



NATIONAL AVIATION SAFETY PLAN 2022-2026

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Sierra Leone Civil Aviation Authority

Contents

FOREWORD	3
ABBREVIATIONS AND ACRONYMS	4
1. INTRODUCTION	7
1.1 Overview of the NASP.....	7
1.2 Structure of the NASP	7
1.3 Relationship between the NASP and the State safety programme (SSP)	7
1.4 Responsibility for the NASP development, implementation and monitoring.....	8
1.5 National safety issues, goals and targets	8
1.6 Operational Context	9
2. PURPOSE OF'S NATIONAL AVIATION SAFETY PLAN	10
3. SIERRA LONE'S STRATEGIC APPROACH TO MANAGING AVIATION SAFETY	10
4. NATIONAL OPERATIONAL SAFETY RISKS	14
4.3 Emerging Safety Issues.....	17
5. OTHER SAFETY ISSUES	19
6. MONITORING IMPLEMENTATION.....	22
APPENDIX A - DETAILED SEIs NATIONAL OPERATIONAL SAFETY RISKS	24
APPENDIX B - DETAILED SEIs: STATE SAFETY OVERSIGHT CAPABILITIES	31

FOREWORD

Sierra Leone Civil Aviation Authority will adopt Risk-based approach for the management of Aviation Safety in Sierra Leone. The State Safety Programme will be established and implemented to reflect on the new strategic initiative and regular review of this National Aviation Safety Plan will be conducted.

The National Aviation Safety Plan (NASP) incorporates the Safety Enhancement Initiatives (SEIs) contained in RASP-AFI and is in line with ICAO's GASP. The National Aviation Safety Plan (NASP) sets out a continuous improvement strategy, which helps to achieve objectives of the State through implementation of effective safety oversight.

NASP recognizes that it is important for everyone in aviation to work closely and in a collaborative manner to identify safety risks and ensure that the most appropriate practices and technologies are adopted to address and reduce these risks.



Dr Moses Tiffa Bai
Director General

ABBREVIATIONS AND ACRONYMS

ACAS	Airborne Collision Avoidance System
AERD	Aerodrome Operators
AFM	Airplane Flight Manual
AGA	Aerodrome and Ground Aid
AIIA	Accident and Incident Investigation
AIP	Aeronautical Information Publication
AIRPROX	Air Proximity incident
ALAR	Approach and Landing Accidents Reduction
ALoSP	Accepted Level of Safety Performance
ANS	Air Navigation Services
ANSD-	Air Navigation Standards Department
ANSP	Air Navigation Service Provider
AOC-	Air Operators Certificate
AFI RASP-	Africa and Indian Ocean Regional Aviation Safety Plan
ARC-	Abnormal Runway Contact
ASD-	Aerodrome Standards Department
ATC-	Air Traffic Control
ATCO	Air Traffic Control Officers
ATO-	Approved Training Organizations
CAO	Commercial Aeroplane Operators
CAP-	Corrective Action Plan
CAR	Civil Aviation Regulation.
CBT	Computer Based Training
CE	Critical Element
CFIT	Controlled Flight Into Terrain
CHO	Commercial Helicopter Operators
CMA-	Continuous Monitoring Approach
CRM	Crew Resource Management
DGSLCAA	Director General of Sierra Leone Civil Aviation Authority.
EGPWS	Enhanced Ground Proximity Warning System
EI	Effective Implementation
FH-	Flying Hours
FM-	Flight Movement
FSSD-	Flight Safety Standards Directorate.
GASP	Global Aviation Safety Plan (ICAO)
GPWS	Ground Proximity Warning System
GSE	Ground Support Equipment
HRCs	High Risk Categories
ICAO	International Civil Aviation Organization
IOSA-	IATA Operational Safety Audit
ISAGO-	IATA- Safety Audit for Ground Operators.
LOC-I-	Loss of Control In flight
LVP	Low Visibility Procedure

MAC- Mid Air Collision
MET Meteorology
MTA Ministry of Transport and Aviation.
MORs- Mandatory Occurrence Reports
MOU- Memorandum of Understanding
MRO Maintenance Repair and Overhaul
MSA Minimum Safe Altitude
MSAW- Minimum Safety Altitude Warning
MSAWS Minimum Safe Altitude Warning System
MSRS Mandatory Safety Reporting System
NASP National Aviation Safety Plan
OLF- On Line Framework
OPS- Operations
ORG- Organization
PDCA- Plan Do Check Act
PQs- Protocol Questions
QMS- Quality Management System
RA Resolution Advisory
RAIO- Regional Accident and Incident Organisation
RASG- Regional Aviation Safety Group
RASP-AFI Regional Aviation Safety Plan- Africa and Indian Ocean.
RE- Runway Excursion
RFM Rotary Flight Manual
RI- Runway Incursion
RPAS Remotely Piloted Aircraft System
RSOO- Regional Safety Oversight
RSP- Runway Safety Programme
RST- Runway Safety Team
RT Radio Telephony
SARPs ICAO Standards and Recommended Practices
SEIs Safety Enhancement Initiatives
SLCAA- Sierra Leone Civil Aviation Authority
SM- Safety Management Department
SMS Safety Management System
SO Safety Objective
SOI- Safety Oversight Index
SOP- Standard Operating Procedure
SPI- Safety performance Indicator
SPT- Safety Performance Target
SRM- Safety Risk Management
SSC- Significant Safety Concern
SSFDR Solid State Flight Data Recorder
SSP State Safety Programme
TAWS- Terrain Awareness Warning System
TCAS Traffic Collision Avoidance System
UIN Unique Identification Number
USOAP- Universal Safety Oversight Audit

VFR Visual Flight Rules

VOR- Voluntary Occurrence Report

WS- Wildlife Strike

NATIONAL AVIATION SAFETY PLAN 2022-2026

1. INTRODUCTION

1.1 Overview of the NASP

Sierra Leone is committed to enhancing aviation safety and to the resourcing of supporting activities. The purpose of this National Aviation Safety Plan (NASP) is to continually reduce fatalities, and the risk of fatalities, through the development and implementation of a national aviation safety strategy. A safe aviation system contributes to the economic development of the country and its industries. The NASP promotes the effective implementation of the country's safety oversight system, a risk-based approach to managing safety, as well as a coordinated approach to collaboration between itself and other industries, countries and regions. All stakeholders are encouraged to support and implement the NASP as the strategy for the continuous improvement of aviation safety.

The NASP of Sierra Leone is in alignment with the International Civil Aviation Organisation (ICAO) Global Aviation Safety Plan (GASP, Doc 10004) and the Africa-India Ocean (AFI) Regional Aviation Safety Group (RASG) plan (AFI Plan).

1.2 Structure of the NASP

This NASP presents the strategy for enhancing aviation safety for a period of 5 years. It comprises six sections. In addition to the introduction, sections include: the purpose of the NASP, Sierra Leone's strategic approach to managing aviation safety, the national operational safety risks identified for the Sierra Leone NASP, other safety issues addressed in the NASP, and a description of how the implementation of the safety enhancement initiatives (SEIs) listed in the NASP will be monitored.

1.3 Relationship between the NASP and the State safety programme (SSP)

This NASP addresses operational safety risks identified in the ICAO GASP and the AFI Plan in the absence of Sierra Leone's SSP. Sierra Leone is committed to fully implement SSP by 2023 as the country's responsibility for the management of safety comprises both safety oversight and safety

management, collectively implemented through an SSP. Initiatives listed in this NASP address organizational challenges and aim to enhance organizational capabilities related to effective safety oversight.

1.4 Responsibility for the NASP development, implementation and monitoring

The Sierra Leone Civil Aviation Authority (SLCAA) is responsible for the development, implementation and monitoring of the NASP, in collaboration with the Ministry of Transport and Aviation and with the national aviation industry. The NASP was developed in consultation with national operators and other stakeholders and in alignment with the principles of the GASP, RASG AFI Plan, and Sierra Leone's Medium Term National Development Plan, in the absence of the Civil Aviation Master Plan.

1.5 National safety issues, goals and targets

The NASP addresses the following national safety issues:

- 1) Airborne Conflict;
- 2) Controlled Flight into Terrain;
- 3) Runway Excursions and Overruns;
- 4) Wildlife and Bird Strikes;
- 5) Loss of Control in Flight;
- 6) Runway Incursion and Ramp Safety;
- 7) Deficient Maintenance;
- 8) Aviation Procedures and Documentation.

To address the issues listed above and enhance aviation safety at the national level, the NASP contains the following goals and targets aligned with the following Revised Abuja Safety Targets;

- 1) Progressively reduce accident rate from 8.6 to 2.5 per million departures by the end of 2022, with focus on:
 - a) Runway related accidents and serious incidents (Runway Excursion, RE).
 - b) Controlled Flight into Terrain (CFIT) related accidents and serious incidents.

