

The background of the entire page is a grayscale collage of aviation-related images. It includes a helicopter in flight on the left, a large air traffic control tower in the center, a commercial jet airplane on the right, a close-up of an air traffic control console with multiple screens and a telephone in the lower left, and a row of commercial airplanes parked at an airport gate in the lower right. Faint binary code (0s and 1s) is visible in the upper portion of the background.

# **NATIONAL AVIATION SAFETY PLAN (NASP)**

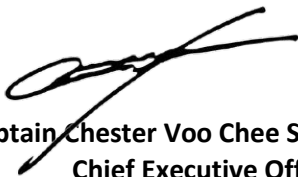
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## EXECUTIVE SUMMARY

The National Aviation Safety Plan (NASP) is the master planning document containing the strategic direction of Malaysia for the management of aviation safety for a period of 4 years from 2022 to 2025. This plan lists national safety risks, stemming from operational and organisational issues which 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 Malaysia's National Transport Policy (NTP) 2019-2030 ([www.dpn.mot.gov.my](http://www.dpn.mot.gov.my)) addresses all aspects of transportation including air transport at the national level with the objective of providing a clear and comprehensive planning and implementation strategy for the future development of the entire transportation sectors including civil aviation. This NASP expands on the five (5) key Policy Thrusts detailed out in Malaysia NTP to dive into the implementation strategies specific to safety aspects of aviation sector.

The NASP has been developed combining international safety goals and targets and High-Risk Categories of Occurrences (HRCs) from both the GASP ([www.icao.int/gasp](http://www.icao.int/gasp)) and the AP-RASP ([www.icao.int/apac](http://www.icao.int/apac)). 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 safety risks and recommended SEIs for individual goals and targets. Malaysia has adopted these SEIs and has included them in this plan. Cross-references are provided to the GASP and AP-RASP for individual SEIs where relevant.



**Datuk Captain Chester Voo Chee Soon**  
**Chief Executive Officer**  
**CAA Malaysia**

## ABBREVIATIONS AND ACRONYMS

AAIB	Air Accident Investigation Bureau
AMO	Approval of Maintenance Organisation
AOCs	Air Operator Certificates
AP-RASP	Asia Pacific – Regional Aviation Safety Plan
ATCO	Air Traffics Control Officer
ATO	Approved Training Organisation
CE	Critical Element
CFIT	Controlled Flight into Terrain
CICTT	CAST/ICAO Common Taxonomy Team
COSCAP-SEA	Cooperative Development of Operational Safety and Continuing Airworthiness Programme South East Asia
EI	Effective Implementation
GASP	Global Aviation Safety Plan
HRCs	High-risk Categories of Occurrences
ICAO	International Civil Aviation Organisation
LOC-I	Loss of Control in Flight
MAC	Mid Air Collision
MET Department	Meteorological
Department NASP	National Aviation
Safety Plan	
RASG	Regional Aviation Safety Group
RE	Runway Excursion
RI	Runway Incursion
SAR	Search and Rescue
SMS	Safety Management System
SOI	Safety Oversight Index
SOPs	Standard Operating Procedures
SSP	State Safety Programme
USOAP CMA	Universal Safety Oversight Audit Programme Continuous Monitoring Approach

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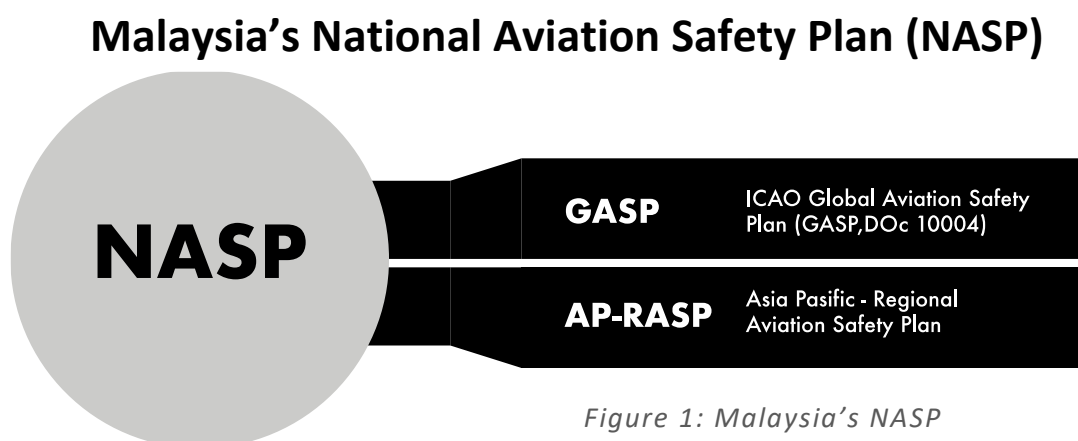
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# 1 INTRODUCTION

## 1.1 OVERVIEW OF THE NASP

Malaysia 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 Malaysia and its industries. The NASP promotes the effective implementation of Malaysia safety oversight system, a risk-based approach to managing safety, as well as a coordinated approach to collaboration between Malaysia 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 Malaysia is in alignment with the ICAO Global Aviation Safety Plan (GASP, Doc 10004) and the AP-RASP.



## 1.2 STRUCTURE OF THE NASP

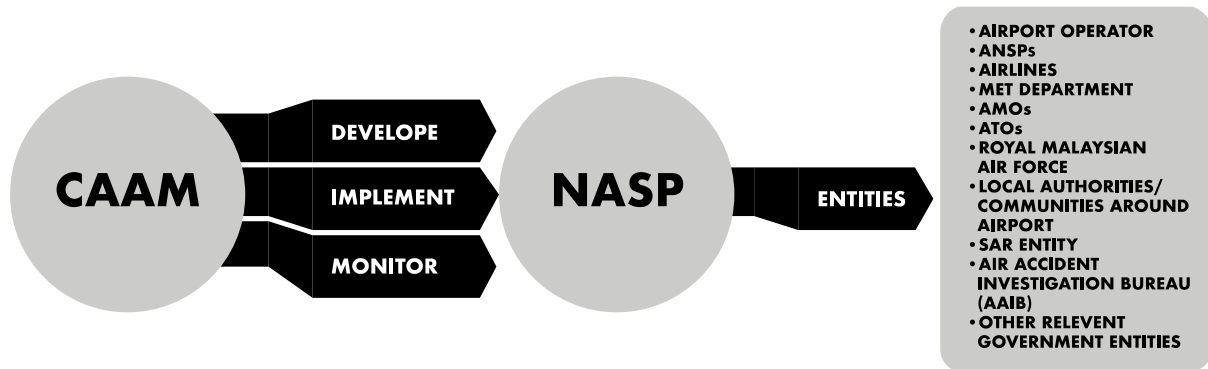
This NASP presents the strategy for enhancing aviation safety for a period of 4 years. It comprises six sections. In addition to the introduction, sections include: the purpose of the NASP, Malaysia strategic approach to managing aviation safety, the national operational safety risks identified for the 2022-2025 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 is going to 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 AP-RASP in the absence of Malaysia's SSP. Malaysia is committed to fully implement an SSP by 2025 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 organisational challenges and aim to enhance organisational capabilities related to effective safety oversight.

