing the progress made in the SSP, agreed to start SSP implementation from the first element of the first phase of SSP implementation. Therefore, the targets agreed upon were not achieved by December 2016.

4. CHAPTER 4: PLANNING AND IMPLEMENTATION CONSIDERATIONS

4.1 Introduction

4.1.1 As air traffic volumes increase in the SAM Region and worldwide, so do the demands over air service operators and the related services supporting the operations of these operators and, thus, the number of ground and flight operations increase, posing a risk to air operations.

4.1.2 EI improvement in the eight critical elements (CEs) of a safety oversight system and in the eight audit areas is a barrier against latent safety hazards. Therefore, it is necessary to start planning for a gradual and sustainable improvement of EI in each State of the SAM Region.

4.1.3 It is foreseen that SSP implementation, together with EI and SOI improvement, will allow for proactive management of safety risks and mitigation of hazards, resulting in safer, more efficient and sustainable operations.

4.2 ICAO strategic objective concerning safety

4.2.1 ICAO has established five general strategic objectives that are reviewed every three years. One of them is to strengthen global civil aviation safety, which is mainly focused on the regulatory oversight capacity of States. The objective is set within the context of a higher volume of passengers and cargo movements, and the need to respond to changes regarding efficiency and the environment. Based on this objective, the GASP describes the key activities for the triennium. The ICAO website www.icao.int/abouticao/Pages/Strategic-Objectives.aspx contains additional information on the ICAO strategic objectives.

4.3 SAM strategic objectives

4.3.1 For the purpose of this plan, the safety objectives of the SAM Region are the following:

- ✓ to strengthen safety oversight capabilities of States;
- ✓ to implement the SSP effectively;
- ✓ to achieve a continuous reduction of safety risks;
- ✓ to reduce accident rates in all aviation segments;
- ✓ to increment regional collaboration;
- ✓ to expand the use of industry programmes; and
- ✓ to ensure the appropriate air navigation services and aerodrome infrastructure to support safe operations.

4.4 Safety performance indicators

4.4.1 For the purpose of this plan, the following main indicators will be considered, if applicable:

- ✓ average EI percentage by State;
- ✓ average EI percentage of the SAM Region;
- ✓ number of States that have fully implemented the priority PQs related to a safety oversight system;
- ✓ percentage of priority PQs implemented by each State;
- ✓ number of States that have updated the reporting of differences on a timely basis;
- ✓ percentage of corrective action plans completed by each State;
- ✓ number of States that maintain an SOI above 1 in all categories;
- ✓ percentage of States that maintain an SOI above 1 in all categories;
- ✓ percentage of each category with a safety oversight index above 1 at the SAM regional level;
- ✓ safety oversight index for each State and category;
- ✓ number of States that have completed the PQs on SSP implementation;
- ✓ number and percentage of States that have established a sustainable SSP;
- ✓ number and percentage of States that have implemented an effective SSP;
- ✓ rate of accidents in scheduled and non-scheduled commercial air transport operations with aeroplanes over 5 700 kg and helicopters over 3 715 kg and for aeroplanes of 5700 kg or less and helicopters of 3 175 kg or less;
- ✓ number of accidents for all types of operations with aeroplanes over 5 700 kg and helicopters over 3 175 kg, and for aeroplanes of 5 700 kg or less and helicopters of 3 175 kg or less in all aviation sectors other than scheduled and non-scheduled commercial air transport, in case aircraft movement data are not available;
- ✓ fatality rate; and
- ✓ percentage of occurrences related to high risk categories (HRCs)

Note. - See other indicators contained in Table 5-3 of this plan.

4.5 Performance targets with regard to EI and SOI improvement and SSP implementation

4.5.1 In order to meet the SAM strategic objectives, **Table 4-1** presents EI and SOI targets so that States may consider them in their safety plans. Targets have been set for years 2020, 2022, 2024, 2026, 2028 and 2030, and for each of the four groups of States indicated in the left hand side column of the referred chart. Group percentages have been selected gradually and based on the present situation of each States regarding EI.

4.5.2 On the other hand, SSP implementation targets are presented in **Table 4-2.** These targets have been established for years 2022 and 2025 equally for all the States

4.5.3 Considering that the SAM Region has improved its EI by **14.32%** during the period between 2011 and May 2019 corresponding to the USOAP CMA cycle, and that the average annual increase is 2.04% in the planning of targets for each State, it has been taken into account a gradual annual improvement of **2.5%**, or **5%** every two years. This proposed annual improvement stems from the fact that several States have received, are receiving, or will receive, technical assistance from the SAM Regional Office and the SRVSOP for the completion of their corrective action plans (CAPs) and the complete review of the PQs. States will also maintain an SOI above 1 starting in 2022 in all categories.

