



BOTSWANA NATIONAL AVIATION SAFETY PLAN

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NATIONAL AVIATION SAFETY PLAN

SECTION 1. INTRODUCTION

1.1 Overview of the NASP

Botswana 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 Botswana and its industries. The NASP promotes the effective implementation of Botswana safety oversight system, a risk-based approach to managing safety, as well as a coordinated approach to collaboration between Botswana and other States, regions and industry. All stakeholders are encouraged to support and implement the NASP as the strategy for the continuous improvement of aviation safety.

The NASP of Botswana is in alignment with the International Civil Aviation Organisation (ICAO) *Global Aviation Safety Plan* (GASP, Doc 10004).



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1.2 Structure of the NASP

This NASP presents the strategy for enhancing aviation safety for a period of three (3) years. It comprises six sections which include:

- Introduction;
- Purpose of the NASP;
- Botswana's strategic approach to managing aviation safety;
- National operational safety risks identified for the 2023 – 2025 NASP;
- Other safety issues addressed in the NASP; and
- Description of how the implementation of the safety enhancement initiatives (SEIs) listed in the NASP is going to be monitored.

1.3 Relationship between the NASP and the State Safety Program (SSP)

This NASP addresses operational safety risks identified in the ICAO GASP in the absence of Botswana's State Safety Program (SSP). Botswana is committed to fully implementing

an SSP by 2028 as a State's responsibilities for the management of safety comprise 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 Civil Aviation Authority of Botswana (CAAB) is responsible for the development, implementation and monitoring of the NASP, in collaboration with the Directorate of Accident and Investigation (DAI), National Airline, Botswana Defense Force, as well as the national aviation industry. The NASP was developed in consultation with national operators and other stakeholders, and in alignment with the 2023-2025 Edition of the GASP.

1.5 National safety issues, goals and targets

The NASP addresses the following national safety issues:

- a) SSP not fully implemented
- b) Effective Oversight System not fully established
- c) Independent Accident Investigation organisation not fully established
- d) National Search and Rescue organisation not fully established
- e) Inadequate Communications and surveillance infrastructure
- f) International airports not certified
- g) Remotely Piloted Aircraft Systems (RPAS) regulations not yet published
- h) Wildlife and Bird strikes
- i) Mid-air collision (MAC)
- j) Runway excursion (RE)
- k) Runway incursion (RI)
- l) Controlled Flight into Terrain (CFIT)
- m) Loss of Control in Flight (LOC-I)

To address the issues listed above and enhance aviation safety at the national level, the 2023 - 2025 NASP contains the following goals and targets:

- a) Goal 1: To achieve a continuous reduction of operational safety risks.

Target:

- 1.1 Maintain a decreasing trend of the national accident rate; Maintain a decreasing trend of occurrences related to global high-risk categories (G-HRCs).

- b) Goal 2: Strengthen Botswana Safety Oversight System.

Targets:

2.1 CAA will improve effective implementation of the critical elements of the State Safety Oversight system with a focus of priority PQs as follows:

- by 2024 – 85% EI score,
- by 2026 – 90% EI score,
- by 2030 – 95% EI score.

2.2 Implement outstanding Aircraft Accident Investigation Bureau Protocol Questions by 2024;

2.3 Develop and implement outstanding regulations;

2.4 Certify all international airports by 2024.

c) Goal 3: Implement effective State Safety Program.

Targets:

3.1 CAAB to implement the foundation of Botswana's SSP by 2023;

3.2 CAAB to publish a national aviation safety plan by April 2023;

3.3 CAAB to work towards an effective SSP as follows:

- By 2025 – Present,
- By 2028 – Present and effective.

d) Goal 4: Increase collaboration at the regional level.

Targets:

4.1 By 2023, Botswana to seek assistance to strengthen their safety oversight capabilities or facilitate SSP implementation;

4.2 By 2025, Botswana to contribute information on operational safety risks, including SSP safety performance indicators (SPIs), and emerging issues, to the AFI regional aviation safety group (RASG).

e) Goal 5: Expand the use of industry programs and safety information sharing networks by service providers.

Target:

5.1 Botswana CAA will encourage industry's contribution in safety information sharing

to assist in the development of the NASP.

- f) Goal 6: Ensure appropriate infrastructure is available to support safe operations.

Target:

- 6.1 To Implement Air Navigation and Aerodromes infrastructure that meet relevant ICAO standards.

1.6 Operational Context

There is one (1) certified aerodrome (Sir Seretse Khama International Airport) and three (3) uncertified aerodromes (Maun International Airport, Kasane International Airport and P G Matante International Airport) in Botswana. These are the four main international airports owned and managed by CAAB. The airspace of Botswana is classified into Class A, C, G, and F. There were 383,501 movements in Botswana over the period of 2016 to 2021. There are currently nine (9) air operator certificates (AOCs) issued by Botswana, and of those there are two (2) issued to operators conducting international commercial air transport operations. Botswana also has six (6) operators, which operate domestic air taxi services, primarily on turboprop aircraft, as well as one (1) helicopter operator. There are ten (10) heliports and one hundred and seven (107) airfields in Botswana. Common challenges in Botswana include insufficient communication and surveillance coverage, lack of adequate technical staff training, and certification of international airports.

SECTION 2. PURPOSE OF BOTSWANA'S NATIONAL AVIATION SAFETY PLAN

The NASP is the master planning document containing the strategic direction of Botswana for the management of aviation safety for a period of three (3) years (2023 to 2025). 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 Open Sky Policy found at (www.caab.co.bw) addresses 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 that are referenced in Open sky Policy (www.caab.co.bw)

The NASP has been developed using international safety goals and targets and G-HRCs from the GASP (www.icao.int/gasp). These are highlighted in the text, where applicable. 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 operational safety

risks and recommended SEIs for individual States set out in the AFI RASP. Botswana has adopted these SEIs and has included them in this plan. Cross-references are provided to the AFI RASP for individual SEIs where relevant.

SECTION 3. BOTSWANA’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 self-assessment. This plan is developed and maintained by Civil Aviation Authority of Botswana, in coordination with all stakeholders and is updated at least every three (3) years.

The NASP includes the following national safety goals and targets, for the management of aviation safety, as well as a series of indicators to monitor the progress made towards their achievement. They are tied to the goals, targets and indicators listed in the GASP.