## 1.4 RESPONSIBILITY FOR THE NASP DEVELOPMENT, IMPLEMENTATION AND MONITORING

The Civil Aviation Authority of Malaysia (CAAM) is responsible for the development, implementation and monitoring of the NASP, in collaboration with entities below and with the national aviation industry. The NASP was developed in alignment with the 2020-2022 edition of the GASP and the AP-RASP.



*Figure 2: Responsible of CAAM and Related Entities*

## 1.5 NATIONAL SAFETY ISSUES, GOALS AND TARGETS

The NASP addresses the following national safety issues:

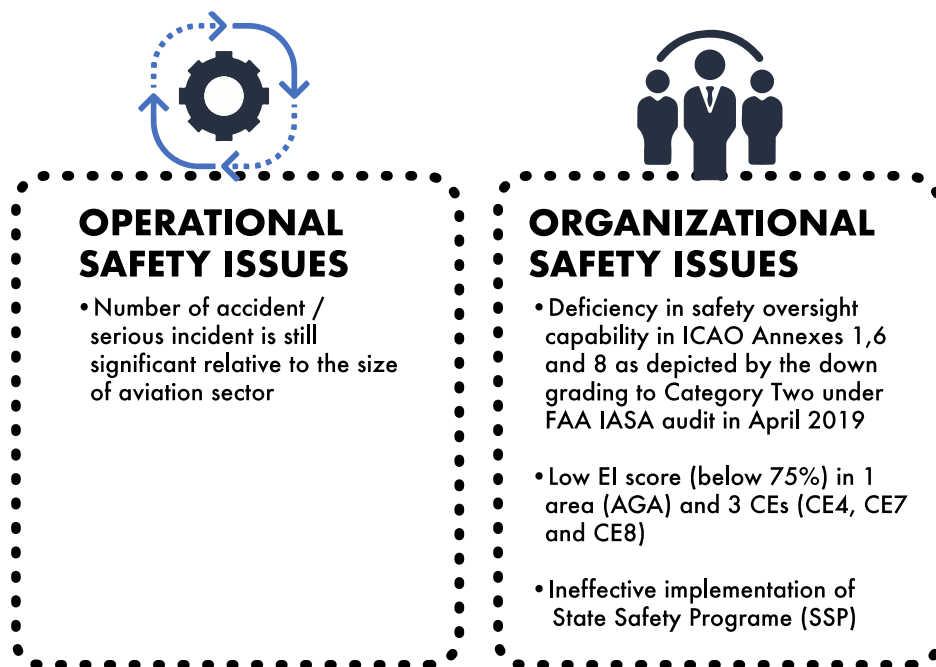


Figure 3: Purposes of Malaysia's NASP

To address the issues listed above and enhance aviation safety at the national level, the 2022-2025 NASP contains the following goals and targets:

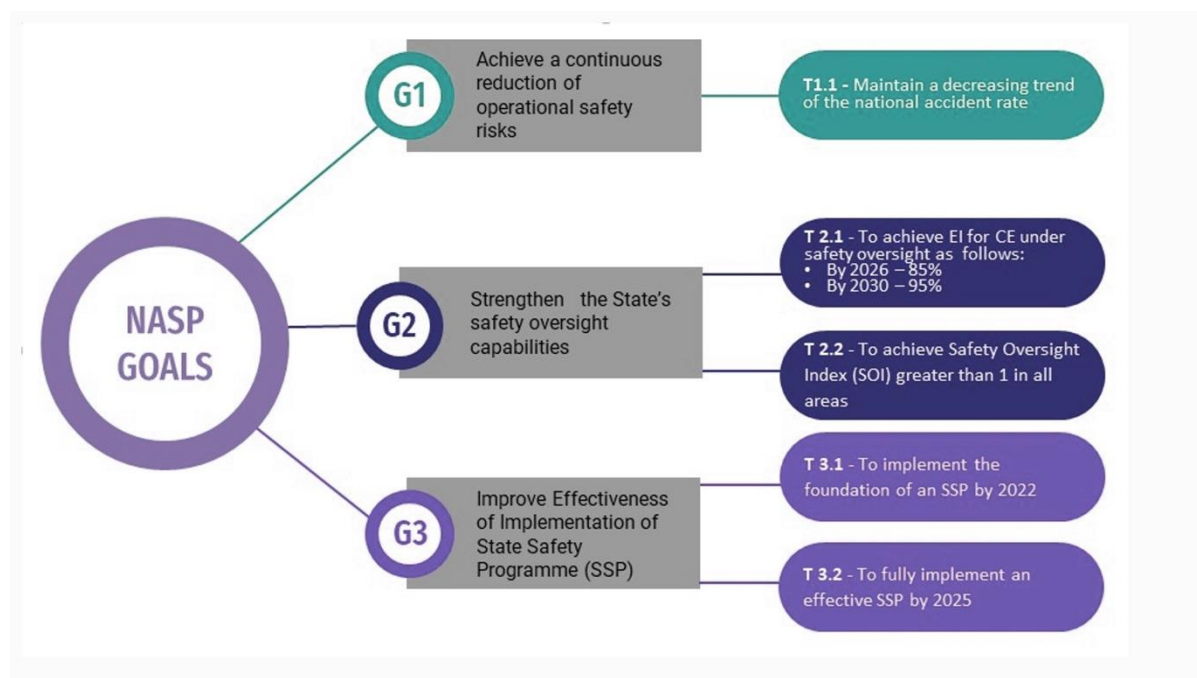


Figure 4: NASP Goals and Targets

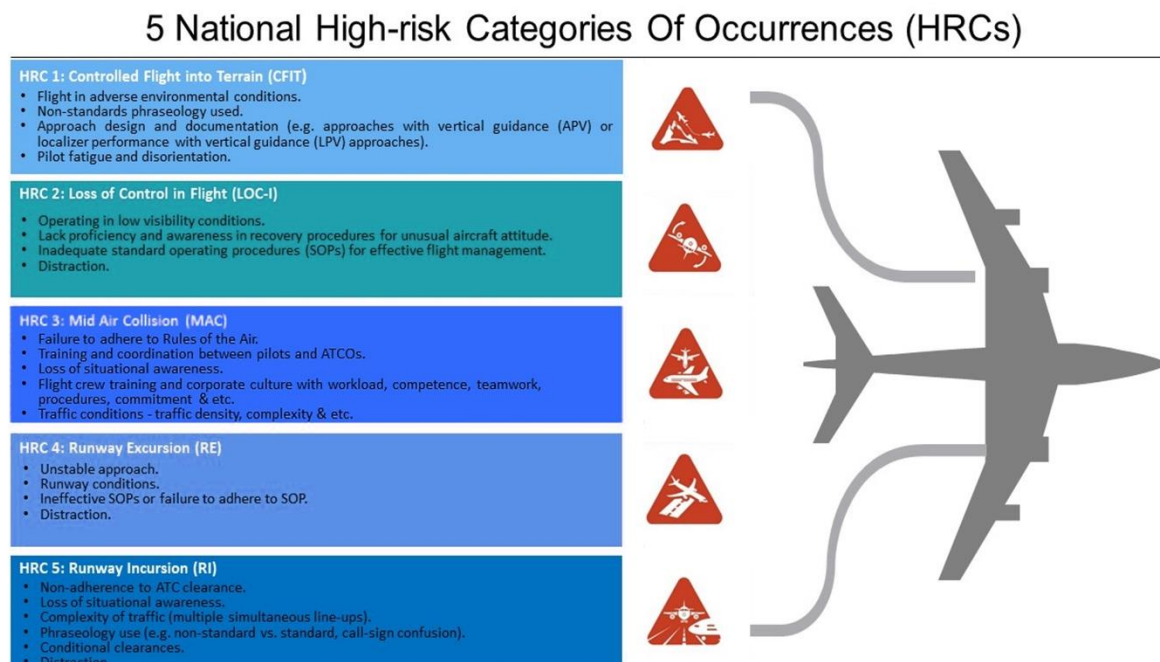
The following 5 national high-risk categories of occurrences (HRCs) in the Malaysia context were considered of the utmost priority because of the number of fatalities and risk of fatalities associated with such events. They were identified based on analyses from mandatory and voluntary reporting systems, accident and incident investigation reports, safety oversight activities over the past 7 years, the SSP and on the operational safety risks described in the GASP and AP-RASP. These HRCs are in line with those listed in the 2020-2022 edition of the GASP, as well as the AP-RASP:

- a. Controlled 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, RPAS activities has been identified as an additional category of operational safety risks.

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 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, Malaysia identified some of the following contributing factors leading to HRCs and will implement a series of SEIs (in the Appendix A of this NASP), some of which are derived from the ICAO OPS roadmap, contained in the GASP:



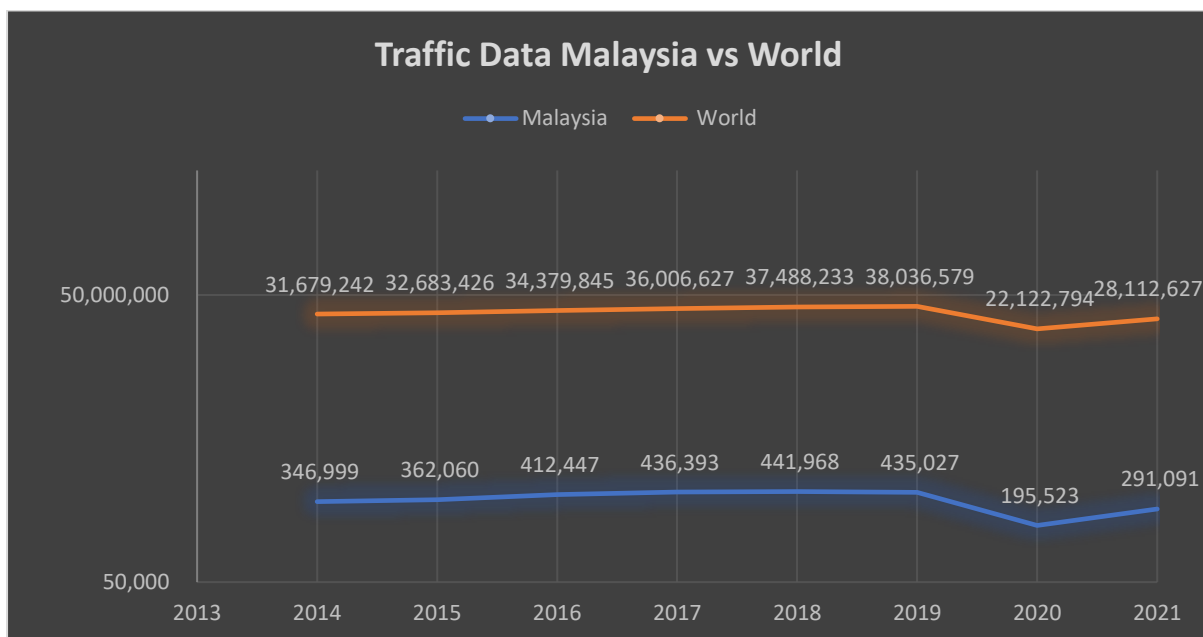
*Figure 5: 5 National High-risk Categories of Occurrences (HRCs) in Malaysia*

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



## 1.6 OPERATIONAL CONTEXT

There are 25 certified aerodromes in Malaysia, including 6 international aerodromes. The airspace of Malaysia is classified into Class B, C and G. There were 2,291,508 movements in Malaysia over the period of 2014 to 2021. There are currently 27 air operator certificates (AOCs) issued by Malaysia, and of those there are 12 issued to operators conducting international commercial air transport operations. Malaysia also has 6 operators, which operate domestic air taxi services, primarily on turboprop aircraft, as well as 9 helicopter operators. There are 252 heliports in Malaysia. Common challenges in Malaysia include among others are meteorology, topography, technology and environment.



Source: ICAO iSTAR 3.0

Figure 6: Traffic Data Statistic for Malaysia vs World

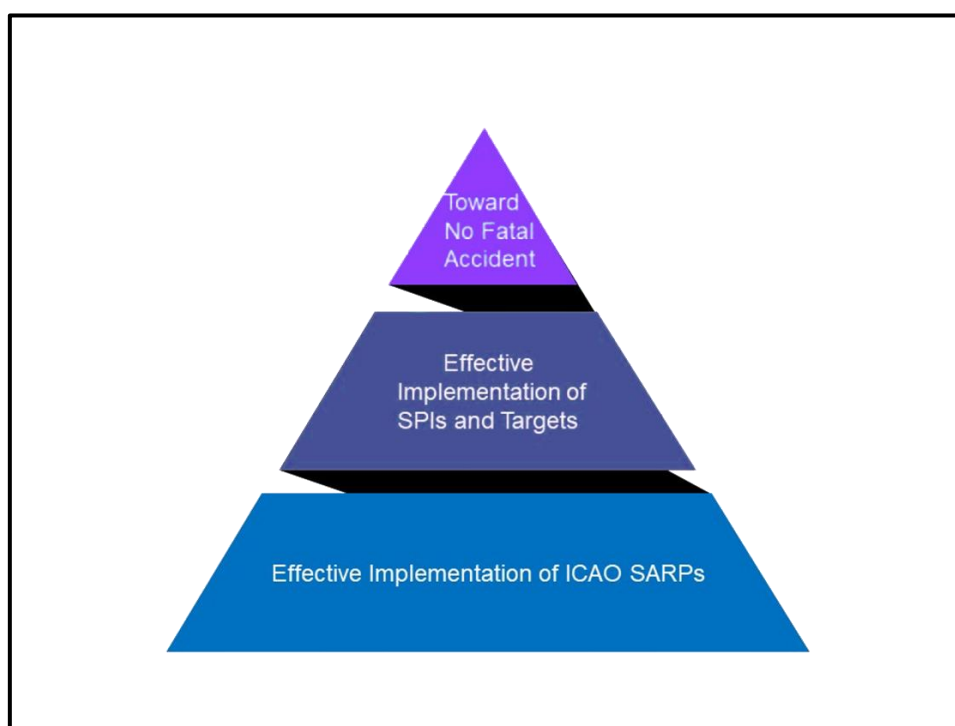
## 2 PURPOSE OF MALAYSIA'S NATIONAL AVIATION SAFETY PLAN

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 Malaysia and its industries. The NASP promotes the effective implementation of Malaysia safety oversight system, a risk-based approach to managing safety, as well as a coordinated approach to collaboration between Malaysia 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.

