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Safety

RASG-AFI

Annual Safety Report 2021

Eighth Edition

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Foreword

The Regional Aviation Safety Group for Africa-Indian Ocean (RASG-AFI) Annual Safety Report Team (ASRT) has consistently performed its task to produce an annual report on aviation safety in the RASG-AFI Region. The report provides safety information from consolidated sources to determine the main safety risks in the Region and generate recommendations to the RASG-AFI for formulation of safety enhancement initiatives. Stakeholders are therefore encouraged to collaborate and cooperate with the ASRT in sharing and exchanging safety information for the good of aviation safety within the Region.

The monitoring of the progress achieved by States to attain the objectives and priorities of regional targets notably the Abuja safety targets is an on-going process. These regional targets are to be revised regularly to ensure their alignment with the current Global Aviation Safety Plan (GASP). Reporting and monitoring progress enables States and the ICAO regional offices to adjust their activities based on their performance and to address emerging safety issues, therefore, an annual safety RASF-AFI report is published in this endeavour..

The RASG-AFI Annual Safety Report (ASR), which is usually officially released during the annual AFI Aviation Week Events, organized by ICAO and generally hosted by an AFI Member State. Due to COVID-19 pandemic and in the spirit of promoting paperless publications, the report was published electronically for 2020 and 2021. With the significant reduction in COVID-19 reported cases in the Region, aviation operations are gradually returning to normal and the 2022 AFI Aviation Week Events will be convened as an in person event. Notwithstanding, the ASRT has opted to publish the Annual Safety Report electronically.

The conclusions and recommendations made in the Report are for the attention of relevant parties for timely action and implementation. Subsequent editions of the Report will provide information on the outcome of the assessment and the status of implementation of the recommendations and any alternative action that could be undertaken in addressing the outstanding issues.

An electronic copy of the RASG-AFI Annual Safety Report is available in PDF format, on the ICAO Western and Central African Regional Office website: http:/(www.icao.int/wacaf/Pages/default.aspx and on the ICAO Eastern and Southern African Regional Office website: http://www.icao.int/esaf/Pages/default.aspx.

Mr. Latta Dokisime Gnama,
Chairperson, RASG-AFI
Director General, Togo CAA

Background

This Eighth Edition of the RASG-AFI Annual Safety Report provides safety information related to accidents and other safety occurrences in the RASG-AFI region.

RASG-AFI is the main driver behind the planning and implementation of Safety Enhancement Initiatives (SEIs) at the regional level. It is composed of States, regional entities and industry, among others.

The RASG-AFI structure consists of a Chairperson, two (2) Vice-Chairpersons from States and one (1) Vice-Chairperson from the Aviation Industry, a Steering Committee, a Secretariat and four (4) Safety Support Teams. The tenure for the Chairperson and Vice-Chairpersons is two (2) years.

All ICAO Contracting States and Territories recognized by ICAO within the area of accreditation of the ICAO Eastern and Southern African and Western and Central African Regional Offices, are entitled to participate as members in the RASG-AFI. A list of RASG-AFI Member States is provided at **Appendix 1**.

States located outside the areas of accreditation of the ICAO ESAF and WACAF Regional Offices can be invited on a case-by-case basis to attend as observers, in accordance with the RASG-AFI Procedural Handbook.

The aircraft operators, international organizations, maintenance and repair organizations, regional and sub-regional organizations, training organizations, aircraft original equipment manufacturers, airport and air navigation service providers and any other allied organizations/representatives will be invited to attend the RASG-AFI meetings in the capacity of Partners (see **Appendix 2** for Permanent Partners).

National CAAs, supported by service providers as necessary, should participate in the work of the RASG-AFI and its contributory bodies.

A RASG-AFI Steering Committee (RASC) composed of representatives from States and international/regional organizations and industry, is established to guide the work of the Group. It acts as an advisory body to the RASG-AFI membership and undertakes any actions required to ensure that the RASG-AFI achieves its objective to reduce aviation risks in the RASG-AFI Region. It is headed by three co- chairpersons (two from States and one from Industry, who are the Vice-Chairpersons of RASG-AFI). Its membership has been expanded to include the AFI Plan Steering Committee Chairperson, the Coordinator for the AFI Group at the ICAO Headquarters, and the members of the various Safety Support Teams (SSTs).

The structures and terms of reference of the SSTs have been revised recently under the directive of RASG-AFI/7 Plenary, for efficiency and better alignment with the current GASP Goals and Targets.

The new SST Structures comprise, State Safety Oversight System Support Team (**SSO-SST**); Operational Safety Issues Support Team (**OSI-SST**); State Safety Programme Support Team (**SSP – SST**); Air Navigation Services Safety Support Team (**ANS – SST**). See **Figure 1** and **Appendix 6** of this Report for details.

The Regional Directors for Eastern and Southern Africa (ESAF) and Western and Central Africa (WACAF) alternate in serving as Secretary to the RASG-AFI and APIRG to balance the Groups Secretariat responsibilities.

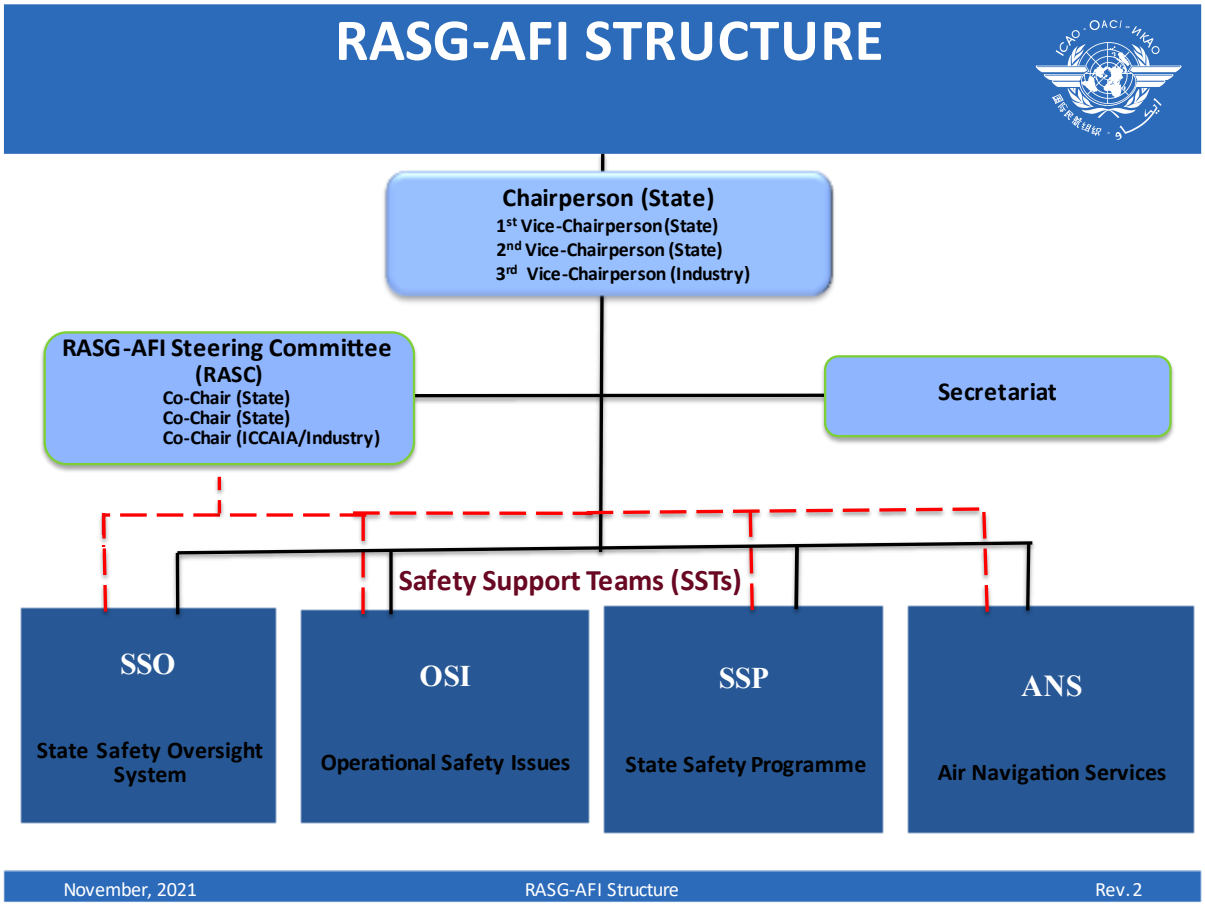
The Seventh Meeting of RASG-AFI Plenary held virtually on 5th November 2021, elected Bureau officials entrusted with steering the affairs of the Group for two years ending at RASG-AFI/9 Meeting in 2023. The RASG-AFI Steering Committee is comprised of a Chairperson, 1st Vice-Chairperson and the 2nd Vice-Chairperson and Boeing representing the Industry as follows:

Chairperson – Togo;
1st Vice-Chairperson – Rwanda;
2nd Vice-Chairperson – Mauritius;
3rd Vice-Chairperson – IATA.

A Joint APIRG-RASG/AFI Coordination Task Force, established at the RASG-AFI/3 Meeting, is intended to strengthen existing arrangements and responsible for coordinating the activities of the two Groups and is a subsidiary body to APIRG and RASG-AFI.

A RASG-AFI Annual Safety Report Team (ASRT) comprising RASG-AFI Partners, was also established to gather safety information to determine the main safety risks in the RASG-AFI Region and generate an Annual Safety Report with recommendations for safety enhancement initiatives.

Figure 1: RASG-AFI Organizational Structure, Revision 2.



1. Executive Summary

This Eighth Edition of the RASG-AFI Annual Safety Report presents safety information collected from key stakeholders including, ICAO, AFCAC, ACI, IATA, and other aviation partners. Information related to aviation occurrences in the RASG-AFI Region, for the period 2008 to 2021 was used by the Annual Safety Report Team (ASRT) to perform the necessary analysis. This edition of the ASR maintains some key elements from its previous editions, such as goals for States to improve their effective safety oversight capabilities and to progress in the implementation of State Safety Programmes (SSPs). The consistent impact of COVID-19 pandemic that started in 2020 prompted the innovative approach of adopting hybrid model of physical/virtual activities such as webinars, meetings, workshops etc, through online platforms notably, MS Teams and ZOOM. The vision of the RASG-AFI is to achieve and maintain the aspirational safety goal of the Regional Abuja safety targets as aligned to GASP and zero fatalities in commercial operations by 2030 and beyond, which is consistent with the United Nations' *2030 Agenda for Sustainable Development*.

The Annual Safety Report is comprised of three main sections as follows:

1. Reactive safety information
2. Proactive safety information
3. Predictive safety information

The reactive safety information section represents the largest portion of the report. It contains analysis of accident data provided from the different sources in order to draw conclusions on areas that require much attention and make recommendations for resolving the safety deficiencies by means of mitigating and corrective measures.

The proactive safety information section provides information based on the results of the ICAO USOAP-CMA Activities, IOSA, ISAGO as well as other occurrences (Incidents) reported by States or airlines in order to identify emerging risks in the Region.

Due to COVID-19 pandemic restrictions, only three ICAO USOAP- CMA Activities were conducted in the Region: Two Off-site validations (Cote d'Ivoire and Nigeria); One Document-based audit (Djibouti) under the newly devised activity. These activities resulted in slight increments in the EI scores of the concerned States, as shown in **Table 4** of this Report. At the end of 2021, there were three (3) unresolved SSCs in seven (7) States globally in Bhutan (ANS); Eritrea in RASG AFI Region (OPS); and Five Organisation of Eastern Caribbean (OECS): States of Antigua and Barbuda, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines (PEL). The USOAP CMA results have consistently indicated that lack of adequate and effective technical staff qualification and training represented the most significantly affected USOAP Critical Element (CE-4) in the AFI Region. Furthermore, the technical areas that continued to show lowest levels of EI were Air Navigation Services (ANS), Aerodromes and Ground Aids (AGA), and Accident and Incident Investigation (AIG). Therefore, improvements in these areas continue to be amongst the

priorities of the RASG-AFI Region.

The aim of the predictive safety information is to collect and analyse safety data to proactively identify safety concerns and to develop timely mitigation and prevention measures before accidents or incidents occur. The relevant section provides analysis of the status of safety data management in the region, as well as the implementation status of State Safety Programme (SSP) and Safety Management System (SMS) in the RASG-AFI Region, by the States and industry respectively.

State Safety Programme (SSP), a framework that allows the State safety oversight authority and aviation related service providers to interact more effectively in the resolution of safety concerns is stipulated as Goal 3 of the GASP and requires all States to implement an effective SSP by end of 2025, as appropriate to their aviation system complexity . By the end of 2021, slight progress was registered in the implementation of SSP within the RASG-AFI Region with 15 States achieving Level 3 and at various stages of attaining Level 4, as compared to 13 States in 2020. So far, only One State (Rwanda) has attained Level 4 (see **Figure 15** and **Table 5**)

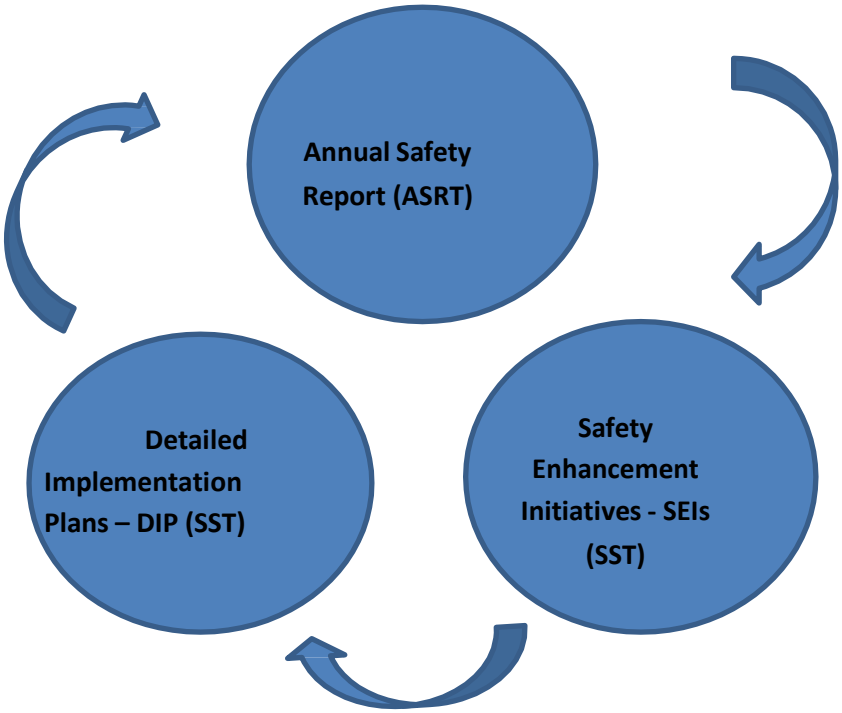
Evaluation of available RASG-AFI Region safety information indicates consistence of Runway Safety (RS) – Runway Excursion (RE) and Runway Incursion (RI), Loss of Control In-flight (LOC-I), Controlled Flight into Terrain (CFIT); and Mid-Air Collision (MAC)/ Aircraft Proximity (AIRPROX) Occurrences as top high-risk category of occurrence (HRC) to focus safety enhancements. Much as no accidents related to CFIT was recorded from 2015 to 2021, the need for concerted efforts by all aviation stakeholders to maintain this trend and address runway safety related accidents, and reduce the RASG-AFI accident rate to world average of 0.57 per million departures still prevails.

Aircraft accidents are categorized using the definition provided in Annex 13 to the Chicago Convention—Aircraft Accident and Incident Investigation. RASG-AFI is committed to improving aviation safety and fostering cooperation and communication - sharing of safety critical information among the principal aviation safety stakeholders.

Please note:

- All accidents statistics sourced from ICAO (ICAO iSTARS) are based on the Country /State of occurrence in RASG-AFI.
- All accidents statistics sourced from IATA (IATA GADM) are based on the operator's Country/State of Registry in RASG-AFI.
- The framework used by RASG-AFI to identify and address safety risks in the Region through Safety Enhancement Initiatives – SEIs (SST), Detailed Implementation Plans – DIP (SST), and Annual Safety Report (ASRT) has been maintained.

Figure 2: Framework for Identifying and Addressing Safety Risks



2. Safety Information and Analyses

The following sections show the results of safety information analysis in terms of reactive, proactive and predictive safety information.