Goals	Targets	Indicators	Link to GASP	
Goal 1: To achieve a continuous reduction of operational safety risks.	1.1	Maintain a decreasing trend of the national accident rate	1.1.1. Number of accidents 1.1.2. Number of accidents per 1000 departures (accident rate) 1.1.3. Number of fatal accidents 1.1.4. Number of fatal accidents per 1000 departures (fatal accident rate) 1.1.5. Number of fatalities 1.1.6. Number of fatalities per passengers carried (fatality rate) 1.2.1 Percentage of occurrences related to global high-risk categories (G-HRCs).	Directly linked to Goal 1 and Target 1.1 of the GASP.
	1.2	Maintain a decreasing trend of occurrences related to global high-risk categories (G-HRCs).		
Goal 2: Strengthen Botswana Safety Oversight Capabilities	2.1	CAA to improve effective implementation of the critical elements of the State Safety	2.1.1 % of overall EI score 2.1.2 Percentage of implemented Priority PQs	Directly linked to Goal 2 and Target 2.1 of the GASP.

		<p>Oversight system with a focus of priority PQs as follows:</p> <p>a) by 2024 – 85% EI score. b) by 2026 – 90% EI score. c) by 2030 – 95% EI score.</p>	<p>2.1.3 Percentage of implemented PQs</p> <p>2.1.4 Percentage of completed CAPs</p>	
	2.2	<p>Implement outstanding Aircraft Accident Investigation Bureau Protocol Questions by 2024.</p>	<p>2.2.1 % of satisfactory PQ for audit area AIG.</p>	
	2.3	<p>Develop and implement outstanding regulations</p>	<p>2.3.1 % of satisfactory implementation of CE 2 PQs</p>	
	2.4	<p>Certify all international airports by 2024</p>	<p>2.4.1 Number of international airports certified</p>	

Goal 3: Implement effective State Safety Program	3.1	CAAB will implement the foundation of Botswana’s SSP by 2023.	3.1.1 % of satisfactory SSP foundational PQs 3.1.2 % of required CAPs related to the SSP foundational PQs submitted.	Directly linked to Goal 3 and Target 3.1 of the GASP.
	3.2	CAAB will publish a national aviation safety plan 2023-2025 by April 2023.	3.2.1 Published NASP	Directly linked to the Goal 3 of the GASP and Target 3.2.
	3.3	CAAB to work towards an effective SSP as follows: By 2025 – Present By 2028 – Present and effective	3.3.1 Level of maturity achieved in Annex 19 PQs. 3.3.2 Number of service providers implemented SMS.	Directly linked to Goal 3 and Target 3.3 of the GASP.
Goal 4: Increase collaboration at the regional level.	4.1	By 2023, Botswana to seek assistance to strengthen their safety oversight capabilities or facilitate SSP implementation.	4.1.1 Submitted draft NASP to ICAO AFI Regional Office. 4.1.2 Number of times Botswana actively seeks assistance. 4.1.3 Number to times Botswana received assistance 4.1.4 Number of times Botswana offering assistance to other states.	Directly linked to Goal 4 and Target 4.1 of the GASP.

	4.2	By 2025, Botswana to contribute information on operational safety risks, including SSP safety performance indicators (SPIs), and emerging issues, to the AFI regional aviation safety group (RASG).	<p>4.2.1 % of SPIs shared with ICAO through AFI RASG.</p> <p>4.2.2 Number of reports shared via the Secure Portal on Operational Safety Risks and Emerging Issues</p>	Directly linked to Goal 4 of the GASP and Target and 4.3 of the GASP.
Goal 5: Expand the use of industry programs and safety information sharing networks by service providers.	5.1	Botswana CAA will encourage industry's contribution in safety information sharing to assist in the development of the NASP.	<p>5.1.1 Number of service providers using globally harmonized metrics for their SPIs.</p> <p>5.1.2 Number of service providers participating in the corresponding ICAO recognized industry assessment programs</p> <p>5.1.3 Number of service providers in peer review programs.</p>	Directly linked to Goal 5 of the GASP and Target 5.1 of the GASP.
Goal 6: Ensure appropriate infrastructure is available to support safe operations.	6.1	To Implement Air Navigation and Aerodromes infrastructure that meet relevant ICAO standards.	6.1.1 Number or percentage of implemented infrastructure-related PQs linked to the basic building blocks	Directly linked to the GASP Goal 6 and Target 6.1

The SEIs in this plan are implemented through Botswana's existing safety oversight capabilities and the service providers' SMS. SEIs derived from the ICAO global aviation

safety roadmap were identified to achieve the national safety goals and targets presented in the NASP. Some of the national SEIs are linked to overarching SEIs at the regional and international levels and help to enhance aviation safety globally. The full list of the SEIs is presented in the appendix to the NASP.

The NASP also addresses emerging issues. Emerging issues include concepts of operations, technologies, public policies, business models or ideas that might impact safety in the future, for which insufficient data exists to complete typical data - driven analysis. It is important that Botswana remain vigilant on emerging issues to identify potential operational safety risks, collect relevant data and proactively develop mitigations to address them. The NASP addresses the following emerging issues:

1. Operations of Remotely Piloted Aircraft Systems (drones)
2. Recreational activities (kite, parachute operations and air shows)

SECTION 4. NATIONAL OPERATIONAL SAFETY RISKS

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.

Botswana publishes an Annual Safety Report, available on the DAI and CAAB websites. The summary of accidents and serious incidents that occurred in Botswana, and those for aircraft registered in Botswana involved in commercial air transport and aircraft involved in general aviation, is shown in the tables below.

<i>Year</i>	<i>Fatal accidents</i>	<i>Non-fatal accidents</i>	<i>Serious incidents</i>
Commercial air transport occurrences in			
(2017 to 2022, avg.)	01 (avg. 0.2)	02 (avg. 0.4)	10 (avg. 2.0)
2022	00	02	10
General aviation aircraft occurrences in			
(2017 to 2022, avg.)	01 (avg. 0.2)	04 (avg. 0.8)	04 (avg. 0.8)

<i>Year</i>	<i>Fatal accidents</i>	<i>Non-fatal accidents</i>	<i>Serious incidents</i>
Occurrences involving commercial air transport aircraft registered in Botswana			
(2017 to 2022, avg)	01 (avg. 0.2)	01 (avg. 0.2)	10 (avg. 0.2)
2022	00	02	09
Occurrences involving general aviation aircraft registered in			
(2017 to 2022, avg)	01 (avg. 0.2)	02 (avg.0.4)	02 (avg. 0.4)
2022	00	01	00

The following five (5) global high-risk categories of occurrences (G-HRCs) in the Botswana context were considered of the utmost priority because of the number of fatalities and risk of fatalities associated with such events. They were identified based on analyses from mandatory and voluntary reporting systems, accident and incident investigation reports, safety oversight activities over the past five (5) years, as well as on the basis of regional analysis conducted by the AFI RASG and on the operational safety risks described in the GASP. These G-HRCs are in line with those listed in the 2023 to 2025 Edition of the GASP.