Table 4-1 – Indicators and targets regarding EI and SOI improvement

	✓ % EI improvement ✓ Safety oversight index (SOI)					
States with effective implementation (EI):	**2020**	**2022**	**2024**	**2026**	**2028**	**2030**
Less than 65% **Group 1**	**EI = 70% SOI improvement**	**EI = 75% SOI > 1**	**EI = 80% SOI > 1**	**EI = 85% SOI > 1**	**EI = 90% SOI > 1**	**EI = 95% SOI > 1**
between 65 and 74.99% **Group 2**	**EI = 75% SOI improvement**	**EI = 80% SOI > 1**	**EI = 85% SOI > 1**	**EI = 90% SOI > 1**	**EI = 95% SOI > 1**	**EI = 95% SOI > 1**
Between 75 and 79.99 % **Group 3**	**EI = 80% SOI improvement**	**EI = 85% SOI > 1**	**EI = 90% SOI > 1**	**EI = 95% SOI > 1**	**EI = 95% SOI > 1**	**EI = 95% SOI > 1**
More that 80% **Group 4**	**EI = 85% SOI improvement**	**EI = 90% SOI > 1**	**EI = 95% SOI > 1**	**EI = 95% SOI > 1**	**EI = 95% SOI > 1**	**EI = 95% SOI > 1**

Table 4-2 – Indicators and targets regarding SSP implementation

	Targets	
Indicators for the States	**2022**	**2025**
% SSP implementation	**Sustainable SSP (100%)**	**Effective SSP (100%)**

4.5 Performance indicators for safety

4.5.1 For the purposes of this plan, the following main indicators will be considered, if applicable:

- ✓ **EI improvement % indicator metric:** In order to know the percentage achieved by the States, the following formula will be applied:

$$EI\ (\%) = \frac{number\ of\ satisfactory\ PQs}{number\ of\ total\ applicable\ PQs} \times 100$$

- ✓ **SSP implementation indicator metric:** This metric will be based on the number of elements presented to the SSP Secretariat (SAM Office) of the total elements of the SSP implementation phases.

4.6 Performance targets related to accident rate reduction

4.6.1 To manage the reduction of accident rates, the SAM Region has planned an annual reduction of 10% in relation to the value obtained by the moving average of the previous 5 years' rates, for both, the scheduled commercial air transport accidents and runway excursions (RE) accidents with aircraft over 5 700 kg.

4.6.2 Based on the moving average, the accident rate target for 2019 would be **2.10** and **0.83** for RE. Values for future target would be calculated every year.

4.6.3 For accidents occurred with aeroplanes over 5 700 kg or less, and helicopters over 3 175 kg or less in all aviation sectors other than scheduled and non-scheduled commercial air transport, States will establish the annual reduction percentages (targets) in case of availability of movement information or the number of accidents and fatalities in case aeroplane and helicopter movement data are not available, in accordance with their safety oversight capabilities.

- ✓ **Accident rates indicators metric established by the SAM Region:** Calculations will be done directly by accident rate using ICAO formula. In the case of number of accidents, the corresponding percentage will be applied by rule of three.

4.7 Alert levels for accident and incident rate control and monitoring

4.7.1 For the purposes of this plan, three alert levels are considered associated with the trend of the historical data of an indicator, which performance is measured specifically through the average value and the standarad deviation (SD) value.

4.7.2 The alert levels for a new follow-up period (current year) will be based on the performance of the previous period (5 preceding years) and the average and standard deviation values will be derived from the latter. Alert levels are illustrated in the safety indicator chart through three alert lines as follows:

- ✓ average + 1 SD;
- ✓ average + 2 SD; and
- ✓ average + 3 SD.

4.7.3 For purposes of indicator control and follow up, States will take some specific action if:

- ✓ 1 point is above the Third alert level
- ✓ 2 consecutive points are above the Second alert level
- ✓ 3 consecutive points are above the First alert level

4.8 Targets and indicators related to objectives to increase regional collaboration, expand the use of industry programmes and ensure the appropriate core infrastructure in air navigation services and airports to support safe operations

Table 4-3 – Targets and indicators for increasing regional collaboration among States, expanding the use of industry programmes and ensuring the appropriate core infrastructure in air navigation services and airports to support safe operations

OBJECTIVES	TARGETS	INDICATORS
Increase State collaboration at regional level	By 2020, States facing difficulties to improve EI and SOI and to implement the SSP will request support from the SAM Office and the SRVSOP.	✓ Number of States that require assistance/support ✓ Number of States that actively request assistance ✓ Number of States that receive assistance ✓ Number of States that offer assistance
	By 2022, all States will provide safety risk information, including the SPIs of their SSP, to ICAO, RASG-PA, SRVSOP and ARCM	✓ Number of States that provide safety risk information to ICAO, RASG-PA, SRVSOP and ARCM ✓ Number of States that share their SSP SPIs with ICAO, RASG-PA, SRVSOP and ARCM ✓ Number of States that provide safety information to ICAO, RASG-PA, SRVSOP, ARCM and other States
	By 2022, all States with effective safety oversight capabilities and an effective SSP will actively lead risk management activities of ICAO, RASG-PA, SRVSOP and ARCM	✓ Number of States with effective safety oversight capabilities and an effective SSP that lead safety management activities of ICAO, RASG-PA, SRVSOP and ARCM