2.1 Reactive Safety Information

As a benchmark, in accordance with the revised Abuja safety targets, the African accident rate should be progressively reduced from 8.6 to 2.5 per million departures by the end of 2022, with focus on:

- accidents and serious incidents related to Runway Excursion (RE).
- accidents and serious incidents related to Runway Incursion (RI).
- controlled flight into terrain (CFIT) related accidents and serious incidents.
- Loss of Control In-flight (LOC-I) related accidents and serious incidents.
- Mid-Air Collision/Aircraft Proximity (AIRPROX) Occurrences

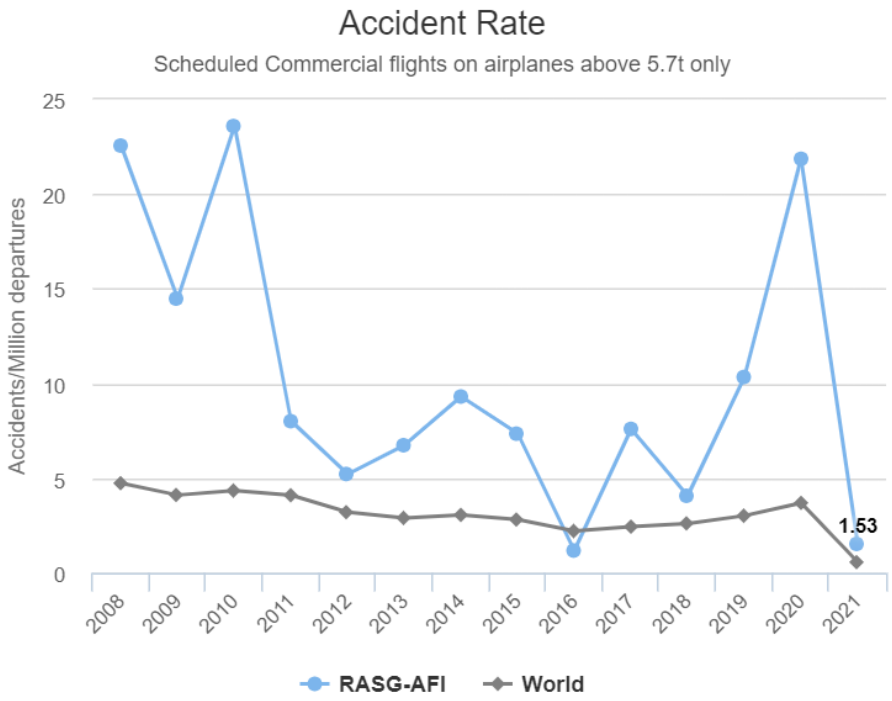
The RASG-AFI accident rate (involving scheduled commercial flights on aeroplanes with maximum certificated take-off mass over 5,700 Kg) at the end of 2021 was 1.53 per million departures compared to the world rate of 0.57. Runway related accidents and serious incidents (Excursions and Incursions) continue to record the highest accident rate as compared to the other HRCs. CFIT related Accidents and serious Incidents remain at a rate of 0 accident per million sectors from 2015 to 2021; and LOC-I related accidents and serious incidents remain at a rate of 0 accident per million sectors from 2020 to 2021.

The Annual Safety Report Team (ASRT) retrieves safety data mainly from ICAO, AFCAC, BOEING, AIRBUS, ACI Africa, CANSO and IATA in order to analyze the available reactive safety information.

Figure 3: RASG-AFI Accident Rate

At the end of December 2021, the RASG-AFI Accident rate was 1.53 per million departures, as compared to the world rate of 0.57. This showed a downward trend for both RASG-AFI region and the world (i.e. from 3.64 and 0.9 respectively, in 2020). However, this trend may be due to the drastic reduction in the volume of traffic during the period under review, due to the impact of COVID-19 pandemic.

Figure 3: RASG-AFI Accident Rate

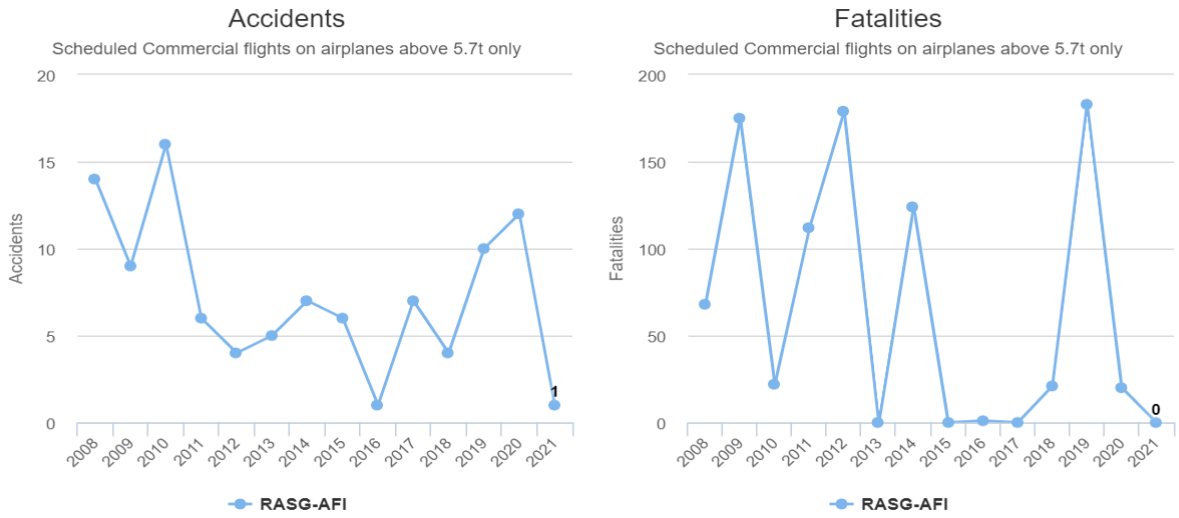


Source: ICAO iSTARS

2.1.1 RASG-AFI Fatal Accident Rate

The revised Abuja Safety Targets include target on fatal accidents to reflect NCLB aspirational goal of zero fatal accidents in commercial scheduled flights by 2025. By end of 2021, records showed one (1) accident that occurred in the RASG-AFI region with zero fatality, as compared to two (2) accidents and zero fatality in 2020.

Figure 4: Comparison of Number of Accidents and Fatalities in RASG-AFI for 2021



Source: ICAO iSTARS

Figure 5: Accidents and Fatalities by Risk Category

Source: ICAO iSTARS

2.1.2 Regional Traffic Volume

The air transport sector flown in RASG-AFI Region has shown gradual growth from 2017 to 2021 (for both Jet and Turboprop aircraft). **Table 1** below further breaks down the volume into IATA, Non – IATA, IOSA and Non-IOSA, registered airlines in line with graphs on accident analysis.

The total traffic volume in RASG-AFI was almost three quarters of a million (0.71M) movements a year, with almost even figures at 35 per cent jets and 36 per cent turboprop.

While representing a 15% increase over 2020, this was close to three quarters (3/4) of the 2019 volumes and it is worth noting that the traffic volume in RASG-AFI Region remains the lowest when compared with all the other regions.

Table 1: Regional Traffic Growth – Jet and Turboprop Aircraft in Commercial Operations.

Sector Count (Millions)

	2017	2018	2019	2020	2021	*Total*
Jet	**0.58**	**0.68**	**0.70**	**0.30**	**0.35**	**2.60**
Jet (IATA)	0.44	0.50	0.52	0.23	0.25	**1.94**
Jet (IOSA)	0.44	0.51	0.53	0.24	0.26	**1.98**
Jet (Non-IATA)	0.14	0.17	0.18	0.08	0.10	**0.66**
Jet (Non-IOSA)	0.13	0.17	0.17	0.06	0.08	**0.62**
Turboprop	**0.65**	**0.74**	**0.76**	**0.31**	**0.36**	**2.82**
Turboprop (IATA)	0.16	0.18	0.18	0.08	0.09	**0.69**
Turboprop (IOSA)	0.16	0.18	0.18	0.10	0.11	**0.73**
Turboprop (Non-IATA)	0.49	0.56	0.58	0.23	0.27	**2.12**
Turboprop (Non-IOSA)	0.49	0.56	0.58	0.21	0.25	**2.09**
Total AFI	**1.23**	**1.41**	**1.46**	**0.61**	**0.70**	**5.42**
Total AFI (IATA)	0.60	0.68	0.71	0.31	0.34	**2.63**
	0.61	0.68	0.71	0.34	0.37	**2.71**
	0.63	0.73	0.76	0.31	0.37	**2.78**
	0.62	0.73	0.75	0.27	0.33	**2.70**

Source: IATA GADM

2.1.3 The World and Regional Air Traffic Volume and Accident Data for 2021

Table 2 below compares the air traffic volume, number of accidents, accident rates, and fatalities by the world and sub-regions for 2021. The accident rate in the RASG-AFI Region has decreased from 3.64 per million departures in 2020 to 1.53 in 2021 and the number of accidents from 2 in 2020 to 1 in 2021. The accident rate in the RASG-AFI Region was still the highest as compared to the other sub-regions; one factor to this comparably high rate was due to the low number of air traffic departures/volume (652 thousand departures) as compared to the other regions (which registered millions of departures). There was a positive trend in traffic volume which showed an increase from 549 thousand in 2020 to 652 thousand departures in 2021 for the RASG-AFI Region, an indication of aviation recovery from the negative impact of COVID-19 pandemic.

Table 2: The World and Regional Air Traffic Volume and Accident Data for 2021

Sub-Region	Departures	Number of Accidents	Accident Rate (per million departures)	Number of Fatalities
RASG-AFI	652K	1	1.53	0
RASG-APAC	8.1M	1	0.12	62
RASG-EUR	4.7M	5	1.05	32
RASG-MID	797.8K	0	0	0
RASG-PA	9.8M	7	0.72	0
World	24.5M	14	0.57	94

Source: ICAO iSTARS

2.1.4 Analysis of RASG-AFI Region Accidents between 2012 & 2021

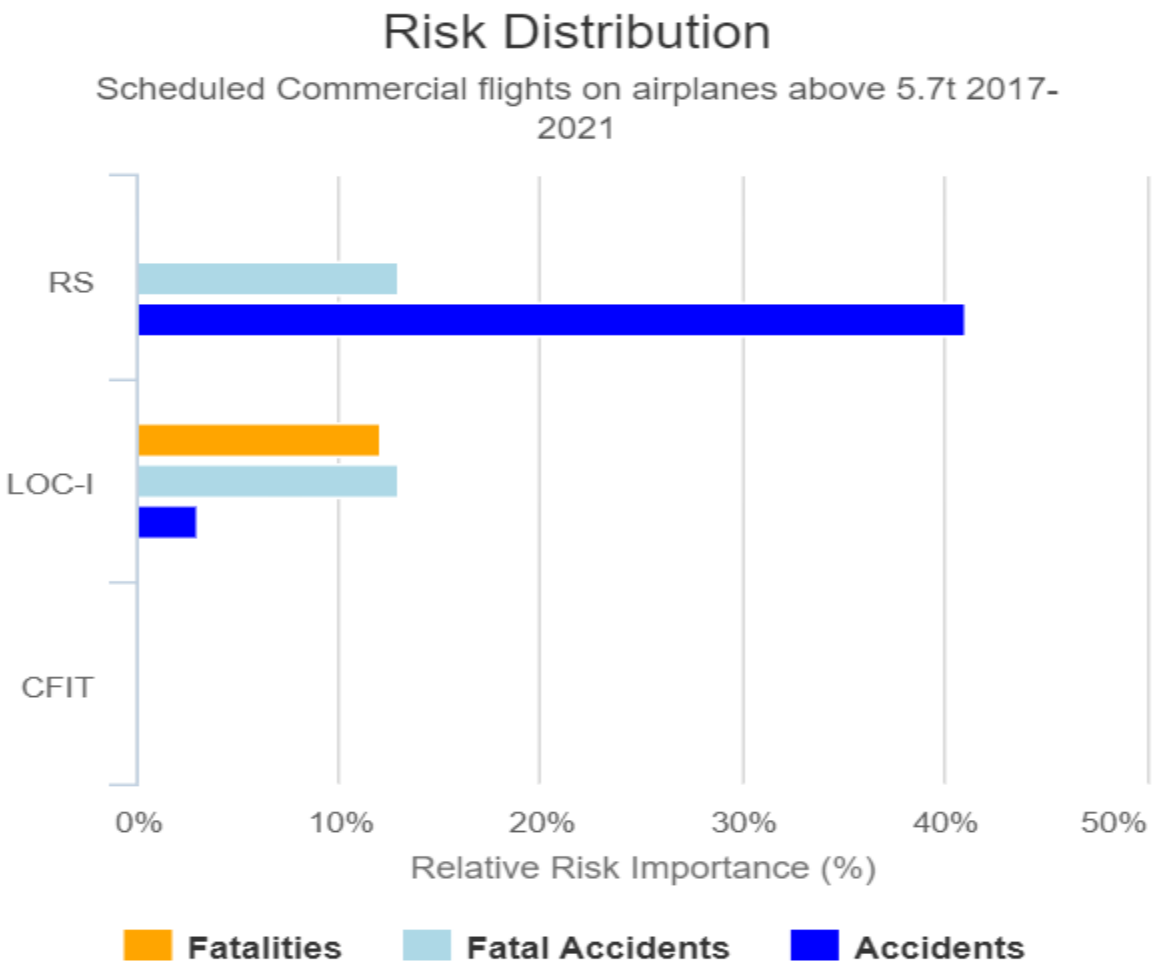
Based on the analysis of accident data covering the period 2008–2021, ICAO identified five high- risk categories (HRC) of accident occurrences as,

- Runway Excursion (RE);
- Runway Incursion (RI);
- Loss of Control In-flight (LOC-I);
- Controlled Flight into Terrain (CFIT);
- Mid-Air Collision/Aircraft Proximity (AIRPROX) Occurrences.

As indicated in **Figure 6**, three out of the five categories (RE, RI, LOC-I) represented 100 per cent of the total number of accidents, 100 per cent of fatal accidents and 100 per cent of all fatalities between 2017 and 2021 for aircraft with maximum take-off mass of over 5700kg engaged in scheduled commercial flights.

In these high-risk categories, 93 per cent of those accidents were related to Runway Excursion and Incursion, and the highest number of fatalities were related to LOC-I. This is due to the high energy involved in such accidents. No CFIT related accidents and fatalities were reported during the period 2017 – 2021.

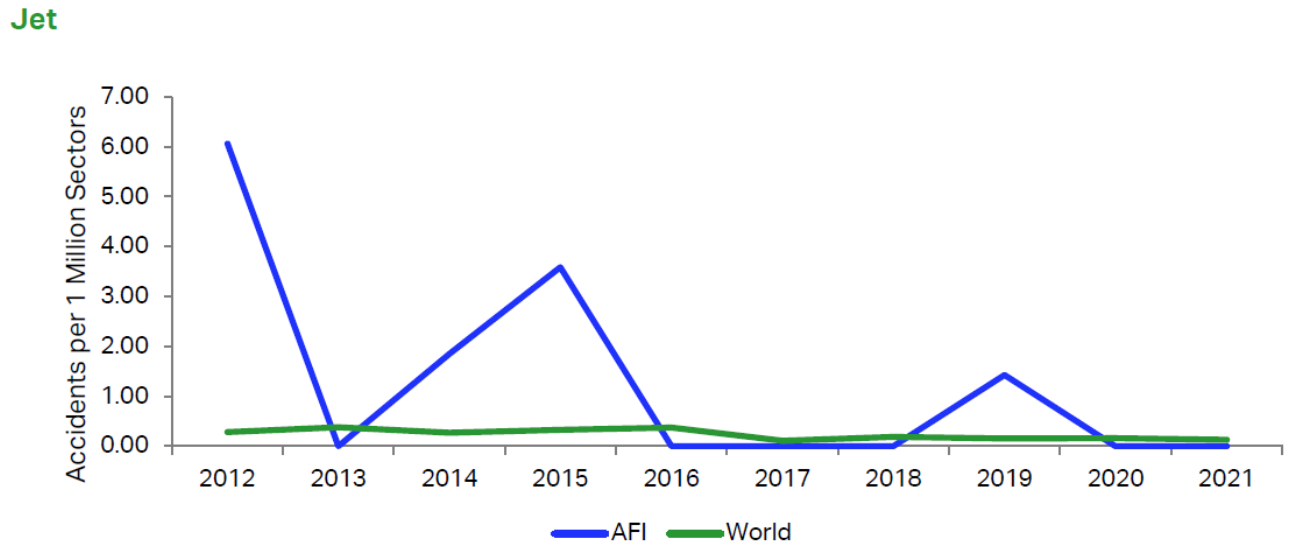
Figure 6: Accidents and Fatalities by Risk Category for the period 2017 – 2021



Source: ICAO iSTARS

Figure 6a: Jet Damage Type (Hull Loss) RASG-AFI vs World (2012- 2021)

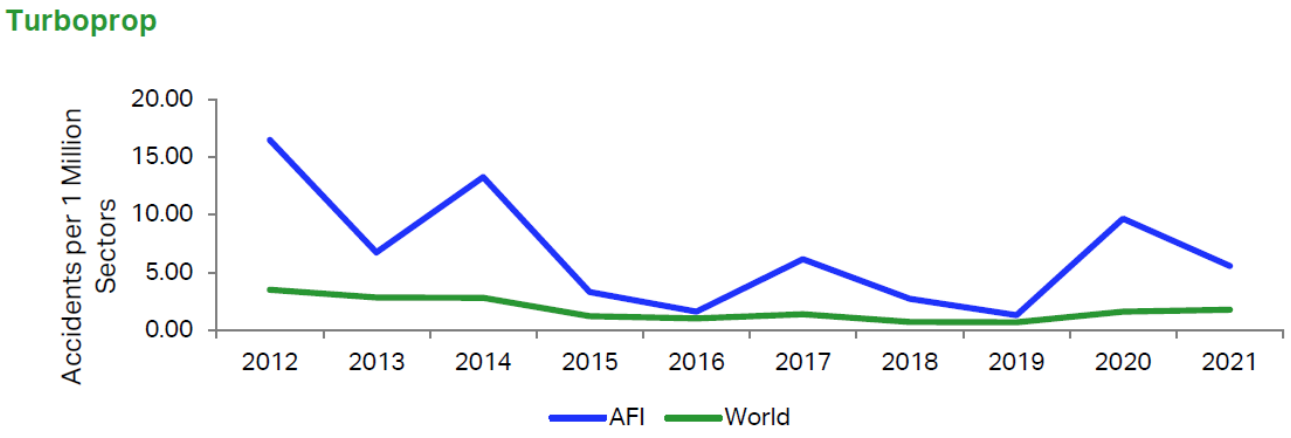
The graph below shows the accident rate according to the Jet damage type (hull loss) for RASG-AFI versus the world for the period 2012- 2021.