Strategically, NASP prioritize and streamline action in areas of aviation safety by addressing the currently identified high-risk categories (HRCs) of occurrences: controlled flight into terrain; loss of control in-flight; mid-air collisions; runway excursions; and runway incursions. SEIs in these areas contribute to the reduction of the national, regional and eventually global accident rate and the continuous reduction of fatalities.

The NASP also address identified deficiencies in state safety oversight capabilities and hence propose mitigating action through various SEIs to remedy, and improve Effective Implementation (EI) of audit areas and Critical Elements (CE) associated with it to achieve at the minimum the set target.

The NASP has been developed using international safety goals and targets and HRCs from both the GASP and the AP-RASP.



*Figure 7: Purpose of Malaysia's NASP*

### 3 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 (details in **Appendix A**) 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.

Malaysia publishes an Annual Safety Report, available on the Ministry of Transport website ([www.mot.gov.my/en/aviation/reports/statistics-and-accident-report-aaib](http://www.mot.gov.my/en/aviation/reports/statistics-and-accident-report-aaib)). The summary of accidents and serious incidents that occurred in Malaysia, and those for aircraft registered in Malaysia involved in commercial air transport and aircraft involved in general aviation, is shown in the tables below.

Year	Fatal Accidents	Non-Fatal Accidents	Serious Incidents
<b>Commercial air transport occurrences in Malaysia</b>			
2014 - 2019	2	4	28
2020	0	0	2
2021	0	0	0
<b>General aviation aircraft occurrences in Malaysia</b>			
2014 - 2019	4	10	24
2020	1	2	3
2021	0	3	0

*Table 1: Occurrences in Malaysia (Source: AAIB)*

Year	Fatal Accidents	Non-Fatal Accidents	Serious Incidents
<b>Occurrences involving commercial air transport aircraft registered in Malaysia</b>			
2014 - 2019	2	4	27
2020	0	0	2
2021	0	0	0
<b>Occurrences involving general aviation aircraft registered in Malaysia</b>			
2014 - 2019	3	9	21
2020	1	2	2
2021	0	3	0

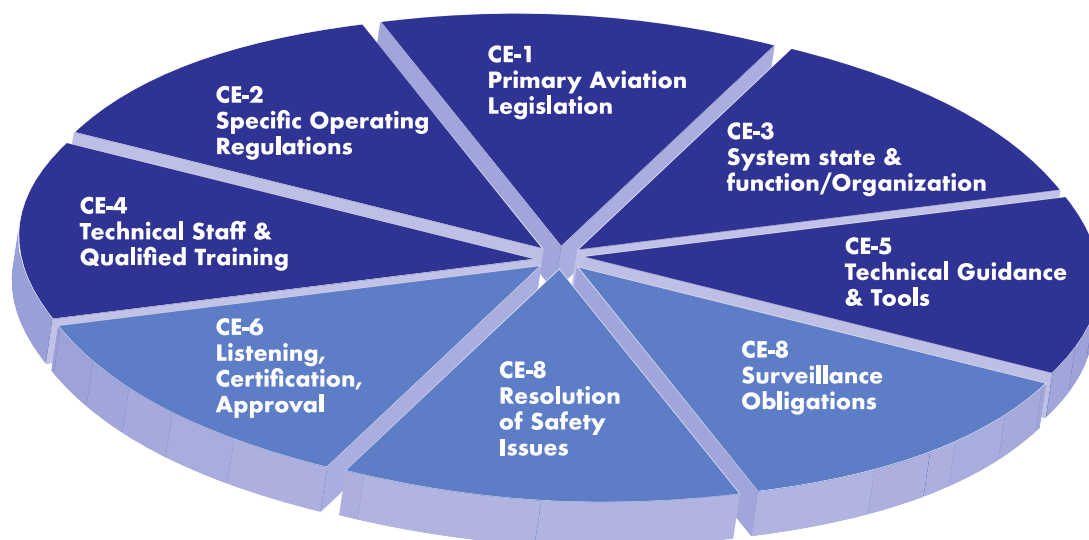
*Table 2: Occurrences involving Malaysian Aircraft (Source: AAIB)*

## 4 ORGANIZATIONAL SAFETY ISSUES

In addition to the national operational safety risks listed in the NASP, Malaysia has identified organisational safety issues and initiatives selected for the NASP. These are given priority in the NASP since they are aimed at enhancing and strengthening Malaysia'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. Malaysia is committed to the effective implementation of these eight CEs, as part of its overall safety oversight responsibilities, which emphasize Malaysia's commitment to safety in respect of its aviation activities. The eight CEs are presented in Figure 1 below.

### The 8 Critical Elements (CEs)



*Figure 8: 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 Malaysia's safety oversight system, as part of the ICAO Universal Safety Oversight Audit Programme (USOAP), have resulted in the following scores:

<b>Overall EI score</b>							
<b>75.44%</b>							
<b>EI score by CE</b>							
<b>CE-1</b>	<b>CE-2</b>	<b>CE-3</b>	<b>CE-4</b>	<b>CE-5</b>	<b>CE-6</b>	<b>CE-7</b>	<b>CE-8</b>
84.38%	78.99%	77.91%	63.75%	75.68%	82.59%	60.26%	64.15%
<b>EI score by audit area2</b>							
<b>LEG</b>	<b>ORG</b>	<b>PEL</b>	<b>OPS</b>	<b>AIR</b>	<b>AIG</b>	<b>ANS</b>	<b>AGA</b>
80.95%	75%	77.11%	83.61%	84.9%	79%	76.61%	50%

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 Malaysia's SOI have resulted in the following scores:

<b>Overall SOI score</b>	<b>Score in the area of Operations</b>	<b>Score in the area of Air Navigation</b>	<b>Score in the area of Support Functions</b>
1.087	1.1	0.96	1.2

The following 3 organisational safety issues in the Malaysia 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 7 years, the SSP, as well as on the basis of recent FAA IASA assessment on Malaysia in 2019. These issues are typically organisational 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 organisational culture, policies and procedures within CAAM and those of service providers. These safety issues are in line with those listed in the 2020-2022 edition of the GASP, as well as the AP-RASP:

- Deficiency in safety oversight capability as depicted by the downgrading to Category Two under FAA IASA audit in April 2019
- Low EI score in 1 area (AGA) and low EI score under 3 CEs (CE4, CE7 and CE8)
- Ineffective implementation of State Safety Programme (SSP)

To address the issues listed above, Malaysia 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 B** to the NASP.

## 5 MALAYSIA'S STRATEGIC APPROACH TO MANAGING AVIATION SAFETY

The NASP presents the SEIs that were developed based on the organisational challenges (ORG) and operational safety risks (OPS), as presented in the ICAO global aviation safety roadmap, as well as State-specific issues identified by historical data. This plan is developed and maintained by Civil Aviation Authority of Malaysia (CAAM), in coordination with all stakeholders and is updated at least every 5 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 and the AP-RASP and include additional national safety goals, targets and indicators.