- c) Loss of Control In-flight (LOC-I) related accidents and serious incidents.
 - d) Achieve and maintain zero fatalities in aircraft accidents.
- 2) Continue to strengthen the autonomous Civil Aviation Authority and maintain the independent regulatory oversight, sustainable sources of funding and resources to carry out effective safety oversight and regulation of the aviation industry;
 - 3) Abide by the timelines and provide resources for implementation of ICAO/State Plans of Action;
 - 4) Progressively increase the Effective Implementation (EI) percentage under the ICAO USOAP to at least 70% by end of 2022;
 - 5) Establish a Foundation SSP by 2023 addressing all pre-requisites for the purposes of SSP/SMS Implementation and to gradually develop to the appropriate maturity level
 - 6) Certify All International Aerodromes by 2022;
 - 7) Establish and maintain an effective and operational SAR organization, develop National SAR Plan and conclude SAR agreements with neighbouring States by 2023;
 - 8) Complete the implementation of the transition from AIS to AIM, develop and Implement a National Action Plan in accordance with the ASBU Block 0 D-ATM by end of 2022;
 - 9) Implement PBN procedures for all instrument runways by end of 2022;
 - 10) Progressively reduce the rate of aircraft proximity (AIRPROX) occurrences in their managed airspaces by at least 50% annually, in order to attain and maintain a level of zero (0) Airprox.
 - 11) Establishment of seamless Air Navigation Services
 - 12) Implement ASBU B0 Modules and develop National ASBU Plan by end of 2022;
 - 13) Develop and implement a National Plan for the reduction of CO₂ emissions due to international civil aviation by end of 2022;
 - 14) Ensure that all ANSPs effectively participate in the African ANSP Peer Review Programme by end of 2022:

1.6 Operational Context

There is presently no certified aerodrome in the country, including the Freetown International aerodrome in Lungi. There are currently no air operator certificates (AOCs) issued by Sierra Leone,

neither domestic nor international commercial air transport operations. There are no certified or licenced heliport or helicopter operators in the country. Common challenges in the country include; reporting of aviation safety incidents and development of a safety culture amongst all service providers.

2. PURPOSE OF'S NATIONAL AVIATION SAFETY PLAN

The NASP is the master planning document containing the strategic direction of Sierra Leone for the management of aviation safety for a period of 5 years (2022 to 2026). This plan lists national safety issues, sets national aviation safety goals and targets, and presents a series of safety enhancement initiatives (SEIs) to address identified safety deficiencies and achieve the national safety goals and targets.

The Civil Aviation Master Plan will address all aspects of air transport at the State level, with the objective of providing a clear and comprehensive planning and implementation strategy for the future development of the entire civil aviation sector. The NASP contains in-depth information specific to aviation safety aspects.

The NASP has been developed using international safety goals and targets and HRCs from both the GASP and the RASG-AFI Plan. The SEIs listed in the NASP support the improvement of safety at the wider regional and international levels and include several actions to address specific safety risks and recommended SEI set out in the Abuja Safety Target. Sierra Leone has adopted these SEIs and has included them in this plan.

3. SIERRA LONE'S STRATEGIC APPROACH TO MANAGING AVIATION SAFETY

The NASP presents the SEIs that were developed based on the organizational challenges (ORG) and operational safety risks (OPS), as presented in the ICAO global aviation safety roadmap, as well as State-specific issues identified by the SLCAA. This plan is developed and maintained by SLCAA, in coordination with all stakeholders and is updated at least every three years.

The NASP includes the following national safety goals and targets for management of aviation safety, as well as a series of Key Performance Indicators to monitor progress made towards their achievement.

Safety Target	Key Performance Indicator
<p>1. Progressively reduce the accident rate from 8.6 to 2.5 per million departures by the end of 2022, with focus on:</p> <ul style="list-style-type: none"> - 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. 	<p>Accident rate calculated as ratio of number of accidents per million departures</p>
<p>2. Sierra Leone 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.</p> <p>If support is needed in areas with safety margins below zero, to use a regional safety oversight organization's or another State's ICAO-recognized functions by 2020.</p> <ul style="list-style-type: none"> - effectively exercise the safety oversight functions with a positive safety margin in all areas by 2022. - where needed delegate certain safety oversight functions to RSOOs or other States, by the end of 2022 in areas with safety margins below zero, and as appropriate. 	<p>Autonomous CAA</p>
<p>3. Sierra Leone resolve:</p> <ul style="list-style-type: none"> -Existing SSCs -Newly identified SSCs within 6 months from the date of its official publication by ICAO. 	<p>Number of SSCs</p>
<p>4. Abide by the timelines and provide resources for implementation of ICAO/State Plans of Action</p> <ul style="list-style-type: none"> - Accepted ICAO Plans of Action by - abide by the timelines and provide resources for their 	<p>% Level of Implementation of State Action Plan</p>

implementation.	
<p>5. Progressively increase the Effective Implementation (EI) percentage under the ICAO USOAP such that States with:</p> <ul style="list-style-type: none"> - EI < 60% attain 60% by 2020; - 60% ≤ EI ≤ 70% attain 80% by 2022; -70% < EI attain 95% by 2028. 	% EI status
<p>6. For the purposes of SSP/SMS Implementation by 2025, Sierra Leone :</p> <ul style="list-style-type: none"> -to have a Foundation SSP established, addressing all pre-requisites; -to have an Effective SSP with appropriate maturity level established; -contribute information on safety risks, including SSP SPIs, to the RASG-AFI; -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 SSP) 	<p>Level of Implementation of SSP/SMS (level 1/2/3/4)</p>
<p>7. All International Aerodromes to be certified by 2022:</p> <ul style="list-style-type: none"> -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. 	<p>Number of International Aerodromes certified</p>
<p>8. Require all airlines to obtain an IATA Operational Safety Audit (IOSA) certification:</p> <ul style="list-style-type: none"> -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. 	<p>Number of airlines with IOSA certification against number of airlines without IOSA certification.</p>
<p>9. Establish an effective and operational SAR organization by year 2019:</p> <ul style="list-style-type: none"> -Development of a National SAR Plan by end of 2018; -Conclusion of SAR Agreements/ MoUs with all 	<p>Established SAR organisation</p>

<p>neighbouring 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.</p>	
<p>10. 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.</p>	<p>Level of implementation from AIS to AIM</p>
<p>11. Implement PBN procedures for all instrument runways by year 2025 : -75% of Instrument Runways to have PBN procedures by end of 2020; -100% of Instrument Runways to have PBN Procedures by end of 2025.</p>	<p>Number of runways with approved PBN procedures</p>
<p>12. 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 errors by end year 2020. This will be achieved by correspondingly reducing 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%)</p>	<p>Rate of air proxies</p>
<p>13. Establishment of seamless Air Navigation Services in the AFI Region in the AFI Region by year 2024 : -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. -Various initiatives formulated by the Regional Economic Communities (RECs) and ANSPs within the AFI Region to be harmonized.</p>	<p>Number of Seamless Air Navigation Airspace established</p>
<p>14. Implement ASBU B0 Modules: -All States to develop National ASBU Plan by end of 2018.</p>	<p>Level of compliance to the ASBU plan of action</p>
<p>15. Develop and implement a National Plan for the reduction of CO2 emissions due to international civil</p>	<p>Level of Implementation of National Plan</p>

<p>aviation:</p> <p>-develop a National Plan for CO₂ reduction by end of 2020; -full implementation of the National Plan by 2022.</p>	
<p>16. Ensure all ANSPs effectively participate in the African ANSP Peer Review Programme by year 2022:</p> <p>-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.</p>	<p>Number of States participating in the ANSP Peer Review Program</p>

4. NATIONAL OPERATIONAL SAFETY RISKS

4.1 General

The NASP includes SEIs that address national operational safety risks, derived from lessons learned from operational occurrences and from a data-driven approach. These SEIs may include actions such as: rule-making; policy development; targeted safety oversight activities; safety data analysis; and safety promotion. Separate sections are provided to address commercial air transport and general aviation to make the information more accessible to stakeholders (if applicable to the State).

The SLCAA will be publishing Annual Safety Reports, to be made available on the website; www.slcaa.gov.sl . The summary of accidents and serious incidents that occurred in Sierra Leone, and those for aircraft registered in Sierra Leone (if any) involved in commercial air transport and aircraft involved in general aviation will be shown in the sample table below.

<i>Year</i>	<i>Fatal accidents</i>	<i>Non-fatal accidents</i>	<i>Serious incidents</i>
Commercial air transport occurrences in			
General aviation aircraft occurrences in			

<i>Year</i>	<i>Fatal accidents</i>	<i>Non-fatal accidents</i>	<i>Serious incidents</i>
Occurrences involving commercial air transport aircraft registered in			
Occurrences involving general aviation aircraft registered in			

4.2 Occurrences involving commercial air transport and general aviation aircraft registered in Sierra Leone

There are no aircraft on the Sierra Leone Register, however, the following categories of national operational safety risks in the context of Sierra Leone are considered the priority because of the number of fatalities and risk of fatalities associated with such events. These were identified based on analysis of mandatory and voluntary reports over the past years, of accident and incident investigations reports and the operational safety risks described in the GASP and RASP –AFI plan.