- a) Control Flight into Terrain (CFIT)
- b) Loss of Control in Flight (LOC-I)
- c) Mid-air collision (MAC)
- d) Runway excursion (RE)
- e) Runway incursion (RI)

In addition to the national operational safety risks listed above, the following additional categories of operational safety risks have been identified:

- a) Wildlife and Birdstrikes

The aviation occurrence categories from the CAST/ICAO Common Taxonomy Team (CICTT) were used to assess risk categories in the process of determining national operational safety risks. The CAST/ICAO Common Taxonomy Team (CICTT) is a team of the International Civil Aviation Organization (ICAO) and the Commercial Aviation Safety Team (CAST). The team is responsible for developing common taxonomies and definitions for aviation accident and incident reporting systems. The CICTT taxonomy is found on the ICAO website at <https://www.icao.int/safety/airnavigation/AIG/Pages/Taxonomy.aspx>.

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

G-HRC 1: Control Flight into Terrain (CFIT)

1. Some aircraft NOT equipped with Terrain Awareness and Warning System (TAWS)
2. Lack of facilities like MSAW and eTOD
3. Lack of Continuous Descent Approach (CDA) procedures not yet implemented to reduce the risk of unstable approaches.

G-HRC 2: Loss of Control in Flight (LOC-I)

1. Inadequate training of pilots to handle emergencies.
2. Lack of proper fatigue risk management systems for pilots
3. Inadequate refresher training to pilots.

G-HRC 3: Mid-air collision (MAC)

1. Inconsistent use of proper phraseology
2. Lack of proper fatigue risk management systems for controllers and pilots.
3. ATC performance related to workload, competence, teamwork, procedures.
4. Inadequate communication navigation and surveillance infrastructure - both coverage and quality.
5. Inadequate staffing, succession plan and other supportive conditions of employment

G-HRC 4: Runway excursion (RE)

1. Lack of appropriate Runway Safety Programs
2. Lack of SMS implementation
3. Lack of Runway maintenance programs

G-HRC 4: Runway excursion (RI)

1. Inconsistent use of proper phraseology
2. Lack of appropriate Runway Safety Programs
3. ATC performance related to workload, competence, teamwork, procedures.

The full list of the SEIs is presented in the appendix to the NASP.

SECTION 5. OTHER SAFETY ISSUES

In addition to the national operational safety risks listed in the NASP, Botswana 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 Botswana’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. Botswana is committed to the effective implementation of these eight CEs, as part of its overall safety oversight responsibilities, which emphasize Botswana’s commitment to safety in respect of its aviation activities. The eight CEs are presented in Figure 1 below.

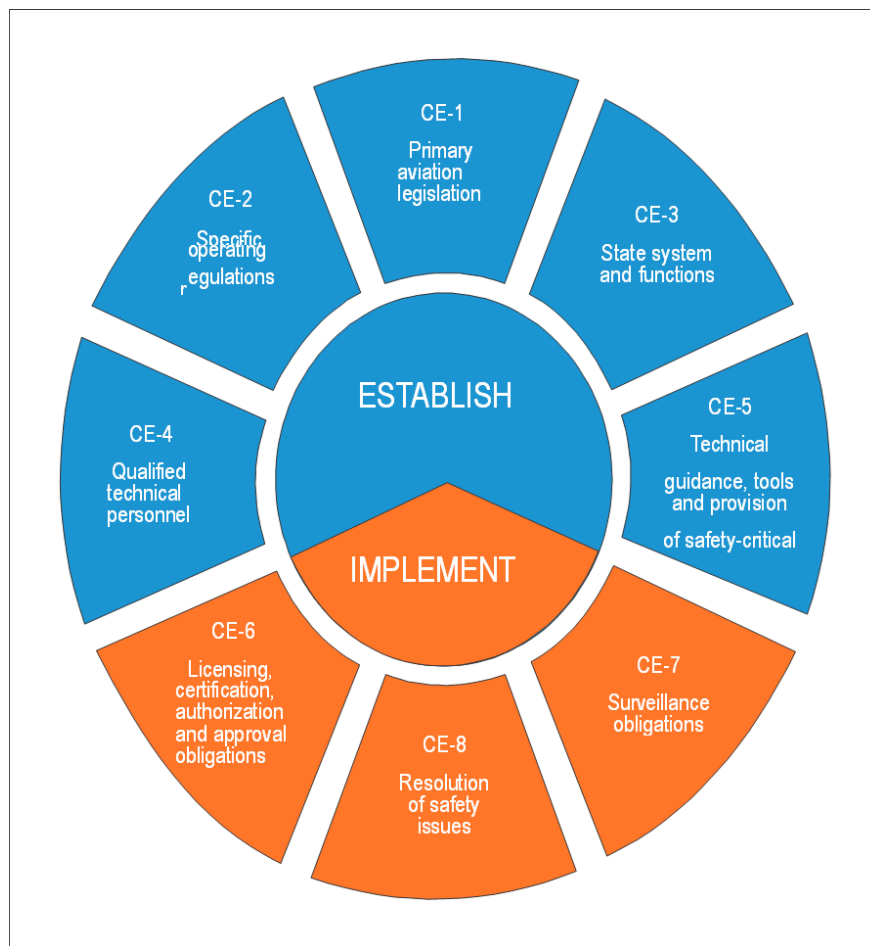


Figure 1. Critical elements of a State’s safety oversight system

The latest ICAO activities, which aim to measure the effective implementation of the eight CEs of Botswana’s safety oversight system, as part of the ICAO Universal Safety Oversight

Audit Program (USOAP), have resulted in the following scores:

<i>Overall EI score</i>							
80.1%							
EI score by CE							
CE-1	CE-2	CE-3	CE-4	CE-5	CE-6	CE-7	CE-8
96.43%	82.28 %	86.89 %	82.93%	97.22 %	77.64 %	59.38 %	64.10 %
EI score by audit area							
LEG	ORG	PEL	OPS	AIR	AIG	ANS	AGA
80.95 %	80.0 0%	89.29%	88.46 %	88.78 %	90.24 %	82.41 %	46.23 %

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 Botswana’s SOI have resulted in the following scores:

<i>Overall SOI score</i>	<i>Score in the area of Operations</i>	<i>Score in the area of Air Navigation</i>	<i>Score in the area of Support Functions</i>
1.47	1.18	1.56	1.68