Source: *IATA GADM*

Figure 6b: Turboprop Damage Type (Hull Loss) RASG-AFI vs World (2012-2021)

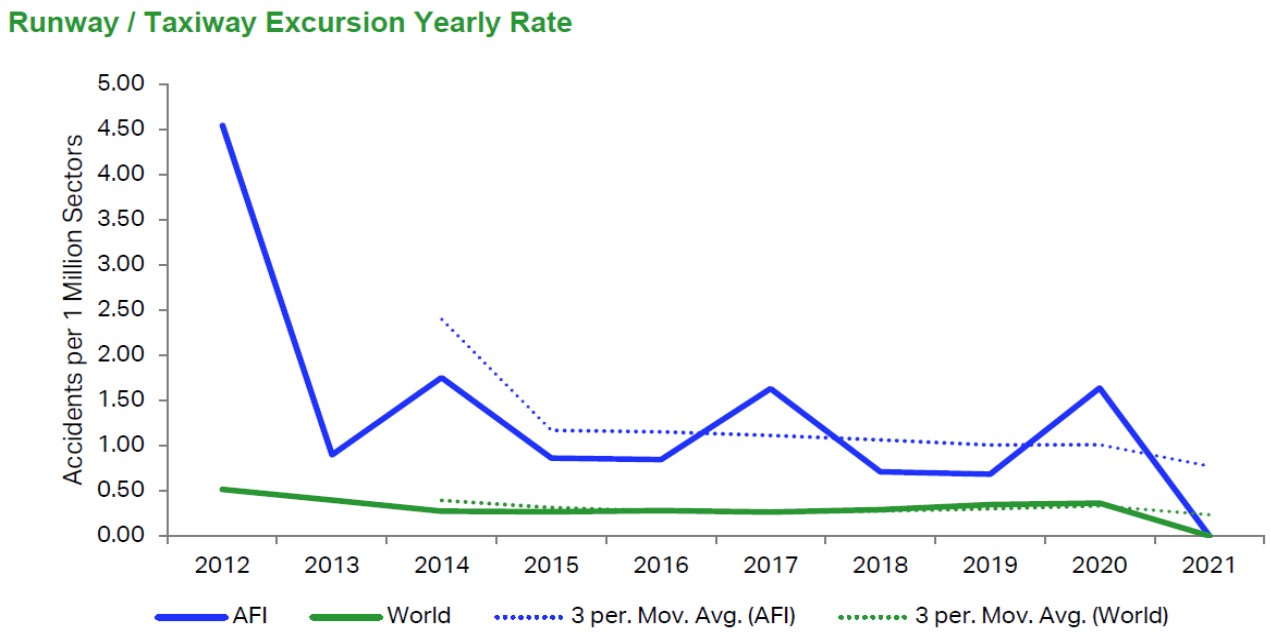
The graph below shows the accident rate according to the Turboprop damage type (hull loss) for RASG-AFI versus the world for the period 2012 - 2021.



Source: *IATA GADM*

Figure 7: RASG-AFI Region High-Risk Accident Trend (2012– 2021)

Figure 7a: Runway Safety Related Accidents (Jet & Turboprop, 2012 – 2021)



Source: *IATA GADM*

Figure 7b: LOC-I Accidents (Jet & Turboprop, 2012 – 2021)

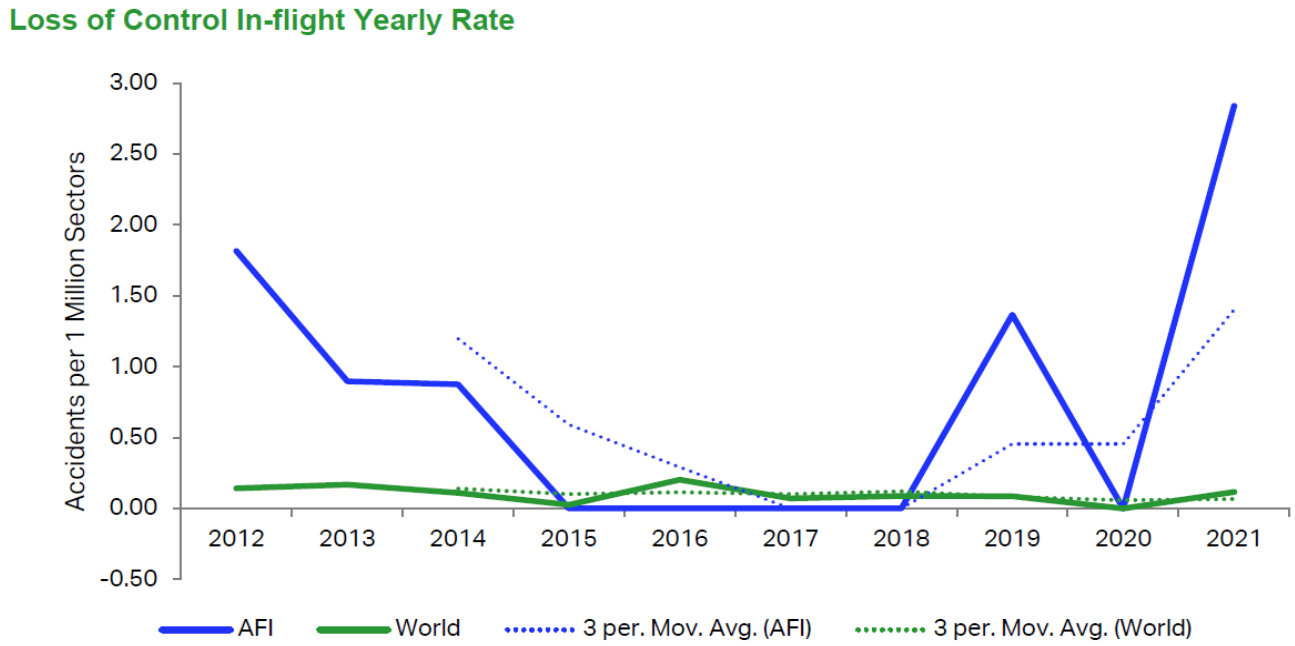
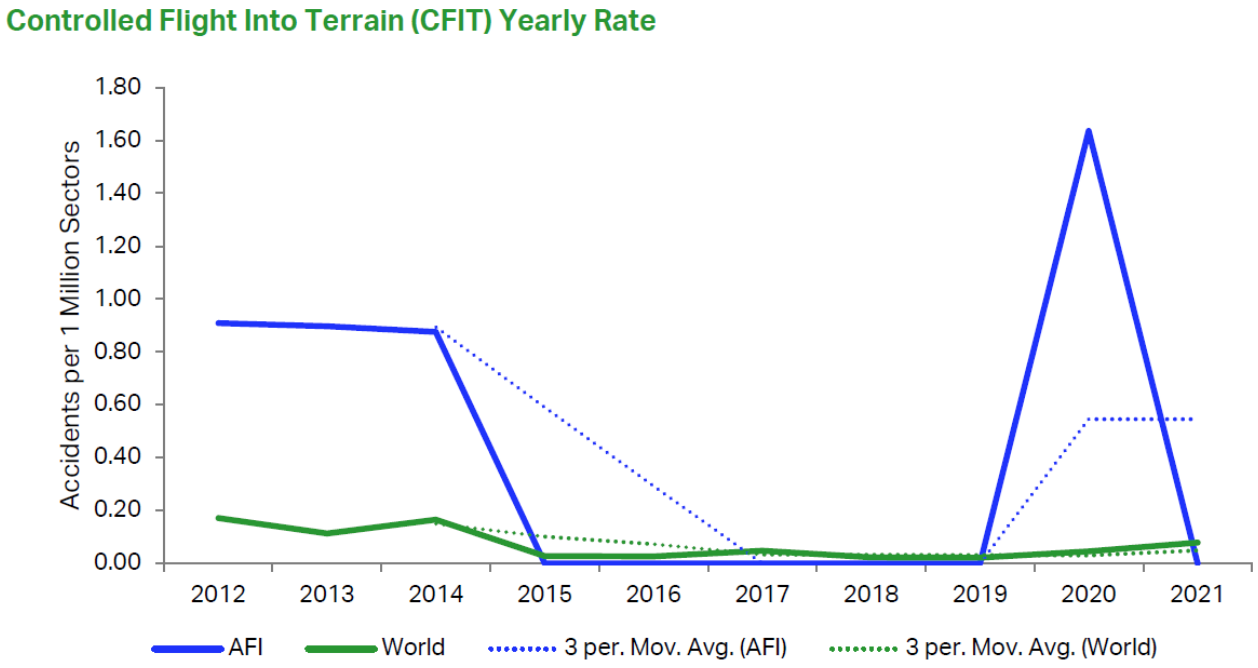


Figure 7c: CFIT Accidents (Jet & Turboprop, 2012 – 2021)

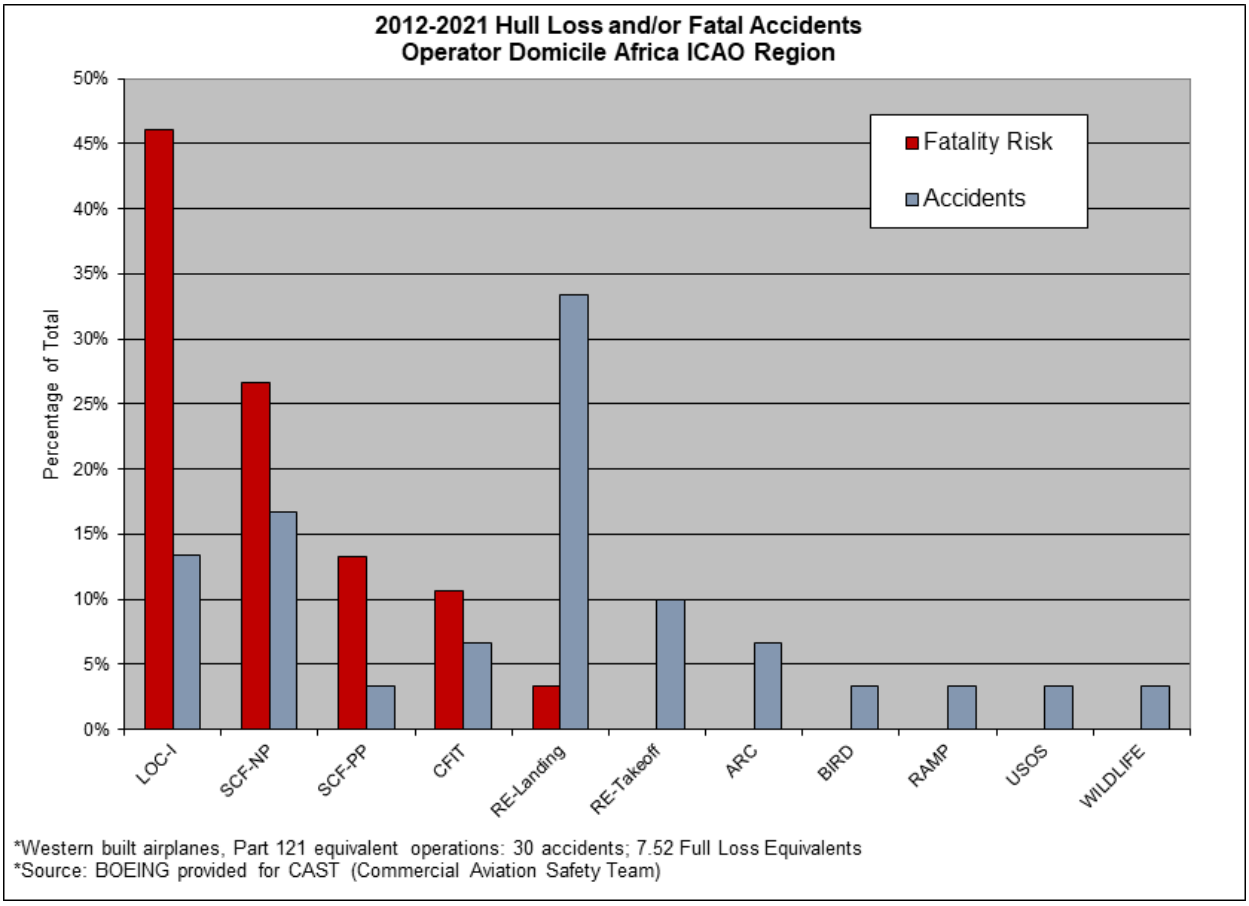


Source: IATA GADM

Figure 8: AFI Hull Loss and/or Fatality Risk for the period 2012 - 2021

The graph below depicts the distribution of fatality risk and hull loss type accidents by CICTT accident category for the last 10 years, pertaining to AFI operator domiciled countries.

Loss of Control In-flight (LOC-I), System Component Failure – Non-Powerplant (SCF-NP) and Controlled Flight Into Terrain (CFIT) are the leading accident types in fatality risk, while Runway Excursions on Landing (RE-Landing) are the leading cause for hull losses.



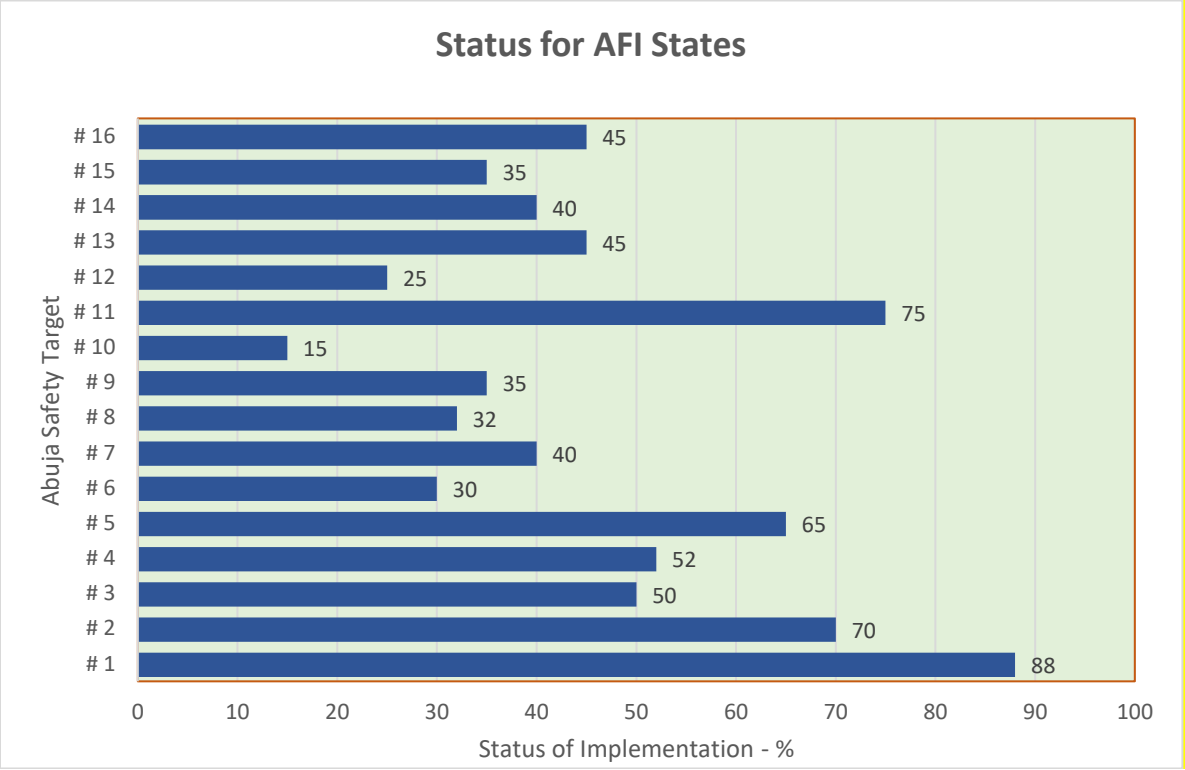
Source: Boeing

2.1.5 Progress on implementation of the Abuja Safety Targets (AST), incorporating AFI Air Navigation Services Performance Indicators (ANS PIs) – 2021.

2.1.5.1 Highlights on Status of Implementation

The qualitative analysis of available data was based on submissions by AFCAC Member States and supplementary data from IATA and ICAO iSTARS resulting in the observations summarized in **Table 3**. The report on status of implementation of the Abuja Safety Targets for 2021 was summed up using baseline information provided by member States in for 2020 and additional information for year 2021 (see **Figure 9** below).

Figure 9: Status of implementation of the Abuja Safety Targets for 2021.



Note: The target reference numbers on the vertical axis are explained in **Table 3** below.

Based on summed up points for each target, the average level of implementation for member States was **47%,** and this was below the target of 60%. This percentage point (47%) was the same compared to 2020 performance, since member States could not do much in terms of systems upgrade due to low level of flights conducted as a result of COVID-19 pandemic.

Further analysis of the 2021 performance resulted in the following observations:

- African States average EI as at 31 December 2021 was **57.82%** compared to **56.64% in 2021 indicating** a positive marginal increase of **1.18%.**
- Low level of implementation of air navigation related targets (ASTs) –

AST # 14 – Implementation of ASBU B0 Modules – average **40%** (compared to the desired 60%)
AST # 13 – Establishment of seamless Air Navigation Services in the AFI Region – average **41%**;
AST # 10 – Implementation of the transition from AIS to AIM – average **15%** (below the target);
AST # 11 – Implementation of the PBN procedures for all instrument runways – average **75%**.

Table 3: Revised Abuja Safety Targets incorporating AFI Air Navigation Services Performance Indicators (ANS PIs); and the status of their implementation.