1. Controlled Flight into Terrain (CFIT)
2. Loss of Control - in Flight (LOC-I)
3. Mid Air Collision (MAC)
4. Runway Excursion (RE)
5. Runway Incursion (RI)
6. Wildlife Strike around and in the vicinity of Aerodrome (WS)

To address the national operational safety risks listed above, SLCAA identified the following contributing factors leading to HRCs and will implement a series of SEIs, some of which are derived from the ICAO OPS roadmap, contained in the GASP and the RASG-AFI plan:

HRC 1: CFIT

- 1) Critical terrain and rapidly deteriorating weather condition.
- 2) Violation of SOP
- 3) Improper pilot response to stall warning.
- 4) Excess load on the front bench seat in the helicopters.
- 5) Loss of situational awareness of pilots.
- 6) Insufficient operational oversight from the organization.
- 7) Inadequate pre-flight planning and lack of consideration on individual load while preparing load and trim sheet.

HRC 2: LOC-I

- 1) Violation of SOP by pilots
- 2) Inadequate pre-flight planning and lack of consideration on individual hand and load checked
- 3) Baggage while preparing load and trim sheet.
- 4) Inadequate training requirements relating to engine malfunction and proper loading of aircraft.
- 5) Insufficient oversight by regulatory especially in the field of periodic check of load sheet.
- 6) Insufficient wildlife control programme.

HRC 3: MAC

- 1) Traffic Volume and pattern
- 2) Inadequate trainings to ATCOs and Pilots
- 3) Lack of SOPs/MOUs for effective coordination
- 4) Violations of existing MOUs/SOPs and agreements

HRC 4: RE

- 1) Loss of Situational awareness

- 2) Violation of SOP by pilots
- 3) lack of training (on landing in contaminated runway)
- 5) Poor CRM
- 4) Lack of procedure to operate in contaminated runway
- 5) Experience of pilot for night flying

HRC 5: RI

- 1) Loss of Situational awareness of ATCs and pilots
- 2) Violation of SOP by ATCs and pilots
- 3) Lack of training
- 4) Poor communication and CRM
- 4) Insufficient wildlife control programme.

HRC 6: WS

- 1) Insufficient wildlife control programme in Aerodrome and Vicinity.
- 2) Violation of regulations (waste deposit and dumpsites near of airports)
- 3) Lack of study on wildlife habitat management near aerodromes.

The full list of the SEIs is presented in the appendix A and B to this NASP

4.3 Emerging Safety Issues

In addition to the State Safety Priorities, this chapter addresses emerging safety issues as well as issues that could potentially emerge in the immediate or near future. The safety issues detailed are driven from operations or regulations that have not been fully deployed, and it provides a future platform for National Aviation Safety Plan.

4.3.1 Civil Drones (Unmanned Aircraft Systems)

SLCAA has recently published UAS Regulations in 2020. Sierra Leone is expected to have huge number of RPAS in near future. Industries such as medicine, agriculture, construction, surveying, roads, railway, mining, aerial filming, forest and environment study, etc. would be stimulated to a great extent

The SLCAA plans to host an Online/ web based single system for issuance of Unique Identification Number (UIN) of RPAS in order to monitor RPAS.

As a way forward the SLCAA is to;

- a) Monitor the effectiveness of the published operating regulations in respect of RPAS.
- b) Coordinate with other agencies for safe and smooth operations of RPAS in the country.
- c) Harmonize regulations for RPAS with those around the world.

Evidently, RPAS has huge potential to help create jobs, increase skill base and increase the efficiency of industries across the country and worldwide. This will also boost industries associated in the development of this technology. However, the immediate need is to facilitate RPAS market with globally harmonized regulations even for small RPAS.

4.3.2 Airborne Conflict – Communication Errors

There are large number of incidents occurred in the recent past which have been attributed to improper communication or miscommunication between air traffic controllers and pilots such as, incorrect phraseologies, inappropriate use of plain English, absence of read-back or absence of correction or acknowledgement to read-back, pilot's/controller's complacency, selective hearing and hearing expectancy.

These errors come to the notice only during the investigation of incidents. However there is a possibility that the number of communication errors taking place, which have not resulted in any incidents, would go unnoticed.

As a preventive measure, SLCAA will request all ANSPs to maintain database of such communication errors through voluntary reporting system so that necessary action may be taken to prevent such errors in future. Voluntary reporting of such errors which do not result in any incident should be treated as non-punitive so that pilots & controllers may report fearlessly and freely.

4.3.3 Threat in Ground Handling Services

Ground handling activities include ground handling personnel, use of vehicles and GSEs, aircraft refuelling, removal of FOD, restricted dangerous goods etc. They help in running commercial flight operations smoothly, and also play a major role in flight safety. Personnel/operators on ground in the

Aircraft Restricted Area are in a better position to detect damages/leaks etc. on the aircraft because of their close vicinity to the aircraft till it departs.

SLCAA through its SLCARs Part 19 on “Safety Management System” mandates implementation of SMS among sub-contractors through interface management. SLCAA fixes the responsibility of oversight of implementation of SMS among sub-contractors i.e. ground handling agencies on aircraft operators.

Safety management of ground handling is one of the issues that still needs follow-up. It is essential to encourage safety reporting among the ground handlers to identify the serious threats to aircraft on ground. Based on the data analysed, the following areas need attention with regard to ground handling:

- a) -Reporting of hazards and threats in ground handling;
- b) Promotion of the safety culture;
- c) Implementation of the safety management system;
- d) Effective oversight on Ground handling agencies.

5. OTHER SAFETY ISSUES

In addition to the national operational safety risks listed in the NASP, SLCAA has identified other safety issues and initiatives selected for the NASP. These are given priority in the NASP since they are aimed at enhancing and strengthening Sierra Leone’s safety oversight capabilities and the management of aviation safety at the national level.

The eight critical elements (CEs) of a safety oversight system are defined by ICAO. Sierra Leone is committed to the effective implementation of these eight CEs, as part of its overall safety oversight responsibilities, which emphasize Sierra Leone’s commitment to safety in respect of its aviation activities. The eight CEs are presented in Figure 1 below.

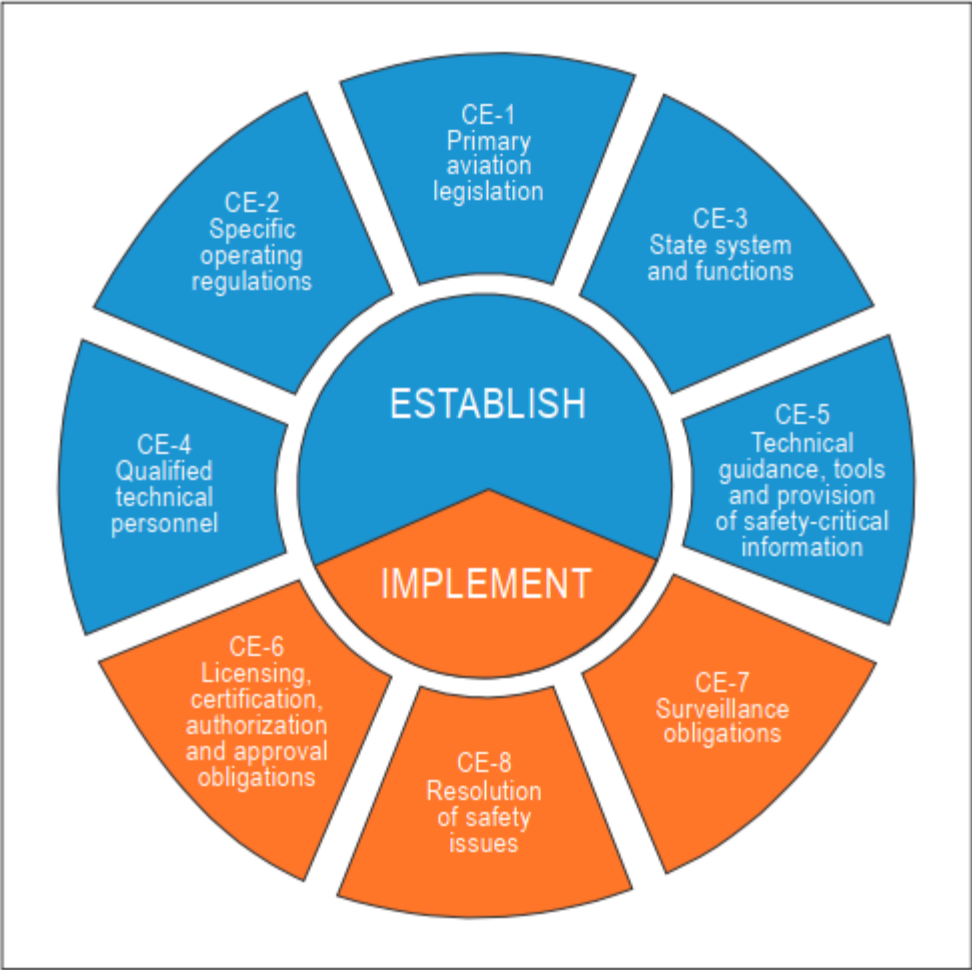


Figure 1. Critical Elements (CEs) of a State’s safety oversight system

The latest ICAO activities which aim to measure the effective implementation of the eight CEs of Sierra Leone’s safety oversight system, as part of the ICAO Universal Safety Oversight Audit Programme (USOAP) conducted in 2014, resulted in the following scores:

Overall EI Score							
18.64							
Adjusted EI Score after 2020							
16.03							
EI Score by CE							
CE1	CE2	CE3	CE4	CE5	CE6	CE7	CE8
14.81	14.67	21.57	25	17.2	10.2	17.98	19.35