The following nineteen (19) other safety issues in the Botswana 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 six (6) years, as well as on the basis of regional analysis conducted by AFI RASG, SASO, APIRG, and/or ARAIO. 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 operators of aerodromes,

approved maintenance organizations, approved training organization, ATS, organizations responsible for type design or manufacture of aircraft, engines or propellers and those of service providers. These safety issues are in line with those listed in the 2023 to 2025 Edition of the GASP:

1. Some aircraft NOT equipped with terrain awareness and warning system (TAWS).
2. Inconsistent use of proper phraseology.
3. Lack of proper fatigue risk management systems.
4. Need to review ATC performance related to workload, competence, teamwork, procedures.
5. Need for constant refresher courses to appropriate staff.
6. Need to reconsider navigation infrastructure - both coverage and quality.
7. Need to address open ICAO Protocol Questions.
8. Inability to meet surveillance obligations and technical training due to budget constraints.
9. Lack of attraction and retention measures for inspectors and key safety personnel.
10. Lack of succession planning for retiring key safety personnel.
11. Lack of systems for providing assistance to aircraft accident victims and their families.
12. Lack of incident and accident database.
13. Lack of RPAS regulations.
14. One international airport certified.
15. SSP not yet present.
16. Lack of fully implemented SMS by service providers.
17. Lack of National Aviation Safety plan.
18. Inadequate collaboration at regional level.
19. Lack of industry participation in development of National Aviation Safety plan.

To address the issues listed above, Botswana 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 the appendix to the NASP.

SECTION 6. MONITORING IMPLEMENTATION

Botswana 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, Botswana will review the NASP every three (3) years or earlier, if required, to keep the identified operational safety risks, safety issues and selected SEIs updated and relevant. The Civil Aviation Authority of Botswana 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, Botswana will seek the support of AFI RASG

to ensure the timely implementation of SEIs to address safety deficiencies and mitigate risks. Through close monitoring of the SEIs, Botswana will make adjustments to the NASP and its initiatives, if needed, and update the NASP accordingly.

Botswana 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 three-year 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 Botswana 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.

Botswana adopted a standardized approach to provide information at the regional level, for reporting to the RASGs using the Annual National Safety Report. 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:

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www.caab.co.bw

APPENDIX TO THE NASP

DETAILED SEIs: NATIONAL OPERATIONAL SAFETY RISKS

Goal 1: To Achieve a continuous reduction of operational safety risks							
Target 1.1 Maintain a decreasing trend of accident rate							
<i>Safety enhancement initiative</i>	<i>Action</i>	<i>Timeline</i>	<i>Responsible entity</i>	<i>Stakeholders</i>	<i>Metrics/Indicators</i>	<i>Priority</i>	<i>Monitoring Activity</i>
Mitigate contributing factors to the risk of CFIT	1. Implement the following CFIT safety actions: a) Ensure aircraft are equipped with terrain awareness and warning system (TAWS) in accordance with Annex 6 b) Issue a Safety Advisory to increase adherence to TAWS warning procedures c) Promote greater awareness of approach risks d) Consider the implementation of continuous descent final approaches (CDFA) e) Consider the implementation of minimum safe	2023 - 2025	CAA AIM Service Provider Aircraft Operators AMO	CAA Aircraft operators Approved Training Organizations AMO ATC Service Provider DAI	Number of aircraft are equipped with terrain awareness and warning system (TAWS) in accordance with Annex 6.	High	Continuous monitoring of safety performance indicators for the reduction of accident, serious incident and incident rates. Conduct biannual meetings to analyse the progress made in the reduction of accidents.

	<p>altitude warning (MSAW) systems (PGIA, MIA, KIA)</p> <p>f) Ensure the timeliness of updates and accuracy of Electronic Terrain and Obstacle Data (eTOD)</p>					
	<p>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)</p> <p>a) Phraseology used (standard vs. non-standard)</p> <p>b) Pilot fatigue and disorientation</p>		<p>CAA</p> <p>ATC Service Providers</p> <p>Aircraft Operators</p> <p>AMO</p>	<p>CAA</p> <p>Aircraft operators</p> <p>Approved Training Organizations</p> <p>AMO</p> <p>ATC Service Provider</p>	<p>Number of CFIT occurrences reports via MOR and VOR systems per 10,000 FMs.</p>	<p><i>Safety reporting (MOR/VOR)</i></p>
	<p>3. Conduct continuous evaluations of the performance of the SEIs</p>		<p>CAA</p> <p>ATC Service Providers</p> <p>Aircraft Operators</p>	<p>CAA</p> <p>Aircraft operators</p> <p>Approved Training Organization</p> <p>AMO</p>		

Goal 1: To Achieve a continuous reduction of operational safety risks							
Target 1.1 Maintain a decreasing trend of accident rate							
<i>Safety enhancement initiative</i>	<i>Action</i>	<i>Timeline</i>	<i>Responsible entity</i>	<i>Stakeholders</i>	<i>Metrics/Indicators</i>	<i>Priority</i>	<i>Monitoring Activity</i>
Mitigate contributing factors to LOC-I accidents and incidents	1. Implement the following LOC-I safety actions: a) Require upset prevention and recovery training in all full flight simulator type conversion and recurrent training programs b) Require more time devoted to training for the pilot monitoring role	2023-2025	CAA Aircraft Operators	CAA Aircraft operators Approved Training Organizations Air Traffic Controllers DAI	Number of Pilots trained on upset prevention and recovery	High	<i>Continuous monitoring of safety performance indicators for the reduction of accident, serious incident and incident rates.</i> <i>Conduct biannual meetings to analyse the progress made in the reduction of accidents.</i>
	2. Validate the effectiveness of the SEIs in the industry through MORs and VORs systems and accident/incident investigations (apply safety management methodologies)	2023-2025	Air Operators		Number of LOC-I occurrences reports via MOR and VOR systems per 10,000 FMs		<i>Continuous monitoring of safety performance indicators for the reduction of accident, serious incident and incident rates.</i> <i>Conduct biannual meetings to analyse the progress made in the reduction of accidents</i>

<p>3. Identify additional contributing factors, for example:</p> <ul style="list-style-type: none"> 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 	<p>2023-2025</p>	<p>CAA</p>	<p>Air operators ANSP DAI</p>	<p>Reduction in LOC-I Incidents</p>		<p><i>Surveillance</i></p>
<p>4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for LOC-I, for example:</p> <ul style="list-style-type: none"> a) Increase the effectiveness of regulatory oversight b) Improve regulations 	<p>2023-2025</p>	<p>CAA</p>	<p>Air operators ANSP</p>	<p>Reduction in LOC-I Incidents</p>		<p><i>Surveillance</i></p>
<p>5. Conduct continuous evaluations of the performance of the SEIs</p>	<p>2023-2025</p>	<p>CAA</p>	<p>Air operators ANSP</p>	<p>Reduction in LOC-I Incidents</p>		<p><i>Surveillance</i></p>