Extend the use of industry programmes	By 2020, all service providers will use globally-harmonised SPIs as part of their SMS	✓ Number of service providers that use globally-harmonised metrics for their SPIs
	By 2022, increase the n u number of service providers that participate in the corresponding industry assessment programmes recognised by ICAO	✓ Number of service providers that participate in the corresponding industry assessment programmes recognised by ICAO
Ensure the availability of the appropriate air navigation service and aerodrome infrastructure to support safe operations	By 2022, all States will implement the basic air navigation and airport infrastructure	✓ Number of States that have implemented the basic air navigation and airport infrastructure

4.9 State safety plan

4.9.1 In order to achieve the defined targets for the improvement of the EI, implementation of the SSP and the reduction of accident rates, each State will develop a national safety plan. In this plan, the State will define the safety policy, guidelines, objectives, indicators, targets and alert levels, in accordance with this plan, the size and complexity of its aviation system, its limitations (financial, technological and regulatory), and in accordance with the safety performance of their own system. The development and implementation of the plan will depend on the maturity level in which each State is in relation to the implementation of its safety management system that integrates as a whole, the eight critical elements (CE) of the safety oversight system with the SSP elements.

4.9.2 The State safety plan, with its corresponding parts, will be submitted to the ICAO South American Regional Office for control and monitoring purposes.

4.9.3 **Attachment C** shows a State safety plan model.

4.10 Follow up of States safety plans

4.10.1 For follow up purposes, the following meetings organized by the ICAO South American Regional Office will be used:

- ✓ **For EI improvement and maintenance -** National Continuous Monitoring Coordinators (NCMC) and Flight Safety Director (DSO) annual meetings.
- ✓ **For the SSP implementation -** SAM Region SSP implementation and Flight Safety Directors (DSO) annual meetings.
- ✓ **To evaluate the performance of accident rates indicators and targets as established by the SAM Region in this plan -** Flight Safety Director (DSO) and ARCM Executive Committee annual meetings.

4.10.2 In addition to the meetings organised by the Regional Office, the States will also publish, on an annual basis, as part of the implemented SSP, their safety reports (SSR) detailing the performance achieved the previous year with respect to their safety performance indicators and targets.

4.10.3 Reports will be published during the first three months of the following years, in the ICAO SAM Office website, intended for this purpose.

4.10.4 **Attachment D** shows a report model.

4.11 Safety data and information sources

4.11.1 The safety data and information sources that States could consult during the planning and implementation of their safety plans include: ICAO iSTARS-3 and SIMS, RASG-PA data sources, IATA data sources, ARCM data sources, and their own data sources (SDCPS, safety and ADREP/ECCAIRS platforms).

ATTACHMENT A

ANALYSIS OF SAM PERFORMANCE DURING THE PERIOD NOVEMBER 2011 - MAY 2019 WITHIN THE FRAMEWORK OF THE USOAP CMA

1. Transition to the continuous monitoring approach (CMA) of the Universal safety oversight audit programme (USOAP)

1.1 The two-year transition to the USOAP CMA took place between 2011 and 2012, and the complete programme was launched on 1 January 2013, as scheduled and approved by the ICAO Council at its 197th Session in November 2012. The USOAP CMA transition plan included several activities related to communication with the States and stakeholders, the development and launching of the on-line framework (OLF) with its multiple instruments and modules, the development of documentation and supporting guidelines, the enhancement of the USOAP CMA quality management system (QMS), documentation related to processes and procedures, training of auditors and experts, the conduction of on-site CMA activities in the States, and the establishment and extension of agreements with the relevant partners to promote coordination and cooperation.

1.2 During the transition, ICAO changed its approach to generate PQ-based findings instead of findings and recommendations (F&R). ICAO also modified the formulae for calculating effective implementation (EI) and obtaining a more accurate EI percentage.

2. USOAP CMA activities in the SAM Region during the period November 2011 - May 2019

2.1 USOAP CMA activities in the SAM Region started in 2011. By 31 May 2019, 5 CMA audits, 16 ICVMs, 2 integrated validation activities (IVAs), and 5 off-site monitoring activities had been carried out as shown in Table 1 below.

Table 1 – USOAP CMA activities – November 2011 - May 2019

Years	CMA audits	ICVMs	Integrated validation activity (IVA)	Off-site monitoring activities
2011		Colombia		
2012		Ecuador: ICVM 1 Surinam		
2013	Bolivia	Argentina Venezuela		
2014	Peru	Uruguay: ICVM 1		Ecuador Uruguay
2015	Panamá	Ecuador: ICVM 2 Brazil		
2016		Uruguay: ICVM 2 Paraguay Bolivia Guyana		Paraguay
2017		Chile Panamá	Uruguay (AGA) Chile (AIG)	
2018	Brazil (AIG)	Peru		Bolivia (MIR)
2019		Uruguay: ICVM 3		
TOTAL	**05**	**16**	**2**	**5**

2.2 Table 2 – Results of USOAP/CMA activities carried out in the SAM Region between November 2011 and May 2019, describes the activities carried out in each State, the percentage of effective implementation (EI) achieved in each activity, and the final percentages of each of them, with general averages.