EI Score by Audit Area							
LEG	ORG	PEL	OPS	AIR	AIG	ANS	AGA
14.29	25	9.52	6.12	19.32	11.11	31.43	13.04

The safety oversight index (SOI) of a State is an ICAO indicator of its safety oversight capabilities. Every State audited by ICAO has an SOI. It is a number greater than zero, where “1” represents a level at which the safety oversight capabilities of a State would indicate the minimum expected capabilities considering the number of departures as an indication of the size of that State’s aviation system. The calculations conducted by ICAO of Sierra Leone’s SOI have resulted in the following scores:

Overall SOI score	Score in the area of Operations	Score in the area of Air Navigation	Score in the area of Support Functions
0.56	0.43	0.78	0.48

The following other safety issues in the Sierra Leone context were considered of the utmost priority because they are systemic issues, which impact the effectiveness of safety risk controls. They were identified based on analysis from USOAP data, accident and incident investigation reports, safety oversight activities over the past years, as well as on the basis of regional analysis. These issues are typically organizational in nature and relate to challenges associated with the conduct of States’ safety oversight functions, implementation of SSP at the national level and the level of SMS implementation by national service providers. They take into consideration organizational culture, policies and procedures within SLCAA, MTA and those of service providers. These safety issues are in line with those listed in the 2020 to 2022 of the GASP, as well as the RASG AFI plan:

- 1) Eight audit areas pertaining to USOAP, i.e. primary aviation legislation and civil aviation regulations (LEG), civil aviation organization (ORG); personnel licensing and training (PEL); aircraft operations (OPS); airworthiness of aircraft (AIR); aircraft accident and incident investigation (AIG); air navigation services (ANS); and aerodromes and ground aids (AGA).

2) Qualified Technical Personnel (CE -4): During the most recent WACAF ROST Mission the lack of adequate training of personnel was flagged. The SLCAA has therefore placed as a high priority issue to be resolved.

3) Technical guidance, tools and provision of safety-critical information (CE-5); the ICAO safety audit of 2006 and ICVM of 2014 revealed a big failure in the provision of the essential guidance, tools and information to guide the implementation phase.

4) Licensing, Certification, Authorisation and Approval Obligations (CE-6); Sierra Leone received the lowest EI score during the most recent audit and ROST mission on this CE and is therefore the topmost in the list.

5) Surveillance Obligations (CE -7): The EI score for CE- 7 was low and as it helps confirm how the industry is monitored the issues were placed as high priority.

6) Resolution of Safety Issues (CE -8): This was one of the weak CE of Sierra Leone identified during the most recent ICAO USOAP audit and was therefore placed as a high priority issue to resolve.

To address the issues listed above, Sierra Leone will implement a series of SEIs, some of which are derived from the ICAO ORG roadmap, contained in the GASP. The full list of the SEIs is presented in Appendices A and B to this NASP.

6. MONITORING IMPLEMENTATION

The SLCAA will continuously monitor the implementation of the SEIs listed in the NASP and measure safety performance of the national civil aviation system, to ensure the intended results are achieved, using the mechanisms presented in the appendix to this plan.

In addition to the above, the SLCAA will review the NASP every year until it develops an SSP and every 3 years or earlier after SSP, if required, to keep the identified operational safety risks, safety issues and selected SEIs updated and relevant. The SLCAA will periodically review the safety

performance of the initiatives listed in the NASP to ensure the achievement of national safety goals and targets. If required, SLCAA will seek the support of the RASG, RSOO, MTA and the industry to ensure the timely implementation of SEIs to address safety deficiencies and mitigate risks. Through close monitoring of the SEIs, SLCAA will make adjustments to the NASP and its initiatives, if needed, and update the NASP accordingly.

SLCAA will use the indicators listed in Section 3 of this plan to measure safety performance of the civil aviation system and monitor each national safety target. A periodic (Annual) safety report will be published to provide stakeholders with relevant up-to-date information on the progress made in achieving the national safety goals and targets, as well as the implementation status of the SEIs.

In the event that the national safety goals and targets are not met, the root causes will be presented. If Sierra Leone identifies critical operational safety risks, reasonable measures will be taken to mitigate them as soon as practicable, possibly leading to an unscheduled revision of the NASP.

Sierra Leone adopted a standardized approach to provide information at the regional level, for reporting to the AFI RASG. This allows the region to receive information and assess operational safety risks using common methodologies.

Any questions regarding the NASP and its initiatives, and further requests for information, may be addressed to the following:

Director General
Sierra Leone Civil Aviation Authority
23 Siaka Stevens Street
Freetown
info@slcaa.gov.sl

APPENDIX A - DETAILED SEIs NATIONAL OPERATIONAL SAFETY RISKS

Safety enhancement initiative	Action	Responsible Entity	Timeline	Stakeholders	Metrics	Priority	Monitoring Activity
Issue No. 1: Operational Safety Risks							
HRC 1: Controlled Flight Into Terrain (CFIT)							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
GASP OPS SEI on CFIT (State) Mitigate contributing factors to the risk of CFIT	1. Implement the following CFIT safety actions:	FSSD	2023	ANSD ANSP FSSD Air Operators	Number of CFIT Accident/incident per 10,000 flight movements	High	Surveillance of operator ,ANSP activities Safety reporting (MOR/VO R)
	a. Ensure aircraft are equipped with terrain awareness and warning system (TAWS) in accordance with Annex 6.	FSSD					
	b. Promote the wider use of TAWS beyond the requirements of Annex 6.	FSSD					
	c. Issue a Safety Advisory to increase adherence to TAWS warning procedures	FSSD					
	d. Promote the use of GPS-derived position data to feed TAWS	FSSD					
	e. Model Regulation on Ground Proximity Warning System (GPWS)	FSSD					
	f. Guidance for Operators to Ensure Effectiveness of GPWS Equipment	FSSD					
	g. Guidance for Operators on Training Programme on the use of GPWS	FSSD					
	h. Promote greater awareness of approach risks.	ANSD/FSSD					
	i. Instrument Approach Procedures Using Continuous Descent Final Approach Techniques (CDFA)	ANSD/FSSD					
	j. Implement minimum safe altitude warning (MSAW) systems	ANSD					
	k. Issuance of Terrain or Obstacle Alert Warning	FSSD					
	l. Ensure the timeliness of updates and accuracy of Electronic Terrain and Obstacle Data (eTOD)	ANSD					
m. Guidance on the Establishment of a Flight Data Analysis Programme	FSSD						

	(FDAP) n. Advisory Circular Crew Resource Management Training Programme (CRM) o. Advisory Circular Controlled Flight into Terrain (CFIT) and Approach and Landing Accident Reduction (ALAR) Training Programme. p. Guidance for Air Operators in Establishing a Flight Safety Documents System	FSSD FSSD FSSD					
	2. Validate the effectiveness of the safety enhancement initiatives (SEIs) presented in this roadmap through the analysis of mandatory occurrence reporting (MORs) and voluntary occurrence reporting systems (VORs) and accident/incident investigations (apply safety management methodologies).	FSSD/ANSSSD	Cont. process	ANSD ANSP FSSD Air Operators	Number of CFIT occurrences reports via MOR and VOR systems/10,000 FMs.	High	Surveillance of operator , ANSP activities Safety reporting (MOR/VOR)
	3. Identify additional contributing factors: a. Flight in adverse environmental conditions b. Approach design and documentation (e.g. approaches with vertical guidance (APV) or localizer performance with vertical guidance (LPV) approaches) c. Phraseology used (standard vs. non-standard) d. Pilot fatigue and disorientation	ANSD/FSSD ANSD FSSD/ANSD FSSD	2023	ANSD ANSP FSSD Air Operators	Number of CFIT occurrence per 10,000 FMs	High	
	4. Conduct continuous evaluations of the performance of the SEIs.	ANSD/FSSD	Cont. process	ANSD ANSP FSSD Air Operators	Number of CFIT occurrence per 10,000 FMs	High	Surveillance of operator , ANSP activities Safety reporting (MOR/VOR)
HRC 2: Loss of Control In flight (LOC-I)							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							

GASP OPS SEI on LOC-I (State) Mitigate contributing factors to the risk of LOC-I accidents and incidents	1. Implement the following LOC-I safety actions: a. Develop guidance materials on upset prevention and recovery training in all full flight simulator type conversion and recurrent training programmes and ensure implementation. b. Require more time devoted to training for the pilot monitoring role. c. Model Advisory Circular Air Operators Standard Operating Procedures for Flight Deck Crewmembers d. Guidance Material on Flight Crew Proficiency Advisory Circular Mode Awareness and Energy State Management Aspects of Flight Deck Automation	FSSD FSSD FSSD FSSD FSSD	2023	-Air Operators - Flight simulator product and service providers - CAA inspectors	Number of LOC-I Accident/in cident per 10,000 flying hours.	High	Surveillanc e of operator and ATO training activities
	2. Validate the effectiveness of the SEIs in the industry through MORs and VORs systems and accident/incident investigations (apply safety management methodologies- PDCA)	FSSD	2023		LOC-I occurrence rates in MOR, VOR and AIG reports	High	MOR, VOR and AIG reports
	3. Identify additional contributing factors: a. Distraction b. Adverse weather c. Complacency d. Inadequate standard operating procedures (SOPs) for effective flight management e. Insufficient height above terrain for recovery f. Lack of awareness of or competence in procedures for recovery from unusual aircraft attitudes g. Inappropriate flight control inputs in response to a sudden awareness of an abnormal bank angle.	FSSD	2023	-Air Operators - Flight simulator product and service providers - CAA inspectors	Stickshaker activation events in FDA data LOC-I occurrence rates	High	Surveillanc e of operator and ATO training activities
	4. Conduct continuous evaluations of the performance of the SEIs.	FSSD	2023		Number of LOC-I occurrence per 10,000 FHs	High	