Goal 1: To Achieve a continuous reduction of operational safety risks							
Target 1.1 Maintain a decreasing trend of accident rate							
<i>Safety enhancement initiative</i>	<i>Action</i>	<i>Timeline</i>	<i>Responsible entity</i>	<i>Stakeholders</i>	<i>Metrics/Indicators</i>	<i>Priority</i>	<i>Monitoring Activity</i>
Mitigate contributing factors to MAC accidents and incidents	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 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 datalink	2023-2025	CAA ATC Service Providers Aircraft Operators AMO	CAA Aircraft operators Approved Training Organization AMO DAI ATC Service Provider	Number of MAC occurrence per 10,000 FMs	High	Continuous monitoring of safety performance indicators for the reduction of accident, serious incident and incident rates. Conduct biannual meetings to analyse the progress made in the reduction of accidents.

<p>2. Validate the effectiveness of the SEIs through the analysis of MORs and VORs and accident/incident investigations (apply safety management methodologies)</p>	<p>2023-2025</p>	<p>DAI CAA</p>	<p>CAA Aircraft operators</p>			
<p>3. Identify additional contributing factors, for example: 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 operator's safety management d) ATC systems - flight data processing, communication, short term conflict alert (STCA), etc., as well</p>	<p>2023-2025</p>	<p>Air Operators ANSP</p>	<p>Industry players</p>			

	<p>as the interaction with the human operators and the aircraft systems, and the procurement policy of the ANSP</p> <p>e) Aircraft equipment - autopilots, transponders and ACAS, but also aircraft performance (e.g. rate-of-climb) and their physical size</p> <p>f) Navigation infrastructure - both coverage and quality</p> <p>g) Surveillance - both coverage and quality</p> <p>h) Flight plan processing - efficiency and reliability of flight plan submission, approval and distribution</p> <p>i) Airspace - complexity of airspace design, route layout, extent of controlled or uncontrolled airspace, proximity of military operational or training areas, etc</p>						
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Goal 1: To Achieve a continuous reduction of operational safety risks

Target 1.1 Maintain a decreasing trend of accident rate

<i>Safety enhancement initiative</i>	<i>Action</i>	<i>Timeline</i>	<i>Responsible entity</i>	<i>Stakeholders</i>	<i>Metrics/Indicators</i>	<i>Priority</i>	<i>Monitoring Activity</i>
Mitigate contributing factors to RE accidents and incidents	1. Implement the following RE safety actions: a) Ensure the establishment and implementation of a State runway safety program and runway safety teams	2023-2024	CAA Aerodrome Operators ANSPs Air operators	CAA (Regulator) DAI ANSP Military Air operators Wildlife department	Documented Runway safety program Documented runway safety team Wide representation of stakeholders on runway safety team	High	Surveillance activities Follow up meetings
	b) 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)	2023-2024	CAA Aerodrome Operators ANSP Air operators	CAA DAI Aerodrome Operators ANSP Air operators	Meteorology aerodrome reports	High	Surveillance activities Follow up meetings

	c) Certify aerodrome in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome	2023/24	CAA Aerodrome Operators	Aerodrome Operators ANSP Air operators	Aerodrome certificate	High	Surveillance activities Follow up meetings
	d) Ensure that procedures to systematically reduce the rate of unstabilized approaches to runways are developed and used	2023/24	CAA ANSP Aerodrome Operators Air operators	Aerodrome Operators ANSP Air operators	Developed procedures Reduced unstabilised approaches	High	Surveillance activities Follow up meetings
	2. Identify additional contributing factors, for example: 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	2023/24	CAA	DAI Aerodrome Operators ANSP Air operators	Developed procedures Reduced runway excursions	High	Surveillance activities Follow up meetings
	3. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RE	2023/24	CAA	Aerodrome Operators ANSP Air operators	Developed SEIs Reduced runway excursions	High	Surveillance activities Follow up meetings
	4. Conduct continuous evaluations of the performance of the SEIs	2023/24	CAA	Aerodrome Operators ANSP Air operators	Reduced runway excursions	High	Surveillance activities Follow up meetings

Goal 1: To Achieve a continuous reduction of operational safety risks							
Target 1.1 Maintain a decreasing trend of accident rate							
<i>Safety enhancement initiative</i>	<i>Action</i>	<i>Timeline</i>	<i>Responsible entity</i>	<i>Stakeholders</i>	<i>Metrics/Indicators</i>	<i>Priority</i>	<i>Monitoring Activity</i>
Mitigate contributing factors to RI accidents and incidents	1. Implement the following RI safety actions: a) Ensure the establishment and implementation of a State runway safety program and runway safety teams	2023-2025	CAA Airport Operators	ANSP Air Operators	Runway safety team Runway safety programs Reduced Runway Incursions	High	Continuous monitoring of safety performance indicators for the reduction of accident, serious incident and incident rates. Conduct biannual meetings to analyse the progress made in the reduction of accidents.
	b) Policy, procedures, and training that support situational awareness for controllers, pilots, and airside vehicle drivers	2023/24	Aerodrome Operator Air Operators ANSP	CAA (Regulator) DAI Aerodrome Operators ANSP Air operators	Documented policies and procedures Training records Publications	Medium	Follow up meetings
	c) Certify aerodrome in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome	2023/24	CAA Aerodrome Operators	CAA ANSP Air operators	Aerodrome certificate	High	Surveillance activities Follow up meetings
	d) Ensure the use of standard phraseologies in accordance with applicable State regulations and ICAO provisions (e.g. Doc	2023/24	CAA Aerodrome Operators	Aerodrome Operators ANSP Air operators	Standard phraseology used by all entities operating in airport	High	Surveillance activities Follow up meetings