Table 2 – Results of USOAP/CMA activities carried out in the SAM Region (November 2011 – May 2019)

State	Last CSA audit	CMA audits	ICVMs Original EI	IVA	Off-site validation activity	Total improvement achieved	% de EI Current / *Partial
1. Argentina	2008: 77.5		2013: **86.3 (+8.8)**			+9.07	**86.57 (% updated)**
2. Bolivia	2008: 72.26	2013: 67.73 **(-4.53)**	2016: **86.22 (+18.49)**		2018: **82.21 (-4.01)**	+10.78	**83.04**
3. Brazil	2009: 85.75	2018: 94.72 **(AIG) (-0.35)**	2015: **95.07 (+7.47)**		2015: 87.60 (+1.85)	+9.39	**95.14**
4. Chile	2008: 84.29		2017: **94.1 (+11.05)**	2017: **94.65 (AIG)**		+10.36	**94.65**
5. Colombia	2007: 63	2017: **74.38 (+11.38)**	2011: **78.23 (+15.23)**			+11.71	**74.71 (% updated)**
6. Ecuador	2009: 55.40		2012: 67.80 **(+12.40)** 2015: **89.32 (+21.20)**		2014: 68.12 (+00.32) (report not available)	+34.85	**90.25 (% updated)**
7. Guyana	2007: 44.21		2016: **64.4 (+20.19)**			+21.01	**65.22 (% updated)**
8. Panamá	2005: 85.79	2015: **36.58 (-49.21)**	2017: **61.79 (+25.21)**			+23.37	**62.42 (% updated)**
9. Paraguay	2009: 51.04		2016: **71.82 (+18.19)**		2016: 53.63 (+2.59)	+20.29	**71.33 (% updated)**
10. Peru	2007: 68.22	2014: **74.34 (+6.12)**	2018: 89.57 **(+15.23)**			+21.35	**89.57**
11. Surinam	2009: 50.7		2012: **60.3 (+7.71)**			+9.33	**60.03**
12. Uruguay	2008: 41.49		2014: **57.88 (+16.39)** 2016: **71.45 (+13.57)** 2019: 81.38 **(+9.93)**	2017: **71.37**	2014 (report not available)	+39.89	**81.38**
13. Venezuela	2009: 82.1		2019: **93.00 (+11.03)**			+11.41	**93.51 (% updated)**
Averages	**66.28**	**–9.76 per audit**	**14.50 per ICVM**	**0.27 per activity**	**0.18 per activity**	**+ 14.32 2.04 per year**	**80.60 (+14.32)**

2.3 The table above shows that the overall average EI of the SAM Region for the 7 years of analysis (November 2011 – May 2019) is + **80.60%** and that it increased by **14.32%** during the period of analysis, which indicates that the EI of the SAM Region improved by an average of **2.04%** per year.

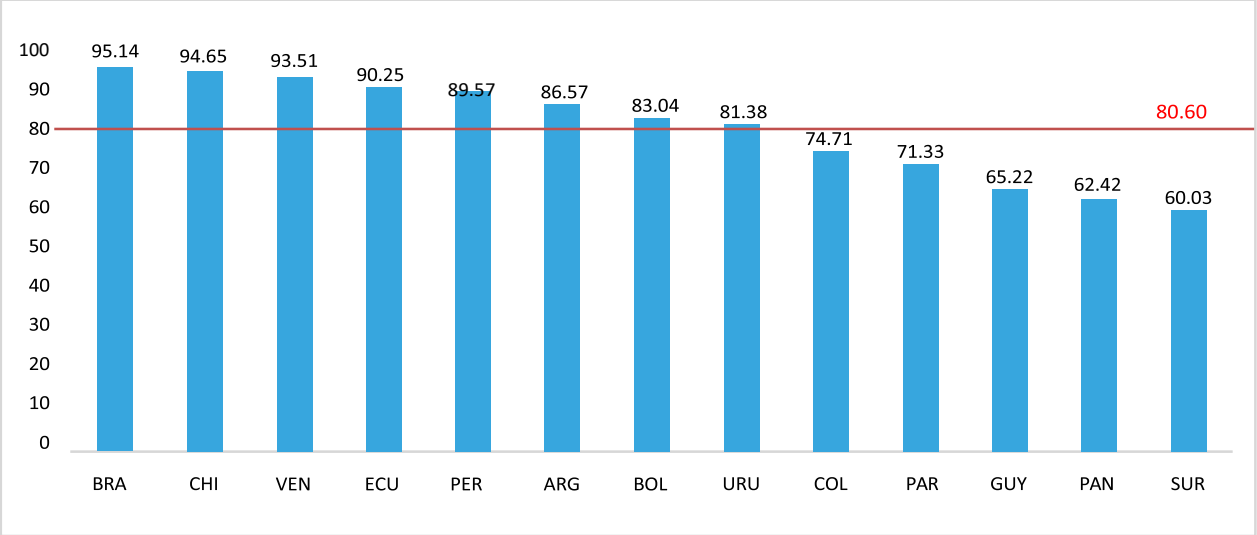
2.4 The 80.60% EI already takes into account the preliminary results of the ICVM of Uruguay of 2019.

