



ICAO

**Safety**

# RASG-AFI

## Annual Safety Report 2016



### **Third Edition**

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## Table of Contents

Foreword.....	1
Background.....	2
1 Executive Summary.....	5
1.1 Regional Traffic Volume.....	8
2 Safety Information and Analysis.....	9
2.1 Reactive Safety Information.....	9
2.1.1 Regional Accident Rates.....	9
2.1.2 Regional Fatal Accident Rate.....	10
2.1.3 Regional Air Traffic Volume and Accident Data for 2016.....	11
2.1.4 Analysis of RASG-AFI Region Accidents between 2012 & 2016.....	11
2.1.5 Summary Status of Implementation of Abuja Safety Targets – RASG AFI Region.....	16
2.2 Proactive Safety Information.....	18
2.2.1 ICAO USOAP Audits.....	18
2.2.2 Regional Safety Initiatives.....	22
2.2.3 IATA Operational Safety Audit (IOSA) Audits.....	23
2.2.4 IATA Safety Audit for Ground Operations (ISAGO).....	25
2.3 Predictive Safety Information.....	26
2.3.1 Progress on Predictive Information Approach.....	28
2.4 RASG-AFI ATS Incidents Analysis Group (AIAG)/Air Nav. Infrastructure Safety.....	29
2.4.1 Fourteenth Meeting of AIAG (AIAG/14 - March 01 to 02, 2017).....	30
3 Conclusions and Recommendations.....	34
3.1 Conclusions.....	34
3.2 Recommendations.....	35

**List of Figures:**

Figure 1: RASG-AFI Organisational Structure.....	4
Figure 2: Framework for Identifying and Addressing Safety Risks.....	7
Figure 3: Jet Annual Accident Rate - RASG AFI versus World (2007 – 2016).....	9
Figure 4: Turboprop Annual Accident Rate - RASG AFI versus World (2007 – 2016).....	9
Figure 5: Jet Accident and Fatality Risk – RASG AFI vs World.....	10
Figure 6: Turboprop Accident and Fatality Risk – RASG AFI vs World.....	10
Figure 7: Distribution of High-risk Accidents for the period 2012 – 2016.....	12
Figure 8: Jet Damage Type (Hull Loss) RASG AFI vs World (2007- 2016).....	12
Figure 9: Turboprop Damage Type (Hull Loss) RASG-AFI vs World (2007-2016).....	13
Figure 10: RASG-AFI Region High-risk Accident Trend (2007– 2016).....	13
Figure 11 RASG-AFI Hull Loss & Fatality Risk for 2007 - 2016.....	15
Figure 12: Status of RASG-AFI States’ Safety Oversight – %EI at the end of 2016.....	19
Figure 13: Status of RASG-AFI States’ Safety Oversight-RASG-AFI %EI Vs World %EI end of 2016....	20
Figure 14: States Safety Oversight Maturity.....	20
Figure 15: Effective Implementation of Safety Oversight Systems in RASG-AFI States by Audit Area.....	21
Figure 16: Effective Implementation of Safety Oversight Systems within RASG-AFI States by CE.....	21
Figure 17: Trend in IOSA Findings & Observations per Region.....	23
Figure 18: RASG-AFI Region Trend in IOSA Top Findings per Audit Area.....	24
Figure 19: Accident Rate for IOSA versus Non-IOSA Operators in RASG-AFI Region.....	25
Figure 20: RASG-AFI States’ Safety Programme Implementation (SSP) Progress.....	27
Figure 21: Distribution of UCRs by Category after Analysis.....	30
Figure 22: Means through which Separation Minima was timely restored.....	31
Figure 23: Threat Severity Levels.....	31
Figure 24: UCRs within RASG AFI - Contributing Factors.....	32
Figure 25: Causes of Incidents.....	32
Figure 26: Late Separation Restoration Means.....	33
Figure 27: UCR Feedback Rate.....	33

**List of Tables:**

Table 1: Regional Traffic Growth – Jet and Turboprop Aircraft in Commercial Operations..... 8

Table 2: Regional Air Traffic Volume and Accident Data for 2016 ..... 11

Table 3: RASG-AFI States that have initiated the implementation of SSP.....28

**List of Appendices**

Appendix 1 –List of Member States of the RASG-AFI.....37

Appendix 2– List of Permanent Partners of RASG - AFI.....38

Appendix 3 –List of States Having USOAP Safety Oversight EI of 60% & greater as at December 2016.....39

Appendix 4 –Certified International Aerodromes within the RASG-AFI Region.....40

Appendix 5: Acknowledgement .....41

**ABBREVIATIONS** .....42

## Foreword

The Steering Committee of the Regional Aviation Safety Group Africa-Indian Ocean (RASG-AFI) constituted the Annual Safety Report Team (ASRT) tasked with the production of an annual report on aviation safety in the RASG-AFI Region. The report provides safety information from different available sources to determine the main safety risks in the Region and makes recommendations to the RASG- AFI for safety enhancement initiatives. I therefore, kindly urge all stakeholders to collaborate and cooperate with the ASRT in sharing and exchanging safety information for the good of aviation safety within the RASG-AFI.

The progress and effectiveness of States in achieving the objectives and priorities of the Abuja Safety Targets are measured on an on-going basis. Monitoring and reporting progress enables States and the ICAO regional offices to modify their activities based on their performance and to address emerging safety issues. To support States in this endeavour, an annual safety report, which provides an indication of the progress being made, is published by the RASG-AFI on a yearly basis.

While the RASG-AFI Annual Safety Report (ASR) is an annual publication, it is intended to be released and distributed during the AFI Aviation Safety Symposium, which is an annual event organized by ICAO and hosted by an AFI Member State. Comments and contributions from the general readership geared towards improving the quality of the document are highly welcome.

The ASR is organized in Section headings. A Table of Contents is provided which serves as a subject index.

Conclusions drawn and recommendations made in the Report are for the attention and appropriate action by relevant parties for timely implementation. Subsequent editions of the Report will provide information on the outcome of the assessment and the status of implementation of such recommendations; and any alternative course(s) of action that could be undertaken in addressing the outstanding issues.

An electronic copy of the RASG-AFI Annual Safety Report will also be 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. Simon Allotey  
Chairperson, RASG-AFI  
(Director General, Ghana CAA)

## Background

This Third Edition of the RASG-AFI Annual Safety Report which was released during the Safety Symposium in May 2017 in Gaborone, Botswana, provides background on the establishment of a Regional Aviation Safety Group for Africa - Indian Ocean (RASG-AFI). The RASG-AFI was endorsed by the fourth Meeting of the Directors-General of Civil Aviation Authorities of the ICAO Western and Central African (WACAF) and Eastern and Southern African (ESAF) States held in Matsapha, The Kingdom of Swaziland, from 8 to 9 November 2010. However, the structure and terms of reference for RASG-AFI were approved by the first meeting of RASG-AFI which was held at the Imperial Royal Hotel in Kampala, Uganda, from 26 to 27 March 2012.

RASG-AFI monitors progress, coordinates actions among its Member States and makes recommendations to ICAO on means to facilitate the implementation of the Global Aviation Safety Plan (GASP) and the associated Global Aviation Safety Roadmap (GASR) within its assigned region. It serves as a regional cooperative forum that would help to increase awareness of regional safety issues and at the same time provides a mechanism for addressing them. It is responsible for coordinating and monitoring the successful implementation of all safety initiatives in the RASG-AFI Region.

The RASG-AFI structure consists of a Chairperson, two (2) RASG-AFI Vice-Chairpersons from States and one (1) RASG-AFI Vice-Chairperson from the Aviation Industry.

Contracting States entitled to participate as members in the RASG-AFI meetings are:

- those whose territories or dependencies are located partially or wholly within the AFI Region (ESAF and WACAF accredited States; see **Appendix 1** for the list of Members of RASG-AFI); and
- those located outside the area which have notified ICAO that aircraft on their register or aircraft operated by an operator whose principal place of business or permanent residence is located in such States, operate or expect to operate into the area; or which provide facilities and services affecting the area.

Contracting States not meeting the above criteria and non-Contracting States are entitled to participate in RASG-AFI meetings as observers. 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).

RASG-AFI undertakes the following functions: analyze safety information and hazards to civil aviation at the regional level and review the action plans developed within the region to address identified hazards; facilitate the sharing of safety information and experiences among all stakeholders; ensure that all safety activities at the regional and sub-regional levels are properly coordinated to avoid duplication of efforts; reduce duplication of efforts by encouraging collaboration, cooperation and resource sharing; conduct follow-up to GASP/GASR activities as required; coordinate with APIRG on safety issues; and provide feedback to ICAO to continually improve and ensure an up-to-date global safety framework.

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 AFI Region. It is headed by three co-chairpersons (two from States and one from Industry). Its membership has been expanded to include the AFI Plan Steering Committee Chairperson, the Coordinator for the AFI Group at ICAO Council, and the various Safety Support Teams (SSTs) Champions. These SSTs which are headed by Champions who are members of the RASC, were established for the following priority areas namely: Significant Safety Concerns (SSCs), Fundamentals of Safety Oversight (FSO), Aircraft Accident Investigation (AIG) and Emerging Safety Issues (ESI). The term for the Chairperson, Vice-Chairpersons and Champions is two (2) years.

The following Safety Champions have been designated: SSC – Ghana, South Africa and AFCAC; FSO - Senegal and Uganda; AIG –Ethiopia, Cape Verde and IFALPA; and ESI – Kenya, ASECNA, and ACI.

The two ICAO Regional Directors for Eastern and Southern Africa (ESAF) and Western and Central Africa (WACAF) will alternate in serving as Secretary to the RASG-AFI and APIRG to balance the Secretariat responsibilities between these two regional groups.

At its Third Meeting held in Yamoussoukro, Cote d'Ivoire, in December 2015, RASG-AFI elected the following officials to the Bureau, who are entrusted with steering the affairs of the Group for the next two years ending 2017: Chairperson – Ghana; 1<sup>st</sup> Vice-Chairperson – South Africa; 2<sup>nd</sup> Vice-Chairperson – Cote d'Ivoire; 3<sup>rd</sup> Vice-Chairperson – IATA. The Meeting also revised the RASG-AFI structure for optimization of the reporting lines of the Group. The RASG-AFI Steering Committee is co-chaired by the 1<sup>st</sup> Vice-Chairperson and the 2<sup>nd</sup> Vice-Chairperson of the RASG-AFI and Boeing representing the Industry (see **Figure 1**).

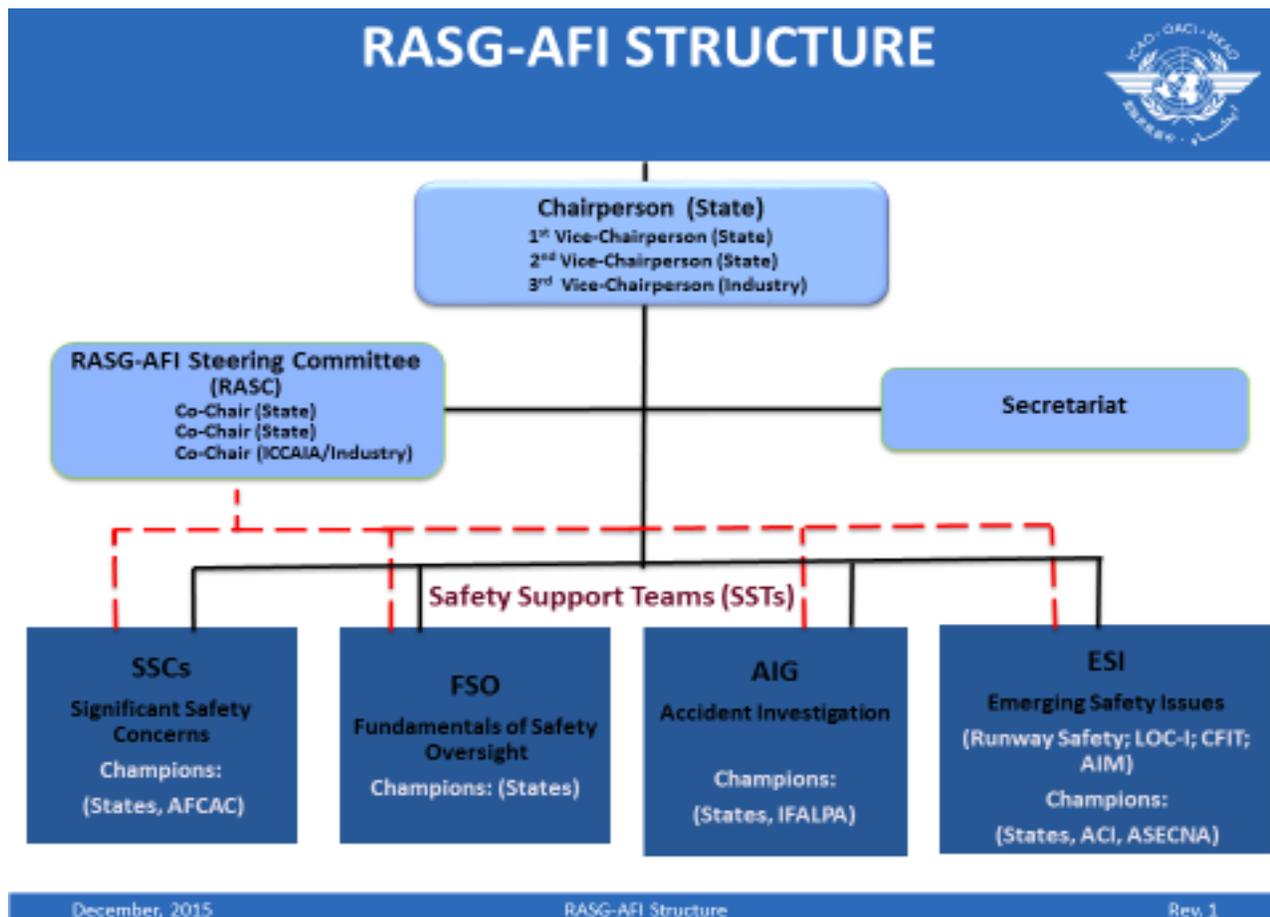
A Joint APIRG-RASG/AFI Coordination Task Force was also established by the RASG-AFI/3 Meeting. This is a subsidiary body to APIRG and RASG-AFI intended to strengthen existing arrangements and responsible for coordinating the activities of the two Groups.