HRC 3: Mid Air Collision (MAC)

**Goal 1: Achieve a continuous reduction of operational safety risks
Target 1.1: Maintain a decreasing trend of the national accident rate**

GASP OPS SEI on MAC	1. Implement the following MAC safety actions: a. Establish guidance and regulations to ensure aircraft are equipped with airborne collision avoidance system (ACAS), in accordance with Annex 6	FSSD FSSD ANSD	2023	-Air	Number of MAC Accident/in	High	Surveillanc e of operator ,
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(State) Mitigate contributing factors to risk of MAC accidents and incidents	b. Ensure adherence to ACAS warning procedures c. Promote the improvement of air traffic control (ATC) systems, procedures and tools to enhance conflict management d. Promote the improvement of communications systems and procedures, such as controller pilot data link.	ANSD		Operators - ANS service provider - CAA inspectors	cident per 10,000 flying hours.		ANSP activities Safety reporting (MOR/VO R)	
	2. Validate the effectiveness of the SEIs through the analysis of MORs and VORs and accident/incident investigations (apply safety management methodologies)	ANSD/F SSD	Cont. Process					High
	3. Identify additional contributing factors: a. Traffic conditions - traffic density, complexity, mixture of aircraft types and capabilities, etc. b. ATC performance related to workload, competence, teamwork, procedures, commitment, etc., as well as the influence of air navigation services providers' (ANSP) safety management c. Flight crew training and corporate culture with workload, competence, teamwork, procedures, commitment etc., and the influence of aircraft d. ATC systems - flight data processing, communication, short term conflict alert (STCA), etc., as well as the interaction with the human operators and the aircraft systems, and the procurement policy of the ANSP e. Aircraft equipment - autopilots, transponders and ACAS, but also aircraft performance (e.g. rate-of-climb) and their physical size f. Navigation infrastructure - both coverage and quality g. Surveillance - both coverage and quality h. Flight plan processing - efficiency and reliability of flight plan submission, approval and distribution i. Airspace - complexity of airspace design, route layout, extent of controlled or uncontrolled airspace, proximity of military operational or training areas, etc. j. Flight in adverse environmental conditions that may influence conflict management and collision avoidance	ANSD/F SSD ANSD FSSD ANSD FSSD ANSD ANSD ANSD/F SSD ANSD/F SSD ANSD/F SSD	2023					High
4) Conduct continuous evaluations of the performance of the SEI	ANSD/F SSD	Cont. Process		Number of MAC occurrence per 10,000 flying hours.	High	Surveillance of ANSP, air operator and ATO training activities		

HRC 4: Runway Excursion (RE)

Goal 1: Achieve a continuous reduction of operational safety risks

Target 1.1: Maintain a decreasing trend of the national accident rate

<p>GASP OPS SEI on RE (State) Mitigate contributing factors to risk of RE accidents and incidents</p>	<p>1. Implement the following RE safety actions: a. Ensure the establishment and implementation of a State runway safety Programme (RSP) and runway safety teams (RST) in all certified aerodromes. b. Promote the establishment of policy and training on rejected landings, go-arounds, crosswind and tailwind landings (up to the maximum manufacturer-demonstrated winds) c. Promote equipage of runway overrun awareness and alerting systems on aircraft d. Ensure effective and timely reporting of meteorological and aerodrome conditions (e.g. runway surface condition in accordance to the ICAO global reporting format in Annex 14, Volume I, braking action and revised declared distances) e. Certify aerodrome in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome f. Promote the installation of arresting systems if runway end safety area (RESA) requirements cannot be met. g. Ensure that procedures to systematically reduce the rate of unstabilized approaches to runways are developed and used h. Runway Safety Maturity Checklist i. Guidance material and training program for runway pavement, maintenance and operations from aerodrome operators perspective.</p>	<p>FSSD FSSD ASD ASD FSSD FSSD FSSD/A NSD ASD ASD</p>	<p>2023</p>	<p>-Air Operators - ANS service provider - Aerodrome service providers - CAA inspectors</p>	<p>Number of RE Accident/in cident per 10,000 Flying hours.</p>	<p>High</p>	<p>Surveillanc e of Aerodrome s, ANSP, air operator and ATO training activities Safety reporting (MOR/VO R)</p>
	<p>2. Validate the effectiveness of the SEI through the analysis of MORs, VORs and accident/incident investigations (apply safety management methodologies).</p>	<p>ASD/ ANSD/ FSSD</p>	<p>2023</p>				
	<p>3. Identify additional contributing factors: a. Ineffective SOPs b. Failure to adhere to the appropriate SOPs c. Long/floated/bounced/firm/off-centre/crabbed landing d. Inadequate approach procedures design e. Inadequate regulatory oversight</p>	<p>ASD/FS SD /ANSD ASD/FS SD /ANSD FSSD ANSD ASD/FS SD /ANSD</p>	<p>2023</p>				
	<p>4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RE</p>	<p>FSSD/A NSSD/A SD</p>	<p>2023</p>				

	5. Conduct continuous evaluations of the performance of the SEI.	ASD/FS SD /ANSD	Continue process				
HRC 5: Runway Incursion (RI)							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
GASP OPS SEI on RI (State) Mitigate contributing factors to the risk of RI accidents and incidents	1. Implement the following RI safety actions: a. Ensure the establishment and implementation of a State runway safety programme (RSP) and runway safety teams (RST) b. Promote the establishment of policy, procedures and training that supports situational awareness for controllers, pilots and airside vehicle drivers c. Ensure effective use of suitable technologies to assist the improvement of situational awareness, such as improved resolution airport moving maps (AMM), electronic flight bags (EFBs), enhanced vision systems (EVS) and head-up displays (HUD), advanced-surface movement guidance and control systems (ASMGCS), stop bars, and runway incursion warning systems (ARIWS). d. Certify aerodrome in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome e. Ensure the use of standard phraseologies in accordance with applicable State regulations and ICAO provisions (e.g. Doc 9432, Manual of Radiotelephony. f. Ensure the identification and publication in the aeronautical information publication (AIP) of hot spots at aerodromes g. Ensure that suitable strategies to remove hazards or mitigate risks associated with identified hot spots are developed and executed h. Runway Safety Maturity Checklist i. Model Advisory Circular Runway Incursion (RI) Prevention and Pilot Training.	ASD ASD/AN SSD/FSS D ASD/AN SSD/FSS D ASD ASD/AN SSD/FSS D ASD ASD ASD ASD	2023	Air Operators - ANS service provider - Aerodrome service providers - -CAA inspectors	Number of RI Accident/in cident per 10,000 flying hours.	High	Surveillanc e of Aerodrome s, ANSP, air operator and ATO training activities Safety reporting (MOR/VO R)
	2. Validate the effectiveness of the SEIs through the analysis of MORs, VORs and accident/incident investigations (apply safety management methodologies)	ASD/AN SD/FSS D	2023				
	3. Identify additional contributing factors: a. Operations in low visibility conditions b. Complex or inadequate aerodrome design c. Complexity of traffic (multiple simultaneous line-ups) d. Conditional clearances e. Simultaneous use of intersecting runways f. Late issue of or late changes to departure clearances g. Phraseology use (e.g. non-standard vs. standard, call-sign confusion)	FSSD ASD ANSD ANSD/F SSD FSSD/ ANSD ANSD/F	2023				

	h. Concurrent use of more than one language for ATC communications i. English language competence despite the introduction by ICAO of a system of validating competence in aviation English j. Inadequate manoeuvring area driver training and assessment programme.	SSD ASD					
	4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RI	ASD/FS SD/ASD	2023				
	5. Conduct continuous evaluations of the performance of the SEIs	ASD/AN SD/FSS D	Cont. process				
HRC 6: Wildlife Strike (WS) on and in the vicinity of Aerodrome							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
Mitigate contributing factors to the risk of WS accidents and incidents	1. Implement the following WS safety actions: a. Observe bird activities and bird strikes at the airports and promote collecting, reporting, recording and analysis of data through various means. b. Ensure the better management of vegetation and land use at the airports c. Ensure the implementation of effective bird distracting mechanisms at the airports. d. Ensure the implementation of Off-airport bird management activities in collaboration with local communities and other government agencies through National Airport Bird Control and Reduction Committee e. Encourage to use environment friendly chemical bird repellent technique at airports apart from the existing audio and visual repellent techniques. f. Introduce Runway sweep-in vehicles to control the activity of birds and other wildlife due to presence of attractants on the surface of runway	ASD/AN SSD/FSS D ASD ASD ASD ASD	2022	Air Operators ANS service provider Aerodrome service providers CAA inspectors	Number of WS Accident/incident/per 10,000 flying hours.		Surveillance of Aerodromes, ANSP, air operator activities Safety reporting (MOR/VOR)
	2. Validate the effectiveness of the SEI through the analysis of MORs, VORs and accident/incident investigations (apply safety management methodologies)	ASD/AN SS SD/FSS D	2022				
	3. Identify additional contributing factors:	ASD/FS SD/ANS D	2022				
	3. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any.	ASD	2022				
	4. Conduct continuous evaluations of the performance of the SEIs	ASD/AN SD/FSS D	2022				