3. Status of SAM States in relation to the USOAP CMA, by May 2019

3.1 The status and general average of SAM States regarding effective implementation (EI) by audit area are shown in Table 3 – Status of SAM States in relation to the USOAP CMA (November 2011 – May 2019).

3.2 According to Table 3, the average EI of the SAM Region is **80.60%.**

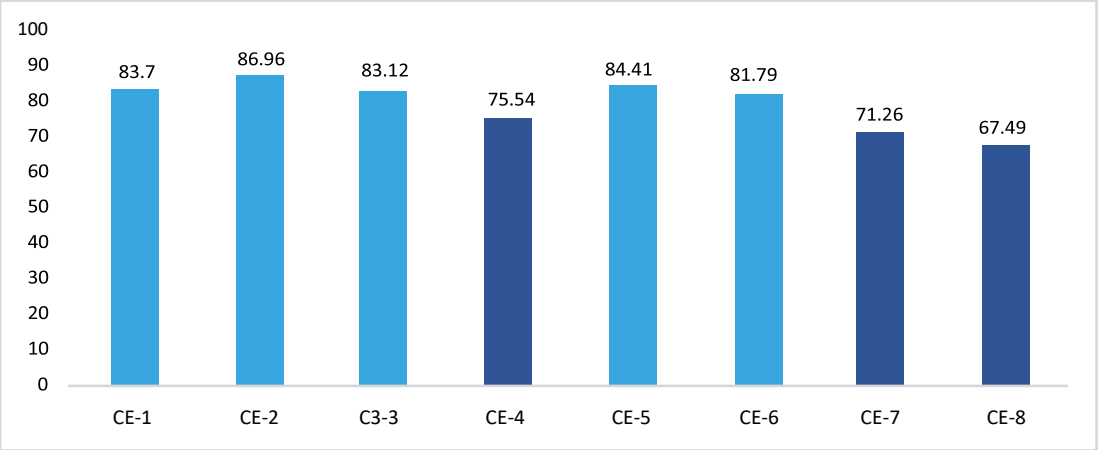
Table 3 – Status of SAM States in relation to the USOAP CMA (November 2011 – May 2019)



4. Average effective implementation (EI) of the SAM Region by critical element (CE)

4.1 Table 4 – Average effective implementation (EI) of the SAM Region by CE shows the average EI of the SAM Region with respect to the eight (8) critical elements (CEs) of a State safety oversight system. CEs 8, 7 and 4 have the lowest percentage of EI. Accordingly, States shall give priority to these CEs in their national safety plans.

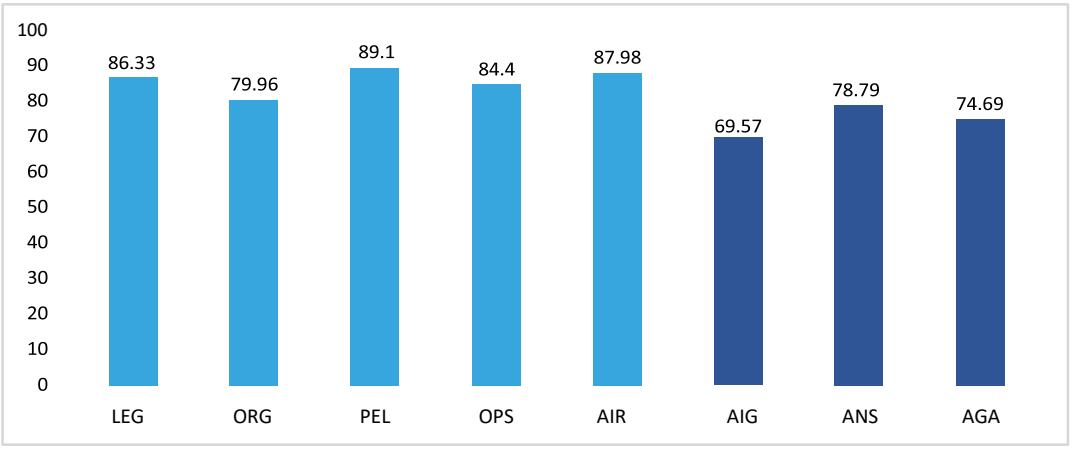
Table 4 – Average effective implementation (EI) of the SAM Region by CE



5. Average effective implementation (EI) of the SAM Region by audit area

5.1 Table 5 – Average effective implementation (EI) of the SAM Region by audit area, shows the average EI of the SAM Region with respect to each USOAP CMA audit area. The AIG, AGA and ANS audit areas are those that have the lowest percentage of EI.