Membership of the APIRG/RASG-AFI Joint Coordination Task Force comprise: 2 Representatives from APIRG; 2 Representatives from RASG-AFI (One from Secretariat and One from an AFI State); 1 Representative from AFCAC; and Airbus representing the Industry.

RASG-AFI has established an Annual Safety Report Team (ASRT) comprising RASG-AFI Partners, for the purpose of: gathering safety information from different available sources to determine the main safety risks in the AFI Region; generating an Annual Safety Report; making recommendations to the RASG- AFI for safety enhancement initiatives.

This Annual Safety Report has a consolidated vision of aviation safety using sources of information from regional stakeholders, and serves as a key component of RASG-AFI. Therefore, RASG-AFI members are encouraged to share their safety data with the ASRT.

Figure 1: RASG-AFI Organisational Structure



# 1 Executive Summary

This Third Edition of the RASG-AFI Annual Safety Report presents safety information collected from ICAO, Boeing, ACI Africa, IATA, and other aviation partners, particularly information related to aviation occurrences in the RASG-AFI Region, generally within the period 2012 to 2016, and the analysis performed by the Annual Safety Report Team (ASRT).

The Annual Safety Report includes the following three main sections:

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 is based on the results of the ICAO USOAP-CMA, IOSA, ISAGO and AIAG reports as well as other occurrences (Incidents) reported by States or airlines in order to identify emerging risks in the Region.

The results of the ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) Activities in 2016, showed that twenty-two (22) States in the RASG-AFI Region had attained 60% of Effective Implementation (EI) of the eight critical elements of a State's safety oversight system and the ICAO SARPs. At the end of 2016, on a global level, there were eight unresolved SSCs in eight States, all of them in the area of aircraft operations (OPS); out of these, four States are within the RASG-AFI region. Current performance indications are that it is highly unlikely that the Abuja safety targets will be met by the end of 2017. The RASG-AFI Steering Committee (RASC) has therefore, constituted a Task Force to review the Abuja Safety Targets and revise the deadlines assigned thereto, for approval by the RASC and subsequent endorsement by the RASG-AFI. The same results indicated that lack of adequate and effective technical staff qualification and training represent the most significantly affected USOAP Critical Element (CE-4) in the Region. Furthermore, the technical areas showing 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 before accidents or incidents occur, to develop timely mitigation and prevention measures. This 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) is a framework that allows the State safety oversight authority and service providers to interact more effectively in the resolution of safety concerns. The Abuja Safety Targets require States with 60% EI and greater to implement SSP (i.e. 22 RASG-AFI States at the end of 2016). Although some progress have been registered, the rate of implementation of SSP within the RASG-AFI Region has been considerably slow. At the end of 2016, Four (4) States had attained Level 3; Three (3) attained Level 2; and Twelve (12) attained Level 1. Out of the 48 RASG-AFI States, none has so far attained Level 4 of SSP implementation (see Figure 20 and Table 3).

Analysis of available safety information on the RASG-AFI Region showed that the top category to focus safety enhancements is related to Runway Excursion (RE). Out of the Seven (7) accidents recorded in the RASG-AFI Region in 2016 for scheduled commercial operations involving aircraft with maximum take-off mass above 5700kg, five (5) were Runway safety related; One (1) was related to Loss of Control In-flight (LOC-I); One (1) related to another cause; and zero (0) accidents related to Controlled Flight Into Terrain (CFIT). There is therefore, an urgent need for concerted efforts by all aviation stakeholders to address this phenomenon, thereby drastically reducing the RASG-AFI accident rate to world average. The following categories therefore, need urgent consideration:

Runway Excursion (RE)  
Loss of Control In-flight (LOC-I);  
Controlled Flight Into Terrain (CFIT).

LOC-I and CFIT occurrences showed decreasing trends, especially at the end of 2016. Aircraft accidents are categorized using the definition provided in Annex 13 to the Chicago Convention—Aircraft Accident and Incident Investigation.

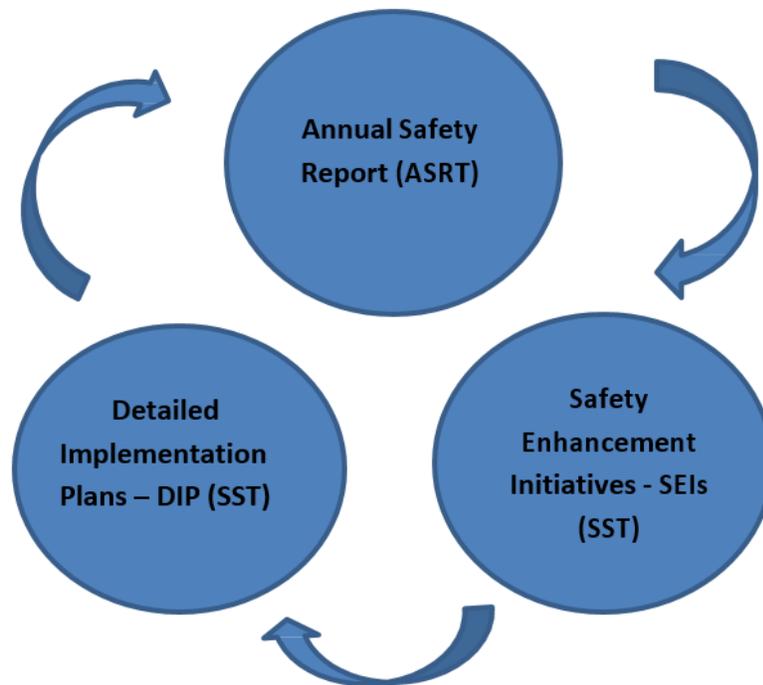
RASG-AFI is committed to improving aviation safety and fostering cooperation and communication - sharing of safety critical information among the principal aviation safety stakeholders.

**PLEASE NOTE:**

- **All accident statistics sourced from IATA (IATA GADM) are based on the operator's Country/State of Registry in RASG-AFI ;**
- **All accident statistics sourced from ICAO (ICAO iSTARS) are based on the Country /State of occurrence in RASG-AFI;**
- **Therefore there are slight variations.**

The diagram below illustrates the framework to be used by RASG-AFI to identify and address safety risks in the Region.

**Figure 2: Framework for Identifying and Addressing Safety Risks**



## 1.1 Regional Traffic Volume

The air transport sector flown in RASG-AFI Region has shown gradual growth from 2012 to 2016 (for both Jet & Turboprop). The 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 is slightly above one and one-quarter million (1.29M) movements a year, with 51% jets and 49% turboprop.

It is worth noting that while there is a growing trend in traffic volume, the RASG-AFI Region remains the lowest when compared with the other regions.

Please refer to the table below:

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

### Sector Count (Millions)

	2012	2013	2014	2015	2016	<i>Total</i>
<b>Jet</b>	<b>0.53</b>	<b>0.56</b>	<b>0.59</b>	<b>0.62</b>	<b>0.66</b>	<b>2.97</b>
Jet (IATA)	0.34	0.37	0.38	0.41	0.43	<b>1.92</b>
Jet (IOSA)	0.36	0.39	0.41	0.43	0.46	<b>2.05</b>
Jet (Non-IATA)	0.19	0.20	0.21	0.22	0.24	<b>1.05</b>
Jet (Non-IOSA)	0.16	0.18	0.19	0.20	0.20	<b>0.92</b>
<b>Turboprop</b>	<b>0.55</b>	<b>0.56</b>	<b>0.58</b>	<b>0.59</b>	<b>0.63</b>	<b>2.91</b>
Turboprop (IATA)	0.13	0.12	0.12	0.13	0.14	<b>0.64</b>
Turboprop (IOSA)	0.15	0.15	0.14	0.15	0.17	<b>0.75</b>
Turboprop (Non-IATA)	0.42	0.43	0.46	0.46	0.50	<b>2.27</b>
Turboprop (Non-IOSA)	0.40	0.41	0.43	0.44	0.46	<b>2.16</b>
<b>Total AFI</b>	<b>1.08</b>	<b>1.12</b>	<b>1.17</b>	<b>1.22</b>	<b>1.29</b>	<b>5.88</b>
Total AFI (IATA)	0.47	0.49	0.50	0.53	0.56	<b>2.56</b>
Total AFI (IOSA)	0.51	0.53	0.55	0.58	0.63	<b>2.80</b>
Total AFI (Non-IATA)	0.61	0.63	0.67	0.68	0.73	<b>3.32</b>
Total AFI (Non-IOSA)	0.57	0.59	0.62	0.64	0.66	<b>3.08</b>

*Source: IATA GADM*

## 2 Safety Information and Analysis

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

### 2.1 Reactive Safety Information

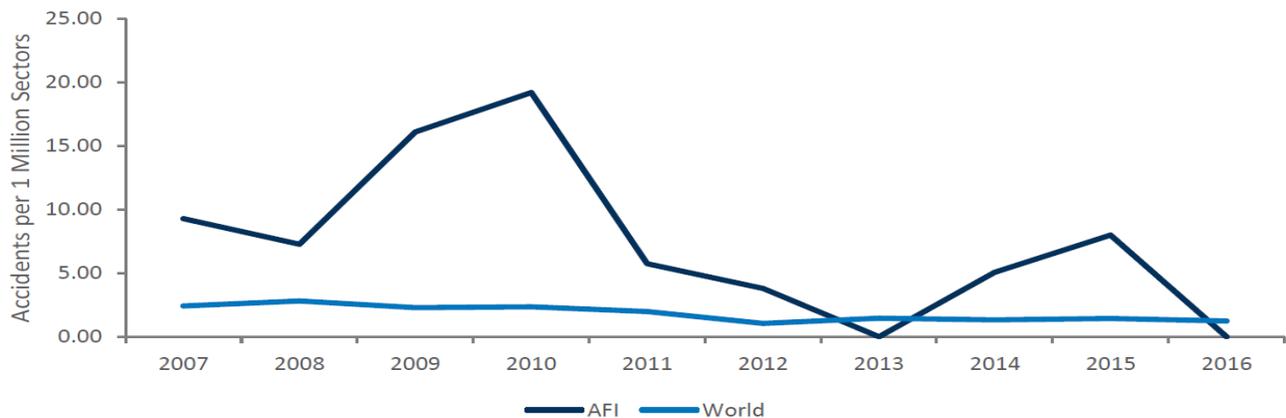
In accordance with the Abuja safety targets, accident rate should be progressively reduced to be in line with global average by end of 2015. However, at the end of 2016 this target was not met, as the RASG-AFI accident rate was 8.23 per million departures compared to the World accident rate of 2.68.

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.

#### 2.1.1 Regional Accident Rates

The graphs below (Figs. 3 & 4) represent the rate of occurrence of Jet and Turboprop accidents over the time period 2007-2016, per million flight sectors for operators from the AFI Region (dark blue) versus the World (light blue). This data is based on sectors of operators registered (AOC) in RASG-AFI.

**Figure 3: Jet Annual Accident Rate - RASG AFI versus World (2007 – 2016).**



Source: IATA GADM

**Figure 4: Turboprop Annual Accident Rate - RASG AFI versus World (2007 – 2016).**

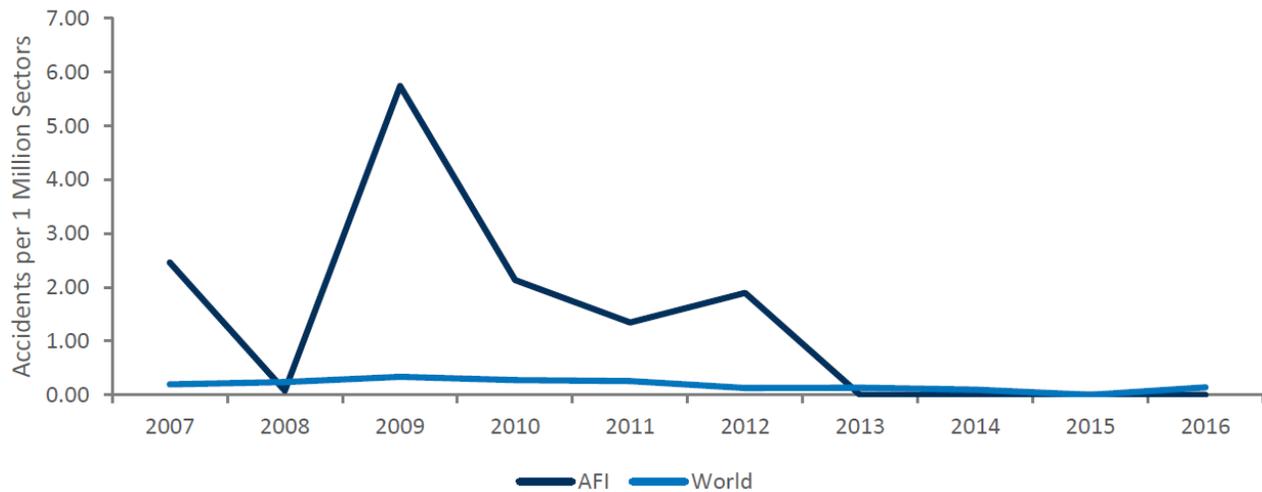


Source: IATA GADM

### 2.1.2 Regional Fatal Accident Rate

The fatal accident rate involving Jet aircraft with maximum take-off mass above 5700kg, engaged in commercial flights, as indicated in Figure 5, increased from 2011 to 2012 but has generally been decreasing to date. On the other hand, the fatal accident rate involving Turboprop aircraft with maximum take-off mass above 5700kg, engaged in commercial flights, as indicated in Figure 6, increased from 2012 to 2014 but has generally been decreasing to date.