APPENDIX B - DETAILED SEIs: STATE SAFETY OVERSIGHT CAPABILITIES

Safety enhancement initiative	Action	Responsible Entity	Timeline	Stakeholders	Metrics	Priority	Monitoring Activity
<p>Issue no. 2: Establishment of a safety oversight framework Focus on lower EI scores for categories namely CE-4: Technical personnel qualifications and training, CE-7: Surveillance Obligations CE-8: Resolution of safety Issues, Organization (ORG) Aircraft and incident investigation (AIG), Aerodrome and ground aids (AGA), and Air navigation services (ANS)</p>							
<p>Goal 2: Strengthen State safety oversight capabilities Target 2.1: Endeavour to have no Significant Safety Concerns (SSCs) under the USOAP Continuous Monitoring Approach (CMA), and to resolve any SSC promptly within the time frame specified in the Corrective Action Plan and agreed to by ICAO [from 2022] Target 2.2: Encourage to increase the number of IOSA registered AFI airlines and ISAGO registrations. Target 2.3: Sierra Leone to progressively enhance safety oversight capability to achieve at least 75% EI by 2022, 85% by 2026 and 95% by 2030 in USOAP CMA Target 2.4: Sierra Leone to reach a safety oversight index greater than 1 in all categories by 2022 Target 2.5: Conduct workshops and seminars relating to ANS, AIG, AGA at least yearly [from 2022].</p>							
<p>GASP ORG SEI 1 (State) Consistent implementation of ICAO SARPs at the national level</p>	<p>1. Work at the national level to address significant safety concerns as a priority 2. Address all priority protocol questions (PQs) of the USOAP CMA 3. Establish primary aviation law and regulations, to empower the competent authority to conduct regulatory oversight, this includes separation of oversight functions and service provision functions (CE-1 and CE-2) 4. Increase the level of compliance with ICAO SARPs and the EI of CEs at the national level (CE-1 to CE-5) 5. Establish a process for the identification of differences with ICAO SARPs (CE-2)</p>	<p>-SLCAA</p>	<p>-When needed -Continuous process -Completed -Continuous process Implemented</p>	<p>Air Operators ANSPs Aerodrome service providers</p>	<p>-EI percentage -State Safety index -Rate of improvement in compliance Percentage of priority PQs addressed</p>	<p>High</p>	<p>-Quality assurance of oversight functions Surveillance Of Aerodromes ,ANSP, air Operator activities</p>

<p>GASP ORG SEI 2 (State) Development of a comprehensive regulatory oversight framework</p>	<p>1. Establish and maintain an independent regulatory oversight authority, which includes separation of oversight functions from service provision functions where these exist within the authority (CE-3) 2. Develop an effective system to promulgate technical guidance and tools, and provide safety critical information needed for technical personnel to effectively perform their safety oversight functions (CE-5). 3. Establish an effective system to attract, recruit, train and retain qualified and sufficient technical personnel to support regulatory oversight (see SEI-5) (CE-3 and CE-4).</p>	<p>SLCAA ANSD/A SD/FSS D/SM</p>	<p>2023</p>	<p>-Air Operator s -ANSP Aerodrome service providers</p>	<p>Independent regulatory oversight authority Safety oversight functions</p>	<p>High</p>	<p>Quality assurance of oversight functions Surveillance Of Aerodromes ,ANSP, air operator activities</p>
<p>GASP ORG SEI-3 (State) Establishment of an independent accident and incident investigation authority, consistent with Annex 13</p>	<p>1. Establish an independent accident and incident investigation authority, as per Annex 13 requirements (CE-1 and CE-3) 2. Develop an effective system to promulgate technical guidance and tools, and provide safety critical information needed for technical personnel to effectively conduct accident and incident investigations (CE-5) 3. Establish an effective system to attract, recruit, train and retain qualified and sufficient technical personnel to support accident and incident investigations (see SEI-5) (CE-3 and CE-4)</p>	<p>MTA MTA SLCAA/ MTA</p>	<p>2022</p>		<p>Independent AIG authority The required technical guidance and tools</p>		<p>AIG reports Quality assurance regarding the AIG functions</p>
<p>GASP ORG SEI-4 (State) Strategic allocation of resources to enable effective safety oversight</p>	<p>1. Confirm executive or legislative mandate to receive financial resources from government or other external sources and expend them (CE-1) 2. Establish a process for the resource planning and allocation in alignment with a competent required to conduct effective safety oversight (CE-2 and CE-3). SEI-1 and SEI-5 could be used to identify resource requirements (CE-1 to CE-5) 3. Obtain a sustainable and stable source of financing through commitments from the national and agency leadership and other stakeholders (CE-1 to CE-3). For small scope short-term improvements: a. Utilize the ICAO Safety Fund (SAFE), Technical Co-operation Bureau, or other means to acquire technical and financial assistance in coordination with RASG/RSOO/ICAO Regional Office b. Seek assistance from more experienced States and other stakeholders in coordination with RASG/RSOO/ICAO Regional Office c. Seek assistance from sources of financing (World Bank, Asian Development Bank etc.) in coordination with RASG/RSOO/ICAO Regional Office 4. Develop a process for assessing changing resource requirements and sustain necessary coordination with resource stakeholders for safety</p>	<p>SLCAA</p>	<p>2022</p>	<p>Air Operator s ANSP Aerodrome service providers</p>	<p>CA Acts and Regulations</p>		<p>Provisions and implementation of Acts and Regulations</p>

	oversight improvements, as outlined in Component 1 of this roadmap (CE-1 to CE-3)						
GASP ORG SEI-5 (State) Qualified Technical personnel to support effective safety oversight	<ol style="list-style-type: none"> 1. Establish an effective system to identify and track qualifications and training of existing technical personnel (CE-4) 2. Identify the gaps in qualified technical personnel and training requirements necessary to implement the oversight mandate (CE-4) 3. Establish a compensation scheme for the attraction and retention of qualified technical personnel (CE-4) 4. Make use of RSOOs, RAIOS, or equivalent means, to secure qualified technical personnel to perform those functions which cannot be performed by the State acting on its own (CE-4) 5. Establish human resource plans to support hiring and retention of the appropriate number of qualified technical personnel required (CE-4) 6. Implement training policies and programmes for technical personnel and verify that the type and frequency of training successfully completed (i.e. initial, recurrent, specialized and on-the-job training) are sufficient to acquire/maintain the required qualifications and level of competence corresponding to the assigned duties and responsibilities of technical personnel (CE-4) 7. Develop a process for assessing changing needs for qualified technical personnel requirements and develop procedures to update hiring, retention and training of personnel needs, in coordination with SEI-4B (CE-4) 	SLCAA	2022	Air Operator s ANS service provider Aerodrome service providers SLCAA inspectors	Qualified technical manpower		Quality assurance of oversight functions
Issue No. 3: Slow pace of SSP implementation, as well as understanding of newer safety management and performance-based concepts							
Goal 3: Implement effective SSP							
Target 3.1: Sierra Leone to implement the foundation of its SSP by 2022.							
Target 3.2: Sierra Leone to attain Level 3 SSP implementation by 2023							
Target 3.3: Sierra Leone to implement an effective SSP (Level 4), as appropriate to its aviation system complexity, by 2025.							
GASP ORG SEI-13 (State) Start of SSP implementation at the national level	<ol style="list-style-type: none"> 1. Secure State-level commitment to improve safety 2. Conduct initial SSP gap analysis (checklist) then the detailed SSP self - assessment 3. Establish an SSP implementation team 4. Develop an implementation plan for the SSP 5. Issue SMS regulations for service providers and verify SMS implementation. 6. Identify and share safety management best practices 	DGSLC AA SM SM	Implemented Implemented 2022 Implemented	Air Operator s ANS service provider Aerodrome service providers	Level of SSP implementation Level of SMS implementation in service providers	High	ICAO ISTARs Quality assurance of oversight functions and SSP implementation
GASP ORG SEI-14 (State) Strategic	<ol style="list-style-type: none"> 1. Establish a process for planning and allocation of resources to enable SSP implementation and identify areas where resources are needed. 2. Obtain resources from national and appropriate the authorities' leadership and stakeholders within the State to support SSP implementation 	SM DGSLC AA	2022 Implemented 2022		SLCAA acts and regulation		Provisions and implementation