Table 5 – Average effective implementation (EI) of the SAM Region by audit area



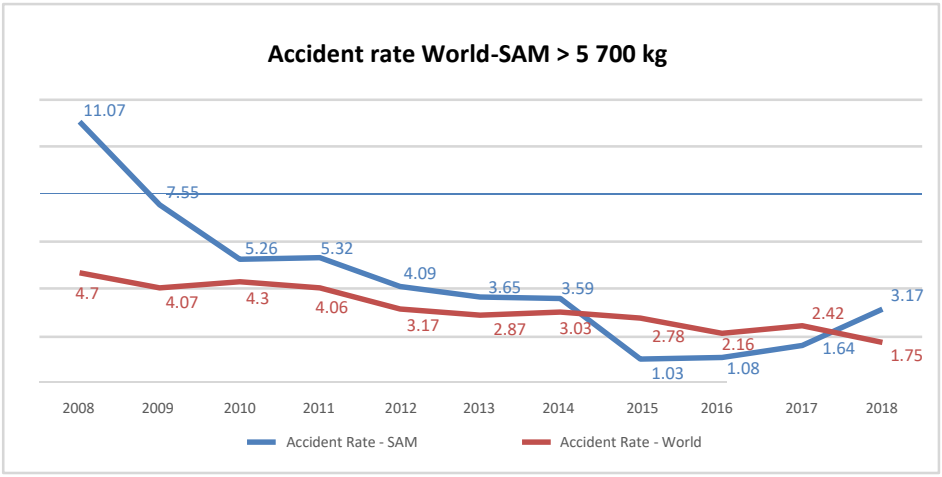
ATTACHMENT B

ANALYSIS OF AIRCRAFT ACCIDENTS IN THE SAM REGION

1. Analysis of accidents occurred in the SAM Region in scheduled air transport operations with aircraft over 5 700 kg during the period 2009-2018

1.1 According to the information contained in ICAO iSTARS-3, the accident rate in South America in scheduled commercial air transport operations with aircraft over 5 700 kg has been gradually decreasing since 2009 until reaching in 2017 a rate of **1.64** accidents per 1,000,000 departures, below the global rate of 2.42. During 2015, 2016 and 2017, the SAM Region maintained an accident rate below the global rate. In 2018, the accident rate increased from 1.64 (2017) to **3.17**, above the world rate of 1.75.

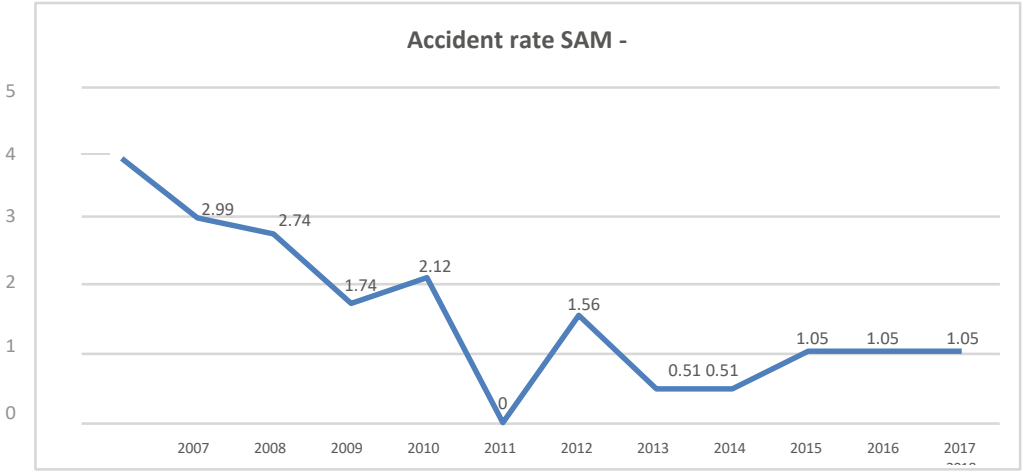
Table 1 – Accident rate in scheduled commercial air transport operations with aircraft over 5 700 kg



2. Analysis of accidents due to runway excursions (REs) occurred in the SAM Region in scheduled air transport operations with aircraft over 5 700 kg between 2007 and 2018

2.1 Based on the information contained in the ICAO iSTARS-3, the rate of accidents due to REs has been gradually decreasing since 2007, except in 2011 and 2013. In 2014 and 2015, the rate for the SAM Region dropped to 0.5 and in 2016; it increased slightly to 1.05, rate that remained stable in 2017 and 2018.

Table 2 – Rate of RE accidents in the SAM Region between 2007 and 2018



ATTACHMENT C

STATE SAFETY PLAN MODEL

CONTENTS

The State Safety Plan should at least contain the following sections:

1. Introduction;
2. purpose of the plan, including links to the regional safety plan (SAMSP) and the GASP;
3. the State strategical approach to manage civil aviation safety, including safety objectives, targets and indicators;
4. a description of the safety risks and planned initiatives to address them;
5. a description of other safety problems, such as challenges related to SSP implementation and planned initiatives to address them; and
6. a description on how the State will measure safety performance to monitor the plan implementation

Guidance on items that could be described by a State in each section is provided below.