Revised Abuja Safety Target	Assessments	Status of Implementation
1. Progressively reduce the African accident rate from 8.6 to 2.5 per million departures by the end of 2022, with focus on: ▪ runway related accidents and serious incidents (Runway Excursion, RE). ▪ controlled flight into terrain (CFIT) related accidents and serious incidents. ▪ Loss of Control In-flight (LOC-I) related accidents and serious incidents. ▪ Achieve and maintain zero fatalities in aircraft accidents.	The accident rate decreased from 10.34 in 2019 to 6.7 in 2021. ▪ runway related accidents and serious incidents (Runway Excursion, RE) continue to record a higher rate than the other HRCs. ▪ CFIT related Accidents and serious Incidents rate remained at Zero from 2015 to 2021. ▪ LOC-I related accidents and serious incidents had Zero rate in 2021. ▪ Number of fatalities decreased from 20 in 2020 to Zero in 2021 *(Source:- ICAO iSTARS for the RASG-AFI Region).*	Although there was an overall decrease in accident rate and fatalities in 2021 compared to the same period in 2020, this may be attributed to the drastic reduction in the volume of traffic due to the impact of COVID-19 pandemic. Notwithstanding, more efforts need to be put in place to continue to maintain a downward trend if the target for 2022 is to be achieved.
2. All States establish and strengthen autonomous Civil Aviation Authorities with independent regulatory oversight, sustainable sources of funding and resources to carry out effective safety oversight and regulation of the aviation industry by 2022. ▪ States that need support in areas with safety margins below zero, to use a regional safety oversight organization's or another State's ICAO-recognized functions by 2020. ▪ States effectively exercise the safety oversight functions with a positive safety margin in all areas by 2022. States to delegate certain safety oversight functions to RSOOs or other	At least the 28 States that have attained the 60 per cent EI Target, amongst the 46 audited RASG-AFI States, are effectively autonomous. *(Source: ICAO iSTARS for the RASG-AFI Region)*	AFCAC to encourage more States, through high level State visits, to establish autonomous CAAs with independent regulatory oversight and sustainable sources of funding.

Revised Abuja Safety Target	Assessments	Status of Implementation
States, by the end of 2022 in areas with safety margins below zero, and as appropriate.		
3. States resolve: ▪ Existing SSCs by June 2018; ▪ Newly identified SSCs within six months from the date of its official publication by ICAO.	Statistics from 2012 to 2021: ▪ 22 SSCs found in 15 States; ▪ 21 resolved in 14 States. ▪ 1 SSC still exist in one State. SSC exceeded 12-month deadline. *(RASG-AFI Region)*	**Target not met**
4. States abide by the timelines and provide resources for implementation of ICAO/State Plans of Action ▪ All States to have accepted ICAO Plans of Action by 2019 and ▪ abide by the timelines and provide resources for their implementation.	37 States have accepted ICAO Plans of Action and are at different stages of implementation (Source: AFI Plan *for the RASG-AFI Region*)	Data collected was insufficient to determine level of implementation of the 37 ICAO/ State Plans of Action. The timelines for the implementation of State Plans of Action have elapsed.
5. States progressively increase the Effective Implementation (EI) percentage under the ICAO USOAP such that States with: ▪ EI < 60% attain 60% by 2020; ▪ 60% ≤ EI ≤ 70% attain 80% by 2022; 70% < EI attain 95% by 2028.	By December 2021, only 59.62% of the AFI member States had reached the target of 60% EI and the group of States have an average EI of 57.82%. This is 1.18% increase compared to year 2020 performance.	**Target not met** (EI < 60% attain 60 per cent by 2020). Number of AFI States with EI of 60 per cent and greater has increased significantly from 15 in 2014 to 33 by December 2021 (AFCAC Member States). The efforts of ICAO and AFCAC should be intensified to accelerate the implementation of the CAPs.
6. For the purposes of SSP/SMS Implementation, all States: ▪ to have a Foundation SSP established, addressing all pre-requisites; ▪ to have an Effective SSP with appropriate maturity level established; ▪ to contribute information on safety risks, including SSP SPIs, to the RASG-AFI;	▪ By December 2021, at least 24 RASG-AFI States initiated SSP implementation with One (1) State (Rwanda) attaining Level 4. None of the States contributed information on safety risks to RASG-AFI. *(Source: ICAO iSTARS)*	**Target not met** Goal 3.1 of the 2020 – 2022 Edition of the GASP requires all States to implement the foundation of an SSP by 2022. Therefore, the ICAO Regional Offices (ESAF/WACAF) had incorporated SSP Implementation Assistance to States in their work programme, which includes review of the SSP Foundation Protocol Questions (PQs). The AFI Plan Project on SSP Implementation by States should be broadened to include all RASG-AFI States and not just States with 60% EI and greater.

Revised Abuja Safety Target	Assessments	Status of Implementation
▪ with a positive safety margin, and an Effective SSP, to actively engage in RASG-AFI safety risk management activities (analysis of safety risks, design and implementation of risk mitigation actions). All Service Providers to use globally harmonized SPIs as part of their SMS.		
7. All International Aerodromes to be certified by 2022, • At least one international aerodrome in every State to be certified by end of 2020; • All airport operators to participate in the ICAO-recognized industry assessment programme for airports (APEX) by end of 2022; • At least one international aerodrome in every State to establish a Runway Safety Team (RST) by end of 2020.	As at 31 December 2021, 41 International Aerodromes were certified out of 126 within RASG-AFI States (32.54 per cent). • 24 out of 48 RASG-AFI States certified at least one international aerodrome. • 50 airports out of 126 received an APEX review • 38 aerodromes out of 126 established RSTs. *(Source: ICAO)*	**Target not met** (At least one international aerodrome in every State to be certified by end of 2020). From the responses to the questionnaire, aerodrome certification is still a serious challenge for the RASG-AFI States. However, almost all RASG-AFI States indicated that the process of certification of international aerodromes is in progress.
8. Require all African airlines to obtain an IATA Operational Safety Audit (IOSA) certification: ▪ All States to establish an appropriate framework for recognition of IATA operational safety audit (IOSA) and IATA Standard Safety Assessment (ISSA) as effective safety mechanisms; All African airlines to obtain IOSA or ISSA certification, as appropriate, by the end of 2022.	From a total of 20 airlines on the IOSA Registry in 2012 there were 41 airlines on the Registry by end of December 2021. Percentage of States with IOSA certified airlines increased to 41.87% *(Source: IATA)*	Interventions through AfDB Project Implementation Agreement (PIA) for SAATM member States will assist some airlines to meet the target. There is a need for distinction between the establishment of an appropriate framework by States for recognition of IATA operational safety audit (IOSA) and IATA Standard Safety Assessment (ISSA) as effective safety mechanisms, and IOSA registration.
Air Navigation (ANS) Target	**Status of Implementation**	**Recommendations**
9. All States to establish an effective and operational SAR organization:	• Based on data collected as part of AFI Plan project, 25 SAR	**Target not met.** States are progressively developing SAR Plans, though at a slow pace.

Revised Abuja Safety Target	Assessments	Status of Implementation
• Development of a National SAR Plan by end of 2018; • Conclusion of SAR Agreements/ MoUs with all neighboring States by end of 2018; • Organisation of multi-agency, multi-State and combined Regional SAR exercises to test SAR systems in place involving as many SAR units as practicable by end of 2019.	agreements have been signed between States and 35 new Draft agreements have been developed to either supersede old agreements or formalised cooperation where this has been lacking. • Eight (8) States have developed National SAR Plans and two (2) States have draft National SAR Plans in place. *(Source: ICAO)*	
10. All States to implement the transition from AIS to AIM: • Development of a National Action Plan By end of 2018; • Implementation of the National Action Plan in accordance with the ASBU Block 0 D-ATM by end of 2020.	• 36 per cent of States have fully completed Phase 1 Consolidation; • 44 per cent have partially accomplished Phase 2 Going Digital. *(Source: ICAO)*	**No comprehensive data available.** • There is need to establish and promote sufficient data collection tools; • Effective coordination among key stakeholders and appropriate regional master plans/ interventions are required to ensure effective implementation of this target.
Air Navigation (ANS) Target	**Status of Implementation**	**Recommendations**
11. All States to implement PBN procedures for all instrument runways. • 75% of Instrument Runways to have PBN procedures by end of 2020; • 100% of Instrument Runways to have PBN Procedures by end of 2025.	Available information indicated that 33 out of 48 RASG-AFI States attained target of 100 per cent PBN implementation, representing 68.75 per cent. *(Source – ICAO iSTARS)*	Although group average is high, a number of States have not initiated PBN procedures for their instrument runways. There is need for effective coordination among key stakeholders and appropriate regional interventions are required to ensure effective implementation of this target.
12. All States to progressively reduce the rate of aircraft proximity (AIRPROX) occurrences in their managed airspaces by at least 50% annually from Dec. 2017 baseline, in order to attain and maintain a level of zero (0) Airprox by correspondingly reducing	No comprehensive data to establish level of implementation.	**Target: 2023** So far, no comprehensive data available. There is need to establish and promote sufficient data collection tools.

Revised Abuja Safety Target	Assessments	Status of Implementation
errors in the following contributive factors: • Co-ordination between ATS Units (50%); • Airspace Organization and ATC Procedures (50%); • Mobile Communications (50%) • Poor Crew Discipline on board aircraft (50%)		
Air Navigation (ANS) Target	**Status of Implementation**	**Recommendations**
13. Establishment of seamless Air Navigation Services in the AFI Region: a) All States to ensure provision of harmonized Air Navigation Services in terms of flight separation, interoperability of CNS/ATM systems to reduce airspace complexity and achieve seamless operations along major air traffic flows. b) Various initiatives formulated by the Regional Economic Communities (RECs) and ANSPs within the AFI Region to be harmonized.	Activities towards integration of the AFI Region towards seamless ANSPs is anticipated through RECs. AFCAC established the ANSPs Platform which will discuss among other things establishment of a seamless air navigation services in the AFI Region (AFCAC Member States).	**Target: 2024** There is need for appropriate regional master plans/ interventions to ensure effective implementation of this target.

Revised Abuja Safety Target	Assessments	Status of Implementation
14. All States to implement ASBU B0 Modules: • All States to develop National ASBU Plan by end of 2018.	IATA ASBU Tracker indicates that: ▪ Total percentage of RNAV GNSS APRCH was 63 per cent for ESAF and 79 per cent for WACAF; ▪ Total percentage of RNAV SID was 40 per cent for ESAF and 20 per cent for WACAF; ▪ Total percentage of RNAV STAR was 40 per cent ESAF and WACAF 46 per cent. Ongoing activities towards the implementation of the applicable ASBU elements of the 6th edition of the GANP. *(Source - ICAO/ IATA)*	**Target not met** Comprehensive information on current Status of ASBU implementation in AFI Region was not available. • There is need to establish and promote sufficient data collection tools; • There is need for appropriate regional master plans/ interventions to ensure effective implementation of this target. • In line with the assistance to States in the implementation of the ASBU applicable elements, the following is being achieved: - ESAF and WACAF Offices are identifying the ASBU elements of the 6th edition of the GANP applicable to the AFI region. - APIRG AAO and IIM approved projects are being reframed to focus assistance of States in the development and implementation of National ASBU Plans. - States to be sensitized on the provisions of the 6th edition of the GANP accordingly.
15. All States to develop and implement a National Plan for the reduction of CO_2 emissions due to international civil aviation: • develop a National Plan for CO_2 reduction by end of 2020; • full implementation of the National Plan by 2022.	25 States in AFI Region have developed and submitted to ICAO, National Plans for the reduction of CO_2 emissions. 10 States are receiving assistance under Phase II of the ICAO assistance project, funded by the European Union (EU), on Capacity Building for the Mitigation of CO_2 Emissions from International Aviation.	States need to be encouraged to develop or update their Action Plans using the guidance in the ICAO Doc 9988.

Revised Abuja Safety Target	Assessments	Status of Implementation
	(Source – ICAO)	
16. All States ensure that their ANSPs effectively participate in the African ANSP Peer Review Programme by: • Joining the programme and having in place, an annual Peer Review plan of activities. • Develop and implement appropriate corrective action plans to satisfactorily address Peer Review recommendations.	Membership has continued to grow with current participation including: CANSO members (all 18 ASECNA member States, Algeria, Mozambique, 3 Robert FIR States, South Africa, Uganda, Zambia, etc). *(Source – ICAO)*	More States need to be encouraged to join the ANSP Peer Review Programme in order to meet the 2022 target.

2.2 Proactive Safety Information

2.2.1 ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) Activities in the RASG-AFI region in 2021

Due to travel restrictions imposed during the COVID-19 pandemic, several ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) activities earlier scheduled for 2021 were either postponed or cancelled. However, the few activities that were conducted registered slight improvements in the overall Effective Implementation (EI) scores, as depicted in **Table 4** below.

Table 4: ICAO USOAP CMA Activities conducted in RASG-AFI - 2021.

State	USOAP CMA Activity	Outcome
Botswana	ICVM	Postponed to 2022 due to the COVID-19 pandemic.
Djibouti	Documentation-based Audit	Full scope ended on 5 March 2021 that led to an increase in the EI score from 4.22% to 35.95%, adjusted to 34.13% following the migration to 2020 Edition of PQs. On-site audit planned in two phases in 2022: first phase: LEG, ORG, ANS and AGA; second phase: LEG, ORG, PEL, OPS, AIR and AIG.
Côte d'Ivoire	Off-site validation	Scope limited to OPS ended on 30 September 2021 that led to a slight increase in the EI score from 82.01% to 82.64%, but adjusted to 79.84% following the migration to 2020 Edition of PQs.
Guinea	Audit	Postponed to a later date to be determined due to pandemic related restrictions.
Nigeria	Off-site validation	Scope limited to AIG, ANS and AGA ended on 31 December 2020 that led to an increase in the EI score

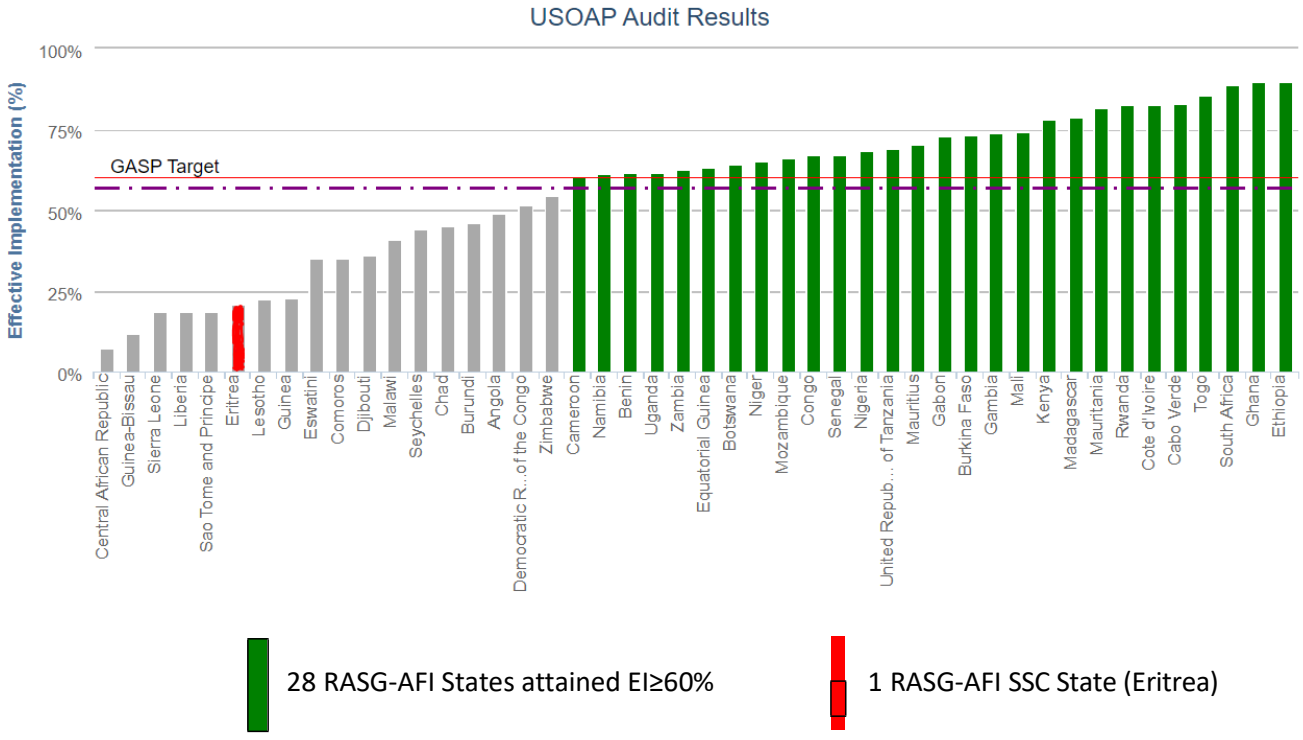
		from 67.36% to 68.52%, but adjusted to 66.33% following the migration to 2020 Edition of PQs.

2.2.1.1 ICAO USOAP CMA Overall Results

The RASG-AFI Member States (accredited to ICAO ESAF and WACAF Regional Offices), have achieved an overall Effective Implementation level of 56.95 per cent in 2021 in 46 of 48 audited States as the two States of Somalia and South Sudan, are yet to receive USOAP-CMA activity. This corresponds to an increase of 0.02 percentage points on the level of Effective Implementation compared to 2020 (56.93 per cent), which is still below the world average of 69.32%. By the end of 2021, the RASG-AFI States with USOAP Overall EI above 60% was 60.87%.

Figure 10: USOAP CMA Results of RASG-AFI States – EI at the end of 2021.