allocation of resources to start SSP implementation	<p>3. Work with the ICAO Regional Office to make use of available means (e.g. Technical Cooperation Bureau) to acquire assistance needed for SSP implementation</p> <p>4. Work with RSOO, other States and other organizations, as appropriate to train qualified technical personnel to fulfil their duties and responsibilities regarding SSP implementation</p>				s		n of SLCAA acts and regulations
GASP ORG SEI-15 (State) Strategic collaboration with key aviation stakeholders to start SSP implementation	<p>1. Identify areas where collaboration/support is needed as part of the SSP implementation plan (see SEI-14)</p> <p>2. Identify relevant collaborators from key aviation stakeholders, including other States that are implementing or have implemented an SSP</p> <p>3. Develop an action plan to address the elements identified as missing or deficient during the SSP gap analysis (see SEI-13B)</p> <p>4. Establish a process via RASG and/or RSOO for a mentoring system, including providing assistance to States/industry, as well as sharing of best practices to support SSP implementation</p> <p>5. Develop a process to provide training on SSP to relevant staff, in collaboration with RSOO and/or other States (e.g. initial, recurrent and advanced).</p> <p>6. Establish and implement a process for sharing technical guidance, tools and safety-critical information related to SSP (e.g. advisory circulars, staff instructions, safety performance indicators), in collaboration with other States, RASG, RSOO, ICAO and/or other stakeholders.</p>	SM SM	2022	Air Operator s ANS service provider Aerodrome me service providers Global and Regional bodies Other states	Number of collaborator identified Number of activities collaborated with identified collaborators		Monitoring and evaluating collaborative activities through Steering committees and regional forums ICAO ISTARs
GASP ORG SEI-16 (State) Strategic collaboration with key aviation stakeholders to complete SSP implementation	<p>1. Work with collaborators (identified in SEI-15) to execute the action plan for implementation</p> <p>2. Work with collaborators to ensure all elements of the SSP are present, suitable, operational and effective</p> <p>3. Establish a system for the continuous improvement of the SSP, in collaboration with all relevant stakeholders</p> <p>4. Serve as a champion State to promote best practices among other States</p> <p>5. Improve the sharing of best practices in safety management, safety data and analyses among regional platforms including AFIPIRG Subgroups via RASG-AFI</p>		2022	Air Operator s ANS service provider Aerodrome me service providers Regional Bodies Other states	Number of activities collaborated with identified collaborators Level of SSP Implementation Number of best practices shared with		Monitoring and evaluating collaborative activities through Steering committees and regional forums ICAO ISTARs

					other states		
GASP ORG SEI-17 (State) Establishment of safety risk management at the national level (step 1)	<ol style="list-style-type: none"> 1. Establish a legal framework related to the protection of safety data, safety information and other related sources 2. Establish a State mandatory occurrence reporting system 3. Develop a safety database for monitoring system safety issues and hazards, in line with the principles of Doc 9859 Safety Management Manual 4. Establish and maintain a process to identify hazards from collected safety data 5. Establish and utilize a process to ensure the assessment of safety risks associated with identified hazards 6. Establish a State confidential voluntary safety reporting system providing data to the safety database (see SEI-17C) 	SM		Air Operator s ANS service provider Aerodrome me service providers	Number of mandatory and voluntary reports Legal framework regarding to hazard id and SRM Number of SRM conducted.		quality assurance of SRMs Conducted Effectiveness of reporting systems
GASP ORG SEI-18 (State) Establishment of safety risk management at the national level (step 2)	<ol style="list-style-type: none"> 1. Develop safety performance indicators using the established safety risk management process 2. Develop safety performance measurement methodologies, aligned with the regional safety metrics, using the established safety risk management process (see SEI-17E) 3. Establish the acceptable level of safety performance to be achieved through the SSP 4. Ensure the establishment of mandatory safety reporting systems by service providers. 5. Encourage establishment of voluntary safety SMS. 6. Promote safety awareness and the two-way communication, sharing and exchange of safety organizations and encourage sharing of safety information with industry within the State 7. Contribute information on safety risks and SSP safety performance indicators to the RASP. 	SM		Air Operator s ANS service provider Aerodrome me service providers SLCAA inspectors	Number of mandatory and voluntary reports Legal framework regarding to hazard id and SRM Number of SRM conducted.		quality assurance of SRMs Conducted Effectiveness of reporting systems Quality of SPIs and SPTs defined Contribution of SPIs to RASP - AFI

					Number of SPIs and SPTs defined		
GASP ORG SEI-19 (State) Acquisition of resources to increase the proactive use of risk modelling capabilities	<ol style="list-style-type: none"> 1. Identify resources needed to support safety intelligence collection and processing, advanced data analysis, risk modelling and information sharing capabilities 2. Attract, recruit, train, and retain qualified technical personnel to specialize in risk modelling 3. Ensure that the Civil Aviation Safety Inspector workforce is trained to perform safety oversight of service providers that have implemented SMS 		2022	Air Operator s ANS service provider Aerodrome service providers implementation	Number of qualified technical personnel for SMS and SSP implementation Resource allocated to SSP		Quality assurance of SSP implementation related activities
GASP ORG SEI-20 (State) Strategic collaboration with key aviation stakeholders to support the proactive use of risk modelling capabilities	<ol style="list-style-type: none"> 1. Identify areas where collaboration/support is needed to ensure that stakeholders understand and implement safety culture concepts to fully embrace an open, just culture and non-punitive safety reporting 2. Establish a process via RASG and/or RSOO (or other regional bodies) for a mentoring system, including providing assistance to States/industry, as well as the sharing of best practices, to support safety culture development and the proactive use of risk modelling 3. Foster and participate in public-private partnerships similar to the commercial/general aviation safety teams' concept to identify and implement system safety enhancements. 4. Collaborate with national and industry stakeholders to establish a mechanism for the regular sharing and exchange of safety information, analyses, safety risk discoveries/lessons learned and best practices within a confidential and non-punitive environment 		2022		Number of areas identified for collaboration Number of assistance received and best practices shared		Surveillance of state risk modelling capabilities
GASP ORG SEI-21 (State) Advancement of safety risk	<ol style="list-style-type: none"> 1. Establish data sharing connectivity and integration among the State's aviation safety databases, including the mandatory occurrences reporting system, voluntary safety reporting systems, safety audit reports and aviation system statistics (traffic counts, weather information, EI scores, etc.) 2. Develop risk modelling capabilities to support monitoring system safety issues and accident/incident prevention 		2022		Number of information shared among		Surveillance of state safety risk management

management at the national level	3. Encourage information-sharing with industry				ANSD, ASD, FSSD, SM and industry.		
Issue no. 4: Lack of resources and expertise to manage and collect data on a State level, and no formal mechanisms in place that allow for the sharing and benchmarking of information at the regional level.							
Goal 4: Increase collaboration at the regional level							
Target 4.1: Sierra Leone to use a regional safety oversight mechanism, another State or other safety oversight organisation's ICAO recognised functions in seeking assistance to strengthen their safety oversight capabilities by 2020.							
Target 4.2: Sierra Leone to contribute information on safety risks, including SSP Safety Performance Indicators (SPIs), to Asia Pacific Aviation Safety Group (AFI RASG) by 2022.							
Target 4.3: Sierra Leone to lead RASG's safety risk management activities actively with effective safety oversight capabilities and an effective SSP by 2022.							
Target 4.4: Sierra Leone to actively participate in the regional mechanism for data collection, analysis and sharing by 2020.							
Target 4.5: Sierra Leone to encourage the increased participation in flight data sharing initiatives by air operators, with aircraft of mass 27,000kg above by 2020.							
GASP ORG SEI-6 (State) Strategic collaboration with key aviation stakeholders to enhance safety in a coordinated manner	<ol style="list-style-type: none"> 1. Based on the identified safety deficiencies (Implement), establish a mechanism to identify collaborators and develop an action plan for the resolution of those deficiencies (CE-6 to CE-8). 2. Based on the identified safety deficiencies (Establish), establish a mechanism to identify collaborators and develop an action plan for the resolution of those deficiencies (CE-1 to CE-5). 3. Use a regional safety oversight mechanism, or the services of another competent State or organization. 4. Establish a process via RASG and/or RSOO for a mentoring/collaboration system, including providing State/industry assistance as well as sharing of best practices and internal follow-up actions (CE-1 to CE-5, emphasis on CE-3) 5. Collaborate with RASG and/or RSOO, other States, ICAO, industry joint programmes and/or technical school partnerships to attract, recruit and train qualified and sufficient technical personnel and develop a strategy for their retention (CE-4) 6. Establish and implement a process for the development and promulgation of technical guidance, tools and the provision of safety critical information, in collaboration with other States, RSOO, ICAO and/or other stakeholders, with the understanding that these materials need and operational environments (CE-5) 7. While working to improve safety oversight, work with RASG and/or RSOO to address high-risk categories of occurrences (see OPS roadmap) 8. Leverage regional groups such as the RASG to identify additional resources 9. Use technical guidance, tools and safety-critical information, developed in collaboration with other States, RSOO, ICAO and/or other stakeholders, 		2022	SLCAA Other states RSOOs	Number of collaborators identified for assistance. Number of assistance received to strengthen oversight of state from regional bodies or/and States.	State safety oversight capability and effectiveness by State Quality assurance	