1. Introduction

a) Provide an overview of the State safety plan;

b) Describe the structure of the plan (chapters, sections, and contents);

c) escribe how the plan is related to the SSP and to the delivery of an effective safety oversight:
   1) If the State has not fully implemented an SSP, include a brief description of the State aviation system in terms of safety oversight and describe how the plan will contribute to an effective safety oversight.

d) List the entities within the State that are responsible for the development, implementation and monitoring of the plan, such as the Civil Aviation Authority (CAA) and the Accident Investigation Authority (AIA);

e) Briefly describe the safety issues to be addressed by the plan;

f) List the safety objectives and targets of the State;

   1) Briefly describe the operational context of the State. This includes:
   common hazards or challenges (for example, terrain, meteorology, socio-political issues, etc.);

   2) Air traffic volume in the State, as well as its forecast growth or reduction; and

   3) The maturity of the various aviation sectors, such as aerodromes, general aviation, helicopter operations (for example, progress made in SMS implementation by the various. service providers); and

g) Reassert the commitment of the State to aviation safety and to the provision of resources for safety improvement activities at national level, through a statement signed by the Director General of Civil Aviation or higher authority (for example, the Minister of Transport):

1) If such assertion is already included in SSP documentation, indicate, in the introduction, that the SSP documentation expresses the commitment of the State to aviation safety and to the provision of resources for the activities, making reference to this document if publicly available.

2. Purpose

a) Describe the purpose of the State safety plan;

b) Explain that the plan contains the strategic direction of the State concerning aviation safety management for a given period:

1) Define this period, for example, 3, 5 or 10 years. Bear in mind that the title of the plan may indicate an interval; for example, if the period was 3 years, the title of the document could be "2020-2022". According to the SAMSP, regional planning covers 10 years (2020-2030);

c) Present a clear link between the plan, the SAMSP and the latest edition of the GASP. This can be done by showing the link between State safety objectives and targets and the SAMSP and GASP objectives and targets;

d) Identify what other documents and plan have been taken into account and are applicable to this plan, such as the Master Civil Aviation Plan, the GANP, the eANP, the GASeP, etc., as applicable; and

e) Identify the State initiatives that will support safety improvement at national, regional and international level.

3. The State's strategic approach to safety management

a) Describe how the plan was developed and approved, including collaboration with various entities within the State, the industry and other stakeholders:

1) Explain how the plan is managed, including review and update frequency (for example, the plan will be reviewed every year and will be updated at least every four years). This can also be covered in the SSP documentation;

2) Explain the need for a collaborative approach for the identification of safety issues and implementation of safety improvement initiatives in order to mitigate risks;

3) Explain the process used for identifying national safety risks and challenges.

b) List national safety objectives, indicators and targets (this can be done in a table format);

1) Explain how the national safety objectives, targets and indicators are linked to the SAMSP (this can be done by making reference to the document);

2) Explain the safety objectives, national indicators and specific targets in addition to those described in the SAMSP, if applicable; and

c) Identify the safety initiatives at State level that can help achieve the national safety objectives:

1) Explain the link between the national safety objectives and targets and the initiatives to be implemented by the State to improve safety; and

2) Explain how are national safety objectives and targets linked to regional or international initiatives. In such cases, describe the benefits associated to harmonisation of the national strategy with the regional and international strategy.

4. Safety risks

a) List the national high-risk categories (HRC) selected for the plan:

1) Briefly explain which HRCs were selected and why they were given priority (for example, a specific accident category can be considered a main concern and be addressed as a safety risk in the plan due to the number of fatalities associated to its possible occurrence);

2) Describe the link between the national HRCs and those listed in the GASP;

3) Address the GASP HRCs in the plan, if applicable;

4) List additional national HRCs;

5) List additional categories of safety risks or emerging issues, as applicable;

b) Explain how national safety risks were identified. This may include:

1) As part of the State analysis;

2) Derived from the regional analysis (for example, by the State itself, RASG-PA, SRVSOP and ARCM); and/or

3) Based on the safety risks described in the GASP and SAMSP;

4) National safety risks must cover the different sectors of aviation (for example, commercial air transport aviation, general aviation, agricultural aviation, training aviation, helicopters, unmanned aircraft (UAs), etc.);

c) Describe a set of initiatives to mitigate risks associated to HRCs:

1) List the initiatives that the State is planning or implementing to address the identified HRCs (and other matters, including emerging issues);

2) Identify those initiatives derived from the State roadmap, as applicable; and

d) Describe the taxonomy used for assessing risk categories when identifying national safety risks:

1) It is recommended that the aviation occurrence categories of the CAST/ICAO Common Taxonomy Team (CICTT) be used.