**Figure 5: Jet Accident and Fatality Risk – RASG AFI vs World**



Source: IATA GADM

**Figure 6: Turboprop Accident and Fatality Risk – RASG AFI vs World**



Source: IATA GADM

### 2.1.3 Regional Air Traffic Volume and Accident Data for 2016

**Table 2** below compares the air traffic volume, number of accidents, accident rates, and fatalities by sub-region for 2016. The accident rate in the RASG-AFI Region has dropped from 10.6 to 8.23 whilst the number of accidents dropped from 8 in 2014 to 7 in 2016. Despite the drop in these figures, 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 as compared to the other regions (which has increased from 752.6 Thousand in 2014 to 851 Thousand in 2016).

**Table 2: Regional Air Traffic Volume and Accident Data for 2016**

Sub Region	Departures	Number of Accidents	Accident Rate (per million departures)	Number of Fatalities
RASG-AFI	851 K	7	8.23	1
RASG-APAC	10.1 M	25	2.48	47
RASG-EUR	8.60 M	17	1.97	64
RASG-MID	1.30 M	9	6.82	67
RASG-PA	13.0 M	29	2.22	0

*Source: ICAO iSTARS*

### 2.1.4 Analysis of RASG-AFI Region Accidents between 2012 & 2016

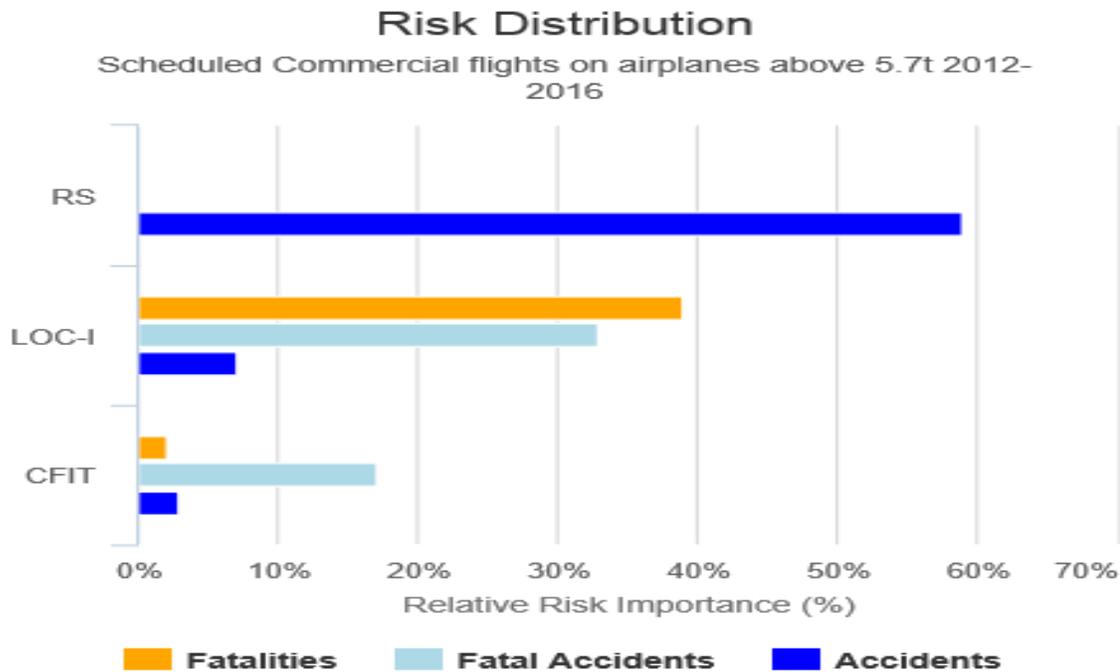
Based on an analysis of accident data covering the period 2012–2016, ICAO identified three high- risk accident occurrence categories:

- Runway Excursions
- Loss of Control In-flight (LOC-I)
- Controlled Flight into Terrain (CFIT)

As indicated in **Figure 7**, these three categories represented about 78.0% of the total number of accidents, 50.0% of fatal accidents and 40.0% of all fatalities between 2012 and 2016 for aircraft with maximum take-off weight (MTOW) above 5700kg.

The Figure shows that in these high-risk categories, 58.0% of those accidents were Runway Safety related, and the highest number of fatalities were related to Loss of Control In-flight accidents (LOC-I), which constituted 38.0% of fatalities. This is due to the high energy involved in such accidents.

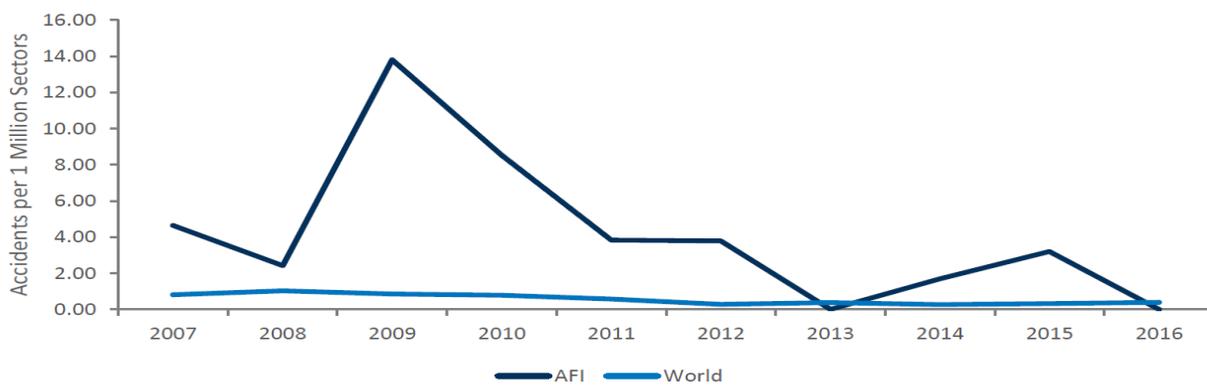
**Figure 7: Distribution of High-Risk Accidents for the period 2012 – 2016**



*Source: ICAO iSTARS*

**Figure 8: Jet Damage Type (Hull Loss) RASG AFI vs World (2007- 2016)**

The graph below shows the accident rate according to the Jet damage type (hull loss) for RASG-AFI versus the world for the period 2007 - 2016.



*Source: IATA GADM*

**Figure 9: Turboprop Damage Type (Hull Loss) RASG-AFI vs World (2007-2016)**

The graph below shows the accident rate according to the Turboprop damage type (hull loss) for RASG-AFI versus the world for the period 2007 - 2016.

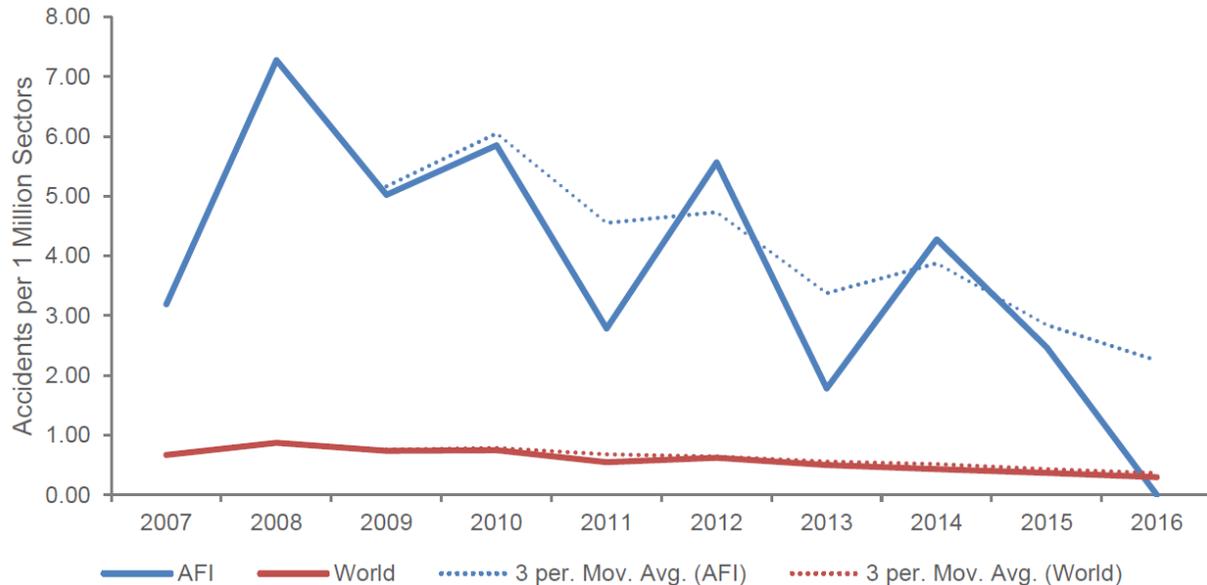


Source: IATA GADM

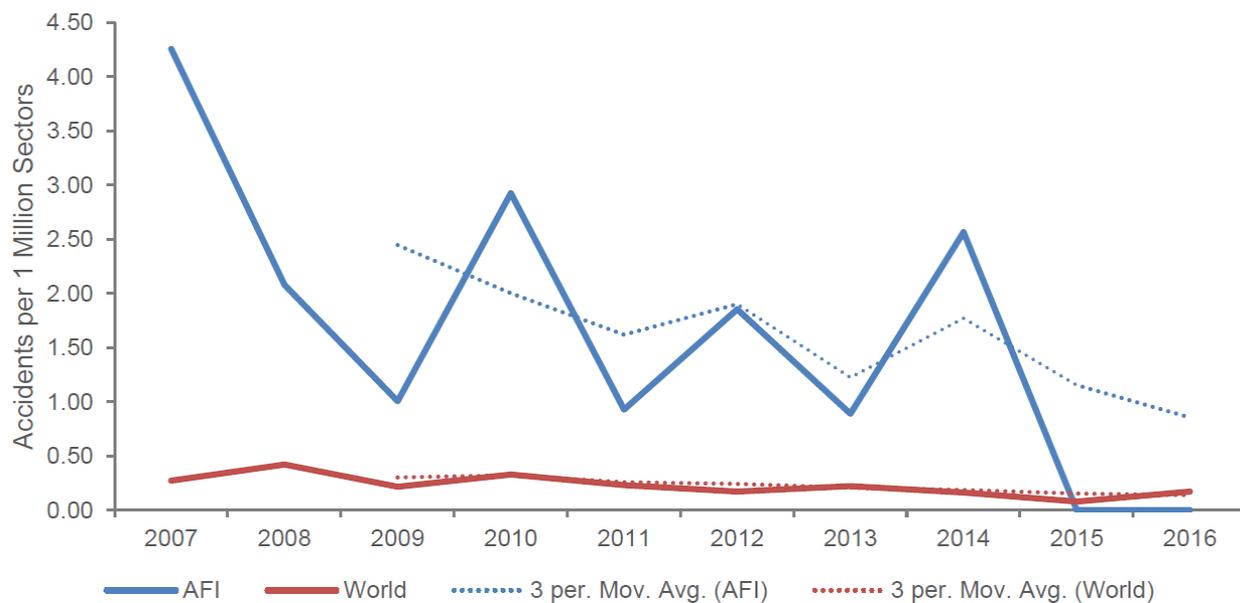
**Figure 10: RASG-AFI Region High-risk Accident Trend (2007– 2016)**

The graphs below show the trend for RASG-AFI Region in the three (3) accident occurrence categories (RS, LOC-I, CFIT) for which targets were set in Abuja in 2012. Although there was a significant growth in traffic volumes since 2012, the accident rate for all three (3) categories had a downward trend from 2014 to 2016.