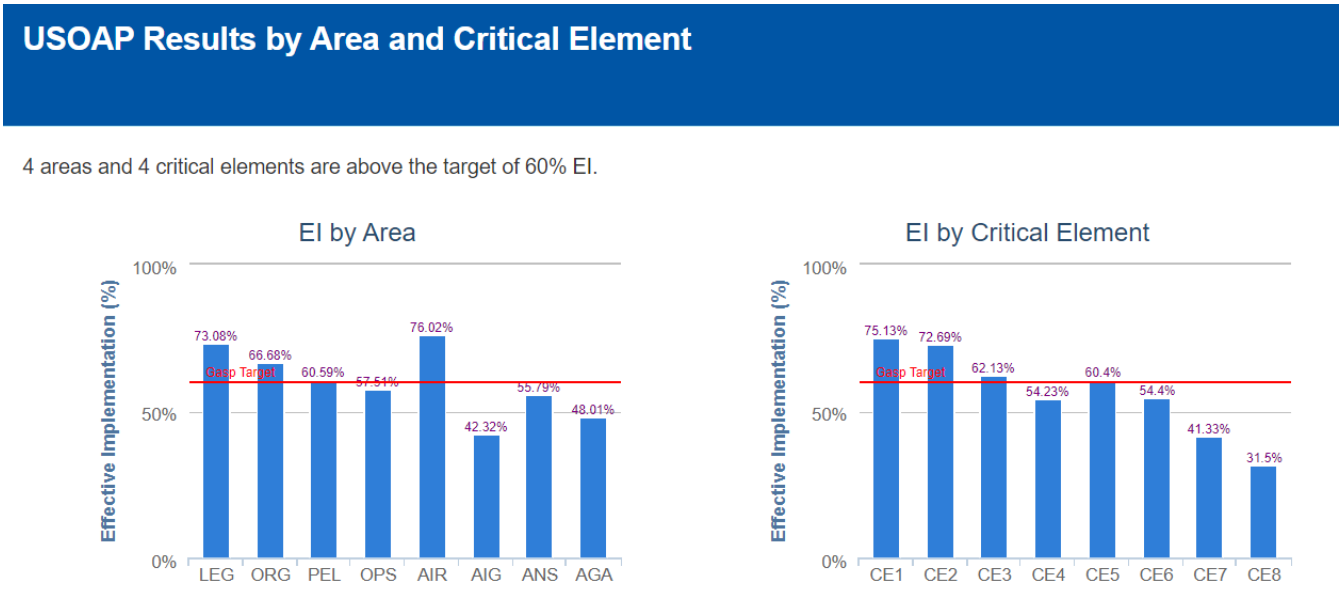
The number of the RASG-AFI States that have achieved the Abuja Safety Target of 60 per cent EI remained 28 at the end of 2021, as was for 2019 and 2020. Only One Significant Safety Concern (SSC) in the area of aircraft operations (OPS) in one State (Eritrea) remained unresolved and efforts were being made to address it as soon as possible.



Source: ICAO iSTARS

Figure 10a: ICAO USOAP CMA Results by Audit Area and Critical Elements

The USOAP-CMA results for RASG-AFI States in 2021 indicated a slight change from those of 2020, as a result of cancellation or postponement of USOAP CMA Activities scheduled for the year due to COVID-19 pandemic. That is, an EI score above 60 per cent in 4 audit areas: LEG, ORG, PEL, AIR; and an EI score above 60 per cent in 4 Critical Elements (from 3 in 2020): CE-1, CE-2, CE-3, CE-5. OPS, AIG, ANS, and AGA audit areas; and CE-4, CE-5, CE-6, CE-7, CE-8 were the lowest in terms of EI score for the region, as shown below.



Source: ICAO iSTARS

2.2.2 Safety Partner Programmes

The Federal Aviation Administration (FAA) rates States through their International Aviation Safety Audit (IASA) programme. The FAA does not allow air carriers from category 2 States to operate to the United States of America. In RASG-AFI, 1 State is rated Category 2: Ghana.

The European Commission can decide to ban certain airlines from operating in European airspace, if they are found to be unsafe and/or they are not sufficiently overseen by their authorities. In RASG-AFI, 13 States have operational restrictions with regard to European airspace: Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Liberia, Nigeria, Angola, Congo, Gabon, Sao Tome and Principe, Sierra Leone, Zimbabwe, Comoros.

2.2.3 Regional Safety Initiatives

From the results of the ICAO USOAP CMA Activities, low EI scores have been registered in the areas of Aircraft Operations (OPS), Aircraft Accidents and Incidents Investigation (AIG), Air Navigation Services (ANS), and Aerodromes and Ground Aids (AGA). The Safety Support Teams of the RASG-AFI have identified these deficiencies and have developed project documents intended to improve capacities in these areas. Funding for these projects come mainly from the comprehensive implementation plan for aviation safety in Africa (AFI Plan), ICAO Safety Fund (SAFE) and partners. Various projects have been identified under the AFI Plan, project documents developed and at different levels of implementation, geared towards enhancing the oversight capacities of States and improving their overall EI scores. The ICAO Regional Office Safety Teams (ROST) conduct missions to States in a bid to assist them with implementation processes. Amongst these projects are: Fundamentals of Safety Oversight (FSO) targeting States with EI<30 per cent; Aerodrome Certification (at least one international aerodrome certified in each 20 identified States); State Safety Programme (SSP), targeting States with EI of 60 per cent and greater; Search and Rescue (development of national SAR plans); Aircraft Accidents and Incidents Investigation (establishment of AIG framework in States); and States scheduled for USOAP CMA Activities.

The COVID 19 pandemic has hampered the progress on implementation of these projects. However, in order to ensure some progress in the implementation of the projects, the ICAO Regional Offices and nominated experts from States have been supporting the beneficiary States through virtual means.

2.2.3.1 Aerodrome Certification Project

By the end of December 2021, 14 international aerodromes out of 54 in the WACAF Region were certified. More efforts need to be put towards the certification of the remaining aerodromes – the aerodrome certification project is being revised to integrate potential initiatives to certify more.

By December 2021, 327 RSTs were registered on the ICAO Website. In the RASG-AFI region, 38 aerodromes had established operational RSTs, out of 126 contained in the AFI eANP. RASG-AFI Go-Team continues to monitor the work of the established RSTs through a regular reporting mechanism.

The current percentage of certified aerodromes in the RASG-AFI region is 32.54 per cent (See **Appendix 5**).

The COVID-19 pandemic has hampered the progress on the project. However, in order to ensure continuous progress, the ICAO Regional Offices and nominated experts have been supporting the beneficiary States through virtual means. Many States in the WACAF Region received virtual and onsite assistance activities to support the Certification exercise.

2.2.3.1.1 Implementation of the new Global Reporting Format for Runway Surface Condition

In 2020 and 2021, various virtual workshops had been conducted by the ESAF and WACAF Regional Offices to sensitize States on the new format for reporting of Runway Safety. The seminars recommended to States to set up national and local plans with dedicated Teams, for the implementation of GRF and make use of existing national and regional mechanisms to support the implementation of the GRF (RSTs, Go-Teams,

RSOO, etc.). ICAO, ACI and FAA committed to enhance their support to States. States have carried out dry runs for GRF in September and October 2021 in readiness for the implementation date which was postponed due to the effect of COVID-19 pandemic.

As at December 2021, 43.75% of States in the AFI region reported full implementation of the GRF.

2.2.3.2 State Safety Programme (SSP) Project

Goal 3 of the 2020-2022 edition of the GASP, calls for States to effectively implement SSP. This goal addresses organizational and operational challenges faced by States in the implementation of SSP and includes the implementation of Safety Management Systems (SMS) by service providers, in accordance with Annex 19. The following two targets propose a phased approach to SSP implementation with respect to Goal 3:

a) Target 3.1 calls for all States to implement the foundation of an SSP by 2022; and
b) Target 3.2 calls for the implementation of an effective SSP by 2025. An "effective SSP" refers to an SSP that achieves the objectives that it is intended to achieve.

In line with Goal 3, the project implementation approach was revised to assist AFI States to implement SSP through a phased approach with an initial focus on the implementation of the foundation of an SSP and then progress into the implementation of an effective SSP.

Under the project, assistance to States delivered by the ICAO Regional Offices included the review of SSP Foundation Protocol Questions (PQs), conduct of SSP Gap Analyses, development of SSP Implementation Plans and the conduct of State self-assessment using the SSP Implementation Assessment (SSPIA) PQs.

The outbreak of COVID-19 pandemic in 2020 had a negative impact on the progress of this project, as the primary focus of States and the aviation community was directed to controlling the spread of the disease and facilitation of aviation operations. Notwithstanding, assistance to States, monitoring and engagement had been maintained through virtual means, including the use of ICAO USOAP CMA Online Framework (OLF) and innovative electronic platforms (Zoom, MS Teams, etc.).

It is imperative to note that the SSP project is complemented by other existing initiatives, programmes and projects. In particular, the AFI Plan funded FSO and AIG projects as well as initiatives undertaken by the RASG-AFI Safety Support Teams (SSTs).

In order to improve the level of SSP implementation in the RASG-AFI Region and progress towards the achievement of the GASP goals and targets, it is recommended that States:

a) Update and implement the corrective action plans to address the SSP Foundation PQs;
b) Continuously use the iSTARS to update the SSP GAP-Analysis;
c) Participate in RASG-AFI activities and share SSP best practices, guidance material and tools; and
d) Coordinate with the ICAO Regional Offices and request assistance in the SSP implementation.

2.2.3.3 Upset Prevention and recovery Training (UPRT)

A Virtual Workshop on Loss of Control In-flight (LOC-I) and Upset Prevention and Recovery Training (UPRT) was held on 10 and 11 November 2021, under the auspices of the two ICAO Regional Offices (WACAF and ESAF) and Kenya as the RASG-AFI Champion for LOC-I.
The Workshop objectives were to further sensitize and inform the civil aviation stakeholders on UPRT implementation, as well as the following elements:

- UPRT in academic and simulator training during the pandemic
- UPRT delivery using available resources, including unmodified simulators, and recognition/awareness as minimum training.
- Competency Fade: Degradation of the following competencies as for the Manual of Evidence-based Training ICAO Doc 9995), Appendix 1, Core Competencies and Behavioural Indicators: procedures; flight-path management, automation; flight-path management, manual flying; situation awareness and workload management
- Proposed solutions
- Training Programmes
- UPRT Training as a menu
- Thrust vs angle of attack
- Trim effects
- Feedback from SMS for training
- Exemptions during the pandemic
- Balance between Prevention and Recovery
- Negative training
- Recovery techniques same for recovery and prevention (Manage Angle of Attack, Manage airplane energy, Manage Startle)
- Awareness and Recognition
- Instructor training
- Threat and Error management: Detect, Recognize, React
- Instructor competency
- Simulator capabilities and limitations
- Instructor tools-IOS/V-n diagram
- Training Programme and Flight Envelope
- Non-upgraded FSTDs
- Technique/Strategy-OEM
- Unlearning
- Training not checking
- Full integration of UPRT in pilot training programme in the future

The Workshop documentation are available at: https://www.icao.int/ESAF/Pages/LOC-I-and-UPRT-2021.aspx

2.2.3.4 Controlled Flight Into Terrain (CFIT) Workshop.

Controlled Flight Into Terrain is a situation where a properly functioning aircraft under the control of a fully qualified and certificated crew is flown into terrain with no apparent awareness on the part of the crew. Despite the zero CFIT-related occurrences in the RASG-AFI Region from 2015 to 2021, CFIT continues to be one of the High Risk Categories of occurrences identified both globally and regionally, as such, a CFIT Workshop was conducted on the 15 and 16 of December 2021 as part of the RASG-AFI activities. The ICAO ESAF and WACAF Regional Offices supported by partners including AFRAA, IATA, AIRBUS and NAVBLUE conducted a virtual workshop aimed at promoting awareness of the risks associated with the CFIT phenomenon, and identifying mitigating safety enhancement initiatives (SEIs).

Participation of 106 persons to the workshop drawn from Civil Aviation Authorities, Airlines, Air Navigation Service Providers, Aircraft Accident Investigation Agencies, Approved Training Organisations, Regional and International Organisations covered aspects including:

- ICAO regulatory provisions on CFIT; and Safety Enhancement Initiatives (SEIs) to mitigate its related accidents.
- CFIT Prevention in Africa to Improve Safety Performance towards Abuja Safety Targets – Parts I & II.
- The impact of Performance-Based Navigation (PBN) on improvement of Safety and prevention of CFIT-related accidents.
- Lessons learnt from CFIT occurrences.
- CFIT Accidents Analyses.
- Questions and Answers sessions.

The workshop identified 8 Safety Enhancement Initiatives (SEIs) to be undertaken by the RASG-AFI Region in mitigating risks associated with CFIT occurrences:

1) **Ground Proximity Warning Systems (GPWS)** With Forward Looking Terrain Avoidance Function: All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5,700 kg or authorized to carry more than nine passengers to be equipped with a ground proximity warning system which has a forward looking terrain avoidance function (also known as TAWS). This is intended to improve pilots' situational awareness. It is also important that procedures are developed and used to ensure proper flight crew reaction to TAWS aural and visual warnings.

2) **Standard Operating Procedures (SOPs)**: All air operators to have Standard Operating Procedures and training which should address all projected normal situations which crew and company personnel will encounter.

3) **Precision-Like Approach Standard Operating Procedures (CDFA):** Analysis of accident data indicates that the accident rate is five times greater during non-precision approaches than when aircraft are conducting precision approaches. In the interest of safety, air operators are to discontinue the use of step-down or "dive-and-drive" non-precision approach procedures as soon as, and wherever possible.

Air operators who have yet to do so should, at the earliest possible date, develop procedures and train

pilots to fly continuous descent final approaches (CDFA) when flying non-precision approach procedures.

4) **Flight Data Analysis (FDA):** A Flight Data Analysis Programme (FDAP) is a predictive and non-punitive use of information derived from aircraft flight data recorders to improve aviation safety. The use of FDA as an important safety tool has grown as emerging technology expands the capabilities of gathering and analyzing such data. Daily collection and analysis of data provides valuable information to correct undesirable trends, improve safety and ultimately reduce the number of accidents. Operators of aeroplanes of a maximum certificated take-off mass in excess of 27,000 kg. are to establish and maintain a flight data analysis programme (FDAP) as part of its accident prevention and flight safety programme.

   A flight data analysis programme shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.

5) **Crew Resource Management Training (CRM/TEM**): Air operators to provide training to flight crew on Human Factors principles.

6) **Approach and Landing Accidents Reduction (ALAR):** Approach and Landing Accidents could also be reduced if flight crew were properly trained on topics related to stabilized approaches. This training should include: crew resource management, go around criteria, approaches with system malfunctions, non-normal conditions, and emphasis on basic airmanship, approach briefings, approach and missed approach procedures.

7) **Minimum Safe Altitude Warning (MSAW):** Recognizing that installation of radars and associated MSAW capability provides the necessary levels of terrain avoidance protection to aircraft operations, States are to consider this aspect when determining the justification for installation of new radar equipment. Justification would be strengthened for installation of radar where the CFIT risk is high.

8) **Performance-Based Navigation (PBN):** International harmonization of navigation requirements and specification based on the accuracy/integrity of aircraft position. It comprises two main sets of specifications: Area Navigation (RNAV), which is the capability to fly any desired flight path –especially on long- range flights –defined by waypoints such as geographic fixes (LAT/LONG) and not necessarily by ground navaids; and Required Navigation Performance (RNP), which is Global Navigation Satellite System (GNSS) based.

The Workshop documentation are available at: https://www.icao.int/WACAF/Pages/meetings.aspx.

2.2.3.5 Performance Based Navigation (PBN) Operations Approval

Under the African Flight Procedures Programme (AFPP), African States are being assisted in implementing PBN flight procedures at their international and domestic airports and the Civil Aviation Authorities are empowered with PBN concept and products, PBN oversight, quality assurance, PANS-OPS approval (regulatory approval and operational approval). This safety initiative is intended to mitigate CFIT related accidents and serious incidents, improve flight efficiency, increase airport accessibility, and reduce CO2 emissions due to aviation to achieve associated environmental benefits.

The AFPP Phase I was launched by ICAO in 2014 for an initial duration of three (3) years, and is hosted in Dakar, Senegal with support of ASECNA, French DGAC and AIRBUS. The Programme has been renewed for another three (3) years from 8 February 2019. The AFPP has currently 35 active members and the Programme participating members include, the thirty-five (35) Active members (States/Organizations), One (1) Observer and Eight (8) Donors (Some States are active members and donors.

Activities conducted under the AFPP registered the following results on the AFI Region:

- RNP Approach procedures implementation: **77%:** (ESAF: 72.2%; WACAF: 83.3%)
- National PBN Implementation Plan (NPIP) in Africa: 81.3% per cent; ESAF: 70.8%; WACAF: 91.7%).
- Flight procedure design: **165 flight procedures designed or being designed**:
- Other assistance to States/Organizations in ; the resolution of a Significant Safety Concern: one State and one Organization and preparation of their National PBN Implementation Plan (NPIP): Two States

Note: some of these NPIP are not robust and still need to be reviewed.

- Trainings:
  - National PBN implementation plan development or updating workshop: 107 participants from 25 States and Organizations.
  - Flight Procedure design On-the Job-Training: 3 participants from one State. OJT is organized on State or Organization request.
  - Flight Validation Pilot Training: 01 participant from an Organization. Organized on request basis.

2.2.3.6 The ICAO Council's Aviation Recovery Task Force (CART).

The unprecedented outbreak of COVID-19 pandemic has caused serious disruptions in air traffic flow in 2020 and the subsequent year, as a result of travel restrictions imposed by States in a bid to curb the spread of the disease, with consequential virtual halt to air transport operations globally. The ICAO Council established a Task Force - ICAO Council's Aviation Recovery Task Force (CART) - to address the negative impact of the pandemic on air travel and the aviation industry. The Task Force developed a series of recommendations and guidance for the safe, secure and sustainable restart and recovery of the aviation sector worldwide.