	9432, Manual of Radiotelephony)						
	e)Ensure the identification and publication in the aeronautical information publication (AIP) of hot spots at aerodromes	2023/24	CAA Aerodrome Operators	CAA ANSP Air operators	Information on hot sports captured in AIP	High	Surveillance activities Follow up meetings
	f) Ensure that suitable strategies to remove hazards or mitigate risks associated with identified hot spots are developed and executed	2023/24	CAA Aerodrome Operators ANSP	CAA ANSP Air operators	Strategies to remove hazards	High	Surveillance activities Follow up meetings
	2. Identify additional contributing factors, for example: a) Operations in low visibility conditions b) Conditional clearances c) Late issue of or late changes to departure clearances	2023/24	CAA Aerodrome Operators ANSP	Industry Air Operators	Contributing factors for RI	High	Surveillance activities Follow up meetings
	3. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RI	2023/24	CAA	Aerodrome Operators ANSP Air operators	Developed SEIs Reduced runway incursions	High	Surveillance activities Follow up meetings
	4. Conduct continuous evaluations of the performance of the SEIs	2023/24	CAA	Industry	reviewed SEIs	High	Surveillance activities Follow up meetings

DETAILED SEIS: OTHER SAFETY ISSUES

Goal 2: Strengthen State safety oversight capabilities.							
Target 2.1							
<i>Safety enhancement initiative</i>	<i>Action</i>	<i>Timeline</i>	<i>Responsible entity</i>	<i>Stakeholders</i>	<i>Metrics/Indicators</i>	<i>Priority</i>	<i>Monitoring Activity</i>
SEI-1 — Consistent implementation of ICAO SARPs at the national level	Implement the following safety actions: 1B — Address all protocol questions (PQs) of the USOAP CMA	2023-2025	CAA DAI	DAI, Air operators, ANSPs, Aerodrome operators, ATOs, Ministry of Transport and Public Works	<ul style="list-style-type: none"> • Percentage of implemented Priority PQs • Percentage of implemented PQs • Percentage of completed CAPs 	<i>High</i>	<i>OLF</i>
	1D — Increase the level of compliance with ICAO SARPs and the EI of CEs at the national level (CE-1 to CE-5)				<ul style="list-style-type: none"> • Percentage of implemented Priority PQs • Percentage of implemented PQs Percentage of completed CAPs 		
	1E — Establish a process for the identification of differences with ICAO SARPs (CE-2)	2023-2025			Differences filed		

SEI-2 — Development of a comprehensive regulatory oversight framework	2A — 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)	2023-2025	CAA safety oversight entities	-Air Operators -ANS service provider -Aerodrome service providers	Complete organizational separation of CAA from Airports and ANSP Separated organizational structures	<i>High</i>	<i>Quality assurance of oversight functions</i> <i>Surveillance of Aerodromes, ANSP, air operator activities</i> <i>Satisfactorily addressed related PQs</i>
	2C — 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)	2023-2025	CAA safety oversight entities	CAAB Ministry of Transport and Public Works	Sufficient motivated and qualified technical personnel provided with adequate financial resources		<i>Conduct satisfaction surveys</i> <i>Consultative meetings</i>
SEI-3 — Establishment of an independent accident and incident investigation authority, consistent with Annex 13 — <i>Aircraft Accident and Incident Investigation</i>	3C — 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)	2023-2025	DAI	Ministry of Transport and public works CAA safety oversight entities	Sufficient motivated and qualified technical personnel provided with adequate financial resources <i>Level of implementation of training program</i>	<i>medium</i>	<i>Staffing methodology</i> <i>Gap analysis</i>

<p>SEI-4 — Strategic allocation of resources to enable effective safety oversight</p>	<p>4B — Establish a process for the resource planning and allocation in alignment with a competent authority’s organizational structure, which is 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)</p>	<p>2023-2025</p>	<p>CAA</p>	<p>CAAB Ministry of Transport and public works</p>	<p>Sufficient staff, tools and financial resources</p>	<p><i>High</i></p>	<p><i>Audits</i></p>
	<p>4C — 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:</p> <ul style="list-style-type: none"> • Utilize the ICAO Safety Fund (SAFE), Technical Cooperation Bureau, or other means to acquire technical and financial assistance in coordination with RASG/RSOO/ICAO Regional Office • Seek assistance from more experienced States and other stakeholders in coordination with RASG/RSOO/ICAO Regional Office • Seek assistance from sources of financing (World Bank, African Development Bank, etc.) in coordination with RASG/RSOO/ICAO Regional Office 	<p>2023-2025</p>	<p>CAA</p>	<ul style="list-style-type: none"> • CAAB • Ministry of Transport and public works 	<p>Sustainable and stable source of funding for oversight activities</p>	<p><i>high</i></p>	<p><i>Financial Audits and performance assessments</i></p>

	4D — Develop a process for assessing changing resource requirements and sustain necessary coordination with resource stakeholders for safety oversight improvements, as outlined in Component 1 of this roadmap (CE-1 to CE-3)	<ul style="list-style-type: none"> • 2023-2025 	<ul style="list-style-type: none"> • CAA 	<ul style="list-style-type: none"> • CAAB • Ministry of Transport and public works 	Sufficient, adequate qualified oversight personnel with resources, procedures, and regulations	<i>high</i>	<i>Continuous assessments of resource needs and relevance</i>
SEI-5 — Qualified technical personnel to support effective safety oversight	5C — Establish a compensation scheme for the attraction and retention of qualified technical personnel (CE-4)	2023-2025	<ul style="list-style-type: none"> • CAA • DAI 	<ul style="list-style-type: none"> • CAAB • Ministry of Transport and public works 	Conditions of employment attracting and retaining technical personnel	<i>high</i>	<i>Conduct satisfaction surveys</i> <i>Consultative meetings</i>
	5D — 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)	2023-2024	<ul style="list-style-type: none"> • CAA • DAI 	<ul style="list-style-type: none"> • iSASO • SADC 	Number of assistance programs requested	<i>high</i>	<i>Assessment of assistance programs and evaluation of effectiveness</i>
	5E — Establish human resource plans to support hiring and retention of the appropriate number of qualified technical personnel required (CE-4)	2023-2025	<ul style="list-style-type: none"> • CAA • HR 	<ul style="list-style-type: none"> • MTPW • CAAB 	Succession plans, Conditions of employment attracting and retaining technical personnel	<i>high</i>	<i>Gap analysis</i>
	5G — 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)	2023-2025	CAA	MTPW CAAB	Sufficient qualified oversight personnel	<i>high</i>	<i>Gap analysis</i> <i>Skills assessment</i>