10a. Runway Safety Related Accidents (Jet & Turboprop, 2007 – 2016)



Source: IATA GADM

**10b. LOC-I Accidents (Jet & Turboprop, 2007 – 2016)**


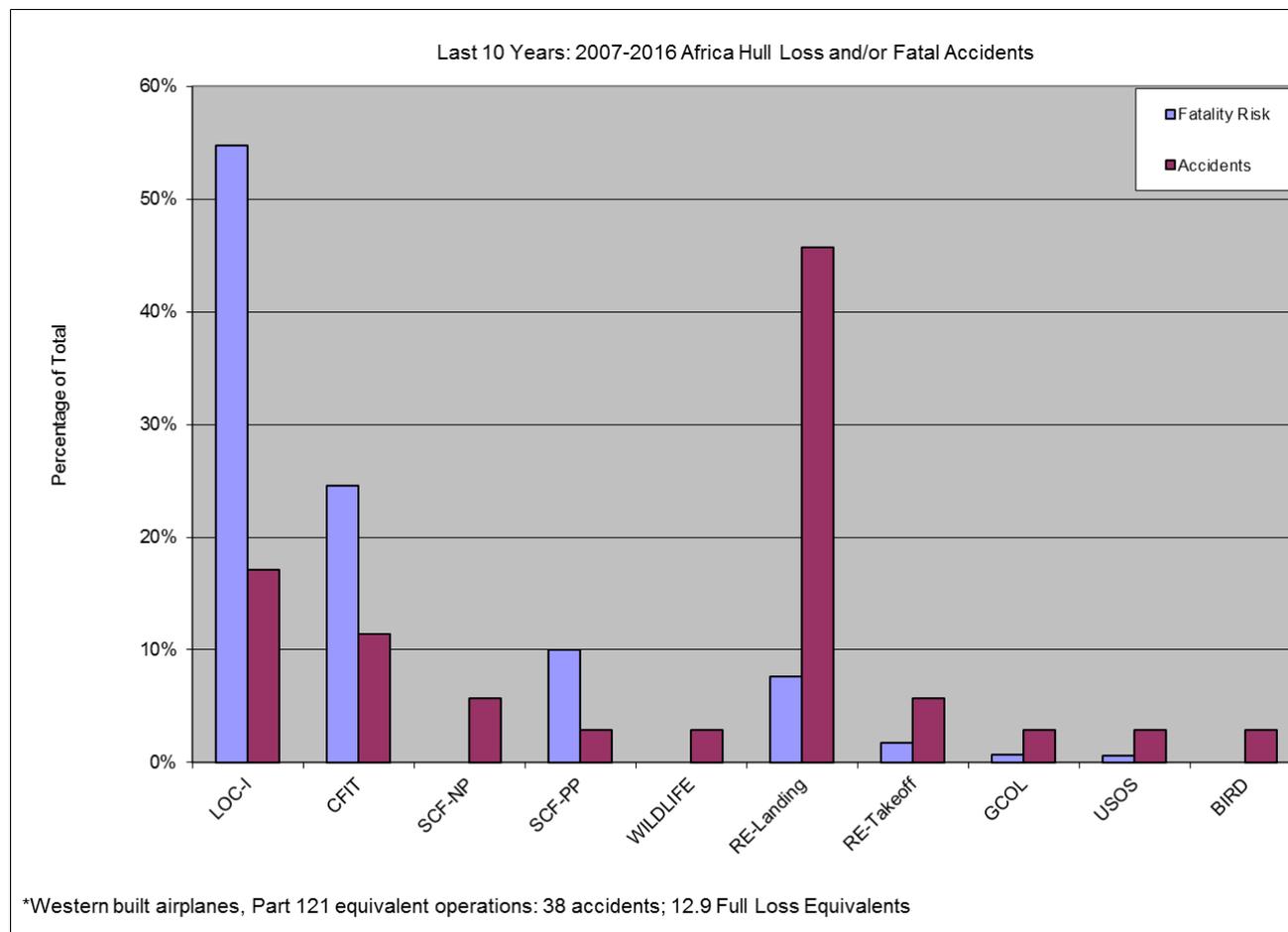
*Source: IATA GADM*

**10c. CFIT Accidents (Jet & Turboprop, 2007 – 2016)**


*Source: IATA GADM*

**Figure 11 RASG AFI Hull Loss & Fatality Risk for 2007 - 2016**

The graph below shows the Fatality Risk in comparison with the Hull Loss for Western-Built commercial airplanes with maximum take-off weight of 27000kg and above. The most frequent accidents in the RASG-AFI Region for the period were: LOC-I, CFIT and RE-Landing with LOC-I showing the highest fatality risk.



Source: Boeing

**2.1.5 Summary Status of Implementation of Abuja Safety Targets – RASG AFI Region**

Safety Target	Situation as at end of 2016	Achievements
Reduce Runway related accidents and serious incidents by 50% by end of 2015	Runway Related Accidents & serious incidents had a rate of <b>6.8</b> accidents per million sectors in 2012 and <b>0.0</b> by end of 2016. Though a positive downward trend over the 4 years under review, continuous effort by stakeholders is needed to maintain the same trend.  (Source: IATA)	Six (6) additional Runway Safety Teams established in 2016 making a total of eighteen (18) in number by end of 2016.
Reduce Controlled Flight Into Terrain (CFIT) related accidents and serious incidents by 50% by end of 2015	CFIT related Accidents & serious Incidents had a rate of <b>1.2</b> per million sectors in 2012 and <b>0</b> in 2016. Though a downward trend, work is needed to maintain the status quo (attributions: Fleet modernization by AFI operators; Introduction of PBN procedures (APV) by AFI States; establishment and maintenance of CCO/CDO).  (Source: IATA)	Downward trend continued from 2015 into 2016.
Reduce LOC-I related accidents and serious incidents by 50% by the end of 2015	LOC-I related accidents & serious incidents had a rate of <b>2.25</b> per million sectors in 2012 and went down to <b>0.00</b> by end of 2016.  Implementation of outcomes of UPRT workshops need to be pursued.  (Source: IATA)	2016 figures showed improvement over 2015.  Two (2) UPRT workshops conducted in 2016.

Safety Target	Situation as at end of 2016	Achievements
States to establish and strengthen autonomous Civil Aviation Authorities by end of 2013	Effectiveness of the autonomy of CAAs needs to be improved. (Source: ICAO)	Most AFI States have the legal frameworks in place for the establishments of autonomous CAAs
Resolve ALL identified Significant Safety Concerns [existing ones by July 2013 and new ones within 12 months]	Four (4) States (Angola, Djibouti, Eritrea Malawi) with four (4) SSCs (all in aircraft operations) (Source: ICAO)	AFI –CIS Mission conducted in Malawi.
Implementation of State specific ICAO Plans of Actions by July 2013	Thirty four (34 ) States have accepted ICAO Plans of Action and are at different stages of implementation (Source: ICAO)	The Abuja Safety Targets and the ICAO NCLB initiative are fully incorporated in the Plans of Action.  Most States with ICAO Plans of Action have registered significant progress in the level of safety oversight
Progressively increase the Effective Implementation (EI) score of ICAO's USOAP results to no less than 60% (35% or 19 of all African States by end of 2013, and 70% or 38 of all African States by end of 2015 and 100% or 54 of all African States by end of 2017)	Twenty two (22) States have attained 60% of EI or greater (Source: ICAO)	Number of States with EI of 60% or greater has increased from ten (10) in 2012 to twenty two (22) at the end of 2016.
Implement State Safety Programs (SSP) and ensure that all Service Providers implement a Safety Management System (SMS) by end of 2015	At the end December 2016 the level of implementation of SSP was as follows:  Four (4) States were at level 3; Three (3) States were at Level 2; Twelve (12) States were at Level 1  (Source: ICAO)	Nineteen (19) States had initiated implementation of SSP and the highest level attained was Level 3. This showed an additional eight (8) States over the figure in 2015

Safety Target	Situation as at end of 2016	Achievements
Certify all international aerodromes by end of 2015	Forty eight (49) International Aerodromes were certified by end of 2016.  (Source: ACI Africa, based on available information)	Twenty one percent (21.4%) of the total number of Two hundred and twenty nine (229) international airports within AFI had been certified as of December 2016.
Require all African airlines to obtain an IATA Operational Safety Audit (IOSA) certification by end of 2015	By end of 2016 fourteen (14) airlines had been added to the IOSA Registry since 2012.  However, no State had yet incorporated the IOSA requirement in the regulatory standards.  (Source: IATA)	From a total of 20 airlines on the IOSA Registry in 2012 there were 32 airlines on the Registry by end of December 2016.  <b><i>NB two (2) airlines went out of operation along the way</i></b>

## 2.2 Proactive Safety Information

### 2.2.1 ICAO USOAP Audits

In an effort to establish and implement an effective safety oversight system that reflects the shared responsibility of the State and the broader aviation community, each ICAO Member State should address all of the eight Critical Elements (CE-1: Legislation; CE-2: Regulations; CE-3: Organization; CE-4: Technical Staff Qualification & Training; CE-5: Technical Guidance & Tools; CE-6: Licensing, Certification, Approvals & Authorizations; CE-7: Continuous Surveillance; CE-8: Resolution of Safety Issues). These eight categories address the entire spectrum of a State's civil aviation oversight activities.

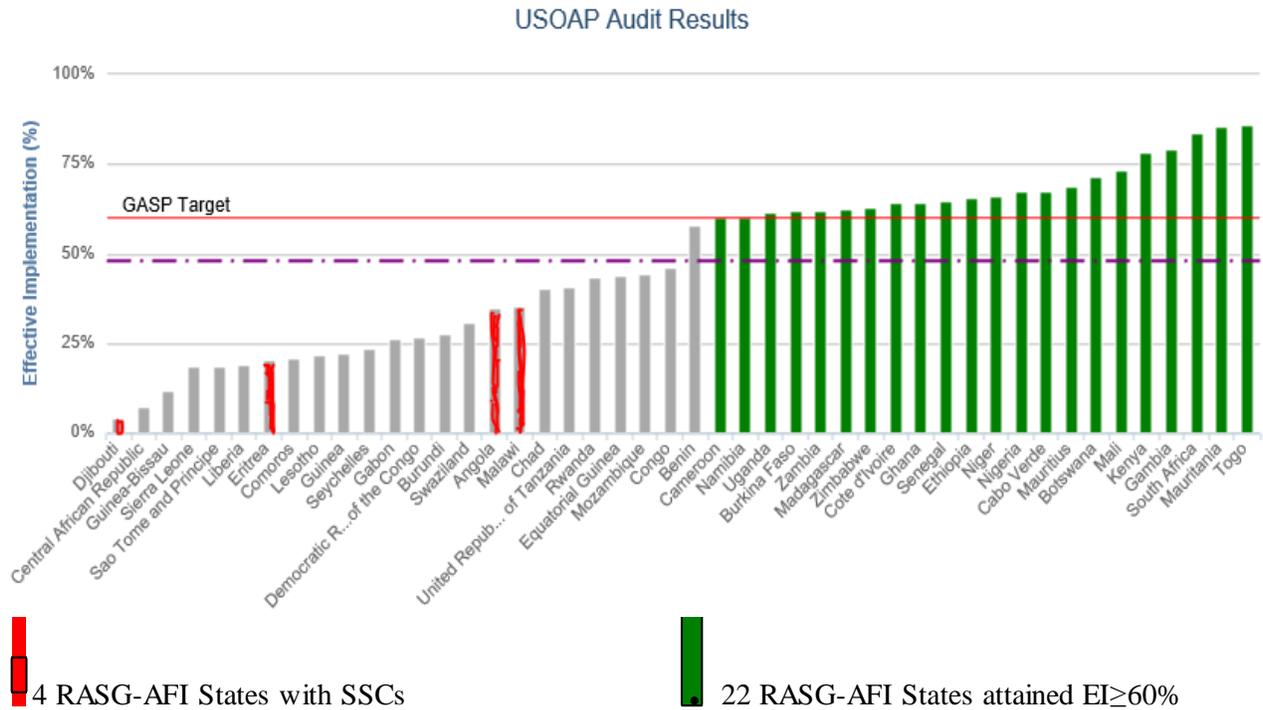
#### 2.2.1.1 Regional Audit Results

The audit results of the RASG-AFI States by the end of year 2016 (to which the ICAO ESAF and WACAF Regional Offices are accredited) have indicated that the Four (4) SSCs that existed in Four (4) States by end of 2015 (Angola, Djibouti, Eritrea and Malawi) remained unresolved at the end of 2016; all 4 SSCs were in the area of aircraft operations and in the ESAF region. Efforts were being made to address these SSCs as soon as possible. Although the number of States with EI  $\geq$  60% in the RASG-AFI Region remained at Twenty-two (22) at the end of 2016 as was the case in 2015, potential SSCs were avoided in some States through ROST Assistance Missions (e.g. Congo, Equatorial Guinea, Guinea, and Liberia).

New targets set by the ICAO Regional Offices within RASG-AFI Region for the end of 2017 is that 80% of States must reach the 60% EI; all SSCs resolved and new ones avoided.