The CART document establishes 20 recommendations, out of which 6 are safety-related (i.e. REC-01, REC-02, REC-03, REC-12, REC-15, REC-16). Additionally, ICAO has developed the COVID-19 Response and Recovery Implementation Centre (CRRIC), a central repository with several monitoring and reporting applications, to monitor the level of implementation of CART recommendations and to facilitate the sharing of information, exchange of experiences on best practices. Furthermore, to support the implementation of CART

recommendations, ICAO in coordination with Regional Offices, has provided a series COVID-19 Webinars and assistance activities to States and the aviation community.

The overall implementation Status for the Safety Recommendations is provided in **Figure 11**, based on the information reported by RASG-AFI States in the CRRIC-GAP analysis application. According to the information reported, 75.35% of the States have fully implemented the recommendations (IMP), 9.72 % reported In-progress (IP), 2.78% have reviewed but not started the implementation (NS), and 9.03 % of the States have not yet reviewed the safety recommendations (NR).

Figure 11: Safety Recommendations - Overall Implementation Status

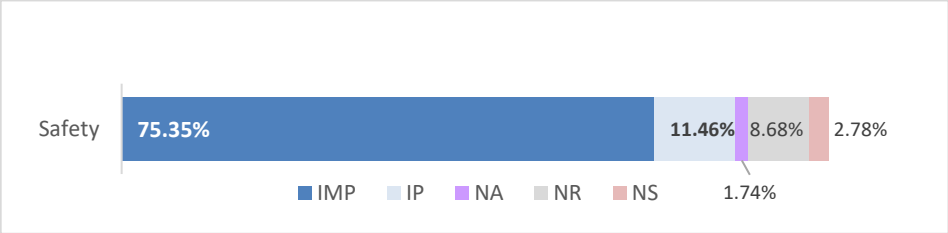
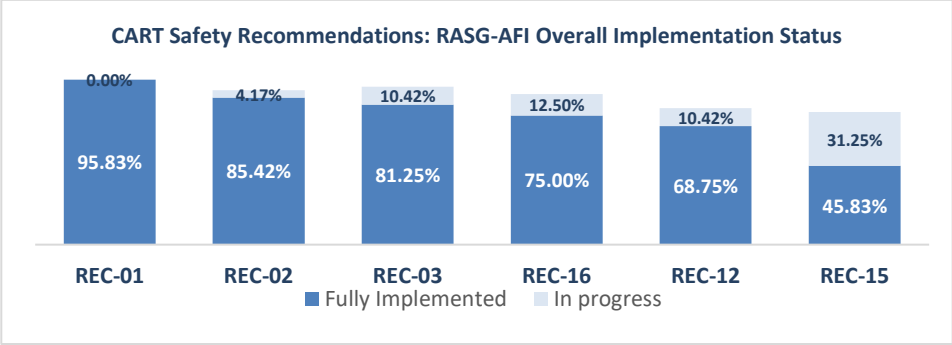


Figure 12 below highlights the levels of implementation across the 6 safety-related recommendations. The safety recommendation 1 related to continuing updating of COVID-19 Contingency Related Differences (CCRDs) has the highest level of implementation by the States with 95.83% % of States reported fully implemented the recommendations; and safety recommendation 15 on the implementation of Addenda Nos. 1 and 2 to the Technical Instructions for the Safe Transport of Dangerous Goods has the lowest level of implementation, with 45.83% of States reported fully Implemented the recommendation.

Figure 12- Level of Implementation of the 6 Safety-related Recommendations within the RASG-AFI Region.



2.2.3.7 RASG-AFI National Continuous Monitoring Coordinators Webinar on the Targeted Exemptions (TEs) System.

The ICAO Regional Offices for Western and Central Africa (WACAF) and Eastern and Southern Africa (ESAF) conducted a webinar for USOAP CMA National Continuous Monitoring Coordinators (NCMCs) on Targeted Exemptions on 5 May 2021. The activity as convened following the publication of the ICAO State Letter Ref.: AN 11/55-21/27 dated 31 March 2021 on the end of the COVID-19 Contingency Related Differences (CCRD) System effective 31 March 2021 (with transition until 30 June 2021) for recording differences related to the pandemic, and establishment of the Targeted Exemptions System for exceptional circumstances.

The objective of the webinar was to provide guidance on support to States in the transition to normal aviation operations and, if necessary, in the event of unforeseeable circumstances, a new Targeted Exemptions System which was launched on 1 April 2021, replacing the CCRD System. TEs are tightly scoped and time limited State-issued exemptions to a specified subset of Standards granted as a result of COVID-19 pandemic; and were filed using TE submission forms. TEs are granted to specific operators or groups of individuals while national regulations remain in compliance with Standards and Recommended Practices (SARPs). TEs applied to the following specified subset of Standards:

- Pilot Proficiency Checks (**PPC**)
- Pilot TO/LDG Recent Experience (**REC**)
- Pilot Area, Route and Aerodrome Qualification for Pilot-in-Command (**ARA**)
- Pilot Medical Validity (**MED**)
- Pilot Licence Validity (**PEL**).

TEs allowed other States to determine whether to accept flights using TEs within their territory; and allowed verification of compliance with TE by a foreign operator inspector.

The successful webinar and assistance to individual States upon request, resulted in a positive response rate of the RASG-AFI States filing of the TE Acceptability Status Update Form and Nigeria became the first State globally to have its TE acceptable to ICAO for publication on its public website and to be used as a guide for other States. It was anticipated that filing of the TE Forms might not be necessary in the subsequent year with the aviation operation in the RASG-AFI Region gradually returning to normal.

2.2.3.8 AFI-CIS Induction and Refresher Workshop

AFCAC in collaboration with ICAO ESAF and WACAF Regional Offices and the EU-ASA Project, hosted the 3rd AFI-CIS Induction and Refresher workshop which was held virtually from 22 to 31 March 2021. Officials from AFCAC, the AFI Plan Steering Committee, EASA and ICAO addressed the workshop which was funded by EASA abd facilitated by ICAO and AFCAC. A total of 70 AFI-CIS inspectors from 21 African member States participated in the workshop. Out of the 70 participants, 58 were new AFI-CIS Inspectors while 12 were experienced inspectors. The workshop was the third since the inception of the AFI-CIS project in 2010 and a milestone in the implementation of the AFI-CIS Programme particularly when the aviation industry was staggering with the effects of COVID-19 pandemic. This capacity building workshop was strategic as it increased the capacity of the AFI-CIS programme

to offer both physical and remote technical assistance missions to African member States.

Due to the effects of COVID-19 pandemic, AFCAC was able to conduct only 3 out of the 12 planned AFI-CIS technical assistance missions (2 virtual and 1 onsite) during the year under review. All other planned technical assistance missions were deferred to 2022.

In order to improve the quality, operational efficiency and effectiveness of the AFI-CIS programme, AFCAC developed specifications for an AFI-CIS Toolkit. The Toolkit is an automated information gathering, dissemination and workflow processing platform to be hosted on AFCAC's public and secure portals. As the Platform is to be hosted on the public and secure portals, it is intended to assist all authorized stakeholders to view status of the AFI-CIS technical assistance activities, as well as status of compliance of member States. It will also provide an AFI-CIS experts database and the automated on-site and off-site mission job aids for CIS inspectors.

2.2.3.9 Regional Safety Oversight Organizations (RSOOs) and Regional Accident Investigation Organizations (RAIO).

In line with the Ministerial Declaration on RSOOs in Africa adopted by African Ministers responsible for Civil Aviation, in Ezulwini, on 24 March 2017, the AFI Comprehensive Implementation Plan for Aviation Safety in Africa conducted a study for the strengthening of RSOOs in the AFI region. The purpose of the study, conducted with the assistance of a Consultant between July and September 2021, was to identify the actions necessary for ensuring the effectiveness, efficiency and sustainability of the RSOOs and develop a Strategic Plan and Roadmap for implementation.

The study evaluated the impact of AFI RSOOs on improvement of safety oversight standards of States and their effectiveness and efficiency. It covered and considered establishment and membership of the RSOOs, funding arrangements, autonomy and independences, technical capacity and qualified personnel, delegation of functions and activities, and cooperation and collaboration in the area of safety oversight and accident investigation. In terms of resilience to emerging threats, the adverse impact of COVID-19 on the aviation sector, including RSOOs, provides useful lessons.

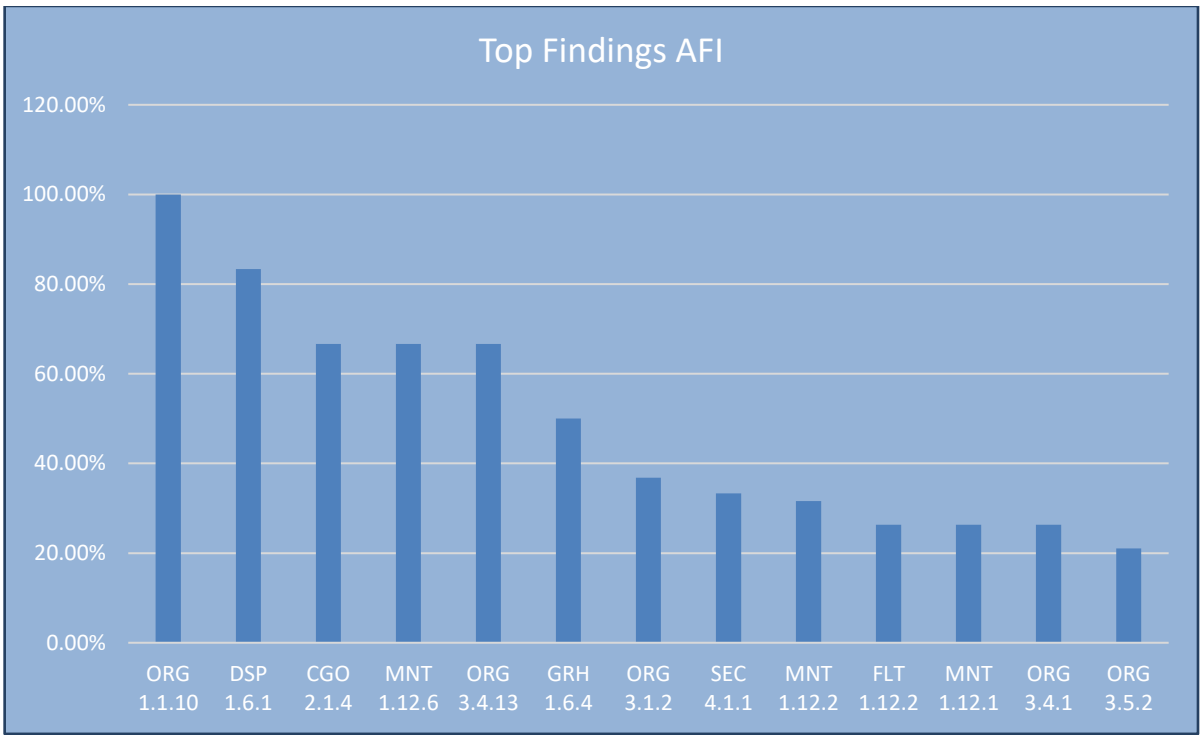
The study has identified lack of adequate funding, insufficient qualified personnel, low commitment of States, limited services and non-delegation as the most pressing challenges faced by AFI RSOOs. In terms of financing, the majority of AFI RSOOs depend on direct State contributions, which are often inadequate and not readily available. Identified options for sustainable funding include RSOO service fees; airport and air navigation service charges; government funds; air safety charge; and grants and loans from donor States and regional financial institutions. The option of a community levy has been considered in the case of certain RSOOs associated with RECs although it is not without opposition. A combination of these options could be considered for application on regional or individual State basis under a Joint collection of charges scheme.

2.2.4 IATA Operational Safety Audits (IOSA)

The IATA Operational Safety Audit (IOSA) is the benchmark for global safety management in airlines and is an internationally recognized and accepted evaluation system designed to assess the operational management and control systems of an airline.
IOSA scope covers eight (8) areas which include: Organization and Management (ORG), Maintenance (MNT), Cargo (CGO), Security (SEC), Flight Operations (FLT), Dispatch (DSP), Cabin Safety (CAB) and Ground Handling Operations (GRH).

Figure 13: RASG-AFI Region Trend in IOSA Top Findings per Audit Area

The following graph shows the AFI trend in 2021 IOSA top findings per audit area where issues in Organisation and Management, Cargo Handling and Maintenance ranked high. The pattern remains unique for each region and generally varies year-in year-out.



Source: IOSA Program Office

Key:

ORG 1.1.10. - SMS Implementation; **DSP 1.6.1 -** Dispatch Documentation System; **CGO 2.1.4 -** Training of Cargo Handling Personnel; **MNT 1.12.6 -** SMS Training for Engineering and Maintenance Personnel; **ORG 3.4.13** - Specific Risk Assessment ; **GRH 1.6.4** - Handling of Dangerous Goods ; **ORG 3.1.2 -** Safety Risk & Mitigation Program; **SEC 4.1.1** - Management of Security and cybersecurity Threats ; **MNT 1.12.2 -** Safety Risk Assessment and Mitigation Program in **Maintenance Operations**; **FLT 1.12.2 -** Safety Risk Assessment and Mitigation Program in Flight Operations; **MNT 1.12.1** - Hazard Identification Program for Maintenance Operations; **ORG 3.4.1 -** Policy/Procedures Transportation in Cargo Compartment; **ORG 3.5.2 -** Identification/Investigation of Irregularities/precursors.

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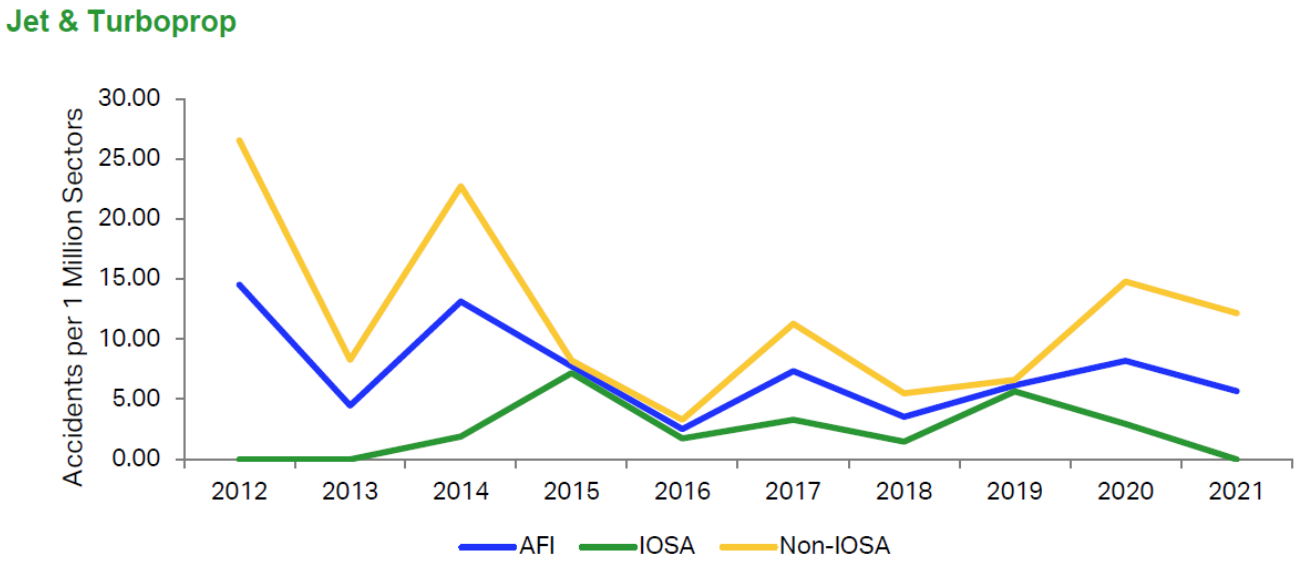
Following the revision of the Abuja Safety Targets in December 2017, all AFI States are required to establish an appropriate framework for recognition of the IATA Operational Safety Audit (IOSA) and IATA Standard Safety Assessment (ISSA) as effective safety mechanisms; all African Airlines to obtain IOSA/ISSA certification, as appropriate, by the end of 2022.

By end of 2021 only five (5) RASG-AFI States: Nigeria, Mozambique, Rwanda, Togo and Zimbabwe had established some form of legal instrument that recognizes IOSA.

Figure 14: Accident Rate for IOSA versus Non-IOSA Operators in RASG-AFI Region

The graph below represents the rate of occurrence of all accidents over the period 2012-2021, per million flight sectors for RASG-AFI registered operators (blue) versus RASG-AFI IOSA- registered operators (green) and RASG-AFI non-IOSA-registered operators (yellow). From the trend, the IOSA certified operators continue to outperform the non-IOSA certified carriers in the Region.



Source: IATA GADM

Note: The above graph represents statistics for both Jet and Turboprop operations.

2.2.5 IATA Safety Audit for Ground Operations (ISAGO) and IATA Ground Operations Manual (IGOM)

ISAGO is an industry program for the global oversight of ground service providers (GSPs). ISAGO drives an implementation of standardized operational procedures and management system requirements by GSPs hence increasing the adoption of the harmonized industry best practises (BPs) amongst the ground handling stakeholders. ISAGO contributes towards better GSPs' performance and towards risk reduction in ground operations.

In 2021, 293 audits (40 in AFI) were completed; 88 audits (30%) were done remotely, 245 audits (84%) were renewals. The 40 audits in AFI were split as 35 onsite and 5 remote. Remote audits were discontinued as of 2022. The key areas, where the majority of findings were identified, were:

- SMS implementation with several types of deficiencies in safety assurance and safety risk management.
- Training programs and records.
- Ongoing management control of documentation.
- Quality assurance.
- Oversight of external suppliers.