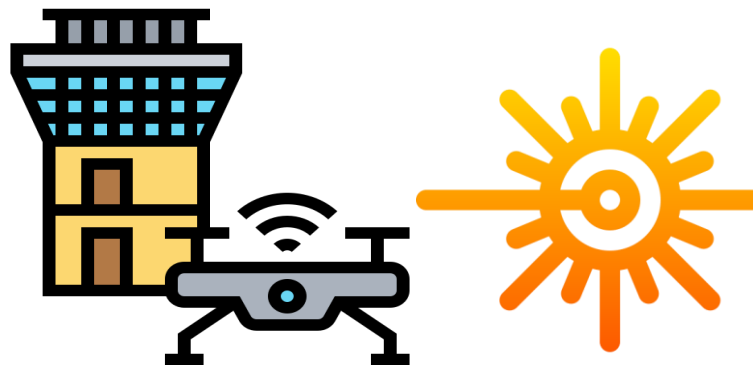
GOAL	TARGET	INDICATORS	LINK TO GASP AND RASP
Goal 1 - Achieve a continuous reduction of operational safety risks	1.1 Maintain a decreasing trend of the national accident rate.	<ul style="list-style-type: none"> <li>• Number of accidents occurring per 100 000 departures.</li> <li>• Number of fatal accidents</li> <li>• Number of runway safety events</li> </ul>	This goal is directly linked to Goal 1 and Target 1.1 of the GASP and linked to Goal 1 and Target 1.1 of the AP-RASP.
Goal 2 – Strengthen the State's safety oversight capabilities	2.1 To achieve an Effective Implementation (EI) for Critical Elements (CE) under safety oversight as follows: By 2026 – 85% By 2030 – 95%	<ul style="list-style-type: none"> <li>• Overall EI score</li> <li>• Percentage of implemented Priority PQs</li> <li>• Percentage of implemented PQs</li> <li>• Percentage of completed CAPs for areas such as AGA, ANS and AIG (using OLF)</li> <li>• Percentage of completed Self-Assessment for OPS, AIR and PEL (Using OLF)</li> </ul>	This goal is directly linked to Goal 2 and Target 2.1 and 2.2 of the GASP and linked to Goal 2 and Target 2.1 and 2.2 of the AP-RASP.
	2.2 To achieve Safety Oversight Index (SOI) greater than 1 in all	<ul style="list-style-type: none"> <li>• Safety Oversight Index per Category</li> </ul>	

GOAL	TARGET	INDICATORS	LINK TO GASP AND RASP
	areas	<ul style="list-style-type: none"> <li>• Percentage of priority PQs implemented by Malaysia</li> <li>• Percentage of completed CAPs for areas such as AGA, ANS and AIG (using OLF)</li> <li>• Percentage of completed Self-Assessment for OPS, AIR and PEL (Using OLF)</li> </ul>	
Goal 3 – Improve Effectiveness of Implementation of State Safety Programme (SSP)	3.1 To implement the foundation of an SSP by 2022	<ul style="list-style-type: none"> <li>• Percentage of satisfactory implementation of SSP foundational PQs</li> <li>• Percentage of required CAPs related to the SSP foundational PQs submitted (using OLF)</li> <li>• Percentage of required CAPs related to the SSP foundational PQs completed (using OLF)</li> <li>• Number of applicable service providers implement an SMS</li> </ul>	This goal is directly linked to Goal 3 and Target 3.1 and 3.2 of the GASP and linked to Goal 3 and Target 3.1 and 3.2 of the AP-RASP
	3.2 To fully implement an effective SSP by 2025	<ul style="list-style-type: none"> <li>• Level of implementation achieved through SSP Gap Analysis (iSTARS)</li> <li>• Implementation of an effective SSP</li> </ul>	

The SEIs in this plan are implemented through Malaysia'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 A** and **B** to this 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 Malaysia 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, which were identified by Air Safety Reports:

- a. Drones operating in the vicinity of aerodromes
- b. Laser attacks on aircraft approaching for landing





## 6 MONITORING IMPLEMENTATION

Malaysia 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, Malaysia will review the NASP every 5 years or earlier, if required, to keep the identified operational safety risks, safety issues and selected SEIs updated and relevant. The CAAM 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, Malaysia will seek the support of ICAO Regional Office through RASG and COSCAP-SEA and collaboration with industry/stakeholders to ensure the timely implementation of SEIs to address safety deficiencies and mitigate risks. Through close monitoring of the SEIs, Malaysia will make adjustment to the NASP and its initiatives, if needed, and update the NASP accordingly.

Malaysia 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 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 Malaysia 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.

Malaysia adopted a standardized approach to provide information at the regional level, for reporting to the RASGs via appointed focal point. 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:

Quality and Standards Division  
Civil Aviation Authority of Malaysia (CAAM)  
Level 8, Galeria PJH,  
Persiaran Perdana, Presint 4,  
62100 Putrajaya,  
Wilayah Persekutuan Putrajaya  
Malaysia  
+603 8893 4188  
<https://www.caam.gov.my/contact-us/feedback/>

## 7 APPENDICES

### 7.1 APPENDIX A TO THE NASP

#### OPERATIONAL ROADMAP (GOAL 1 TARGET 1.1)

Issue 1.5a: Operational Safety Issues – Significant number of accident/serious incident							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
Safety Enhancement Initiative (SEI)	Action	Responsible Entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
<b>SEI-1.1.1 (CFIT)</b> Mitigate contributing factors to the risk of CFIT  GASP HRC-1	a. Implement the following CFIT safety actions: <ul style="list-style-type: none"> <li>• Ensure aircraft are equipped with terrain awareness and warning system (TAWS) in accordance with Annex 6</li> <li>• Consider the implementation of continuous descent final approaches (CDFA)</li> <li>• Consider the implementation of minimum safe altitude warning (MSAW) systems</li> <li>• Ensure the timeliness of updates and accuracy of Electronic Terrain and Obstacle Data (ETOD)</li> </ul> b. Validate the effectiveness of the safety enhancement initiatives (SEIs) presented in this roadmap  c. Identify additional contributing factors, for example: <ul style="list-style-type: none"> <li>• Flight in adverse environmental conditions</li> <li>• Approach design and documentation</li> <li>• Phraseology used</li> <li>• Pilot fatigue and disorientation</li> </ul>	CAAM  Airlines  ANSP	2022	Airport Operators  ANSP  Airlines  MET Department  AAIB	Number of accidents per 100,000 departures (accident rate)  Number of fatal accidents  Number of runway safety events	High	Continuous engagement with stakeholders  Oversight activity – inspection / surveillance