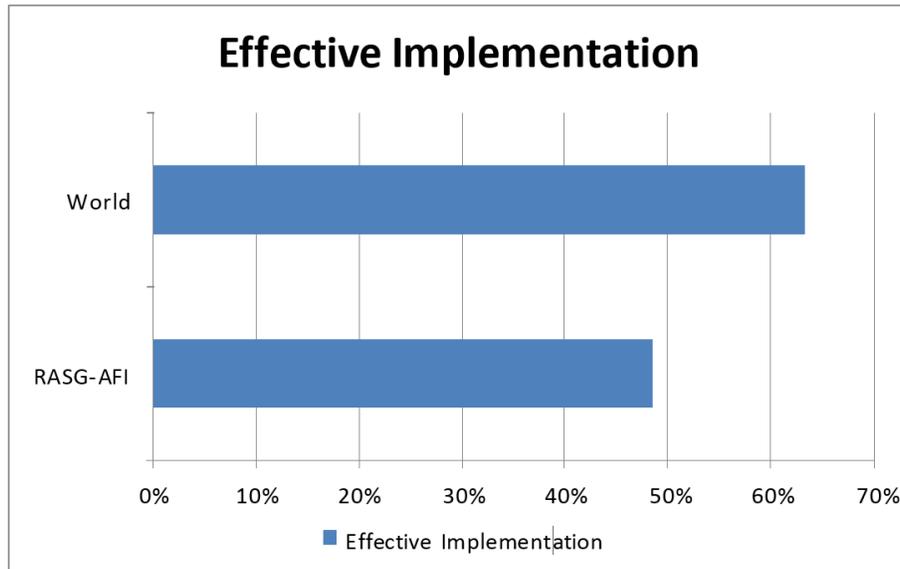
**Figure 12: Status of RASG-AFI States' Safety Oversight – %EI at the end of 2016.**

This Figure depicts the status of the 46 audited (out of the 48) RASG-AFI States. The current average USOAP score for States in RASG-AFI is 47.91% EI (an increase from 45.43% at the end of 2015), which is below the World average of 63.79%.



Source: ICAO iSTARS

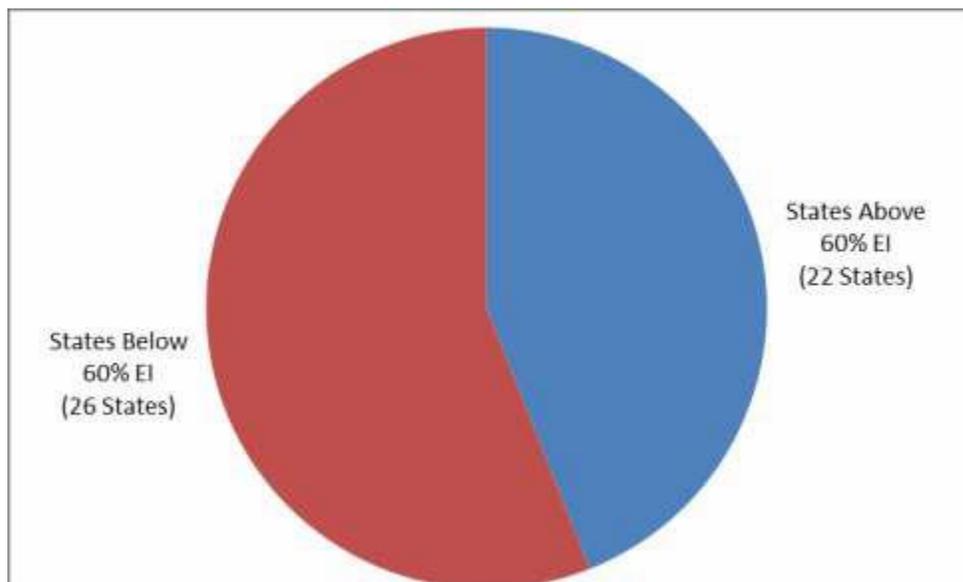
**Figure 13: Status of RASG-AFI States' Safety Oversight - RASG-AFI % EI (47.91%) Vs World %EI (63.79%) end of 2016.**



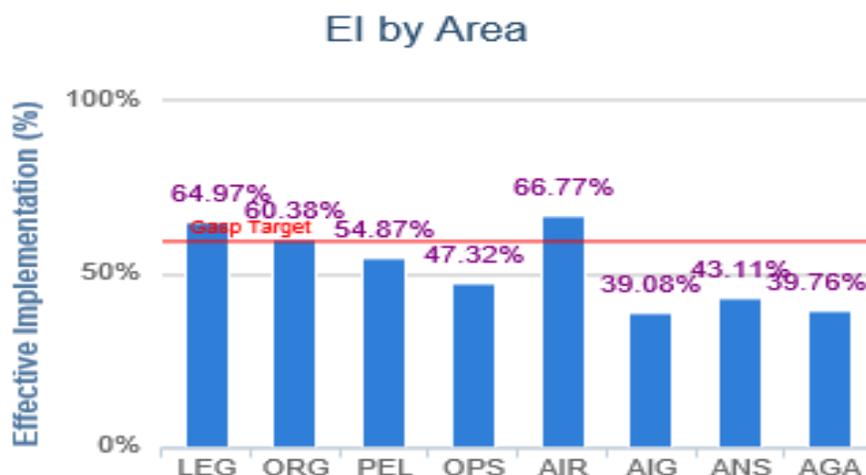
Source: ICAO iSTARS

**Figure 14: States Safety Oversight Maturity**

The chart below indicates that 47.83% of the States in the RASG-AFI region have an EI of 60% or greater (i.e. 22 States as at end of December, 2016). The list of these States can be found in **Appendix 3**.



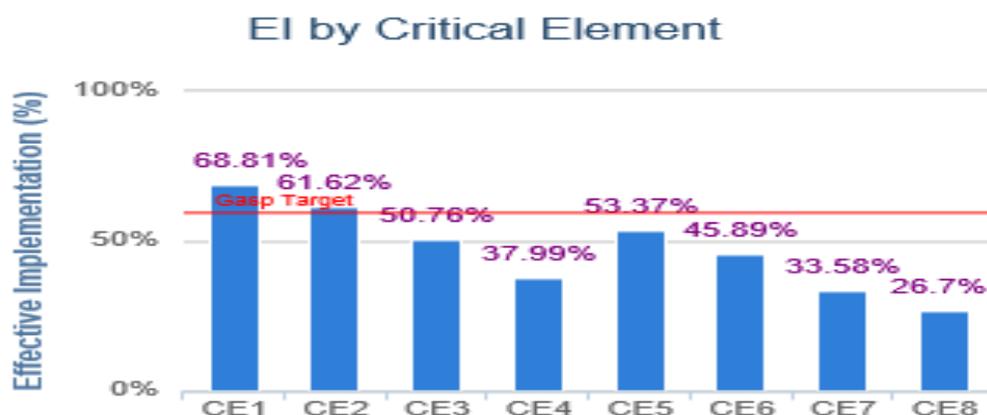
**Figure 15: Effective Implementation of Safety Oversight Systems within RASG-AFI States by Audit Area**



In the RASG-AFI region, the average Effective Implementation in the area of AIR is highest at 66.77% at the end of 2016, which has increased from 63.69% at the end of 2015; and lowest in the area of AIG at 39.08%. (see Figure 15 above). Effective Implementation by Critical Element (CE) indicates lowest score in CE-8 (Resolution of Safety Issues) at 26.7% followed by CE-7 (Continued Surveillance) at 33.58%. There was a slight improvement in CE-4 (Technical Personnel Qualification and Training) to 37.99%. See Figure 16 below.

(Source: ICAO iSTARS).

**Figure 16: Effective Implementation of Safety Oversight Systems within RASG-AFI States by Critical Elements (CE)**



Source: ICAO iSTARS

## 2.2.2 Regional Safety Initiatives

From the results of the ICAO USOAP CMA Activities, low %EI scores have been registered in the areas of fundamental safety oversight as well as aircraft accident and incident investigation systems. The Safety Support Teams of the RASG-AFI have identified these deficiencies and have developed project documents intended to improve capacities in these areas. Although the comprehensive implementation plan for aviation safety in Africa (AFI Plan) has funded some of the projects, there is still an urgent need for RASG-AFI and its partners to devise means of funding for the identified projects, in a timely manner, if the desired safety targets are to be met.

### 2.2.2.1 Africa Flight Procedure Programme (AFPP)/Performance Based Navigation programme (PBN)

The continuing growth of aviation increases demands on airspace capacity thus, emphasizing the need for optimum utilization of available airspace.

Airspace concepts are developed to satisfy explicit and implicit strategic objectives such as, improve or maintain safety, increase air traffic capacity, improve efficiency, provide more accurate flight paths; and mitigate the environmental impact. PBN is one of several enablers of an airspace concept.

The PBN concept specifies that aircraft system performance requirements be defined in terms of the accuracy, integrity, continuity and functionality, which are needed for the proposed operations in the context of a particular airspace concept. PBN offers a number of advantages over the sensor-specific method of developing airspace and obstacle clearance criteria.

The African Flight Procedure Programme (AFPP) was launched by ICAO in 2013 in Dakar, Senegal, to assist African States in the development of PBN procedures. Its operations started in June 2014 with the initial support of ASECNA, French DGAC and AIRBUS.

#### 2.2.2.2 African Flight Procedure (AFPP) activities summary report

By 31 December 2016, 30 African States are members of the AFPP.

Since June 2014, activities conducted by the AFPP team, composed of experts in the domain of the PBN and seconded by African States and Organizations, have resulted in development of PBN:

- National PBN Implementation Plan: 31 States finalized and submitted the Plan to the concerned ICAO Regional Office;
- Use of PBN in airspace design: many States representatives attended workshops in order to review the National airspace design;
- Conventional and PBN instrument flight procedures: 12 States have started to implement procedures regarding ICAO recommendations;
- Internal PANS OPS flight procedures design capability: 26 designers from 13 States trained by the AFPP Instructors, including OJT when requested;
- PBN OPS Approval: 68 experts from 16 States, 3 Organizations and 12 Air Operators attended workshops; and
- PBN flight procedures: 35 conventional and 47 PBN flight procedures were designed at 16 International and Domestic airports, and projects are on-going at 10 airports.

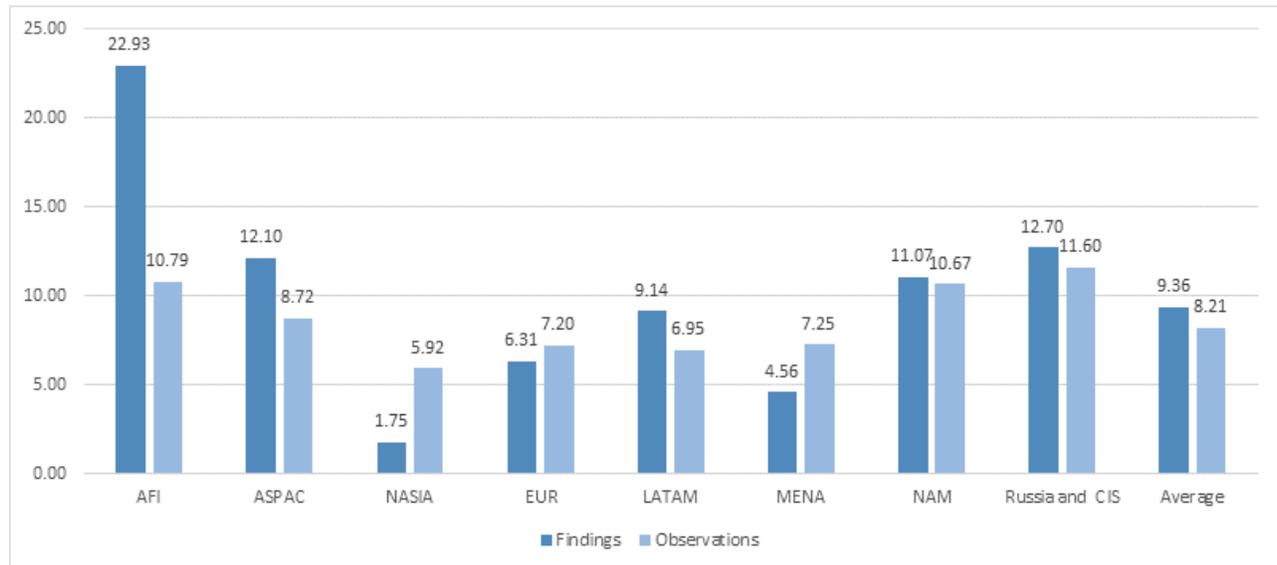
Phase I of the Programme will end 31 May 2017 and Phase II operations will be from June 2017 to May 2020; this will be defined during the Steering Committee meeting to be held from 20 to 21 April 2017 in Abidjan, Cote d'Ivoire.

### 2.2.3 IATA Operational Safety Audit (IOSA) Audits

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). The analysis of IOSA audit results in the graph below shows the trend in audit findings as well as observations for AFI versus other regions and the world average.