Throughout 2021, IATA called on industry and governments to recognize and implement two key tools for ground handlers which are namely the IATA Ground Operations Manual (IGOM) and the IATA Safety Audit for Ground Operations (ISAGO).

IGOM is the established global industry standard for ground handling worldwide. The IGOM Portal is an online platform where, with IGOM as the primary reference, airlines and ground service providers (GSPs) can exchange information, including any variations, on their ground handling requirements.

Safe and secure on-time turnarounds are a priority for airlines and a critical deliverable for GSPs. Standardization of procedures through the IGOM adoption is a key enabler that will be validated through ISAGO auditing scheme

2.3 Predictive Safety Information

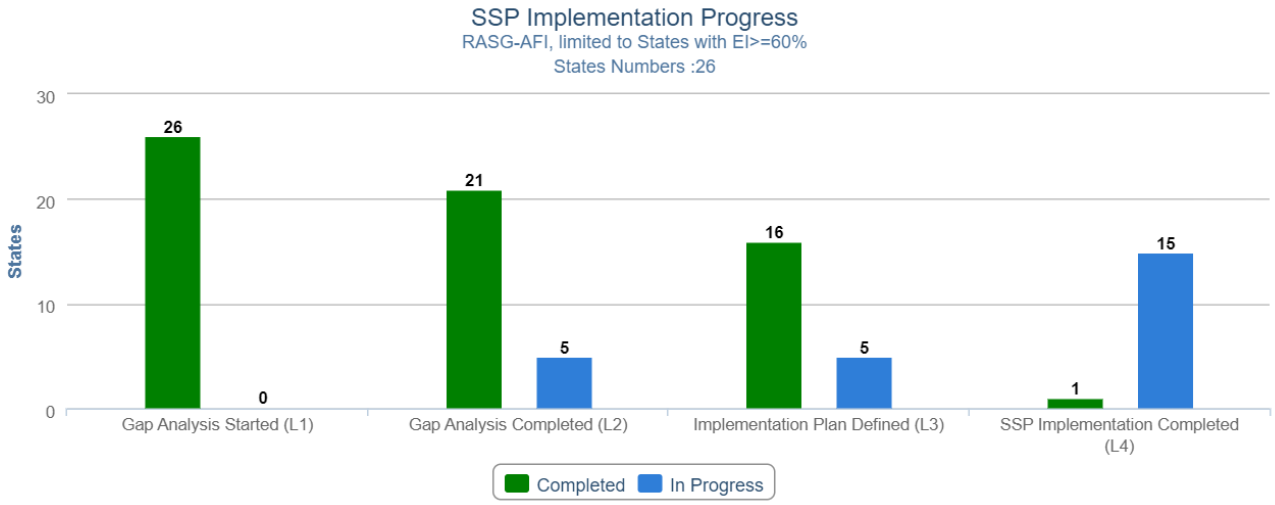
One of the revised Abuja Safety Targets requires all States to have a Foundation SSP established by end of 2022, addressing all pre-requisites:

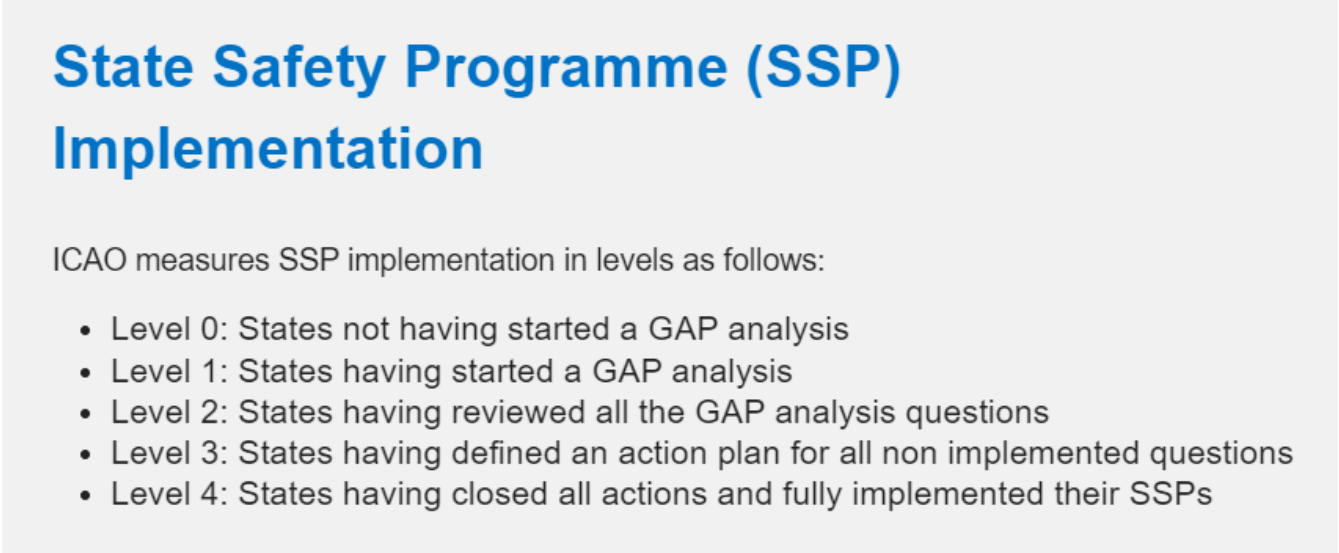
- to have an Effective SSP with appropriate maturity level established;
- to contribute information on safety risks, including SSP SPIs, to the RASG-AFI;
- with an Effective SSP, to actively engage in RASG-AFI safety risk management activities (analysis of safety risks, design and implementation of risk mitigation actions); and
- ensure that all Service Providers implement a Safety Management System (SMS) by end of 2022, and that they use globally harmonized SPIs as part of their SMS.

Although some degree of progress has been registered in this respect, availability of a reliable predictive safety information within the RASG-AFI region continues to pose challenges.

SSP is a framework that allows the State safety oversight authority and service providers to interact more effectively in the resolution of safety concerns. The SSP statistics release high level information about each Gap Analysis project. SSP implementation project has been measured for each State using a simple milestone as per the entered data.

Figure 15: RASG-AFI States' Safety Programme Implementation (SSP) Progress.





Source: ICAO iSTARS

Table 5: RASG-AFI States that have initiated the implementation of SSP.

By 31 December 2021, only one States Rwanda of the 48 RASG-AFI States had attained Level 4 of SSP implementation. However, there were improvements in the SSP implementation over 2020 with 15 States completing Level 3 and at different stages of attaining Level 4 (compared to 13 States in 2020). 5 States completed Level 2 and are at different stages of attaining Level 3, and 5 States completed Level 1 and at different stages of attaining Level 2, as depicted in **Table 5** below.

Table 5: RASG-AFI States that have initiated the implementation of SSP by end of 2021.

Code	State Name	Progress	Level (Up %)	
BWA	Botswana	Gap Analysis Completed	L2 / 95.2% L3	
BFA	Burkina Faso	Gap Analysis Completed	L2 / 81% L3	
CPV	Cabo Verde	Gap Analysis Completed	L2 / 97.6% L3	
COG	Congo	Gap Analysis Started	L1 / 28.6% L2	
CIV	Cote d'Ivoire	Implementation Plan Defined	L3 / 16.7% L4	
GNQ	Equatorial Guinea	Gap Analysis Started	L1 / 02.4% L2	
ETH	Ethiopia	Implementation Plan Defined	L3 / 71.4% L4	
GAB	Gabon	Implementation Plan Defined	L3 / 16.7% L4	
GMB	Gambia	Implementation Plan Defined	L3 / 19% L4	
GHA	Ghana	Gap Analysis Completed	L2 / 97.6% L3	
KEN	Kenya	Implementation Plan Defined	L3 / 52.4% L4	
MDG	Madagascar	Implementation Plan Defined	L3 / 52.4% L4	
MLI	Mali	Implementation Plan Defined	L3 / 21.4% L4	
MRT	Mauritania	Implementation Plan Defined	L3 / 23.8% L4	
MUS	Mauritius	Implementation Plan Defined	L3 / 47.6% L4	
MOZ	Mozambique	Gap Analysis Started	L1 / 04.8% L2	
NAM	Namibia	Implementation Plan Defined	L3 / 19% L4	
NER	Niger	Gap Analysis Started	L1 / 50% L2	
NGA	Nigeria	Implementation Plan Defined	L3 / 40.5% L4	
RWA	Rwanda	SSP Implementation Completed	L4 / 100% L4	
SEN	Senegal	Gap Analysis Started	L1 / 57.1% L2	
ZAF	South Africa	Implementation Plan Defined	L3 / 88.1% L4	
TGO	Togo	Implementation Plan Defined	L3 / 35.7% L4	
UGA	Uganda	Gap Analysis Completed	L2 / 97.6% L3	
TZA	United Republic of Tanzania	Implementation Plan Defined	L3 / 52.4% L4	
ZMB	Zambia	Implementation Plan Defined	L3 / 54.8% L4	

Source: ICAO iSTARS

3.0 Conclusions and Recommendations

3.1 Conclusions:

Based on the analyses of the available data for 2021, the following conclusions are drawn:

3.1.1 Achievements registered:

- "Zero SSC" status in the WACAF Region maintained and any potential SSC timely mitigated.
- Zero CFIT related accidents maintained and zero LOC-I related accidents maintained.
- Remote assistance and guidance to States by the Regional office through adopting technology and use of online platforms (Zoom, MS Teams, etc.)
- Seminars and webinars conducted virtually to facilitate awareness, aviation operations in exceptional circumstances.
- The average USOAP Overall EI for States in the RASG-AFI region has very marginally improved from 56.93 per cent at the end of 2020 to 56.95 per cent in 2021, which is below the world average of 69.32 per cent.

3.1.2 Challenges encountered:

- Runway Excursion (RE) related accidents remained the most predominant High Risk Category of Occurrence and continues to be main priority for Safety Enhancement Initiatives (SEI) in the RASG-AFI Region;
- Although zero CFIT and LOC-I related accidents was reported in 2021, there is need for concerted efforts to maintain the status quo.
- Long outstanding resolution of the remaining SSC in Eritrea impedes attainment of the regional goals and requires enhanced Sate commitment and collaboration;
- Constraints in conducting USOAP CMA on-site Activities; and assistance missions (ROST, RS Go-Team) to some deserving States due to COVID-19 restrictions, unsafe political situations (e.g. Somalia, South Sudan) and lack of/unreliable internet systems;
- Establishment of an appropriate framework by States for recognition of IOSA and ISSA as effective safety mechanisms; and airlines to obtain registration as appropriate;
- Although this report has captured predictive safety information to some extent, the low level of aviation activities (few contributors of safety data) and SSP/SMS implementation within the RASG-AFI region were yet to evolve to desired maturity.

3.2 Recommendations:

1) On-going efforts to resolve the remaining Significant Safety Concern (SSC) in Eritrea should include expeditious institution of mitigation measures.

2) RASC should ensure that the AFI-RASP is developed and aligned to the GASP preferably by 31 December 2022; and that States' NASPs are aligned to the AFI-RASP and GASP.

3) RASC should urge all States to establish effective RSTs, pursue certification of their international aerodromes and provide feedback on progress made to the RASC in collaboration with key stakeholders;

4) RASC should urge all States scheduled for USOAP CMA Activities, as well as assistance missions, to do their utmost to receive such activities and to the extent possible avoid postponement such important undertakings.

5) To ensure quality and efficiency of the AFI-CIS programme, AFCAC should accelerate the establishment of an AFI CIS toolkit or platform upon which an appropriate database of generic technical guidance materials, including but not limited to mission programs, checklists etc, are deposited and accessible even remotely.

Appendix – 1: List of Member States of the RASG-AFI

Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo
Côte d'Ivoire
Democratic Rep. of Congo
Djibouti
Equatorial Guinea
Eritrea
Eswatini
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mauritius
Mozambique
Namibia
Niger
Nigeria
Rwanda
Sao Tome and Principe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
South Sudan
Togo
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

Appendix – 2: List of Permanent Partners of RASG-AFI

Airports Council International (ACI)

African Civil Aviation Commission (AFCAC) African

Airlines Association (AFRAA)

Airbus Aircraft Manufacturer (AIRBUS)

Agence pour la Sécurité de la Navigation Aérienne en Afrique et à Madagascar (ASECNA) Boeing

Commercial Airplane Company (BOEING)

Civil Air Navigation Services Organization (CANSO)

Cooperative Development of Operational Safety and Continuing Airworthiness Programmes(COSCAPs)

European Aviation Safety Agency (EASA)

Federal Aviation Administration – United States of America (FAA-USA) Flight

Safety Foundation (FSF)

International Air Transport Association (IATA)

International Federation of Airline Pilots Association (IFALPA) International

Federation of Air Traffic Controllers Association (IFATCA) Regional Safety

Oversight Organizations (RSOOs)

World Food Programme - United Nations (WFP-UN)

Appendix – 3: List of States Having USOAP Safety Oversight Effective Implementation (EI) of 60% and greater as at December 2021

Benin

Botswana

Burkina Faso

Cameroon

Cape Verde

Congo

Cote d'Ivoire

Equat. Guinea

Ethiopia

Gabon

Gambia

Ghana

Kenya

Madagascar

Mali

Mauritania

Mauritius

Mozambique

Namibia

Niger

Nigeria

Rwanda

Senegal

South Africa

Togo

Uganda

United Republic of Tanzania

Zambia

Appendix 4 – APEX in Africa 2011 - 2021

5-9 September 2011	Lomé–Tokoin International Airport	Lomé, Togo
12-16 March 2012	Aeroportos de Moçambique, E.P.	Maputo, Mozambique
2-6 April 2012	Kenneth Kaunda International Airport	Lusaka, Zambia
18-22 Mar 2013	Aéroport de Nouakchott	Nouakchott, Mauritania
20-24 Jan 2014	Sir Seewoosagur Ramgoolam International Airport	Mahébourg, Plaine Magnien, Mauritius
12-16 May 2014	Aéroport Félix Houphouët-Boigny	Abidjan, Ivory Coast
1-5 September 2014	Aéroport de Ouagadougou	Ouagadougou, Burkina Faso
22-24 October 2014	Aéroport de Port-Gentil	Port-Gentil, Gabon
24-28 November 2014	Aéroport international Cardinal Bernardin Gantin	Cotounou, Benin
1-5 December 2014	Aéroport international Diori Hamani	Niamey, Niger
30 November-4 December 2014	Khartoum International Airport	Khartoum, Sudan
3-7 May 2015	Cairo International Airport	Cairo, Egypt
18-22 May 2015	Murtala Muhammed International Airport	Lagos, Nigeria
25-29 May 2015	Entebbe International Airport	Entebbe, Uganda
8-12 June 2015	Aéroport International Léopold Sédar Senghor	Dakar, Senegal
15-19 June 2015	Nnamdi Azikiwe International Airport	Abuja, Nigeria
22-26 June 2015	Aéroport International de Bamako-Sénou	Bamako, Mali
3-7 August 2015	Aéroport international Hassan Djamous de N'Djamena	N'Djamena, Chad
21-25 Sep 2015	Kotoka International Airport	Accra, Ghana
18-22 Jan 2016	Aéroport International de Tunis Carthage	Tunis, Tunisia
1-5 Aug 2016	Aéroport International de Brazzaville Maya-Maya	Brazzaville, Republic of the Congo
21-25Nov 2016	Aéroport International de Yaoundé-Nsimalen	Yaounde, Cameroon
28Nov-2Dec 2016	Aéroport International de Douala	Douala, Cameroon
30Jan-3Feb 2017	Aéroport International Léon-Mba	Libreville. Gabon
20-24 Mar 2017	Aéroport de Pointe Noire	Ponte Noire, Congo
3-7Jul 2017	Bangui M'Poko International Airport	Bangui, Central Africa
21-25Aug 2017	Aéroport International Hassan Djamous	N'DJamena Chad
18Sep-22Sep 2017	Aéroport International Omar Bongo ONDIMBA	Franceville, Gabon

30Oct-3Nov 2017	Aéroport de Kinshasa/Ndjili	Kinshasa, Congo
6 Nov-10Nov 2017	Aéroport de Luano	Lubumbashi, Congo
11-15Dec 2017	Banjul International Airport	Banjul, Gambia
15-17 Jan 2018	Nouadhibou International Airport	Noouadhibou, Mauritanie
20-24 Jan 2018	Nouakchott International Airport	Nouakchott, Mauritanie
12-16 March 2018	Hosea Kutako International Airport	Windhoek, Namibia
12-16March 2018	Port Harcourt International Aiport	Port Harcourt, Nigeria
19-23 March 2018	Mallam Aminu Kano International Airport	Kano, Nigeria
25-29 June 2018	Akanu Ibiam International Airport	Enugu, Africa
2-6 July 2018	Kaduna Airport	Kaduna, Nigeria
6-10 August 2018	Kigali International Airport	Kigali, Rwanda
8-12 April 2019	Roland Garros Airport	La Réunion, France
24-28 June 2019	Maputo International Airport	Maputo, Mozambique
22-26 July 2019	Freetown International Airport	Freetown, Sierra Leone
23-27 September 2019	Kamuzu International Airport	Lilongwe, Malawi
25-29 November 2019	Conakry Gbessia International Airport	Conakry, Guineé
2-6 December 2019	Amilcar International Airport	Sal, Cape Verde
9-13 December 2019	Nelson Mandela International Airport	Praia, Cape Verde
02-05 November 2021	Blaise Diagne International Airport	Dakar, Sénégal
30 November – 03 December 2021	Bouake Airport	Bouake, Côte d'Ivoire
06-09 December 2021	Félix Houphouët Boigny International Airport	Abidjan, Côte d'Ivoire