	<p>to enable technical personnel to perform their safety oversight functions effectively (CE-6 to CE-8)</p> <p>10. While working to improve safety oversight, continue to work with RASG and/or RSOO to address high-risk categories of occurrences (see OPS roadmap)</p> <p>11. Work with the ICAO Regional Office to make use of available means (e.g. Technical Cooperation Bureau) to acquire assistance needed for SSP implementation.</p> <p>12. Work with RSOO, other States and other organizations, as appropriate to train qualified technical personnel to fulfil their duties and responsibilities regarding SSP implementation</p>						
<p>GASP ORG SEI-15 (State) Strategic collaboration with key aviation stakeholders to implement SSP.</p>	<p>1. Identify areas where collaboration/support is needed as part of the SSP implementation plan (see SEI-14)</p> <p>2. Identify relevant collaborators from key aviation stakeholders, including other States that are implementing or have implemented an SSP</p> <p>3. Develop an action plan to address the elements identified as missing or deficient during the SSP gap analysis (see SEI-13B)</p> <p>4. Establish a process via RASG and/or RSOO for a mentoring system, including providing assistance to States/industry, as well as sharing of best practices to support SSP implementation</p> <p>5. Develop a process to provide training on SSP to relevant staff, in collaboration with RSOO and/or other States (e.g. initial, recurrent and advanced) (see SEI-14D)</p> <p>6. Establish and implement a process for sharing technical guidance, tools and safety-critical information related to SSP (e.g. advisory circulars, staff instructions, safety performance indicators), in collaboration with other States, RASG, RSOO, ICAO and/or other stakeholders</p> <p>7. Work with collaborators (identified in SEI-15) to execute the action plan for implementation</p> <p>8. Work with collaborators to ensure all elements of the SSP are present, suitable, operational and effective</p> <p>9. Establish a system for the continuous improvement of the SSP, in collaboration with all relevant stakeholders</p> <p>10. Contribute information on safety risks and SSP safety performance indicators to the RASG</p> <p>11. Establish a process via RASG and/or RSOO (or other regional bodies) for a mentoring system, including providing assistance to States/industry, as well as the sharing of best practices, to support safety culture development and the proactive use of risk modelling</p> <p>12. Support the robust implementation and continuous improvement of SMS and SSP</p>	<p>SM</p> <p>SM</p>	<p>2022</p>	<p>Air Operator s ANS service provider Aerodrome service providers</p> <p>Regional bodies (identified collaborators)</p>	<p>Number of collaborators identified . Number of assistance received to implement the SSP from regional bodies or/and other States.</p>		<p>Monitoring SSP Implementation</p>
<p>Issue No. 5: Slow pace of SMS implementation, as well as low number of participation of Service providers in the ICAO-recognized industry assessment</p>							

programme							
Goal 5: Expand the use of industry programmes							
Target 5.1: All service providers of Sierra Leone to use globally harmonized SPIs as part of their safety management system (SMS) by 2020.							
Target 5.2: Encourage to increase the number of service providers participating in the corresponding ICAO-recognized industry assessment programmes.							
GASP SMS SEI-5 Improvement of industry compliance with applicable SMS requirements .	1. Ensure implementation of a safety management system (SMS) commensurate to the size and complexity of the service provider, as required by national regulations and Annex 19. 2. Ensure utilization of available guidance material to assist with SMS implementation.	FSSD/A SD/ANS D/SM FSSD/A SD/A NSD/SM	2022	Air Operator s ANS service provider Aerodrome service providers	-Level of SMS Implementation -No of guidance materials available -No. of discrepancies reported to authority	High	Surveillance of service SMS implementation.
GASP SMS SEI-6 Resources for service providers to effectively implement SMS	1. Ensure working in collaboration with the State and industry associations to advance SMS implementation and identify expectations that cannot be efficiently resourced. 2. Ensure identification of areas where resources are needed as part of the SMS implementation plan developed following the SMS gap analysis. 3. Ensure establishing a process for resource planning and allocation to enable SMS implementation, including resources which may be obtained from industry organizations 4. Ensure obtaining commitment from the accountable executive within the service provider for the necessary resources to enable SMS implementation	FSSD/A SD/ANS D/SM	2022	Air Operator s ANS service provider Aerodrome service providers	No of areas identified for support Level of Commitment from accountable manager		Surveillance of service providers' SMS implementation.
GASP SMS SEI-7 Strategic collaboration with key aviation stakeholders to complete SSP implementation.	1. Ensure working with the action plan of SSP implementation through sharing and supporting harmonization of SMS within industry 2. Ensure support for continuous improvement of SSP.	FSSD/A SD/ANS D/SM	2022	Air Operator s ANS service provider Aerodrome service providers	-No of collaborator identified -Level of information shared with state -Number and		Surveillance of service providers' SMS implementation.

					quality of defining HRCs		
GASP SMS SEI-8 Establishment of safety risk management at the service provider level	<ol style="list-style-type: none"> 1. Ensure establishment of mandatory safety reporting systems 2. Ensure providing information from the service provider to the State mandatory safety reporting system, as required 3. Ensure establishment of internal mechanisms related to the protection of safety data, safety information and related sources for the purpose of safety improvement 4. Ensure establishment of voluntary and confidential hazard/occurrence reporting systems as part of the SMS 5. Ensure establishment and maintenance of a safety database for technical personnel to monitor system safety issues within the service provider 6. Ensure establishment and utilization of a safety risk management process 7. Ensure development of safety performance measurement methodologies, aligned with harmonized safety metrics within industry, via the established safety risk management process 8. Ensure development of safety performance indicators and associated targets/alert settings, via the established safety risk management process 9. Encourage the use of globally harmonized metrics for the development and monitoring of safety performance indicators, as part of the SSP 10. Encourage sharing and use of information from within industry to identify hazards and mitigate safety risks 	FSSD/A SD/ANS D/SM FSSD/A SD/ANS D/SM FSSD/A SD/ANS D/SM FSSD/A SD/ANS D/SM	2022	Air Operator s ANS service provider Aerodrome service providers	No of MOR and VOR received. Definition of SPIs and SPTs No Techniques used for measuring performance measurement.		Surveillance of service providers' SMS implementation.
GASP SMS SEI-10 Allocation of industry resources to support continuous improvement of SSP and SMS	<ol style="list-style-type: none"> 1. Ensure competent technical personnel are allocated, at the service provider level, to support the requirements of the SSP infrastructure 2. Ensure providing safety analysis results from service providers to support the SSP 	FSSD/A SD/ANS D/SM	2022	Air Operator s ANS service provider Aerodrome service providers	Level of competence of staff allocated for SMS implementation	High	Surveillance of service providers' SMS Implementation.
GASP SMS SEI-11 Strategic collaboration with key aviation stakeholders to support	<ol style="list-style-type: none"> 1. Ensure working with industry stakeholders to leverage best practices with safety information analysis. 2. Ensure sharing of safety risk identification with stakeholders for mitigation and monitoring strategies 3. Ensure active participation with State and organizations engaged in risk modelling 	FSSD/A SD/ANS D/SM FSSD/A SD/A NSSSD/	2022	Air Operator s ANS service provider Aerodrome	No of stakeholders identified and mechanism establish	High	Surveillance of service providers' SMS implementation.

the proactive use of risk modelling capabilities				service providers	ed to deal with them.		
GASP SMS SEI-12 Advancement of safety risk management at the service provider level	1. Ensure safety information and other related sources is implemented and effective 2. Ensure developing risk modelling capabilities to support the monitoring of system safety issues and accident/incident prevention 3. Ensure monitoring safety information exchange networks for continuous improvements	FSSD/A SD/ANS D/SM FSSD/A SD/A NSSSD/	2022	Air Operator s ANS service provider Aerodrome service providers	No of Processes established and activities carried out for continuous improvement of SMS.	High	Surveillance of service providers' SMS implementation.
Issue no. 6: Increasing risks associated with airspace congestion, and the lack of appropriate infrastructure to support safe operations; lack of capacity of regulatory authority.							
Goal 6: Ensure the appropriate infrastructure (physical and institutional) is available to support safe operation							
Target 6.1: Sierra Leone to implement the air navigation and airport core infrastructure (GASP) by 2022.							
Target 6.2: Sierra Leone to achieve at least 75% EI in AGA by 2022.							
Target 6.3: Sierra Leone to achieve at least 75% EI in AIG of USOAP CMA by 2022.							
Target 6.4: Sierra Leone to certify all aerodromes that are used for international operations by 2022.							
Target 6.5: Sierra Leone to establish an independent Accident and Incident Investigation Authority (AIIA) as required by Annex 13, as well as related investigation system and procedures by 2022.							
Implement the air navigation and airport core infrastructure and improve the EI percentage.	1. Establish a means for to informally share information and coordinate on operational issues in the USOAP Audit Areas of OPS, ANS and AGA 2. Implement safety-related initiatives from the AFI Seamless ANS Plan3 in a timely manner, as applicable 3. Establish an independent accident and incident investigation authority (AIIA) as required by Annex 13, as well as related investigation system and procedures	FSSD/A SD/ANS D MTA	2022	MTA Air Operator s ANS service provider Aerodrome service providers SLCAA inspectors Regional	Number of operational safety issues shared and coordinated. Level of Implementation of Safety related initiative	High	Surveillance to ensuring the quality of operational information sharing and coordination mechanism, implementation of AFI Seamless ANS Plan 3 and AIG

				bodies	s from the AFI Seamless ANS Plan 3. Number of AIG conducted in accordance with Annex 13.		conduction.
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