SEI-6 — Strategic collaboration with key aviation stakeholders to enhance safety in a coordinated manner	6A — Based on the identified hazards and safety deficiencies, establish a mechanism to identify key aviation stakeholders and develop an action plan for the resolution of those safety issues (CE-1 to CE-5)	2023-2025	CAA	ANSPs, Airport Operators, ATO,	Key aviation stakeholders and action plan		<i>Conducting surveys</i>
	6F — Collaborate with RASG and/or RSOO, other States, ICAO, industry joint programs and/or technical school partnerships to attract, recruit and train qualified and sufficient technical personnel and develop a strategy for their retention (CE-4)	2023-2025	CAA	RASG, RSOO, SADC	Sufficient qualified technical personnel		<i>Gap analysis</i>
SEI-7 — Provision of the primary source of safety information to ICAO by completing, submitting and updating all relevant documents and records	7A — Update USOAP corrective action plan items	2023-2025	CAA DAI	CAA Inspectors Accident Investigators	Percentage of Corrective Action Plans completed	High	Review of USOAP OLF CAP Mode
	7B — Complete and submit the self-assessment checklist based on USOAP CMA PQs		CAA DAI	CAA Inspectors Accident Investigators	Percentage of PQ self-assessment completed	High	Review of USOAP OLF Self-Assessment mode
	7C — Complete and submit the State aviation activity questionnaire		CAA DAI	CAA Inspectors Accident Investigators	PQ SAAQ completed	High	Review of ICAO USOAP OLF SAAQ Mode
	7D — Complete and submit the compliance checklists on electronic filing of differences		CAA DAI	CAA Inspectors	CC/EFOD completed	High	ICAO USOAP OLF CC/EFOD mode

	system			Accident Investigators			
SEI-8 — Consistent implementation of ICAO SARPs at the national level	8B — Increase the level of compliance with ICAO SARPs and the EI of CEs at the national level (all CEs, emphasis on CE-6 to CE-8)	2023-2025	CAA DAI	Airport operators, Air Operators, ANSPs	Increased EI	<i>High</i>	<i>Review OLF dashboard</i>
SEI-9 — Continued implementation of and compliance with ICAO SARPs at the national level	9A — Implement licensing, certification, authorization and approval processes (CE-6)	2023-2025	CAA	Airport operators, Air Operators, ANSPs,	Certification of airports, Licensing of personnel, authorizations and approval	<i>high</i>	Surveillance activities and ICAO audits,
	9B — Implement regulatory oversight and enforcement processes (CE-7 and CE-8)	2023-2025	CAA	Airport operators, Air Operators, ANSPs	Resolution of safety concerns	<i>high</i>	Surveillance activities
	9C — Establish a system to resolve safety issues identified via accident and incident investigations, surveillance activities, safety reports and other means (CE-8)	2023-2025	CAA DAI	Airport operators, Air Operators, ANSPs	Safety issues resolved in timely manner	<i>high</i>	Surveillance activities
SEI-11 — Strategic collaboration with key aviation stakeholders to enhance safety in a coordinated manner	11A — Based on the identified hazards and safety deficiencies, establish a mechanism to identify key aviation stakeholders and develop an action plan for the resolution of those safety issues (CE-6 to CE-8)	2023-2025	CAA DAI	ANSPs, Airport Operators, ATO,	Key aviation stakeholders and action plan	<i>high</i>	<i>Conducting surveys</i>

SEI-12 — Continued provision of the primary source of safety information to ICAO by updating all relevant documents and records as progress is made	12A — Update USOAP corrective action plan items	2023-2025	CAA DAI	CAA Inspectors Accident Investigators	Percentage of Corrective Action Plans completed	High	Review of USOAP OLF CAP Mode
	12B — Update and submit the self-assessment checklist based on USOAP CMA PQs	2023-2025		CAA Inspectors Accident Investigators	Percentage of PQ self-assessment completed	High	Review of USOAP OLF Self-Assessment mode
	12C — Update and submit the State aviation activity questionnaire (SAAQ)	2023-2025		CAA Inspectors Accident Investigators	Percentage of PQ SAAQ completed		
	12D — Update and submit the compliance checklists (CCs) on the electronic filing of differences (EFOD) system	2023-2025		CAA Inspectors Accident Investigators	Percentage of PQ CC completed on EFOD	High	Review of ICAO USOAP OLF SAAQ Mode

Safety issue No.3: Implement effective State Safety Program (SSP)

Goal 3: Implement effective SSP Target 3.1: To implement the foundation of its SSP by 2023.

Target 3.2: To implement an effective SSP by 2028.

SEI	Actions	Timeline	Responsible entity	Stakeholders	Metrics	Priority	Monitoring
SEI-13 – Start of SSP implementation at the national level	13A - To secure State-level commitment to improve safety.	Completed	CAA Safety Oversight Functions.	CAAB MTPW	The status of SSP implementation	High	ICAO iSTARS Quality of surveillance and SSP implementation
	13B - To conduct SSP gap analysis and self-assessment in detail	2023	CAA Safety Oversight Functions.	Air Operators	The status of service provider's SMS implementation		
	13C - To set up SSP implementation group	Completed	CAA Safety Oversight Functions.	ANSPs Aerodrome Operators			
	13D - To develop SSP implementation plan	Completed	CAA Safety Oversight Functions.	Approved Maintenance Organization			
	13E - To develop SMS regulations for the service providers' SMS and identify the SMS implementation.	Completed	CAA Safety Oversight Functions.	Approved Training Organizations			
	13F - To identify and share the best practices for SMS	2023	CAA Safety Oversight Functions.				

SEI	Actions	Timeline	Responsible entity	Stakeholders	Metrics	Priority	Monitoring
SEI-14 - Strategic allocation of resources to start SSP implementation	14A To establish the process of planning and allocating resources for SSP implementation and identify areas where resources are needed	2023	CAA Safety Oversight Functions.	CAAB MTPW	Civil Aviation Act	High	Implementation of Act and Regulations
	14B To secure the resources from senior officials of national and relevant authorities and stakeholders for SSP implementation.	2023					
	14C To work with the ICAO RO for the available means (e.g. Technical Co-operation Bureau) to acquire assistance needed for SSP implementation	2023					
	14D To work with RSOO and other States to train the inspectors for them to perform their responsibilities regarding SSP implementation.	2023					

SEI	Actions	Timeline	Responsible entity	Stakeholders	Metrics	Priority	Monitoring
SEI-15 - Strategic collaboration with key aviation stakeholders to complete SSP implementation	15A To identify areas — where collaboration/support is needed as part of the SSP implementation plan.	2023	CAA Safety Oversight Functions	CAAB	Key aviation stakeholders and action plan	High	Monitoring and assessment on the collaboration activities through the coordination committees and regional organizations ICAO iSTARS
	15B To identify relevant — collaborators from key aviation stakeholders, including other States that have implemented SSP.	2023		MTPW			
	15C To develop an — action plan to address the elements identified as missing or deficient during the SSP gap analysis.	2023		Air Operators			
	15D Establish a process — via RASG and/or RSOO for a mentoring system, including providing assistance o Sates/industry, as well as sharing of best practices to support SSP implementation	2023		ANSPs Aerodrome Operators Approved Maintenance Organization Approved Training Organizations			