Appendix – 5: Status of Aerodrome Certification in the RASG-AFI Region, December 2021

AERODROME CERTIFICATION IMPLEMENTATION IN AFRICA – December, 2021

STATE/TERRITORY	No of INT AERODROMES (Att A_AFI eANP-Table AOP I-1)	RESPONSIBLE BODY	AERODROMES STATUS		
			Certified	Not Certified	% of implementation
WACAF	54		14	40	25,92
Benin	1		1	0	100,00
Burkina Faso	2		1	1	50,00
Cameroon	5		0	5	0,00
Cape Verde	2		2	0	100,00
Central African Republic	2		0	2	0,00
Chad	1		0	1	0,00
Congo	2		0	2	0,00
Cote d'ivoire	1		1	0	100,00
Democratic Republic of the Congo	5		0	5	0,00
Equatorial Guinea	1		0	1	0,00
Gabon	3		1	2	33,33
Gambia	1		0	1	0,00
Ghana	1		1	0	100,00
Guinea	1		0	1	0,00
Guinea-Bissau	1		0	1	0,00
Liberia	1		0	1	0,00
Mali	6		1	5	16,67
Mauritania	5		1	4	20,00
Niger	3		1	2	33,33
Nigeria	5		2	3	40,00
Sao Tome and Principe	1		0	1	0,00
Senegal	2		1	1	50,00
Sierra Leone	1		0	1	0,00
Togo	1		1	0	100,00
ESAF	75		27	48	36
Angola	1		0	1	0,00

Botswana	4		0	4	0,00
Burundi	1		0	1	0,00
Comoros	2		0	2	0,00
Djibouti	1		0	1	0,00
Eritrea	2		0	2	0,00
Eswatini	1		1	0	100,00
Ethiopia	4		3	1	75,00
Kenya	3		2	1	66,67
Lesotho	1		0	1	0,00
Madagascar	7		1	6	14,29
Malawi	2		0	2	0,00
Mauritius	1		1	0	100,00
Mozambique	10		1	9	10,00
Namibia	3		2	1	66,67
Rwanda	1		1	0	100,00
Seychelles	1		0	1	0,00
Somalia	5		0	5	0,00
South Africa	10		10	0	100,00
South Sudan	1		0	1	0,00
Uganda	1		0	1	0,00
Tanzania	3		2	1	66,67
Zambia	4		1	3	25,00
Zimbabwe	3		2	1	66,67
TOTAL (WACAF/ESAF)	**126**		**41**	**85**	**32,54**

APPENDIX 6: REGIONAL AVIATION SAFETY GROUP FOR AFRICA – INDIAN OCEAN (RASG-AFI) REGION – CONTRIBUTORY BODIES.

1. Introduction.

1.1 To assist in its work and support the development, implementation and prioritization of the Regional Aviation Safety Group for Africa – Indian Ocean Region (RASG-AFI) safety initiatives, the Group may create contributory bodies (Safety Support Teams) to discharge the RASG-AFI work programme by working on defined subjects requiring detailed technical expertise. A contributory body shall only be formed when it has been clearly established that it is able to make a substantial contribution to the required work. A contributory body will be dissolved by the RASG-AFI when it has completed its assigned tasks or if the tasks cannot be usefully continued.

1.2 The Safety Support Teams (SSTs) will operate in coordination with and under the guidance of the RASG-AFI Steering Committee (RASC). The SSTs should accomplish their tasks by developing mitigation strategies by means of a Regional Aviation Safety Plan (AFI – RASP), based on gathering and processing safety data and information. These mitigation strategies shall be focused on the Global Aviation Safety Plan (GASP), corresponding Safety Enhancement Initiatives (SEIs) and the associated Global Aviation Safety Roadmap (GASR), which serves as an action plan to assist the aviation community in achieving the GASP goals through a structured, common frame of reference for all stakeholders.

1.3 Participation in Safety Support Teams should be by specialists or experts in the subjects under consideration. Such specialists should have relevant experience in the field concerned. Secretaries of Safety Support Teams established by the Group will be appointed by the Secretary of the RASG-AFI.

1.4 The RASG-AFI Contributory Bodies (Safety Support Teams, SSTs) are hereby restructured for efficiency and better alignment with the current GASP Goals and Targets as follows: State Safety Oversight System Support Team (SSO-SST); Operational Safety Issues Support Team (OSI-SST); State Safety Programme Support Team (SSP – SST); Air Navigation Services Safety Support Team (ANS – SST).

2. TERMS OF REFERENCE OF THE SAFETY SUPPORT TEAMS.

2.1 State Safety Oversight System Support Team (SSO-SST).

2.1.1 **Purpose of the SSO Support Team:**

The purpose of the Team is to assist States improve their effective implementation (EI) of the critical elements of a State's safety oversight system, including safety indexes in the Operations, Air Navigation and Supporting functional categories; prevent SSC and resolve existing ones within the set deadline. Priority will be given to States with existing Significant Safety Concerns (SSCs) and those with low EI score to achieve the relevant AFI safety target in line with the current Edition of the Global Aviation Safety Plan (GASP):

Goal 2 - Strengthen States' safety oversight capabilities;
Goal 4 - Increase collaboration at the regional level and
Goal 5 - Expand the use of industry programmes.

In this respect, the team is to:

a) Analyze data-driven safety risk areas identified by RASG-AFI using the Safety Performance Areas and Best Practices for ICAO, States and Industry as contained in the Global Aviation Safety Plan (GASP)
b) Identify possible mitigation measures and recommend implementation actions
c) Recommend establishment of and develop proposals for achievable projects based on prioritized mitigation measures with well-defined deliverables (including metrics to assess the effectiveness of the proposed mitigation actions) and clear timeframes established and proposed to RASG-AFI for further action. Additional consideration should be given to Organizational and Operational Issues, as well as Safety Performance Measurement as necessary.

2.1.2 **Membership:**

- ICAO Member States of the RASG-AFI Region
- AFCAC
- RSOOs/RAIOs
- EASA
- US FAA
- ACI
- Funding Partners
- Other representative organizations, or entities directly involved with aviation safety may be invited to join the working group either as a full member or observer as may be decided by the RASG-AFI Secretariat.

2.1.3 **Roles and Responsibilities:**

a) ICAO Regional Offices to serve as Secretariat
b) SSO Support Team members – provide technical expertise in analyzing and identifying achievable mitigation measures for identified safety risk areas in the AFI region, especially to avoid emergence of Significant Safety Concerns (SSCs).

2.1.4 **Working methods/arrangements:**

The SSO-SST discharges the RASG-AFI work programme by working on defined subjects as per the RASG-AFI Procedural Handbook.

2.2 Operational Safety Issues Support Team (OSI-SST).

2.2.1 **Purpose of the OSI-SST:**

The purpose of the Team is to assist States to progressively reduce the rate of accidents and serious incidents in Africa-Indian Ocean Region by first addressing the High Risk Categories of occurrences (HRCs) and mitigate the risk of fatalities through Runway Excursion (RE),Runway Incursion (RI), Controlled Flights Into Terrain (CFIT), Loss of Control In-flight (LOC-I), and Mid-Air Collision (MAC). The Team will also assist States to establish and maintain a regulatory framework and technical guidance materials for operations and integration of Remotely Piloted Aircraft Systems (RPAS) in the conventional Air Traffic Management system at both national and regional levels. The ultimate purpose is to achieve the relevant AFI safety targets and the Global Aviation Safety Plan (GASP) goals and targets:

Goal 1 - Achieve a continuous reduction of operational safety risks; and
Goal 5 - Expand the use of industry programmes.

In this respect, the team is required to:

a) Analyze data-driven safety risk areas identified by RASG-AFI using the Safety Performance Areas and Best Practices for ICAO, States and Industry as contained in the Global Aviation Safety Plan (GASP)
b) Share reports on operation of RPAS among AFI Aviation stakeholders;
c) Establish a RASG-AFI Dashboard, periodically collect Safety data and utilize Safety Performance Indicators (SPIs) to maintain the Dashboard, which should be available to the member States.
d) Monitor the SPIs and share data with other SSTs. If deviation from expected relevant performance is noted on the SPIs, other SSTs will be notified for further analysis.
e) Contribute key regional safety information from the previous year to the RASG-AFI Annual Safety Report.
f) Periodically propose updates to the AFI Regional Safety Plan for alignment with the current GASP
g) Adopt and use relevant guidance materials relating to the prevailing safety issues
h) Identify possible mitigation measures and recommend implementation actions
i) Recommend establishment of achievable projects based on prioritized mitigation measures with well-defined deliverables (including metric to assess the effectiveness of the proposed mitigation actions) and clear timeframes established and proposed to RASG-AFI for further action.
Consideration should also be given to Organizational and Operational Issues, as well as Safety Performance Measurement, especially as they relate to the HRCs (RE; RI; CFIT; LOC-I; and MAC).

2.2.2 **Membership:**

- ICAO Member States of the AFI Region
- ACI
- AFRAA
- ASECNA
- CANSO
- EASA
- FSF

- IATA
- IFALPA
- IFATCA
- US FAA
- Aircraft Manufacturers (AIRBUS, BOEING, etc.)
- Other representative organizations, or entities directly involved with aviation safety may be invited to join the working group either as a full member or as an observer as decided by RASG-AFI Secretariat

2.2.3 **Roles and Responsibilities:**

a) ICAO Regional Offices as Secretariat
b) OSI Support Team members – provide technical expertise in analyzing and identifying achievable mitigation measures for identified safety risk areas in the AFI region.

2.2.4 **Working methods/arrangements:**

The OSI-SST discharges the RASG-AFI work programme by working on defined subjects as per the RASG-AFI Procedural Handbook.

2.3 State Safety Programme Support Team (SSP – SST)

2.3.1 Purpose of the SSP Support Team:

The purpose of the Team is to assist States establish and implement an effective State Safety Programme (SSP) to achieve the relevant AFI safety target and the Global Aviation Safety Plan (GASP) goals and targets:

Goal 3 - Implement effective State safety programmes (SSPs);
Goal 4 - Increase collaboration at the regional level ; and
Goal 5 - Expand the use of industry programmes.

In this respect, the team is required to:

a) Analyze data-driven safety risk areas identified by RASG-AFI using the Safety Performance Areas and Best Practices for ICAO, States and Industry as contained in the Global Aviation Safety Plan (GASP)

b) Identify possible mitigation measures and recommend implementation actions
c) Recommend establishment of achievable projects based on prioritized mitigation measures with well-defined deliverables (including metrics to assess the effectiveness of the proposed mitigation actions) and clear implementation timeframes established and proposed to RASG-AFI for further action. In this regard, consideration should be given to Organizational and Operational Issues, as well as Safety Performance Measurement.

2.3.2 **Membership:**

- ICAO Member States of the RASG-AFI Region
- AFCAC
- RSOOs
- EASA
- US FAA
- Other representative organizations, or entities directly involved with aviation safety may be invited to join the working group either as a full member or observer as may be decided by the RASG-AFI Secretariat.

2.3.3 **Roles and Responsibilities:**

a) ICAO Regional Offices to serve as the Secretariat
b) SSP Support Team members – provide technical expertise in analyzing and identifying achievable mitigation measures for identified safety risk areas in the AFI region.

2.3.4 **Working methods/arrangements:**

The SSP-SST discharges the RASG-AFI work programme by working on defined subjects as per the RASG-AFI Procedural Handbook.

2.4 **Air Navigation Services Safety Support Team (ANS – SST)**

2.4.1 **Purpose of the ANS Safety Support Team:**

The purpose of the Team is to assist States to implement and maintain appropriate air navigation and airport infrastructures to support safe aviation operations, meeting the Basic Building Blocks (BBBs) requirements. The ultimate purpose is to achieve the relevant AFI Air Navigation targets and the Global Aviation Safety Plan (GASP) goals and targets:

Goal 4 - Increase collaboration at the regional level
Goal 6 - Ensure the appropriate infrastructure is available to support safe operations.

In this respect, the team is required to deal with **issues related to:**

a) Safety improvements in the areas of air navigation services (ANS) in the fields of Air Traffic Management (ATM), Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS), Aeronautical Information Services (AIS), Aeronautical Charts (Chart), Communications, Navigation and Surveillance (CNS), Aeronautical Meteorology (MET), and Search and Rescue (SAR).

b) Data-driven analyses on safety risk areas identified by RASG-AFI using the Safety Performance Areas and Best Practices for ICAO, States and Industry and:

i. Share reports on missing flight plans among AFI Aviation stakeholders;
ii. Review current best practices in improving ANS safety and oversight and other relevant guidance materials;

iii. Review existing Safety Enhancement Initiatives (SEIs) related to ANS safety and oversight and, when available, detailed Implementation Plans, including outputs, developed by other regional aviation safety groups (including other RASGs, PIRGs);
iv. Develop and propose SEIs pertaining to ANS safety and oversight in the RASG-AFI;
v. Ensure coordination of activities with APIRG and its contributory bodies in the areas of safety implementation, where required;
vi. Analyse the List of Air Navigation Deficiencies.
vii. Implement facilities and procedures that enable the timely supply of required MET information to flight information Centres, Area Control Centres, Approach Control Units, Aerodrome Control towers, and Communication stations.
viii. Maintain close coordination with stakeholders, including aeronautical meteorological information users, World Meteorological Organization (MWO) and other Partners dealing with MET.

c) Identify possible mitigation measures and recommend implementation actions;
d) Recommend establishment of achievable projects based on prioritized mitigation measures with well-defined deliverables (including metrics to assess the effectiveness of the proposed mitigation actions) and clear timeframes established and proposed to RASG-AFI for further action. Consideration should also be given to Organizational and Operational Issues, as well as Safety Performance Measurement.

2.4.2 **Membership:**

- ICAO Member States of the RASG-AFI Region
- AFCAC
- ASECNA
- ATNS
- CANSO
- IATA
- WMO
- Other representative organizations, or entities directly involved with aviation safety may be invited to join the working group either as a full member or as an observer as decided by RASG-AFI Secretariat.

2.4.3 **Roles and Responsibilities:**

a) ICAO Regional Offices as Secretariat
b) ANS Support Team members – provide technical expertise in analyzing and identifying achievable mitigation measures for identified safety risk areas in the AFI region.

2.4.4 **Working methods/arrangements:**

The ANS-SST discharges the RASG-AFI work programme by working on defined subjects as per the RASG-AFI Procedural Handbook.

Appendix - 7: Acknowledgement

The RASG-AFI acknowledges the invaluable works of the following RASG-AFI Annual Safety Report Team (ASRT) Members who contributed to the productions of the *RASG-AFI Annual Safety Reports; and all those who in one way or the other, contributed inputs to the Reports:*

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James Danga,
AFCAC

Maury Seck,
AIRBUS

Akachi Iroezi,
BOEING

Abbreviations

ACC – Area Control Centre
ACI – Airports Council International
AFI – Africa-Indian Ocean
AFI-CIS – AFI Cooperative Inspectorate Scheme
AFPP – Africa Flight Procedures Programme
AI – Accident Investigation
AIAG – AFI ATS Incident Analysis Group
ANC – Air Navigation Commission
ANSP – Air Navigation Service Providers
AOC – Air Operator Certificate
APAC – Asia Pacific
ARC – Abnormal Runway Contact
ASR – Annual Safety Report
ASRT – Annual Safety Report Team
ATC – Air Traffic Control
ATM – Air Traffic Management
ATS – Air Traffic Services
CAA – Civil Aviation Authority
CCO/CDO – Continuous Climb Operations/ Continuous Descent Operations
CMA – Continuous Monitoring Approach
COSCAP – Cooperative Development of Operational Safety and Continuing Airworthiness Programme
ESAF – Eastern and Southern Africa
ESI – Emerging Safety Issues
EUR – Europe
FIR – Flight Information Region
FLT – Flight
FSO – Fundamentals of Safety Oversight
GCOL – Ground Collision
GOA – Ground Operations Agent (ISAGO)
IATA – International Air Transport Association ICAO –
International Civil Aviation Organization
ICVM – ICAO Coordinated Validation Mission
IFALPA – International Federation of Airline Pilots' Association
IFATCA – International Federation of Air Traffic Controllers' Association
IFBP – In-Flight Broadcasting Procedures

IOSA – IATA Operational Safety Audit
ISAGO – IATA Safety Audit of Ground Operations
LATAM – Latin America
MENA – Middle East and North Africa
MID – Middle East
MNT – Maintenance
NAM – North America
NAT – North Atlantic
NASA – North Asia
ORG – Organization and Management
PA – Pan American
RAIO – Regional Aircraft Accident Investigation Organization
RASC – RASG AFI Steering Committee RASG – AFI
RASG-AFI – Regional Aviation Safety Group for Africa-Indian Ocean
REC – Regional Economic Community
RE – Runway Excursion
RI – Runway Incursion
RSOO – Regional Safety Oversight Organization
RWY – Runway
SAM – South America
SARPs – Standard and Recommended Practices
SCF-PP – Systems Component Failure Powerplant
SCF-NP – Systems Component Failure Non-Powerplant
SMS – Safety Management Systems SSC – Significant Safety Concerns
SSC – Significant Safety Concerns
SSP – State Safety Programme
SST – Safety Support Team
TWY – Taxiway
UCR-Unsatisfactory Condition Report
UNK - Unknown
USOAP – Universal Safety Oversight Audit Programme
USOS – Undershoot/Overshoot
WACAF – Western and Central Africa
3 per. Mov. Avg. (AFI) – 3 Year Moving Average (takes average rate over 3 years)

RASG-AFI Civil Aviation Safety Partners