Issue 1.5a: Operational Safety Issues – Significant number of accident/serious incident							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
Safety Enhancement Initiative (SEI)	Action	Responsible Entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
<b>SEI-1.1.2 (LOC-I)</b> Mitigate contributing factors to LOC-I accidents and incidents  GASP HRC-2	a. Require upset prevention and recovery training in all full flight simulator type conversion and recurrent training programmes  b. Ensure that ATC surveillance system is improved for the provision of Minimum Safety Altitude Warning (MSAW) system.  c. Ensure that the pilot trainings extensively incorporate human factors such as distraction, complacency, situational awareness etc  d. Evaluate the existing SOPs to insure the effective flight management during adverse weather and recovery of unusual aircraft attitudes.	CAAM  Airlines  ATO	2022	Operators  Approved training organisations (ATO)  Flight simulator product and service providers  ANSP  Airlines  AAIB	Number of accidents per 100,000 departures (accident rate)  Number of fatal accidents  Number of runway safety events	High	Oversight of airline and ATO training activities, Continuous engagement with stakeholders
<b>SEI-1.1.3 (MAC)</b> Mitigate contributing factors to MAC accidents and incidents  GASP HRC-3	a. Establish guidance and regulations to ensure aircraft required to be equipped 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	CAAM  ANSP  Airlines	2022	Operators  Approved training organisations (ATO)  Flight simulator product and service providers  ANSP  Airlines  AAIB	Number of accidents per 100,000 departures (accident rate)  Number of fatal accidents  Number of runway safety events	High	Oversight of airline and ATO training activities, Continuous engagement with stakeholders

Issue 1.5a: Operational Safety Issues – Significant number of accident/serious incident							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
Safety Enhancement Initiative (SEI)	Action	Responsible Entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	<p>systems and procedures, such as controller-pilot datalink</p> <p>e. Validate the effectiveness of the SEIs through the analysis of MORs and VORs and accident/incident investigations (apply safety management methodologies).</p> <p>f. Conduct continuous evaluations of the performance of the SEIs</p>						
<b>SEI-1.1.4 (RE)</b> <b>Mitigate contributing factors to RE accidents and incidents</b> <b>GASP HRC-4</b>	<p>a. Ensure the establishment and implementation of a State runway safety programme and runway safety teams</p> <p>b. Promote the establishment of policy and training on rejected landings, go-arounds, crosswind and tailwind landings (up to the maximum manufacturer-demonstrated winds)</p> <p>c. Promote equipage of runway overrun awareness and alerting systems on aircraft by 2022</p> <p>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) by 2020</p>	<p>CAAM</p> <p>ANSP</p> <p>Airport Operator</p>	2022	<p>Airport Operator</p> <p>ANSP</p> <p>Airlines</p> <p>MET Department</p> <p>ATOs</p> <p>Air Force</p> <p>Local Authorities/ communities around the airports</p> <p>AAIB</p>	<p>Number of accidents per 100,000 departures (accident rate)</p> <p>Number of fatal accidents</p> <p>Number of runway safety events</p>	High	<p>Continuous engagement with stakeholders</p> <p>Oversight activity – inspection / surveillance</p> <p>Monitor ASR/MOR and Runway Safety Team</p>

Issue 1.5a: Operational Safety Issues – Significant number of accident/serious incident							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
Safety Enhancement Initiative (SEI)	Action	Responsible Entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	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 un-stabilized approaches to runways are developed and used						
<b>SEI-1.1.5 (RI)</b> <b>Mitigate contributing factors to RI accidents and incidents</b>  <b>GASP HRC-5</b>	a. Ensure establishment and implementation of National Runway Safety Programme (NRSP) and Runway Safety Teams (RST)  b. Develop policy, procedures and trainings that support situational awareness for controllers, pilots, airside-vehicle drivers and other airport users  c. Ensure effective use of suitable technologies to assist the improvement of situation 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 (A-SMGCS), stop bars and runway incursion warning systems (ARIWS)  d. Certify aerodromes in accordance with ICAO	CAAM	2022	Airport Operator  ANSP  Airlines  MET Department  ATOs  Air Force  Local Authorities/communities around the airports  AAIB	Number of accidents per 100,000 departures (accident rate)  Number of fatal accidents  Number of runway safety events	High	Continuous engagement with stakeholders  Oversight activity – inspection / surveillance  Monitor ASR/MOR and Runway Safety Team

Issue 1.5a: Operational Safety Issues – Significant number of accident/serious incident							
Goal 1: Achieve a continuous reduction of operational safety risks							
Target 1.1: Maintain a decreasing trend of the national accident rate							
Safety Enhancement Initiative (SEI)	Action	Responsible Entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	<p>Annex 14, Vol. I as well as Doc 9981, PANS-Aerodrome</p> <p>e. Ensure the identification and publication in the aeronautical information publication (AIP) of hot spots at aerodromes</p> <p>f. Conduct the risk assessment of identified hot spots of aerodrome and develop and execute suitable strategies to remove hazards or mitigate risks associated with those hot spots.</p>						

## 7.2 APPENDIX B TO THE NASP

### ORGANIZATIONAL ROADMAP (GOAL 2 TARGET 2.1)

Issue 1.5b(i): Organizational Safety Issues – Deficiency in Safety Oversight System							
<b>Goal 2: Strengthen the Malaysia's safety oversight capabilities</b> <b>Target 2.1: To improve score for the Effective Implementation (EI) of Critical Elements (CE) of the Safety Oversight System as follows:</b> By 2026 – 85%, by 2030 – 95%							
Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
<b>SEI-2.1.1</b> <b>Consistent implementation of and compliance with ICAO SARPs at the national level</b> <b>(GASP SEI-1)</b>	a. Work to address and upgrade Category 2 under FAA IASA (GASP, SEI-1A)	CAAM	2021	CAAM – all regulatory divisions	Overall EI score	High	Monthly review by CAAM Management (SRG) until completion
	b. Address all Priority PQ of USOAP CMA (GASP, SEI-1B)		2022		Percentage of implemented Priority PQs		
	c. Establish primary aviation law and regulations, to empower the competent authority to conduct regulatory oversight (GASP, SEI-1C)		2021		Percentage of completed CAPs in all areas in LEG, ORG, AIG, ANS and AGA (using OLF)		Implemented
	d. Increase level of compliance with ICAO SARPs and the EI (GASP, SEI-1D)		2026 & 2030		Percentage of completed Self-Assessment for PEL, OPS, and AIR (Using OLF)		Implemented
	e. Establish process for identification of differences with ICAO SARPs (GASP, SEI-1E)		2021				
<b>SEI-2.1.2</b> <b>Development of comprehensive regulatory oversight framework</b> <b>(GASP, SEI-2)</b>	a. 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 (GASP, SEI-2B)	CAAM	2021	CAAM – all regulatory divisions	Chart showing an effective organisation structure	High	Monthly review by CAAM Management (SRG) until completion
	b. Establish an effective system to attract, recruit, train and retain qualified and sufficient technical personnel to support regulatory functions (GASP, SEI-2C)				Number of CAD, CAC and CAN issued  Number of guidance materials  Appropriate HR policy		<i>Note: This SEI should be completed by 2021</i>  Implemented

### Issue 1.5b(i): Organizational Safety Issues – Deficiency in Safety Oversight System

#### Goal 2: Strengthen the Malaysia's safety oversight capabilities

**Target 2.1:** To improve score for the Effective Implementation (EI) of Critical Elements (CE) of the Safety Oversight System as follows:

By 2026 – 85%, by 2030 – 95%

Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
SEI-2.1.3 Qualified technical personnel to support effective safety oversight (GASP, SEI-5)	a. Establish an effective system to identify and track qualifications and training of existing technical personnel (GASP, SEI-5A)	CAAM	2021	CAAM – all regulatory divisions	Number of training conducted	High	Monthly review by CAAM Management (SRG) until completion
	b. Identify the gaps in qualified technical personnel and training requirements necessary to implement the oversight mandate (GASP, SEI-5B)				Number of inspectors being trained		Implemented
	c. Establish a compensation scheme for the attraction and retention of qualified technical personnel (GASP, SEI-5C)				Establishment of HR policy - attractive remuneration scheme		Implemented
	d. Establish human resource plans to support hiring and retention of the appropriate number of qualified technical personnel required (GASP, SEI-5E)						Implemented
	e. 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 (GASP, SEI-5F)				Establishment of policy for training		Implemented
	f. Develop a process for assessing changing needs for qualified technical personnel requirements and develop procedures to update hiring,						Implemented



**Issue 1.5b(i): Organizational Safety Issues – Deficiency in Safety Oversight System**

**Goal 2: Strengthen the Malaysia's safety oversight capabilities**

**Target 2.1:** To improve score for the Effective Implementation (EI) of Critical Elements (CE) of the Safety Oversight System as follows:

By 2026 – 85%, by 2030 – 95%

Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	retention and training of personnel needs (GASP, SEI-5G)						
SEI-2.1.4 Provision of the primary source of safety information to ICAO by completing, submitting and updating all relevant documents and records (GASP, SEI-7)	a. Update USOAP corrective action plan items (GASP, SEI-7A) b. Complete and submit the self-assessment checklist based on USOAP CMA priority PQs (GASP, SEI-7B) c. Complete and submit the State aviation activity questionnaire (GASP, SEI-7C) d. Complete and submit the compliance checklists on electronic filing of differences system (GASP, SEI-7D) e. Update documents and records as required in a timely manner (GASP, SEI-7E)	CAAM ANSP  Airport Operator	2021	CAAM – all regulatory divisions	ICAO USOAP CMA OLF updated regularly  Update in OLF: a. PQ Self-Assessment b. State Aviation Activity Questionnaire (SAAQ) c. CC/EFOD	High	Monthly review by CAAM Management (SRG) until completion  Implemented  Implemented  Implemented  Implemented

### 7.3 APPENDIX B TO THE NASP

#### ORGANIZATIONAL ROADMAP (GOAL 2 TARGET 2.2)

Issue 1.5b(ii): Organizational Safety Issues – Deficiency in Safety Oversight System							
Goal 2: Strengthen the Malaysia's safety oversight capabilities							
Target 2.2: To gain and improve a Safety Oversight Index greater than 1 in all categories by 2022							
Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
SEI-2.2.1 Continuous and persistent implementation of and compliance with ICAO SARPs at the national level  (GASP SEI-8)	a. Consistent review and remedial action to address CAP in USOAP CMA in AGA area.  b. Consistent review and conduct remedial action to increase the level of compliance with ICAO SARPs and the EI of CEs at all audit areas under USOAP CMA (GASP, SEI-8B)	CAAM	2022	CAAM – all regulatory divisions	Safety Oversight Index per Category  Percentage of priority PQs implemented by Malaysia  Percentage of completed CAPs for areas such as AIG, ANS and AGA (using OLF)  Percentage of completed Self-Assessment for PEL, OPS and AIR (Using OLF)	High	Monthly review by CAAM Management (SRG) until completion
SEI-2.2.2 Continuous and persistent implementation of and compliance with ICAO SARPs at the national level  (GASP SEI-9)	a. Consistently implement licensing, certification, authorization and approval processes (GASP, SEI-9A)  b. Consistently implement regulatory oversight and enforcement processes (GASP, SEI-9B)  c. Consistently implement resolution to safety concerns identified via accident and incident, surveillance activities, safety reports and other means (GASP, SEI-9C)	CAAM	2022	CAAM – all regulatory divisions	Safety Oversight Index per Category  Percentage of priority PQs implemented by Malaysia  Percentage of completed CAPs for areas such as AIG, ANS and AGA (using OLF)  Percentage of completed Self-	High	Monthly review by CAAM Management (SRG) until completion

**Issue 1.5b(ii): Organizational Safety Issues – Deficiency in Safety Oversight System**

**Goal 2:** Strengthen the Malaysia's safety oversight capabilities

**Target 2.2:** To gain and improve a Safety Oversight Index greater than 1 in all categories by 2022

Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
					Assessment for PEL, OPS and AIR (Using OLF)		
SEI-2.2.3 Continuous and persistent in implementing provision of the primary source of safety information to ICAO by completing, submitting and updating all relevant documents and records (GASP, SEI-12)	<p>a. Consistently update USOAP corrective action plan items (GASP, SEI-12A)</p> <p>b. Consistently complete/update and submit the self-assessment checklist based on USOAP CMA priority PQs (GASP, SEI-12B)</p> <p>c. Consistently complete/update and submit the State aviation activity questionnaire, SAAQ (GASP, SEI-12C)</p> <p>d. Consistently complete/update and submit the compliance checklists on electronic filing of differences (EFOD) system (GASP, SEI-12D) (GASP, SEI-5B)</p>	CAAM	2022	CAAM – all regulatory divisions	<p>Safety Oversight Index per Category</p> <p>Percentage of priority PQs implemented by Malaysia</p> <p>Percentage of completed CAPs for areas such as AGA, ANS and AIG (using OLF)</p> <p>Percentage of completed Self-Assessment for OPS, AIR and PEL (Using OLF)</p>	High	Monthly review by CAAM Management (SRG) until completion

## 7.4 APPENDIX B TO THE NASP

### ORGANIZATIONAL ROADMAP (GOAL 3 TARGET 3.1, TARGET 3.2)

Issue 1.5b(iii): Organizational Safety Issues - Ineffective State Safety Programme Implementation							
<b>Goal 3: Improve Effectiveness of Implementation of State Safety Programme</b> <b>Target 3.1: To effectively implement the foundation of an SSP by 2022</b> <b>Target 3.2: To implement an effective SSP by 2025</b>							
Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
<b>SEI-3.1</b> <b>Start of SSP implementation at the national level</b>  <b>(GASP, SEI-13)</b>	a. Secure State-level commitment to improve safety (GASP, SEI-13A)	MOT /CAAM	2021	Aviation Industry	Percentage of satisfactory implementation of SSP foundation PQs	High	Periodic review by Safety Implementation Group (SIG)
	b. Conduct initial SSP gap analysis (checklist) then the detailed SSP self-assessment (GASP, SEI-13B)	CAAM	2021		Percentage of required CAPs related to the SSP foundation PQs <b>submitted</b> (using OLF)		Implemented
	c. Establish an SSP implementation team (GASP, SEI-13C)		2021		Percentage of required CAPs related to the SSP foundation PQs <b>completed</b> (using OLF)		Implemented
	d. Develop an implementation plan for the SSP (GASP, SEI-13D)		2021				Implemented
	e. Issue SMS regulations for service providers and verify SMS implementation through SMS audit (GASP, SEI-13E)		2021		Number of applicable service providers implement an SMS		Implemented
<b>SEI-3.2</b> <b>Strategic allocation of resources to start SSP implementation</b>  <b>(GASP, SEI-14)</b>	a. Establish a process for planning and allocation of resources to enable SSP implementation and identify areas where resources are needed (GASP, SEI-14A)	CAAM	2021	Aviation Industry	Percentage of satisfactory implementation of SSP foundation PQs	High	Periodic review by Safety Implementation Group (SIG)
	b. Collaborate with national and appropriate authorities' leadership and stakeholders within the State to support SSP implementation (GASP, SEI-14B)	MOT /CAAM	2022		Percentage of required CAPs related to the SSP foundation PQs <b>submitted</b> (using OLF)		Implemented