**Figure 17: Trend in IOSA Findings & Observations per Region**



*Source: IATA*

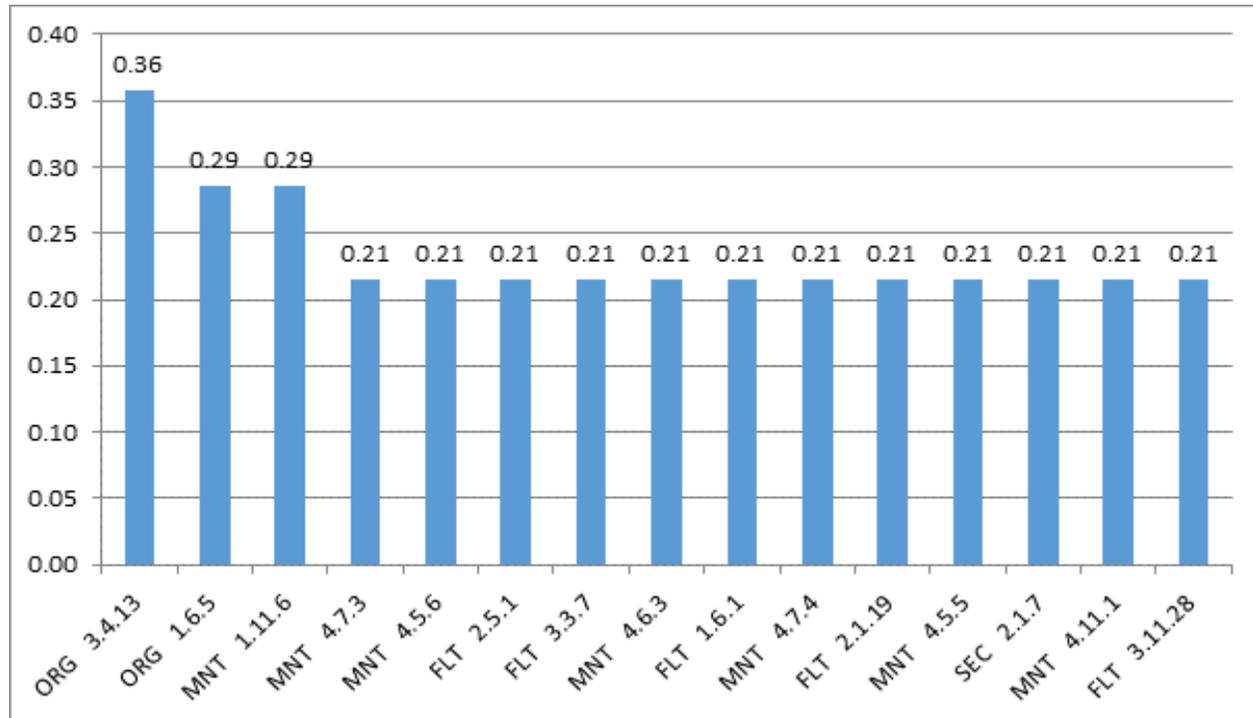
The above pattern in findings and observations relates to IOSA audits conducted during the year 2016.

Key:

AFI - RASG-AI Region; ASPAC- Asia Pacific; NASIA-

**Figure 18: RASG-AFI Region Trend in IOSA Top Findings per Audit Area**

The following graph shows the AFI trend in 2016 IOSA top findings per audit area where issues in Maintenance featured the most followed by Organisation and Cargo as well as Flight issues at a slightly lower level. The pattern remains unique for each region.



Source: IATA

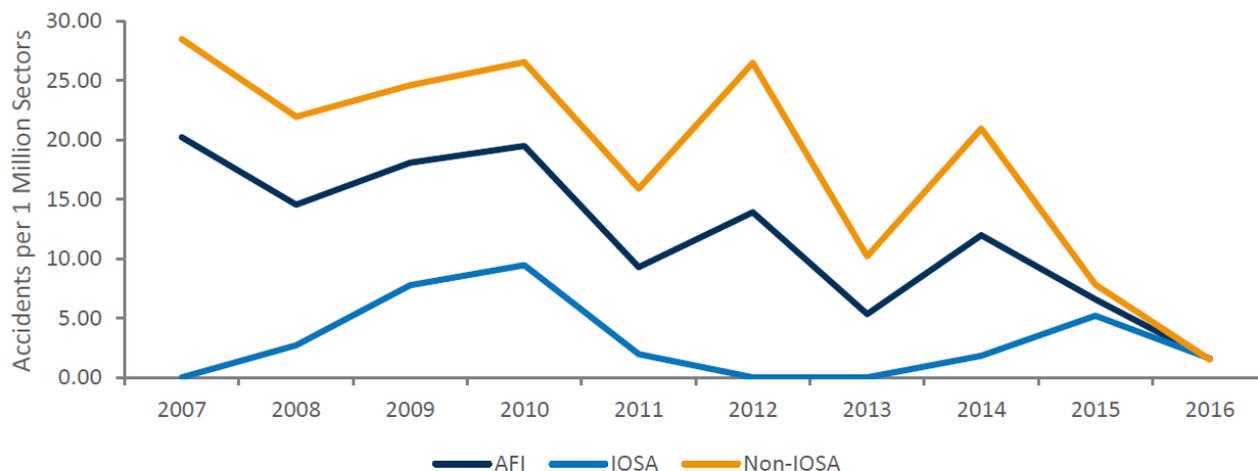
**Key:** FLT 1.6.1=Flight Documentation System; FLT 2.1.19=Flight –Standardization of personnel & training facilities; FLT 2.5.1=SMS Training Flight Ops Personnel; FLT 3.3.7= Flight Crew recency of experience requirements; FLT 3.11.28=Flight policies, procedures & guidance on altitude awareness; MNT 1.11.6= Training for outsourced Maintenance; MNT 4.5.6=Initial and continuation training for outsourced maintenance; MNT 4.6.3=Maintenance storage facilities; MNT 4.7.3= Electrostatic Sensitive Devices (ESD) Program for Maintenance; MNT 4.7.4=Packaging & storage of sensitive material; MNT 4.11.1=Calibration of Maintenance Tools; Org 1.6.5=Program for training personnel; Org 3.4.13=Organization’s qualification of internal auditors; Sec 2.1.7= Security training of operational personnel.

Following the call made in Abuja for AFI States to amend their regulations and make the IATA Operational Safety Audit (IOSA) a requirement for all eligible operators by December 2015, RASG-AFI has also identified the program as a best safety practice for improving regional safety performance. However, despite these efforts, States still had not made any progress in this direction by December 2016 and all the audits that have taken place since July 2012 (Abuja Declaration) were mainly through an IATA sponsored training initiative or to a minor extent on a voluntary basis.

The total number of AFI operators on the IOSA Registry as of December 31, 2016 was thirty (32).

**Figure 19: 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 2007-2016, per million flight sectors for RASG-AFI registered operators (dark blue) versus RASG-AFI IOSA-registered operators (light blue) and RASG-AFI non-IOSA-registered operators (orange). From the trend, the IOSA certified operators have outperformed non-IOSA certified carriers in the Region.



*Source: IATA GADM*

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

### 2.2.4 IATA Safety Audit for Ground Operations (ISAGO)

The adoption of the IATA Safety Audit for Ground Operations (ISAGO) by ground handling service providers (GHSPs) in the RASG-AFI region has steadily increased in number since the introduction of the program in 2008. ISAGO is an industry-based audit program aimed at improving ground operational safety and reducing the significant number of duplicate audits performed regularly by airlines on the GHSPs. As of December 31, 2016 RASG\_AFI had twenty-three (23) GHSPs that were ISAGO registered at forty-three (43) stations (airports). The ISAGO program continues to gain popularity amongst GHSPs with over two hundred (200) registered at over two hundred and fifty (250) airports worldwide at the end of 2016.

The ISAGO audits assess the GHSPs conformity with industry developed ground operations standards and recommended practices (GOSARPs) that establish harmonized processes and procedures for safe ground operations. Regular analysis of reports collected by the IATA Ground Damage Data Base (GDDB) showed a positive impact of ISAGO Registration on the safety performance of GHSPs. The GDDB is one of the areas covered under the IATA Global Aviation Data Management system (GADM).

The GOSARPs include a phased implementation of SMS standards compliant with ICAO Annex 19 to the Convention on International Civil Aviation and complementary to the IOSA SMS implementation strategy for airlines. In addition, IATA encourages Airport Authorities and Regulators to recognize ISAGO as a best industry safety practice to improve ground safety and to accept ISAGO audits in lieu of airline obligations to demonstrate oversight of ground operations, many of which are outsourced. Regulator acceptance of ISAGO paves the way for airlines to reduce or eliminate the duplicate audits of GHSPs.

IATA in conjunction with its stakeholders, has recently reviewed the effectiveness of the program and has identified several areas for improvement. The improvements, that will enhance both the scope and quality of the audits, will

be implemented in September 2017 for all ISAGO audits from January 2018. One major change of interest to stakeholders is that the new model opens a great opportunity for GHSPs and Regulators to avail personnel who meet prerequisite requirements and complete a comprehensive training and qualification process to be part of the “Charter of Professional Auditors” (CoPA). Only CoPA members will be able to conduct an ISAGO audit.

### 2.3 Predictive Safety Information

This section contains predictive safety information, which includes the analysis of Flight Operations Quality Analysis/Flight Data Analysis (FOQA/FDA), States’ Safety Programme (SSP) and Safety Management Systems (SMS) implemented by the industry, aviation products and service providers.

The FOQA/FDA information and the Flight Data eXchange (FDX) programme systems established by IATA and other aviation partners need to be fully utilized by the airlines and other stakeholders in the RASG-AFI, by way of concluding Memoranda of Understanding (MOU) and providing relevant information/data on a regular basis. With the establishment of such systems, precursors could be identified, particularly for the high risk safety categories (RS, LOC-I, CFIT, Traffic Collision, etc.) and trends appropriately monitored and analyzed.

Over One Hundred Fifty (150) personnel from RASG-AFI States have undertaken courses in the European Coordination Center for Accident Information Reporting System (ECCAIRS) over the last six years. However, very few States have so far, installed and established a functional system.

One of the Abuja Safety Targets is for States that have attained  $EI \geq 60\%$  to Implement State Safety Programme (SSP) and ensure that all Service Providers implement a Safety Management System (SMS) by end of 2015. Although some degree of progress have been registered in this respect, availability of a reliable predictive safety information within the RASG-AFI region is yet to evolve to maturity.

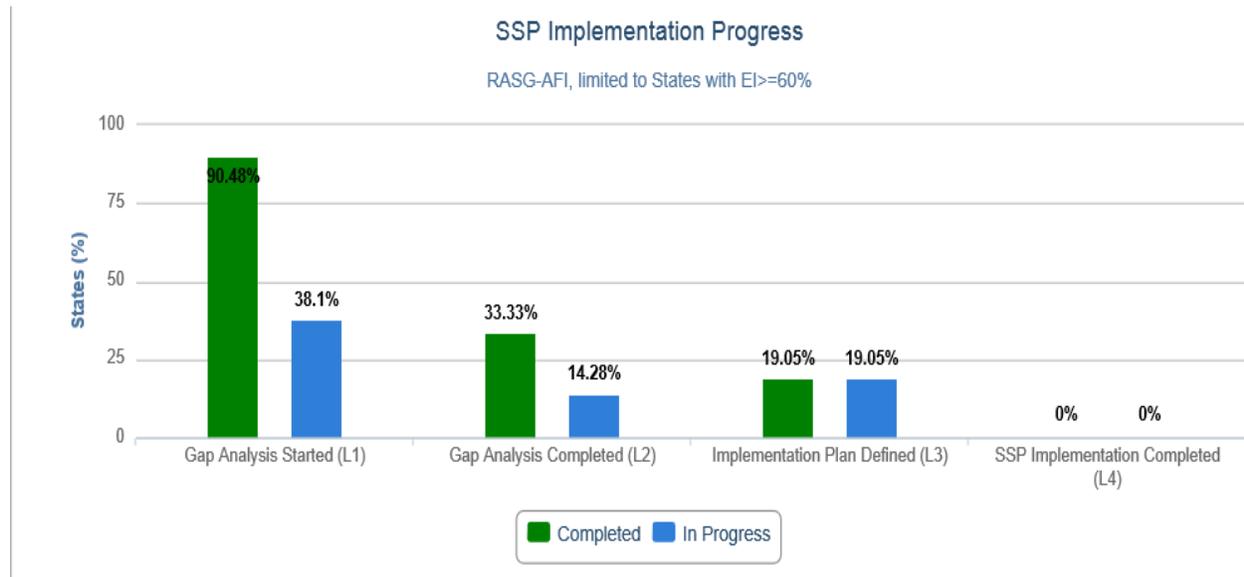
SSP implementation is one of the main challenges faced by the States within the RASG-AFI Region. In order to address this challenge, ICAO has conducted two Safety Management Workshops in the region (One in ESAF, One in WACAF), which were attended by ICAO Regional Officers and personnel from States who had successfully completed the online course as a pre-requisite. Under the AFI Plan, ROST missions will now incorporate rendering assistance to States with  $EI \geq 60\%$  in support of implementing SSP by phases thereby addressing the challenges and difficulties, as well as sharing experiences and best practices.

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.

A State having reviewed all Gap Analysis Questionnaire (GAQ) has reached Level 2. A State having reviewed AND defined actions for all GAQs has reached Level 3.

A State having completed all actions has reached Level 4.

**Figure 20: RASG-AFI States' Safety Programme Implementation (SSP) Progress.**



*Source: ICAO iSTARS*

**Table 3: RASG-AFI States that have initiated the implementation of SSP.**

Out of the 48 RASG-AFI States, none had so far attained Level 4 of SSP implementation. However, at the end of 2016, few States registered some improvement in the SSP implementation: Four (4) States had attained Level 3; Three (3) attained Level 2; and Twelve (12) attained Level 1.