Note.- Additional information on the CCITT taxonomy can be found on the ICAO website at https://www.icao.int/safety/airnavigation/AIG/Pages/Taxonomy

5. Other safety issues

a) List and describe other safety issues (for example, organisational challenges) selected for the plan, including the reason why they were prioritised;

b) Explain how they were identified, including, but not limited to, a data-based approach. This may include:

   1) As part of the analysis by the State;

   2) Derived from the regional analysis;

   3) Based on the organisational challenges described in the SAMSP; and/or

   4) Based on USOAP data;

c) Explain how the State will implement actions related to these other safety issues/activities:

   1) For example, a State may lack a safety data collection and processing system (SDCPS) as part of its SSP; the plan may present this issue and briefly explain the course of action foreseen for addressing this deficiency. The plan can be useful for securing resources to help the State implement the listed initiatives; and

d) Describe a set of initiatives to address the other safety issues identified:

   1) List the initiatives that the State is planning or implementing to address all the safety issues identified; and

   2) Identify those initiatives derived from the State roadmap, as applicable

6. Plan implementation monitoring

a) Describe how will the status of plan activities will be monitored;

b) Explain how are corrections and adjustments to the plan and its activities made and reported (Is there an independent status review?);

c) Describe how will the State monitor the implementation of the initiatives listed in the plan and how will safety performance be measured to ensure the achievement of the expected results;

d) Explain how will each national safety objective be measured and monitored to track performance:

   1) In principle, the indicators used for measuring safety performance must be tracked based on SAMSP indicators;

e) Describe the means whereby stakeholders will be provided with updated and relevant information on the progress made in the attainment of national safety objectives and targets, as well as on the status of implementation of the initiatives;

f) Include explanatory texts addressing the following situations:

   1) If national safety objectives and targets are not met, indicate the causes that will be addressed and presented to the relevant stakeholders;

   2) If the State identifies critical issues, indicate if the State will take reasonable measures to mitigate safety risks as soon as possible, which will probably lead to an earlier review of the plan; and

g) Adopt a standard approach to the provision of information at regional level (for example, to inform ICAO, RASG-PA, SRVSOP and ARCM). This will allow the Region to receive information and assess safety risks using common methodologies.

ATTACHMENT D

STATE SAFETY REPORT MODEL

CONTENTS

8. **Chapter 8:** Progress made in mitigation plans to reduce accident rates
   - 8.1 Commercial aviation
   - 8.2 Non-commercial aviation

Attachments

As applicable

ATTACHMENT E

REFERENCE APPLICATIONS AND DOCUMENTS

- Annex 19 to the Convention on International Civil Aviation, Second edition – Safety management
- Doc 9859, Fourth edition – Safety management manual (SMM)
- Doc 9917 – Seventh meeting of the CAR/SAM forecasting working group
- Global aviation safety plan (GASP) in force
- USOAP CMA on-line framework
- ICAO iSTARS-3

ATTACHMENT F

GLOSSARY

ADREP	Accident/incident data reporting
AGA	Aerodromes and ground aids
AIG	Aviation accident and incident investigation
AIR	Airworthiness
ALoSP	Acceptable level of safety performance
ANC	Air Navigation Commission
ANS	Air navigation services
AOC	Air operator certificate
ARCM	AIG Regional cooperation mechanism (South America)
ATM	Air traffic management
CAA	Civil aviation authority
CAP	Corrective action plan
CAR	Central America and the Caribbean
CE	Critical elements
CE-1	Primary aviation legislation
CE-2	Specific operating regulations
CE-3	State systems and functions
CE-4	Qualified technical personnel
CE-5	Technical guidance, instruments and provision of critical safety information
CE-6	Licensing, certification, clearance and/or approval obligations
CE-7	Oversight obligations
CE-8	Resolution of safety concerns
CMA	Continuous monitoring approach
CRM	Crew resource management
DGAC	Directors general of civil aviation
DSO	Safety director
ECCAIRS	European Coordination Centre for Accident and Incident Reporting Systems
EI	Effective implementation
ESC	Executive Steering Committee
F&R	Findings and recommendations
FFHH	Human factors
FIR	Flight information regions
GANP	Global air navigation plan
GAP	Gap

GASP	Global Aviation Safety Plan
GASPRG	Global aviation safety plan roadmap group
GREPECAS	CAR/SAM Regional Planning and Implementation Group
HLSC	High-level safety conference
HRC	High-risk category
IATA	International Air Transport Association
ICVM	ICAO coordinated validation mission
INFRA	Infrastructure factors
ISSG	Industry safety strategy group
iSTARS	Integrated Safety Trend Analysis and Reporting System
LEG	Primary aviation legislation and civil aviation regulations
MET	Meteorological factors
NCMC	National continuous monitoring coordinator
OLF	On-line framework
OPS	Aircraft operations
ORG	Civil aviation organisation
PEL	Licensing and training
PQ	Protocol question
QMS	Quality management system
RAAC	Meeting of the civil aviation authorities
RAIO	Regional accident and incident investigation organisation
RASG	Regional aviation safety group
RASG-PA	Regional aviation safety group – Pan-America
RE	Runway excursion
RPA	Remotely piloted aircraft
RSOO	Regional safety oversight organisation
SAM	South American Region
SAMSP	South American safety plan
SARP	Standards and recommended practices
SD	Standard deviation
SDCPS	Safety data collection and processing system
SMM	Safety management manual
SMP	Safety management panel
SMS	Safety management system

SOI	Safety oversight index
SPI	Safety performance indicators
SRVSOP	Regional safety oversight cooperation system
SSO	State safety oversight system
SSP	State safety programme
SSR	State safety report
SWIM	System-wide information management
TBD	To be defined
TEC	Technical factors
USOAP	Universal safety oversight audit programme