### Issue 1.5b(iii): Organizational Safety Issues - Ineffective State Safety Programme Implementation

#### Goal 3: Improve Effectiveness of Implementation of State Safety Programme

##### Target 3.1: To effectively implement the foundation of an SSP by 2022

##### Target 3.2: To implement an effective SSP by 2025

Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	c. Collaborate with Regional Office, other States and other organizations, as appropriate to train qualified technical personnel to fulfil their duties and responsibilities regarding SSP implementation (GASP, SEI-14D)	CAAM	2022		Percentage of required CAPs related to the SSP foundation PQs <b>completed</b> (using OLF)		
SEI-3.3 Strategic collaboration with key aviation stakeholders to start SSP implementation (GASP, SEI-15)	<p>a. Develop an action plan to address the elements identified as missing or deficient during the SSP Gap analysis (SEI-15C).</p> <p>b. Develop a process to provide training on SSP to relevant staff, in collaboration with Regional Office and/or other States (e.g. initial, recurrent and advanced) (SEI-15E).</p>	CAAM	<p>2022</p> <p>2022</p>	Aviation Industry	<p>Percentage of satisfactory implementation of SSP foundation PQs</p> <p>Percentage of required CAPs related to the SSP foundation PQs <b>submitted</b> (using OLF)</p> <p>Percentage of required CAPs related to the SSP foundation PQs <b>completed</b> (using OLF)</p> <p>Level of implementation achieved through SSP Gap Analysis (iSTARS)</p>	High	Periodic review by Safety Implementation Group (SIG)
SEI-3.5 Establishment of safety risk management at the national level (Phase 1) (GASP, SEI-17)	<p>a. Establish a legal framework related to the protection of safety data, safety information and other related sources (GASP, SEI-17A)</p> <p>b. Establish a State mandatory occurrence reporting system (GASP, SEI-17B)</p>	CAAM	<p>2022</p> <p>2021</p>	Aviation Industry	<p>Level of implementation achieved through SSP Gap Analysis (iSTARS)</p> <p>Establishment of legal provision for protection of safety data</p>	High	<p>Periodic review by Safety Implementation Group (SIG)</p> <p>Implemented</p>

Issue 1.5b(iii): Organizational Safety Issues - Ineffective State Safety Programme Implementation							
<b>Goal 3: Improve Effectiveness of Implementation of State Safety Programme</b> <b>Target 3.1: To effectively implement the foundation of an SSP by 2022</b> <b>Target 3.2: To implement an effective SSP by 2025</b>							
Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	c. Develop a safety database for monitoring system safety issues and hazards, in line with the principles of Doc 9859 — Safety Management Manual (GASP, SEI-17C)		2021		Establishment of MOR and VOR system		Implemented
	d. Establish and maintain a process to identify hazards from collected safety data (GASP, SEI-17D)		2021		Establishment of safety database		Implemented
	e. Establish and utilize a process to ensure the assessment of safety risks associated with identified hazards (GASP, SEI-17E)		2021		Establishment of process for Hazard identification		Implemented
	f. Establish a State confidential voluntary safety reporting system providing data to the safety database (GASP, SEI-17F)		2021				Implemented
<b>SEI-3.6</b> <b>Establishment of safety risk management at the national level (Phase 2)</b> <b>(GASP, SEI-18)</b>	a. Develop safety performance indicators using the established safety risk management process (GASP, SEI-18A)	CAAM	2022	Aviation Industry	Level of implementation achieved through SSP Gap Analysis (iSTARS)	High	Periodic review by Safety Implementation Group (SIG)
	b. Develop safety performance measurement methodologies, aligned with the regional safety metrics, using the established safety risk management process (GASP, SEI-18B)		2022		Establishment of SPI		
	c. Establish the acceptable level of safety performance to be achieved through the SSP (GASP, SEI-18C)		2022		Establishment of ALoSP		Implemented

Issue 1.5b(iii): Organizational Safety Issues - Ineffective State Safety Programme Implementation							
<b>Goal 3: Improve Effectiveness of Implementation of State Safety Programme</b> <b>Target 3.1: To effectively implement the foundation of an SSP by 2022</b> <b>Target 3.2: To implement an effective SSP by 2025</b>							
Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
	d. Ensure the establishment of mandatory safety reporting systems by service providers (GASP, SEI-18D)		2021		Establishment of MOR and VOR scheme by service providers		Implemented
	e. Encourage establishment of voluntary safety reporting systems as part of service providers' SMS (GASP, SEI-18E)		2021		Establishment of communication channel between CAAM and industry		Implemented
	f. Promote safety awareness and two-way communication, sharing and exchange of information within the State's aviation organizations and encourage sharing of safety information with industry within the State (GASP, SEI-18F)		2021				
<b>SEI-3.7</b> <b>Acquisition of resources to increase the proactive use of risk modelling capabilities</b> <b>(GASP, SEI-19)</b>	a. Identify resources needed to support safety intelligence collection and processing, advanced data analysis, risk modelling and information-sharing capabilities (GASP, SEI-19A)	CAAM	2022	Aviation Industry	Level of implementation achieved through SSP Gap Analysis (iSTARS)	High	Periodic review by Safety Implementation Group (SIG)
	b. Attract, recruit, train, and retain qualified technical personnel to specialize in risk modelling (GASP, SEI-19B)		2022		Establishment of HR policy		
	c. Ensure that the Civil Aviation Safety Inspector workforce is trained to perform safety oversight of service providers that have implemented SMS (GASP, SEI-19C)		2021		Number of trained and qualified personnel on SSP/SMS		Implemented

Issue 1.5b(iii): Organizational Safety Issues - Ineffective State Safety Programme Implementation							
<b>Goal 3:</b> Improve Effectiveness of Implementation of State Safety Programme <b>Target 3.1:</b> To effectively implement the foundation of an SSP by 2022 <b>Target 3.2:</b> To implement an effective SSP by 2025							
Safety Enhancement Initiative (SEI)	Action	Responsible entity	Timeline	Stakeholders	Metrics / Indicators	Priority	Monitoring Activity
<b>SEI-3.8</b> <b>Advancement of safety risk management at the national level</b> <b>(GASP, SEI-21)</b>	a. 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.)  b. Develop risk modelling capabilities to support monitoring system safety issues and accident/incident prevention  c. Encourage information-sharing with industry	CAAM	2022	Aviation Industry	Level of implementation achieved through SSP Gap Analysis (ISTARS)  Establishment of safety data requirement /policy	High	Periodic review by Safety Implementation Group (SIG)