Code	State Name	Progress	Level (Up %)	
BWA	Botswana	Gap Analysis Started	L1	●○○○○
BFA	Burkina Faso	Gap Analysis Completed	L2 / 85.5% L3	●●●○○
CPV	Cabo Verde	Implementation Plan Defined	L3 / 21.8% L4	●●●○○
CIV	Cote d'Ivoire	Gap Analysis Started	L1 / 78.2% L2	●○○○○
ETH	Ethiopia	Gap Analysis Completed	L2 / 90.9% L3	●●●○○
GMB	Gambia	-		○○○○○
GHA	Ghana	Gap Analysis Started	L1	●○○○○
KEN	Kenya	Gap Analysis Completed	L2 / 98.2% L3	●●●○○
MDG	Madagascar	Gap Analysis Started	L1 / 03.6% L2	●○○○○
MLI	Mali	Gap Analysis Started	L1	●○○○○
MRT	Mauritania	Gap Analysis Started	L1 / 72.7% L2	●○○○○
MUS	Mauritius	-		○○○○○
NAM	Namibia	Gap Analysis Started	L1 / 07.3% L2	●○○○○
NER	Niger	Gap Analysis Started	L1 / 01.8% L2	●○○○○
NGA	Nigeria	Implementation Plan Defined	L3 / 43.6% L4	●●●○○
SEN	Senegal	Gap Analysis Started	L1 / 50.9% L2	●○○○○
ZAF	South Africa	Implementation Plan Defined	L3 / 61.8% L4	●●●○○
TGO	Togo	Gap Analysis Started	L1 / 43.6% L2	●○○○○
UGA	Uganda	Gap Analysis Started	L1 / 47.3% L2	●○○○○
ZMB	Zambia	Implementation Plan Defined	L3 / 40% L4	●●●○○
ZWE	Zimbabwe	Gap Analysis Started	L1	●○○○○

Showing 1 to 21 of 21 entries

Source: ICAO iSTARS

### 2.3.1 Progress on Predictive Information Approach

IOSA registered operators have implemented Flight Data Analysis/Monitoring system as a program requirement. Some Non-IOSA operators are yet to implement Flight Data Analysis (FDA)/Flight Data Monitoring (FDM)/Flight Operation Quality Analysis (FOQA). Even in some cases where it has been implemented, its effectiveness needs to be improved further.

## 2.4 RASG-AFI ATS Incidents Analysis Group (AIAG)/Air Nav. Infrastructure Safety

The RASG-AFI ATS Incident Analysis Group (AIAG) Meeting which has been convened and hosted by IATA every year since 2003 works on the following terms of reference:

The ATS Incident Analysis Group provides a forum to various States/ANSPs and international organizations including ICAO, IATA, IFALPA, AFRAA, IFATCA and OEMs to review reported incidents in the region and formulate recommendations to prevent similar incidents in the RASG-AFI region.

**Mandate:** the mandate of AIAG is to review on an annual basis all the ATS Incident reports available to the Group from any source, with a view to identifying causes, trends, and remedial actions that may prevent re-occurrence.

**Composition:** At the Core of the AIAG are IATA, ICAO, IFALPA and IFATCA. Attendance to the Group is open to all Air Navigation Service Providers in the RASG-AFI Region. Other Stakeholders can be invited to attend.

**Secretariat:** IATA Safety and Flight Operations for Africa provides the secretariat support to the Group. This will include the updating and maintaining of the database, compilation of ATS incident reports, preparation of annual meetings, preparation and distribution of meeting reports.

**Reporting:** Reports of AIAG are disseminated to all participants, and any other relevant stakeholder for appropriate actions and information.

Tasks:

- a. Assess incidents by type, i.e., AIRPROX, procedure, facility as per ICAO definition, and establish degree of risk to the extent practicable.
- b. Identify primary and contributory causes and recommend appropriate corrective actions thereto.
- c. In the context of (b) above, develop submissions to be made to ICAO regional planning Groups, member airlines and other airspace users, States or other ATS Providers concerned with a view to addressing underlying causes or major trends.
- d. Determine the extent to which IFBP was instrumental in identifying and/or solving conflicts and make appropriate recommendations that may enhance the effectiveness of the procedure.
- e. Determine the extent to which TCAS (ACAS) was instrumental in identifying and/or solving conflicts and make appropriate recommendations that may enhance the effectiveness of the procedure.
- f. Develop statistical analyses highlighting trends, inter alia by time period, by cause and by
- g. FIR/ATS Unit.

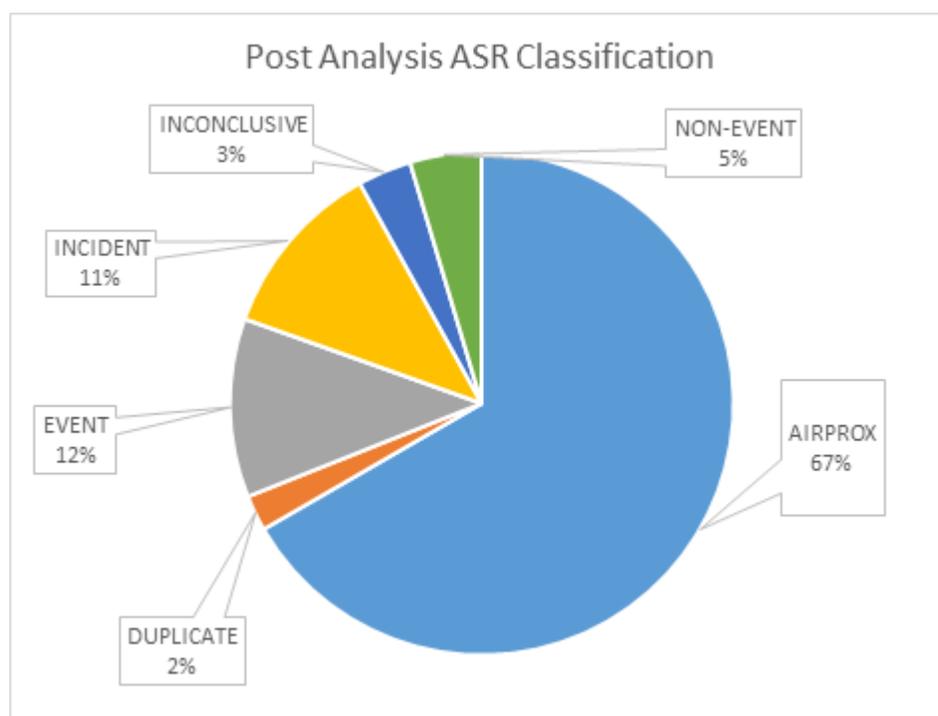
### 2.4.1 Fourteenth Meeting of AIAG (AIAG/14 - March 01 to 02, 2017)

The meeting which was convened by IATA was held at Holiday Inn in Sandton, Johannesburg and in attendance were: eighty-nine (89) participants from about thirty-nine (39) organizations including Airlines, Air Navigation Service Providers (ANSPs), AFI Regional Monitoring Agency (ARMA), International Civil Aviation Organization (ICAO), International Federation of Airline Pilots Association (IFALPA), International Federation of Air Traffic Controllers Association (IFATCA), Federal Aviation Administration (FAA) and International Air Transport Association (IATA). The 14<sup>th</sup> AIAG meeting analyzed a total of eighty seven (87) unsatisfactory condition reports (UCRs) that were submitted either by operators or ANSPs for the year 2016.

Breakdown of the Analyzed 2016 Incidents was as follows:

**Figure 21: Distribution of UCRs by Category after Analysis**

The graph below shows the distribution by category after analysis of the eighty-seven (87) UCRs by AIAG.

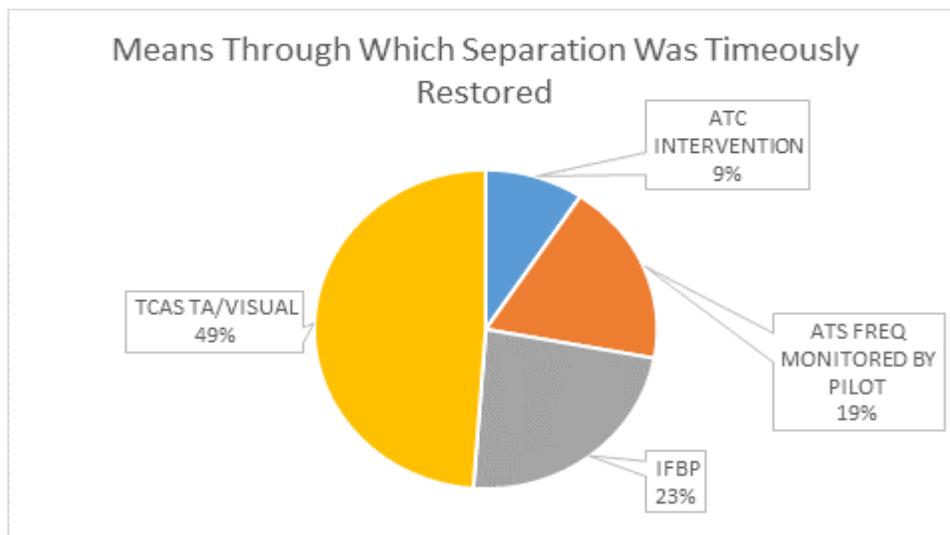


*Source: IATA*

In order to enhance the analysis process, it is vital that **timely feedback** is received from the ANSPs.

**Figure 22: Means through which Separation Minima was timely restored**

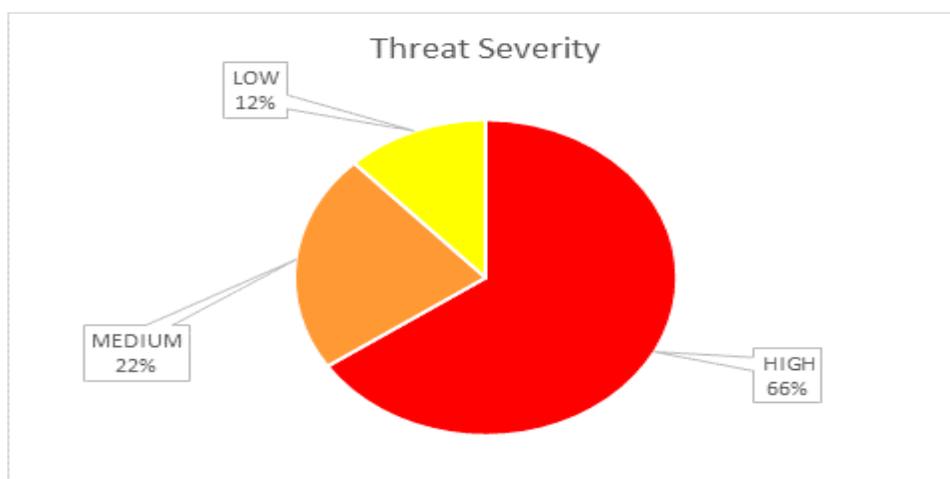
This graph below shows that 49% of separation among conflicting traffic was restored by use of TCAS; 23% by use of In-Flight Broadcast Procedure (IFBP); 19% by monitoring of ATS frequency by pilots; and 9% by ATC intervention.



Source: IATA

**Figure 23: Threat Severity Levels**

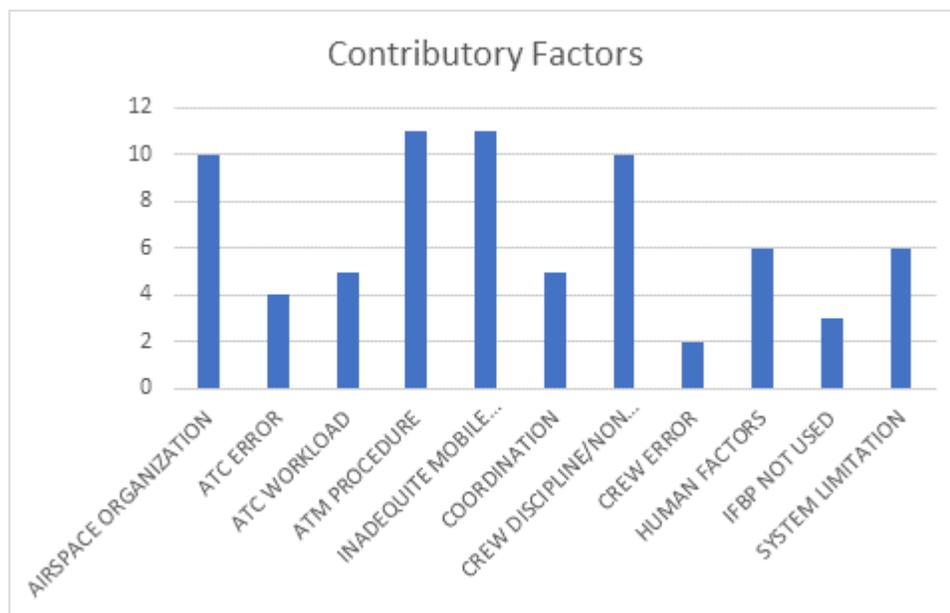
For those UCRs classified as AIRPROX, the threat levels of severity were as indicated in the graph below.