	15E Establish a process — to provide training on SSP to relevant staff, in collaboration with RSOO and/or other States (e.g initial, recurrent and advanced)	2023					
	15F Establish and — implement a process for sharing technical guidance, tool 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.	2023	CAA	CAAB MTPW Air Operators ANSPs Aerodrome Operators Approved Maintenance Organization Approved Training Organizations			
SEI-16 - Establishment of safety risk management at the national level	16A To work with the — collaborators that are identified in SEI15 for SSP implementation	2023 - 2025	CAA	CAAB Air Operators ANSPs Aerodrome Operators Approved Maintenance Organization	Risk Register	high	Surveillance activities Follow up meetings
	16B To work with the — collaborators to ensure that all SSP related elements are	2023					

	appropriate, operational and effective.					
	16C To establish the — system to ensure the sustainable improvement of SSP in the collaboration with all the stakeholders	2023				
	16D To serve as a — champion State to promote best practices among other State	2028				

SEI	Actions	Timeline	Responsible entity	Stakeholders	Metrics	Priority	Monitoring
SEI-17 - Availability of safety data and safety information to support safety management activities at the national level	<p>17A — Establish national laws, regulations and policies protecting safety data, safety information and related sources, in accordance with Appendix 3 of Annex 19:</p> <ul style="list-style-type: none"> – Ensure that the protection of safety data, safety information and related sources does not interfere with the proper administration of justice or with maintaining or improving safety – Ensure that safety data, safety information and related sources are protected – Specify the conditions under which safety data, safety information and related sources qualify for protection, including principles of exception and authoritative safeguards, such as de-identification of data – Ensure that safety data and safety information remain 	Completed	CAA Safety Oversight Functions	CAAB MTPW	<p>Number of mandatory and voluntary report</p> <p>The hazard identification and safety risk management system</p> <p>Number of safety risk management</p> <p>Number of identified SPI and SPT</p>	High	<p>The Quality of safety risk management</p> <p>Efficiency of the reporting system</p> <p>Quality of SPI and SPT</p> <p>Number of SPI contributed to RASG</p>

	available for the purpose of maintaining or improving aviation safety						
	17B — Establish a State mandatory occurrence reporting system	2023	CAA	CAAB			
	17C — Establish safety data collection and processing systems (SDCPS) to capture, store, aggregate, and enable the analysis of safety data and safety information to support their safety performance management activities	2023	Air Operators ANSPs Aerodrome Operators Approved Maintenance Organization	Air Operators ANSPs Aerodrome Operators Approved Maintenance Organization			
	17D — Establish and maintain a process to identify hazards from collected safety data	2023					
	17E — Establish and utilize a process to ensure the assessment of safety risks associated with identified hazards	2023					
	17F — Establish a State confidential voluntary safety reporting system providing data to the safety database	2023					
SEI-18 - Availability of	18A — Establish the safety objectives to be achieved through the SSP	2023	CAAB Air Operators	CAAB	Safety Objectives	high	Surveillance activities

safety data and safety information to support safety management activities at the national level (step 2)			ANSPs Aerodrome Operators Approved Maintenance Organization	Air Operator s ANSPs Aerodrome Operators Approved Maintenance Organization	Safety measurement methodologies Safety performance indicators Service provider Safety reporting systems		Follow up meetings
	18B — Develop safety performance measurement methodologies, aligned with the regional safety metrics, using the established safety risk management process (see SEI-17E)	2023					
	18C — Develop safety performance indicators and safety performance targets using the established safety risk management process.	2023					
	18D — Ensure the establishment of mandatory safety reporting systems by service providers	2023					
	18E — Encourage establishment of voluntary safety reporting systems as part of service providers' SMS	2023					
	18F — Promote safety awareness and the two-way communication, sharing and exchange of safety-relevant information within the State's aviation organizations and encourage sharing of safety	2023					

information with industry within the State						
18G — Contribute information on operational safety risks, including SSP safety performance indicators, and emerging issues, to the RASG	2023					

SEI	Actions	Timeline	Responsible entity	Stakeholders	Metrics	Priority	Monitoring
SEI-19 — Acquisition of resources to increase the proactive use of risk modelling capabilities	19A — Identify resources needed to support safety intelligence collection and processing, advanced data analysis, risk modelling and information-sharing capabilities	2023	CAA Safety Oversight Functions	CAAB MTPW	Number of qualified technical personnel for the implementation of SMS and SSP	High	Quality of SSP implementation progress
	19B — Attract, recruit, train, and retain qualified technical personnel to specialize in risk modelling	2023			Resources allocated for SSP implementation		
	19C - Ensure that the Civil Aviation Safety Inspector workforce is trained to perform safety oversight of service providers that have implemented SMS	2023					
SEI-20 Strategic collaboration with key aviation stakeholders to support	20A — Identify areas where collaboration/support is needed to ensure that stakeholders understand and foster a positive safety culture that creates high degree of trust and respect between	2023	CAA	CAAB Air Operators ANSPs Aerodrome Operators Approved Maintenance Organization	Number of identified areas for collaborations Number of sharing and assistances	High	Surveillance on the State risk modeling capability

the proactive use of risk modeling capabilities	personnel and management and promotes safety reporting				received	
	20B — 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 positive safety culture development and the proactive use of risk modelling	2023				
	20C — Foster and participate in public-private partnerships similar to the commercial/general aviation safety teams' concept to identify and implement system safety enhancements	2023	Air Operators ANSP Aerodrome Operators Approved Maintenance Organization Approved Training		Number of stakeholder engagements	

			Organizations		
20D — Collaborate with key aviation 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	2023				

SEI	Actions	Timeline	Responsible entity	Stakeholders	Metrics	Priority	Monitoring
SEI-21 - Advancement of safety risk management	21A To establish data sharing — connectivity and databases, including the mandatory occurrences reporting system, voluntary safety reporting system, safety audit reports and aviation system statistics (traffic counts, weather information and EI scores, etc.)	2023	CAA Safety Oversight Functions	Air Operators	Number of information shared with service providers	High	Surveillance on the State safety risk management
	21B To establish the risk modelling capabilities to support monitoring system safety and accident/incident prevention	2023		ANSP			
	21C Encourage information-sharing with service providers	2023		Aerodrome Operators Approved Maintenance Organization Approved Training Organizations			