Source: IATA

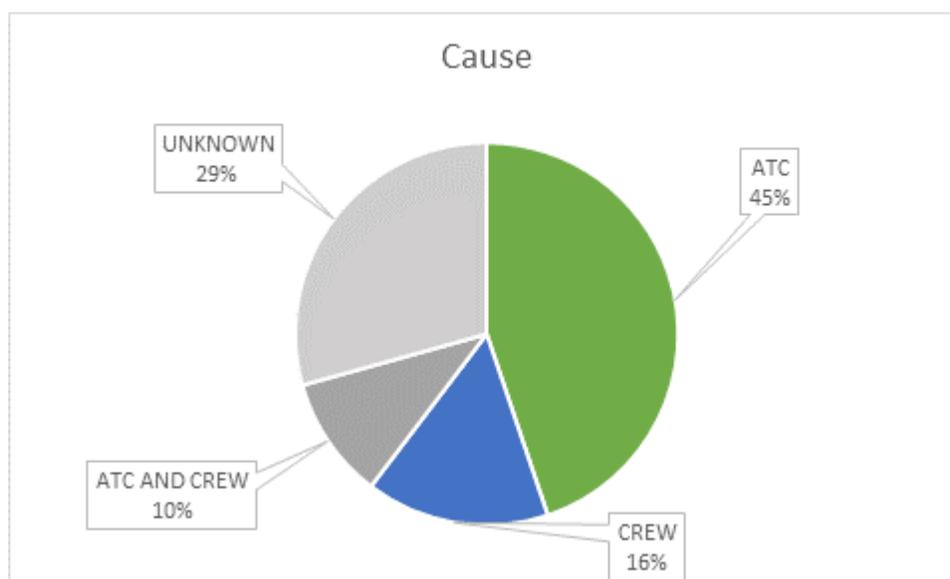
**Figure 24: UCRs within RASG AFI - Contributing Factors**

According to AIAG analysis the following graph shows the factors that contributed to the UCRs and the highest two (2) factors at eleven (11) count were ATM Procedure and Inadequate Mobile communication.



**Figure 25: Causes of Incidents**

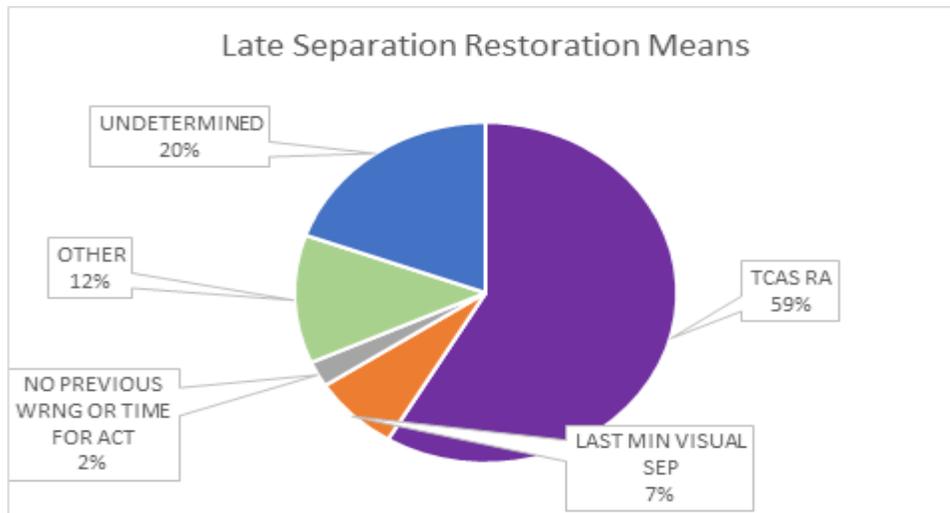
The graph below shows the percentage (%) of the party responsible for causing the occurrence with ATC responsible for 45%; Unknown at 29% Air Crew 16% and combination of ATC and Crew at 10%.



Source: IATA

**Figure 26: Late Separation Restoration Means**

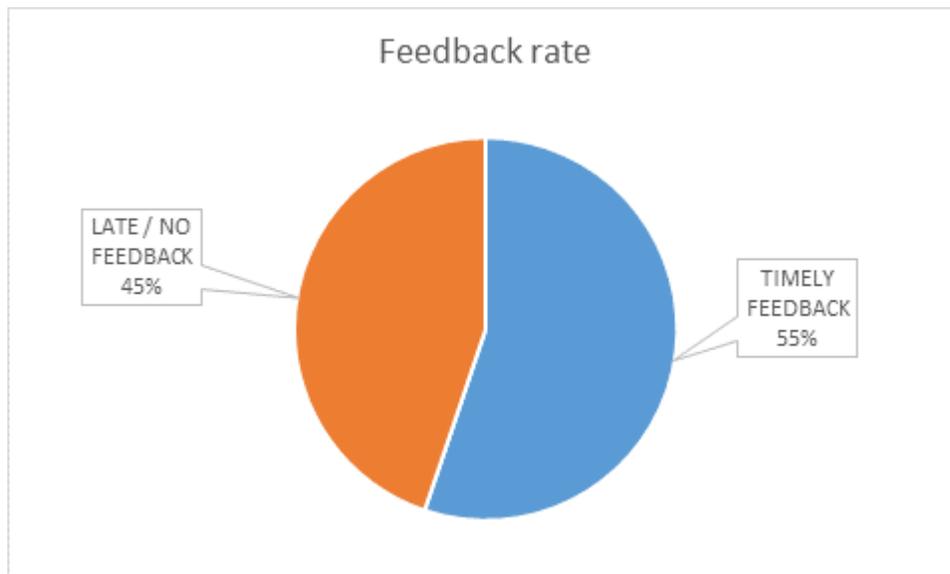
The graph shows the means used for late restoration of separation in cases where minima was compromised.



Source: IATA

**Figure 27: UCR Feedback Rate**

This graph shows percentage of timely feedback (55%) and late or no feedback (45%) from investigating party.



Source: IATA

## 3 Conclusions and Recommendations

### 3.1 Conclusions

Based on the analyses, the following conclusions are drawn:

- On a positive note, the revised approach adopted by RASG-AFI in 2016 resulted in,
  - Sustainability of a “Zero SSC” status in the WACAF Region;
  - Development of project documentation for identified States to address deficiencies in Fundamentals of Safety Oversight (FSO) and Aircraft Accident/Incident Investigation (AIG)
  - Implementation of relevant projects in two States (Democratic Republic of Congo - World Bank Project, Gabon – SAFE Project).
  - Successful conduct of AFI CIS missions to Malawi intended to resolve the existing SSC; Sao Tome & Principe and Senegal, (intended to assist the States in improving the EI scores).
  - Designation of focal points by RASG-AFI States for sharing safety information/data with AFCAC to enhance monitoring of implementation of the Abuja Safety Targets. These Focal Points are being shared with the RASC to facilitate follow-up with States in addressing important safety issues and timely implementation of Corrective (CAPs).
  - No CFIT or LOC-I were reported in 2016 (in line with Abuja Safety Targets).
- Continuing Challenges:
  - There was still need for States to accelerate the process of achieving autonomy of CAAs
  - Securing of required funding for the implementation of the identified projects to assist States improve EI score and resolve SSCs
  - Constraints in conducting assistance missions (ROST, RS Go-Team) to some deserving States due to unsafe political situations (e.g. Somalia, South Sudan, Central African Republic)
  - Accidents/Incidents related to Runway Excursion still remained the most predominant
  - Except for a few States that already had IOSA as a requirement for their operators prior to Abuja Ministerial Meeting in 2012, no additional State had so far made progress in fulfilling this Abuja Safety Target
  - Only 21.4% of certified International Aerodromes in AFI ( as per ACI Africa survey)
  - Although this report has captured predictive safety information to some extent, the levels of aviation activities and safety oversight systems within the RASG-AFI region were yet to evolve to maturity.

### 3.2 Recommendations

- States having significant safety concerns (SSCs) should address these concerns as a priority and then move on to other areas requiring attention and increasing implementation of ICAO provisions.
- The Offices of ICAO President/Secretary General should continue to **rigorously pursue** the engagement of Heads of States/Government Ministers responsible for aviation in a bid to establish autonomous CAAs and enhancing State commitment in implementing the Abuja Safety Targets.
- ICAO to encourage States with low activities and low EI to delegate some of their oversight functions to another State or an RSOO.
- All stakeholders should continue to support programs that address causal factors primarily related to Runway Safety accidents and serious incidents. In particular States/CAAs/Airport Operators to provide the necessary support for the establishment of at least one (1) Runway Safety Team (RST) per State.
- Stakeholders should continue to support the implementation of PBN (APV Procedures) in RASG-AFI Region as well as the acquisition of suitable equipment in order to address Runway Safety and CFIT related accidents
- ANSPs should provide timely feedback on UCRs to ensure efficiency of AIAG in providing analysis of incidents.
- States should have provision in their national regulations that require their Air Operators to undergo IOSA certification
- In order for the set objectives to be met, RASG-AFI and regional safety oversight organizations (RSOOs) should be involved actively in the coordination and, to the extent possible, harmonization of all activities undertaken to address aviation safety issues at a regional level, including the use of the global aviation safety roadmap by individual States or a group of States.
- The RASG-AFI should acknowledge the importance of including ground operations within safety oversight and standardization activities and recognize ISAGO as an industry best practice.
- States should increase their participation in the RASG-AFI Activities as well as collaborative safety improvement activities, as this will provide opportunities of sharing best practices and thereby improving implementation of effective risk mitigation.
- Industry should progress in SMS implementation and work in a complementary manner with ICAO, RSOOs and individual States on safety information exchange, safety monitoring and auditing programmes. International organizations and other aviation partners should work with RASG-AFI to help States in developing their safety performance indicators (SPIs), and provide guidance material and training to assist with addressing global safety priorities and SMS implementation. In order to ensure congruence between SSP and SMS indicators, States need to actively engage service providers in the development of SMS SPIs.
- Safety information should be protected, as this is essential to the development, evolution, and progress of safety information sharing and exchange initiatives.
- Set annual goals should be reviewed by RASC in June and November of each year in order to assess the level of progress made, and thereby make recommendations on a way forward;
- implementation of on-going projects should be intensified to ensure timely accomplishment;
- Seminars / workshops / meetings should be organised not as one-off events, but as part of time bound implementation process;
- The Abuja Safety Targets should be revised to be aligned with the revised Global Aviation Safety Plan

(GASP), RASG-AFI Conclusions, the “No Country Left Behind (NCLB)” initiative, the Priority Implementation Plan of the Sixth Meeting of the Directors General of Civil Aviation in Africa (DGCA/6); and to incorporate the Air Navigation Services Targets.

- Collaboration with, and involvement of, Regional Safety Oversight Organisations (RSOOs) in addressing safety deficiencies, particularly within ‘low performing States’ should be intensified;
- In order to establish effective Runway Safety Teams (RSTs) at identified aerodromes within RASG-AFI in a timely manner, a funding mechanism for the deployment of Runway Safety Go-Teams should be devised; and more ICAO Regional Officers involved in the GO-Teams.

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

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

## 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 2016

Botswana	Mauritius
Burkina Faso	Namibia
Cameroon	Niger
Cape Verde	Nigeria
Cote d'Ivoire	Senegal
Ethiopia	South Africa
Gambia	Togo
Ghana	Uganda
Kenya	Zambia
Madagascar	Zimbabwe
Mali	
Mauritania	

## Appendix 4 –Certified International Aerodromes within the RASG-AFI Region

The project group set up for the monitoring, assessing and evaluation of the Abuja safety targets co-opted ACI Africa to partner in this process.

Noting that certification of aerodromes presupposes an effective and functioning Civil Aviation Authority in a particular state and the absence of a CAA naturally impacts aerodrome certification, hence the only available data for monitoring this aspect is via voluntary reporting. Unfortunately letters and questionnaires were in many cases unanswered.

To overcome this problem, ACI surveyed all its members on the question of certification and the data presented is as a result of the responses received. The figures presented is subject to following qualifications:

- Not all aerodromes in Africa are members of ACI
- Not all members responded to the questionnaire

However, on the best available information, we have compiled a database from which it could be noted that:

- Total number of Aerodromes on the database: 229
- Total Number of Certified Aerodromes: 49
- Total percentage of Certified as per database: 21,4%

Achievement of the target for certification of all international aerodromes in Africa is unlikely. However, it is envisaged that the joint aerodrome certification projects managed by the ICAO regional offices will produce some positive results.

## Appendix 5: Acknowledgement

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Kebba Lamin JAMMEH.....ICAO  
Papa Atoumane FALL.....AFCAC  
Chamsou D I-ANDJORIN.....BOEING  
Maury SECK.....AIRBUS

- AFCAC
- AFRAA
- CANSO
- ASECNA
- ACI Africa
- Other members to be co-opted based on interest and need

## ABBREVIATIONS

ACC – Area Control Centre

ACI – Airports Council International

AFI – Africa and Indian Ocean

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

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

CIS – Commonwealth of Independent States CMA – Continuous Monitoring Approach ESAF – Eastern and Southern Africa

ESI – Emerging Safety Issues

EUR – Europe

FIR – Flight Information Region

FLT – Flight

FSO – Fundamentals of Safety Oversight

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

RASC – RASG AFI Steering Committee RASG – Regional Aviation Safety Group RE – Runway Excursion

RI – Runway Incursion

RWY – Runway

SAM – South America

SARPs – Standard and Recommended Practices

SMS – Safety Management Systems SSC – Significant Safety Concerns SSP – State Safety Programme

SST – Safety Support Team

TWY – Taxiway

UCR-Unsatisfactory Condition Report

USOAP – Universal Safety Oversight Audit Programme

WACAF – Western and Central Africa

3 per. Mov. Avg. (AFI) – 3 Year Moving Average (takes average rate over 3 years)

## RASG – AFI Aviation Safety Partners

